BURNS McDONNELL

Integrated Resource Plan

Midwest Energy, Inc.

Midwest Energy, Inc.

Project No. 84501

January 2016

Integrated Resource Plan

prepared for

Midwest Energy, Inc.

Hays, Kansas

Project No. 84501

January 2016

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
AEO	Annual Energy Outlook
BACT	best available control technology
BLR	balance of loads and Resources
BMcD	Burns & McDonnell
Btu	British thermal unit
CCGT	combined cycle gas turbine
CEMS	continuous emissions monitoring systems
CO	carbon monoxide
CO2	carbon dioxide
CPP	Clean Power Plan
DLN	dry low NO_x
DSM	demand side management
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EPC	Engineer, Procure, Construct
FTE	full time equivalent
GE	General Electric
GEC	Goodman Energy Center
GTG	gas turbine generators
GW	gigawatts
HHV	higher heating value
hr	hour
HRSG	heat recovery steam generator
IDC	interest during construction
JEC	Jeffrey Energy Center
LCOE	levelized cost of electricity
LHV	lower heating value

Abbreviation	Term/Phrase/Name
LTSA	Long Term Service Agreement
MECL	minimum emissions compliant load
MMBtu	million British thermal units
MW	megawatt
MWE	Midwest Energy Company
NO_x	nitrogen oxides
NSPS	new source performance standard
O&M	operation and maintenance
O_2	oxygen
OEM	original equipment manufacturer
PPA	Power Purchase Agreement
ppm	parts per million
PW	Pratt & Whitney
RFI	Request For Information
RH	relative humidity
SCGT	simple cycle gas turbine
SCR	Selective Catalytic Reduction
SPP	Southwest Power Pool
U.S.	United States
UML	Units Most Likely
VOC	Volatile Organic Compounds
WAPA	Western Area Power Administration

STATEMENT OF LIMITATIONS

In preparation of this Study, Burns & McDonnell Engineering Company, Inc. (BMcD) has relied upon information provided by Midwest Energy, Inc. (MWE) and other third parties. While BMcD has no reason to believe that the information provided, and upon which BMcD has relied, is inaccurate or incomplete in any material respect, BMcD has not independently verified such information and cannot guarantee its accuracy or completeness.

Estimates and projections prepared by BMcD relating to performance, construction costs, and operating and maintenance costs are based on experience, qualifications, and judgment as a professional consultant. Since BMcD has no control over weather, cost and availability of labor, material and equipment, labor productivity, unavoidable delays, construction contractor's procedures, construction contractor's method of determining prices, economic conditions, government regulations and laws (including interpretation thereof), competitive bidding, or other factors affecting such estimates or projections, BMcD does not guarantee the accuracy of its estimates or predictions. Actual rates, costs, performance, schedules, etc., may vary from the data provided.

1.0 EXECUTIVE SUMMARY

1.1 Introduction

Midwest Energy, Inc. (MWE) is a rural cooperative that provides service to over 50,000 electric and 42,000 natural gas customers throughout portions of central and western Kansas. MWE is based out of Hayes, Kansas. MWE's service area covers 40 counties in central and western Kansas. MWE provides energy and capacity to its members through owned resources and power supply contracts. MWE is governed by a member-elected board, any new PPA or generation builds need to be vetted and approved by the board. MWE has several power supply contracts with Westar Energy (Westar) that are set to expire. The expiration of Units Most Likely (UML) contract in May of 2017 and the Jeffrey Energy Center (JEC) PPA in 2025 are driving MWE's need for capacity resources. MWE requested that Burns & McDonnell Engineering Company, Inc. (BMcD) perform a long-term resource planning study (Study) to evaluate power supply options available to fulfill future needs. New build resources, existing resource purchases, and various power purchase agreements (PPA) were all considered to provide reliable, low cost, and environmentally compliant power to MWE customers. .

It will also supplement some of the information contained in the IRP and be provided to the Western Area Power Administration ("WAPA") in compliance with the requirements stemming from the hydro-power allocation made available to Midwest Energy, Inc. Specifically, this Update and Summary, along with the original IRP and its associated Appendices, is intended to comply with the Western Area Power Administration Energy Planning and Management Program and Section 114 of the Energy Policy Act of 1992.

1.2 Conclusions

Based on the analysis conducted herein, BMcD provides the following conclusions and observations:

1. Electric Power Industry Review
   a. The electric power industry continues to be a target of increased regulations regarding water, coal combustion by-products, and air emissions.
   b. Overall, the power industry has experienced continued interest in wind and solar development. This interest is driven by technological advancements, which have lowered costs and increased energy production, as well as subsidies through tax incentives and renewable standards. The development of wind has been particularly robust in the Southwest Power Pool.

   c. Specific to MWE's power supply, the most immediate area of need will be fulfilling load requirements that are currently served by the Westar UML PPA when the contract expires at the end of May 2017.
2. Technology Assessment
   a. A new resource technology assessment was conducted, evaluating the following new resources:
      i. Natural gas-fired combined cycle, simple cycle, and reciprocating engine power plants
      ii. Resources were considered in which MWE may have the opportunity to self-develop and build or participate in a larger facility as a minority owner or power off-taker.
3. Economic Analysis
   a. Utilizing the information above, BMcD and MWE developed several scenarios to evaluate impacts to MWE's power supply. The scenarios focused on near-term and mid-term requirements driven by the expiration of the UML contract and the expiration of the JEC PPA.
   b. The economic analysis indicates that a new power supply resource, such as a natural gas-based peaking or intermediate resource, would be more economical for MWE's power supply portfolio than extending the JEC PPA.
4. Recommendation and Next Steps
   a. MWE should continue to monitor regulations that have potential to impact their power supply portfolio regarding water, coal combustion by-products, and air emissions.
   b. MWE may consider inquiring with its members about implementation of additional demand and energy reduction programs that may be able to reduce costs associated with power supply. If desired, a more robust cost/benefit evaluation, that includes a thorough investigation of potential participation and a customer survey, would be required.
   c. MWE may consider the next steps in regards to replacing the UML contract including negotiations of a mid-term, peaking/intermediate power purchase agreement with Westar or Dogwood.
   d. A PPA appears to provide MWE lower cost and greater flexibility in determining long-term Clean Power Plan compliance without the deployment of capital. A mid-term PPA will allow MWE time and flexibility to determine its long-term power supply path.
   e. A combined cycle gas turbine appears to provide lower overall power supply costs compared to extending the JEC PPA under similar terms. Therefore, MWE should continue to evaluate potential combined cycle opportunities that may be available. These opportunities may

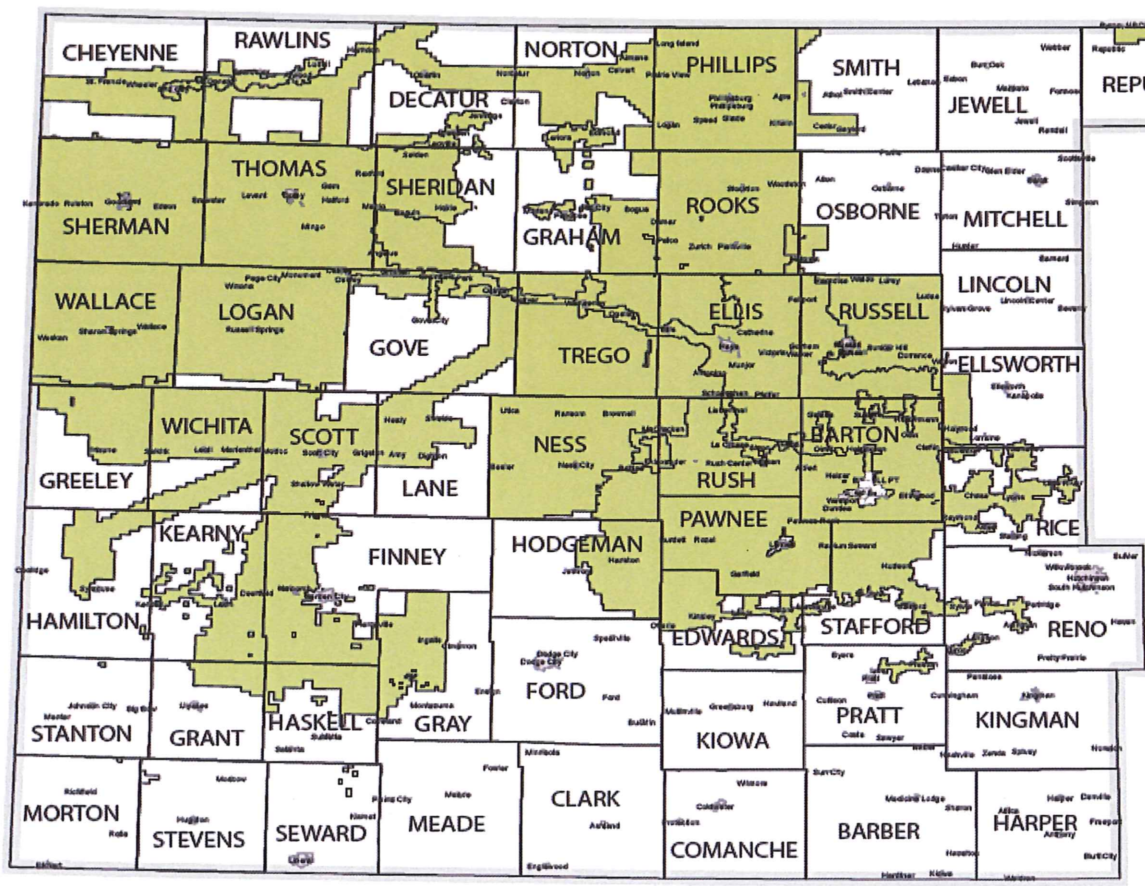
include participation in a combined cycle resource through a PPA, co-ownership, or self-build resource.

2.0 INTRODUCTION

2.1 Introduction

Midwest Energy, Inc. (MWE) is a rural cooperative that provides service to over 50,000 electric and 42,000 natural gas customers throughout portions of central and western Kansas. MWE is based out of Hayes, Kansas. MWE's service area covers 40 counties in central and western Kansas. A map of MWE's electric service area is presented in **Error! Reference source not found.**.

Figure 2-1: MWE Service Area



MWE provides energy and capacity to its members through owned resources and power supply contracts. MWE participates in Westar Energy (Westar) owned Jeffrey Energy Center (JEC) and has a separate Units Most Likely (UML) power purchase agreement with Westar. The expiration of UML in May of 2017 and JEC participation in 2025 are driving MWE's need for capacity resources. MWE requested that Burns & McDonnell Engineering Company, Inc. (BMcD) perform a long-term resource planning study (Study) to evaluate power supply options available to fulfill future needs. New build resources, existing resource purchases, and various power purchase agreements (PPA) were all considered to provide reliable, low cost, and environmentally compliant power to MWE customers.

2.2 Study Organization

This Study is organized into several sections as follows:

- Section 1.0 Executive Summary: Provides an executive summary and an introduction of the Study.
- Section 2.0 Provides a general review of the overall electric power industry.
- Section 4.0 Technology Assessment: Provides detailed discussion and costs associated with the development and construction of new power generation resources.
- Section 5.0 Economic Evaluation: Assesses the overall power supply costs to MWE over a 20-year period from 2016 to 2035, and evaluates varying power supply options and sensitivities.

2.3 MWE Power Supply Review

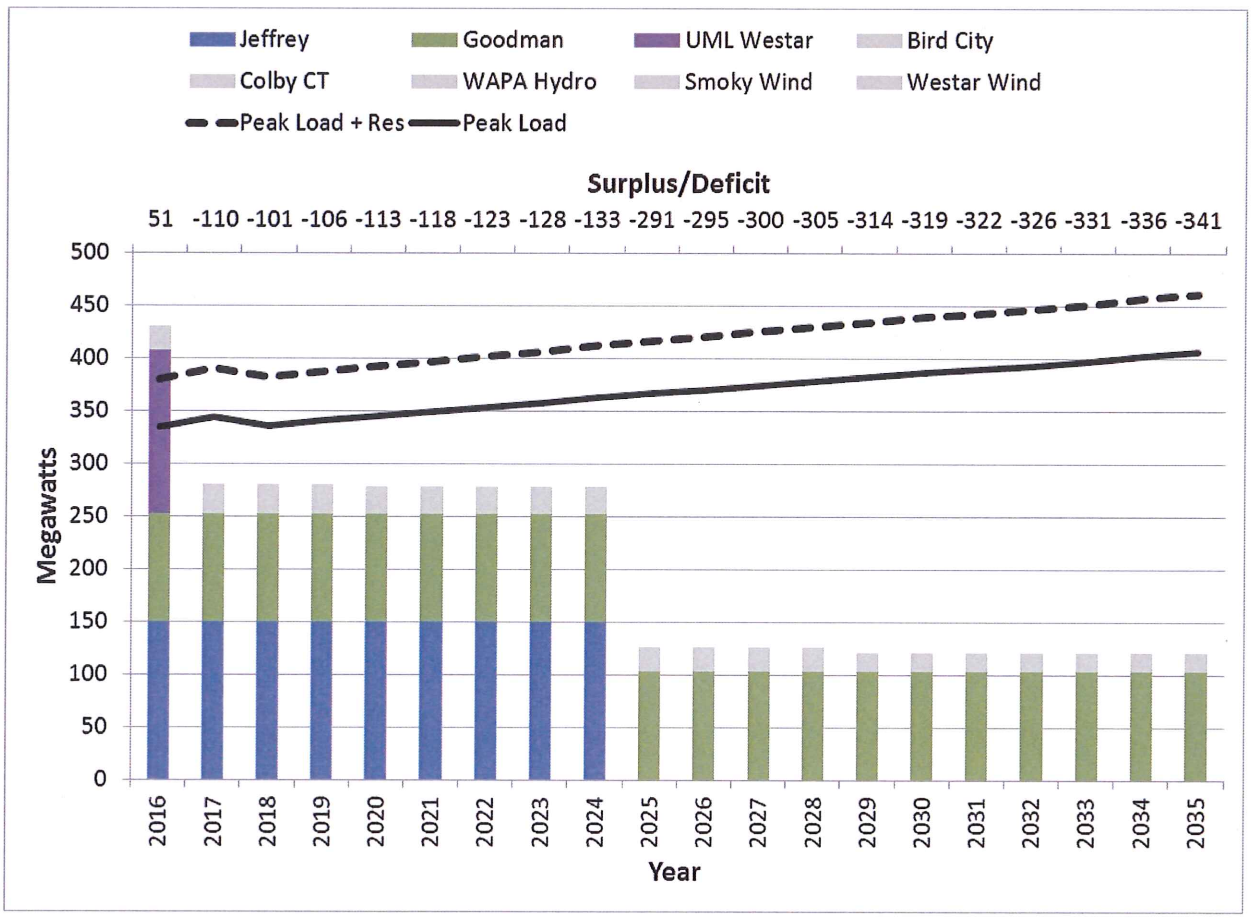
MWE supplies energy and capacity to its customers through owned resources and power supply contracts. MWE's total coincident peak load projection for 2016 is approximately 335 megawatts (MW). This projection includes a reduction of 20 MW due to existing demand side management (DSM) programs. This projection excludes reserve margin requirements of 13.64 percent, which is prescribed by SPP. MWE is currently forecasting long-term load growth around 1.0 percent, which is in line with other utility estimates in the region. The following summarizes MWE's existing power supply portfolio for meeting load and energy requirements:

- Owned resources
  - Goodman Energy Center (natural gas) 103 MW
  - Colby CT (natural gas) 13 MW
  - Bird City (diesel) 2 MW
- Power purchase agreements
  - Westar – Jeffrey Energy Center (coal) 150 MW
  - Westar – Units Most Likely (coal/natural gas) 155 MW
  - Western Area Power Administration (hydroelectric) 3 MW
  - Westar (wind) 50 MW
  - Smoky Hill Wind Farm (wind) 50 MW

As shown by the list above, MWE has a diverse power supply portfolio consisting of natural gas, coal, wind, and hydroelectric resources. Goodman Energy Center (GEC) was recently expanded and currently consists of 12 natural gas-fired reciprocating engines. Colby CT and Bird City are seldom dispatched peaking units. Bird City is expected to retire in 2019. MWE's Jeffrey Energy Center (JEC or Jeffrey) and Units Most Likely (UML) power purchase agreements (PPA) with Westar are both set to expire during the 20-year study period for this analysis (with the UML expiring in 2017 and JEC expiring in 2025). These Westar PPAs represent over 70 percent of MWE dispatchable resources and will need to either be extended or replaced for MWE to comply with SPP reserve margin requirements. Western Area Power Administration (WAPA) hydroelectric provides MWE with emission free energy at approximately 30 percent capacity factor, the current contract runs through 2024. The two wind contracts provide MWE members with a sizable amount of renewable energy, however they are only accredited with approximately 10 percent of their nameplate capacity.

A balance of loads and resources (BLR), based on the load forecast and existing MWE resources, is presented in the following appendicies. Based on existing resources and current load projections, MWE will be capacity deficit by approximately 100 MW to 130 MW from 2017 to 2024 due to UML expiration. The deficit increases to approximately 290 MW to 340 MW from 2025 to 2036 due to JEC expiration.

Figure 2-2: MWE Balance of Loads and Resources



2.4 Public Participation in Resource Planning

Midwest Energy is a customer-owned cooperative. That means the company is entirely focused on meeting the needs of its customer-owners, without the distraction of meeting the needs of a separate group of owners not served by the cooperative. The actions taken by Midwest Energy are governed by a member-elected Board of Directors. Their involvement includes review of the annual and long-term business plans, review/approval of the annual budget, updates on progress in the operation of all facets of the business, approval of plans to change rates, etc.
This approval process includes the Integrated Resource Plan itself, as well as decisions to execute contracts, build major new facilities, borrow funds, and other strategic decisions. As elected representatives of the customer-owners, their objective is to ensure that the Cooperative acts in the best interests of the customer-owners.

In regard to the IRP, federal regulations also require that Midwest Energy post its updates or revisions to its IRP for public review and comments. Historically, Midwest Energy has updated its resource plans at intervals of roughly three years. The most recent update was completed in 2016, and submitted to WAPA for review and publication in 2017.

As a further aid to customer involvement and understanding, various programs are presented during the Annual Meeting of Members of Midwest Energy. In connection with this process, Midwest Energy also published the IRP on its web site, with a reference found on the home page. The first of these programs provided an overview of the energy efficiency programs utilized by Midwest Energy, including the How$mart® program. Interest in this program remains high, as evidenced by the strong participation of customers and national recognition of the program itself. A number of questions about the program were asked and answered during the presentation.

2.3.1 MWE Demand Side Management

The following list provides a discussion of the DSM and energy efficiency programs that MWE is currently implementing to help reduce peak demand and overall energy consumption.

- How$mart® – The How$mart® program provides free energy efficiency improvements for MWE customers in good standing. The service includes upgrades to insulation, air sealing, new heating and cooling systems, and commercial lighting. All of these upgrades are provided at no upfront cost to the customer. These upgrades are installed by participating contractors and are paid for through a charge on the customer's energy bill, where per the agreement the charge is not to exceed the customer's estimated savings due to the efficiency improvements. By participating in How$mart® the customer can expect to save an average of $10 per month on their MWE bill.
- Energy Audit Services – MWE offers a wide array of energy efficiency auditing services to its customers, including but not limited to: blower door testing, home energy ratings, HVAC sizing, and building infrared scanning.
- Irrigation Incentive Rates – These rates have been designed to have a higher demand charge during peak hours. This pricing incentivizes farmers to run their irrigation equipment during off-peak hours.
- Irrigation Pump Curtailment – In addition to the more general irrigation incentive rates, MWE provides irrigation customers with the option to enter into a Load Control Service Agreement, where the customer will curtail pumping load during certain "curtailment events." Participation in the program results in bill credits from MWE.

MWE should continue to explore and potentially invest in DSM programs that help reduce peak demand and show economic benefits for their customers.

2.4 Environmental Impact Summary

While significant debate continues about the science behind the global warming issues, the utility industry has already seen a significant impact on resource planning. It is quite clear that it will be increasingly difficult to construct new coal-fired generating resources, and that emissions restrictions on existing coal plants will continue to tighten. Though the appetite for so-called cap-and-trade programs appear to have diminished for now, it remains prudent to factor these issues into any resource planning program. The IRP does exactly that, testing a number of different regulation and cost scenarios to develop portfolio recommendations that stand up to a variety of outcomes.

Fuel Type - For now, natural gas seems to be the preferred fuel for new dispatchable generation facilities. This too was factored into the development of the IRP. In fact, as noted above, the new generation proposed for further consideration by Midwest Energy is all gas-fired.

CO2 Emission Liability - An increasing concern regarding global climate change has put specific emphasis on the carbon intensity associated with different power generating resource options. Although coal-fired generation remains one of the most efficient sources of power generation, its potential environmental impacts pose a growing concern to the public and utility planners alike. Moreover, the potential advent of significant costs associated with CO_2 emissions constitutes a major risk for coal plant owners.

Water Supply – Siting of new generation, particularly in the Midwest Energy zone, needs to take into consideration of the lack of a stable long-term water supply. Any generation requiring large water quantities are probably not a favorable solution.

2.5 Action Plan Update

The plan of action was built on the outlook for the period 2016 through 2030. Most of the significant recommendations provided in the IRP are intended to be implemented in the 2016-2017 timeframe, except for those related to additions of economic wind energy and solar energy, which extend beyond 2020. The specific Action Plan items recommended in the IRP and their current status are summarized below:

- **Negotiate PPAs:** By the beginning of 2017, finalize negotiations of new PPAs for UML type contracts with the preferred supplier. Due to the attractiveness of owned peaking resources, UML contracts should be negotiated with the shortest lengths possible.
- **Evaluate Renewable Energy Expansion**: Current Production Tax Credits for renewable generation and reduction of PPA costs associated with both Solar and Wind continue to make renewable a viable economic alternative. Exploration of further expanding Midwest's renewable portfolio should be considered in the 2016-2020 timeframe, in particular prior to the expiration or phasing out of the existing PTCs.

- **GHG Emissions Reductions:** Protect Midwest Energy as much as possible against imprudent risk management of carbon and fuel cost exposures. Prudent management language should be included in new contractual arrangements.
  - *The terms of the long-term power supply agreements include terms consistent with these recommendations.*

Significant steps will be taken in 2016-2025 to address the following:

- Re-assessment of load forecast and resulting need for capacity.
- Market conditions for capacity purchases.
- Need for short-term additions to the supply portfolio to meet growing demand.
- Assessment of current technologies available for new generation constructed by Midwest Energy.
- Continued expansion of the utilization of demand side resources as a key element in meeting load obligations.
- Siting, permitting, and financing requirements for new generating resources.
  - *With regards to the possible development of new generating resources by Midwest Energy, current planning envisions completion of these steps during 2022, with a decision regarding the construction of new generating resources to be made by the end of 2022 or early in 2023.*
  - *This will coincide with the expiration of the bridging agreement contemplated in this IRP. Market conditions and the value placed on capacity will factor heavily in the decision to build*

A Resource Plan is intended to be a living document. As such, it is imperative that Midwest Energy continually assess its progress in regard to the actions proposed in the IRP, and that it be prepared to modify and adapt the plan as conditions change. The IRP completed in 2016 will not have an indefinite life. It is anticipated that enough exogenous conditions will change that the IRP will need to be completely redone as early as 2019.

Although not an all-inclusive list, the following issues could change substantially over the next 2-4 years, and thereby impact the validity of the current IRP:

- Prices for natural gas and coal, including transportation;
- Emissions requirements for both coal-fired and gas-fired generating resources, existin and new;

- Inception of new climate control legislation, including cap-and-trade protocols, emissions allowance trading, etc.
- Technology developments related to emissions control, unit efficiency or capital cost changes;
- Retirement of existing generating units;
- Changes in customer energy use patterns, efficiency/conservation practices, and overall load growth;
- Further penetration of demand-side management technologies and customer acceptance;
- Development of additional renewable generating resources on a regional or national basis, as well as technology improvements in wind, solar and other so-called green resources;
- Continued appetite for transmission grid expansion;
- General economic factors, including interest rates, access to capital, and customer preferences.

Midwest Energy will use several metrics to assess whether its business practices are consistent with the current IRP. For example, it will obviously continue to measure the energy sales and demand requirements of its customer base, and comparing those requirements to available generating resources. In both the long-term and the near-term this will play a significant role in a determination of the need for additional generation capacity, either owned or purchased.

3.0 ELECTRIC POWER INDUSTRY REVIEW

The following provides a review of overall electric power industry trends, the Southwest Power Pool (SPP) energy market, and Midwest Energy, Inc.'s (MWE) current power supply.

3.1 Overall Electricity Industry Trends

The electricity industry continues to be impacted by numerous trends. The following provides a brief discussion of the overall trends that are currently impacting electric utilities and generators.

- Environmental regulations: Both federal and state environmental regulating agencies continue to pursue more stringent environmental regulations regarding emissions from power generating facilities, specifically coal-fired power plants.
- Clean Power Plan: One of the most controversial regulations from the Environmental Protection Agency (EPA), the Clean Power Plan (CPP), targets a reduction in carbon dioxide (CO_2) emissions. This regulation was recently stayed (postponed indefinitely) by the United Sates (U.S.) Supreme Court as appeals to the rule work their way through the lower court system.
- Low natural gas prices: Natural gas prices remain low as production continues to outpace demand requirements. However, industry forecasts, such as U.S. Energy Information Administration's (EIA) Annual Energy Outlook (AEO), appear to be fairly robust with price increases around five percent per year.
- Continued renewable development: The use of wind and solar resources continues to increase. Many state and federal regulators continue to pursue increased renewable portfolio and energy requirements. Federal renewable tax credits, which heavily incentivize both wind and solar generation, received a multi-year extension by the United States Congress at the end of 2015.
- Relatively low load growth: While much of the U.S. has seen economic growth since the economic recession in the 2008 and 2009 timeframe, the recovery of demand and energy has been much slower. Increased conservation programs have also contributed to lower load growth.
- Low wholesale market energy prices: The combination of low natural gas prices, increased renewable development, and relatively low load growth has kept wholesale market energy prices low compared to historical averages.
- Coal-fired retirements: With the combination of all of the above factors, the investment in costly environmental compliance solutions at coal-fired power plants has reduced the overall economic benefit of coal-fired generation. Across the United States nearly 80 gigawatts (GW)

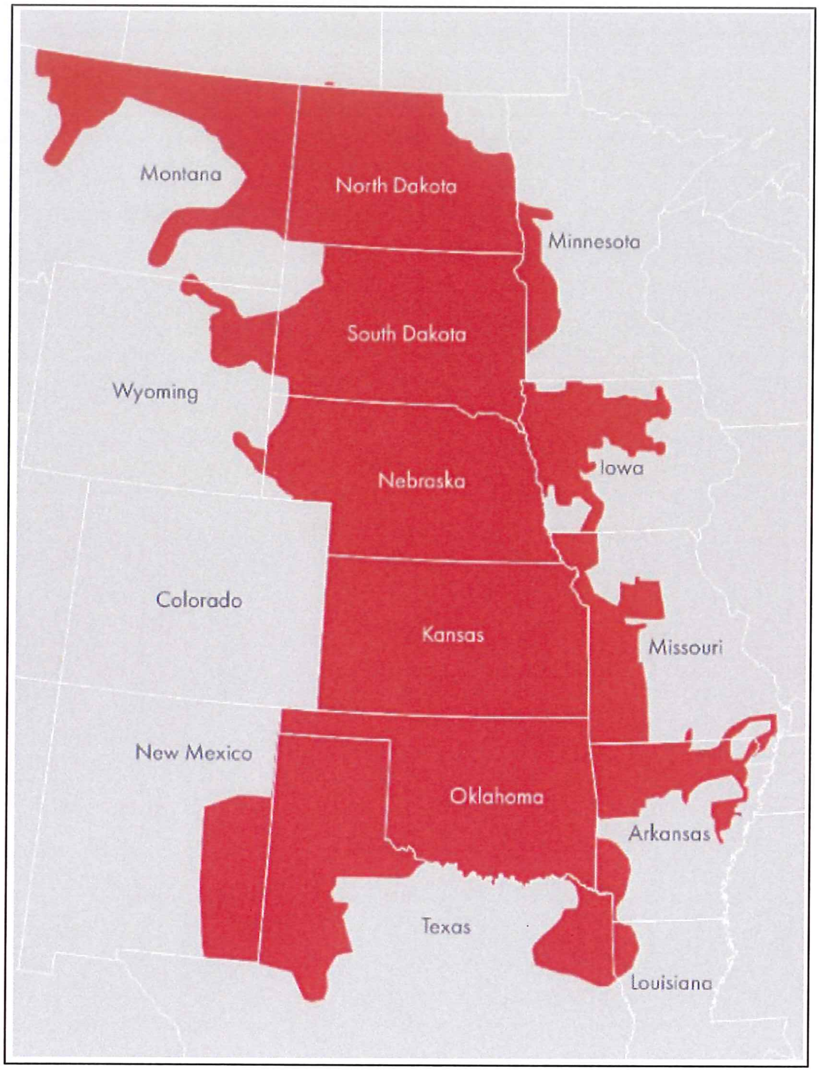
of coal-fired retirements have occurred, are pending, or have been announced; representing approximately 25 percent of the total coal fleet.

- Increased interest in "firm" natural gas pipeline capacity: A number of factors including coal-fired retirements, recent extreme winter weather, and increased dependence of natural gas for the electric industry have led to increased interest in firm capacity. If firm natural gas transport contracts are required for power generators, it could increase the cost of production significantly.

3.1.1 Southwest Power Pool Energy Market

Southwest Power Pool initiated its integrated marketplace on March 1, 2014. On October 1, 2015, Western Area Power Administration (WAPA), Basin Electric Cooperative, and Heartland Consumers Power District officially joined SPP and were integrated into SPP's transmission system. The SPP market is made up of numerous utilities operating in 14 states as presented in Figure 3-1.

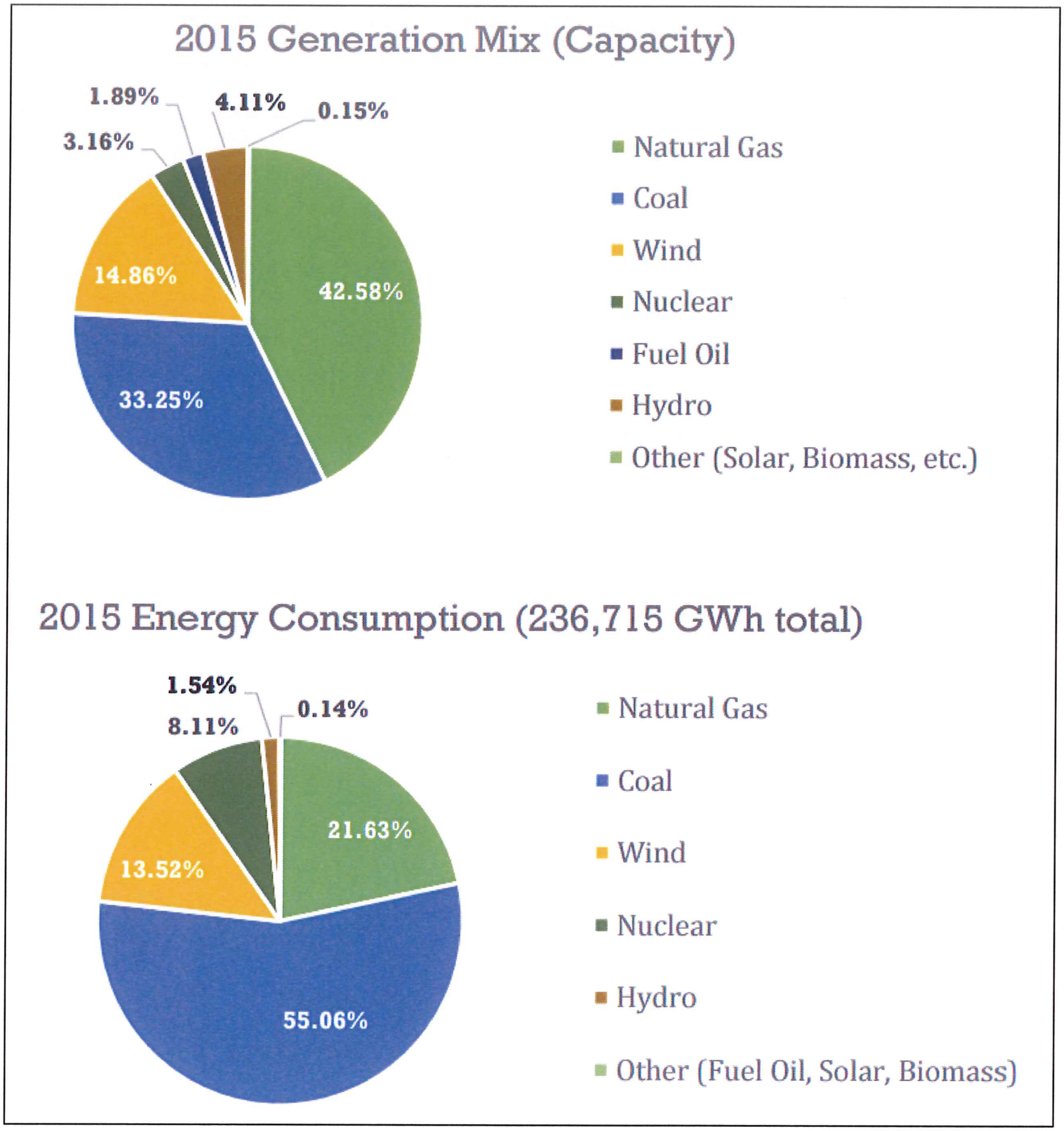
Figure 3-1: SPP Market Area



Source: Intro to SPP Presentation

The SPP market has a wide range of capacity and energy resources including fossil fuel, renewable, and nuclear generation. The 2015 capacity and energy mix of resources within SPP is presented in Figure 3-2.

Figure 3-2: SPP Capacity and Energy Resource Mix



Source: SPP Fast Facts

Wholesale electricity markets are increasingly more mature and utilities are becoming more comfortable with market operations. It is common for utilities today to acquire all of their energy from the market and sell energy from their resources into the market when it is accepted for dispatch. The past few years have seen wholesale energy prices decline significantly when compared to the 2000 to 2008 timeframe. The decline in pricing is due to several factors including:

- Economic downturn and relatively slow economic and load growth
- Significant addition of wind resources (approximately 2 GW in 2007 to approximately 12 GW in 2015)
- Low pricing of natural gas

4.0 TECHNOLOGY ASSESSMENT

4.1 Introduction

As part of the Study, BMcD was tasked with refreshing the cost and performance estimates of new power generation assets that had been previously prepared for MWE. These new assets were evaluated alongside power supply request for information (RFI) proposals to provide capacity that satisfies MWE load requirements as part of the economic evaluation in Section 5.0.

The costs and evaluation presented with this technology assessment is screening-level in nature and includes a comparison of technical features, cost, performance, and emissions characteristics of the following technologies. The costs presented herein do not represent budgetary capital costs, rather they focus on the difference between the options and as a comparison against each other and the potential demand charges associated with the PPAs under consideration. Any technology options that appear to be economical should be further screened with more detailed cost estimating studies.

4.2 Technologies Evaluated

BMcD evaluated several natural gas-fired resources consisting of combined cycle gas turbines, simple cycle gas turbines, and reciprocating engines. Based on BMcD's experience, the technologies selected for evaluation represent appropriately sized options that are mature technologies and commercially available to MWE for its power supply portfolio, either through a self-build development or a power purchase agreement.

- Simple cycle gas turbine (SCGT) technology:
  - One (1) frame combustion turbine plant that included a single GE "F-class" combustion turbine with an output of approximately 205 MW in summer conditions.
  - One (1) aeroderivative combustion turbine plant that included a single combustion turbine (GE LMS100) with an output of approximately 94 MW in summer conditions.
  - One (1) aeroderivative combustion turbine plant that included a single combustion turbine (GE LM6000) with an output of approximately 42 MW in summer conditions.
- Internal combustion reciprocating engine technology:
  - Twelve (12) reciprocating engines (Wärtsilä 20V34SG engines were the basis), each approximately 9 MW in output for a total of approximately 110 MW.
  - Six (6) reciprocating engines (Wärtsilä 18V50SG engines were the basis), each approximately 18 MW in output for a total of approximately 110 MW.
- Combined cycle gas turbine (CCGT) technology:

- A 2x1 "F-class" CCGT was evaluated based on GE 7F.05 gas turbines. The output is approximately 785 MW in summer conditions (fully fired).
- A 1x1 "F-class" CCGT was evaluated based on GE 7F.05 gas turbines. The output is approximately 385 MW in summer conditions (fully fired).

4.3 Study Basis and Assumptions

The following provides an outline of the general scope basis and assumptions utilized within this technology assessment to develop the capital costs, operation and maintenance (O&M) costs, and performance estimates for each of the technologies evaluated. 0 provides a detailed matrix of the results, scope, and assumptions used within this Study for the technology assessment.

4.3.1 General Assumptions

The assumptions below govern the overall approach of the Study:

- All estimates are screening-level in nature and do not reflect guaranteed costs.
- All information is preliminary and should not be used for engineering and construction purposes.
- All capital costs exclude escalation and are presented in "overnight" costs in 2015 U.S. dollars.
- Estimates assume an Engineer, Procure, Construct (EPC) contract basis.
- Performance ratings for a generic site in Kansas based on the following conditions:
  - Elevation: 1,976 ft.
  - Winter ambient conditions: 39°F and 59 percent relative humidity (RH)
  - Annual average ambient conditions: 59°F and 60 percent RH
  - Summer ambient conditions: 90°F and 48 percent RH
- All performance assumes new and clean equipment.
- The options assume natural gas operation only.
- Natural gas is assumed to be available on site at adequate pressure, flow, and quality.
- Fuel and power consumed during commissioning are included within Owner's costs.
- Piling is included under heavily loaded foundations.
- Raw water is assumed to be available at the site boundary.
- Waste water is assumed to be discharged off-site. Wastewater treatment facilities are excluded.
- Demolition or removal of hazardous materials is not included.
- Emissions estimates are based on a preliminary review of Best Available Control Technology (BACT) requirements.

- Based on less than 10 percent capacity factor, it is assumed that selective catalytic reduction (SCR) and carbon monoxide (CO) catalysts are not required for LM6000 or "F-Class" simple cycle options.
- SCR and CO catalyst are assumed to be included on the reciprocating engine, LMS100, and combined cycle options.

4.3.2 EPC Project Indirect Costs

The following project indirect costs are included in capital cost estimates:

- Performance testing and continuous emissions monitoring system (CEMS)/stack emissions testing (where applicable)
- Pre-operational testing, startup, startup management and calibration
- Construction/startup technical service
- Engineering and construction management
- Freight
- Startup spare parts
- EPC fees
- EPC contingency (assumed 5 percent of all EPC costs)

4.3.3 Owner's Costs

Allowances for the following Owner's costs are included in the pricing estimates:

- Project development
- Owner's operations, project management, startup engineering personnel
- Owner's engineering
- Operator training
- Legal fees
- Permitting/licensing
- Construction power, temporary utilities, startup consumables
- Site security
- Operating spare parts
- 230 kV switchyard is included.
- Political concessions and/or area development fees
- Permanent plant equipment and furnishings

- Builder's risk insurance at 0.45 percent of EPC cost.
- Owner's contingency at 5 percent of total costs for screening purposes

4.3.4 Cost Estimate Exclusions

The following costs are excluded from all estimates:

- Financing fees (however, included in the economic evaluation presented later)
- Interest during construction (IDC) (however, included in the economic evaluation presented later)
- Sales tax
- Property tax and property insurance
- Off-site transmission upgrades (however, included in the economic evaluation presented later)
- Other off-site infrastructure unless stated above (however, included in the economic evaluation presented later)

4.3.5 Operations and Maintenance Assumptions

Operations and maintenance estimates are based on the following assumptions:

- O&M costs are based on typical capacity factors for the technologies.
- O&M costs are in 2015 USD.
- O&M estimates exclude emissions credit costs, property taxes, or insurance.
- Fixed O&M cost estimates include labor, office and administration, training, contract labor, safety, building and ground maintenance, communication, and laboratory expenses.
- Fixed costs assume full time equivalent (FTE) personnel are hired at each site at a fully burdened cost of approximately $115,000 per person.
- Where applicable, variable O&M costs include routine maintenance, makeup water, water disposal, reagents, SCR replacements, and other consumables not including fuel.
- Fuel costs are excluded from O&M estimates.
- Major maintenance costs are shown separately from variable O&M, as applicable.
- Major maintenance assumes that a Long Term Service Agreement (LTSA) is in place with the original equipment manufacturer (OEM).
- Performance estimates do not consider degradation over the operating life of the plant.

4.4 Simple Cycle Gas Turbine Technologies

4.4.1 General Description

A simple cycle gas turbine plant utilizes natural gas to produce power in a gas turbine generator. The gas turbine (Brayton) cycle is one of the most efficient cycles for the conversion of gaseous fuels to mechanical power or electricity. Also, gas turbine manufacturers continue to develop high temperature materials and cooling techniques to allow higher firing temperatures of the turbines, resulting in increased efficiency.

Typically, simple cycle gas turbines are used for peaking power due to their fast load ramp rates and relatively low capital costs. However, the units have high heat rates (lower efficiency) compared to combined cycle and coal-fired technologies. Simple cycle gas turbine generation is a widely used, mature technology.

Typical simple cycle plants operate with natural gas as the primary operating fuel. Often, the ability to operate on fuel oil is also required in case the demand for power exists when the natural gas supply does not. This assessment does not include dual fuel capability as an option.

Evaporative coolers can be used to cool the air entering the gas turbine by evaporating additional water vapor into the inlet air, which increases the mass flow through the turbine and therefore increases the gas turbine output. Evaporative coolers are included with all gas turbines in this assessment.

4.4.1.1 Frame Gas Turbines

Frame turbines are typically used in intermediate to baseload applications. In simple cycle configurations, these engines typically have higher heat rates (lower efficiency) when compared to aeroderivative engines. The smaller frame units generally have simple cycle heat rates of more than 10,000 Btu/kWh (higher heating value (HHV)) while the largest proposed units will have heat rates approaching 9,250 Btu/kWh (HHV). However, frame units have higher exhaust temperatures (≈1,200°F) compared to aeroderivative units (≈850°F), making them more suitable for combined cycle operation where exhaust energy is further utilized.

Frame engines are offered in a large range of sizes by multiple suppliers, including GE, Siemens, Mitsubishi, and Alstom. Commercially available frame units range in size from approximately 50 MW to approximately 330 MW. The continued development by gas turbine manufacturers has resulted in the separation of gas turbine technology into various classes, grouped by output and heat rate. For the purposes of this assessment, BMcD is evaluating an "F-class" turbine.

4.4.1.2 Aeroderivative Gas Turbines

Aeroderivative gas turbine technology is based on aircraft jet engine design, built with materials that allow for increased turbine cycling. The output of commercially available aeroderivative turbines ranges from less than 20 MW to 100 MW in generation capacity. In simple cycle configurations, these machines typically operate more efficiently than larger frame units and are also capable of shorter ramp-up and turndown times, making them ideal for peaking and load following applications.

Aeroderivative turbines are considered mature technology and have been used in power generation applications for decades. These machines are commercially available from several vendors, including General Electric (GE), Siemens owned Rolls Royce, and Mitsubishi-owned Pratt & Whitney (PW). This assessment bases aeroderivative performance estimations on the GE LM6000 and GE LMS100.

4.4.2 SCGT Performance and Cost Results

The performance and cost estimates are presented in 0 for the simple cycle technologies.

4.4.3 SCGT Emissions Controls

Emissions levels and required NO_x and CO controls vary by technology and site constraints. Historically, natural gas SCGT peaking plants have not required post-combustion emissions control systems because they operate at low capacity factors. However, permitting trends suggest post-combustion controls may be required depending on annual number of gas turbine operating hours, proximity of the site to a non-attainment area, and current state regulations.

In addition, there is a New Source Performance Standard (NSPS) limit for NO_x emissions measured in parts per million, independent of operating hours. Per NSPS, units with heat inputs below 850 MMBtu/hr have a NO_x limit of 25 ppm, but units with heat inputs greater than 850 MMBtu/hr have a NO_x limit of 15 ppm.

"F-class" gas turbines use dry low NO_x (DLN) combustors to achieve NO_x emissions of 9 ppm at 15 percent oxygen (O_2) while operating on natural gas fuel. The heat input is greater than 850 MMBtu/hr, but since these units emit less than 15 ppm NO_x, no selective catalytic reduction (SCR) is assumed to be required.

The LM6000 and LMS100 units utilize water injection to achieve NO_x emissions of 25 ppm at 15 percent O_2 while operating on natural gas fuel. Because the LM6000 unit has a heat input below 850 MMBtu/hr, it meets the appropriate 25 ppm NO_x limit and therefore it is assumed that an SCR is not required. The LMS100 requires an SCR since its heat input is greater than 850 MMBtu/hr.

Oxidation catalysts can be used to reduce CO emissions, but they are not expected to be required for the SCGT plant options due to the limited hours of operation. Sulfur dioxide emissions are not controlled and are therefore a function of the sulfur content of the fuel burned in the gas turbines. CO_2 emissions are estimated to be 120 lbs/MMBtu. Outside of good combustion practices, there is no expectation that CO_2, PM, and volatile organic compounds (VOC) levels will require emissions control equipment.

Most turbine manufacturers will guarantee emissions down to a specified minimum load, commonly 40 percent to 60 percent load. Below this load, turbine emissions may spike. As such, emissions on a ppm basis may be significantly higher at low loads.

4.4.4 SCGT Startup Time and Ramp Rates

An attribute commonly desirable of aeroderivative SCGT's is the ability to start and ramp up load quickly. Most manufacturers guarantee 10 minute starts even in cold start conditions, measured from the time the start sequence is initiated to when the unit is at 100 percent load. However, this assumes that all start permissives are met, which can include lube oil temperature, fuel pressure, etc.

A standard start time for an "F-class" turbine is approximately 30 minutes. However, 10 minute "fast start" packages are commonly available from the manufacturer. These control packages allow the frame startup times to compete with the aeroderivative turbines, but the major maintenance costs may also be impacted, depending on the OEM and the conditions of the service agreement.

Aeroderivative turbines generally have higher ramp rates than frame turbines, which means they can increase or decrease load more quickly. For example, an SCGT with a 25 percent per minute ramp rate can ramp up from 50 percent load to full load in two minutes

4.4.5 SCGT O&M Cost Estimate

O&M costs for each SCGT option are presented in 0. General assumptions for fixed and variable O&M costs are listed in Section 4.3.5.

Major maintenance costs for gas turbine generators (GTG) are commonly expressed in terms of dollars per start or dollars per operating hour, depending on how the plant is operated. For frame turbines, the $/GTG-hr costs are assumed to be used if there are more than 27 operating hours per start. If there are fewer than 27 operating hours per start, major maintenance is assumed to be governed by the $/start cost. Aeroderivative units are typically not impacted by the number of starts, so the major maintenance costs are evaluated on a $/GTG-hr basis.

Fixed costs assume additional personnel are required to operate the plant. Variable costs include routine maintenance, makeup water, and other consumables not including fuel. The aeroderivative units consume water for NO_x control and power augmentation. However, the F class units do not require water for emissions control, and do not require evaporative cooling during average ambient conditions, so they consume no water during normal operation.

4.5 Reciprocating Engine

4.5.1 General Description

The internal combustion reciprocating engine operates on the four-stroke Otto cycle (natural gas fuel) or Diesel cycle (diesel fuel) for the conversion of pressure into rotational energy. In the Otto cycle, fuel and air are injected into a combustion chamber prior to its compression by the piston assembly of the engine. A spark ignites the compressed fuel and air mixture causing a rapid pressure increase that drives the piston downward. In the Diesel cycle, the compression stroke is only compressing air. The fuel is then injected into the cylinder and ignition results from the heat of compression, rather than a spark. In both cycles, the piston is connected to an offset crankshaft, thereby converting the linear motion of the piston into rotational motion that is used to turn a generator for power production. By design, cooling systems are typically closed-loop, minimizing water consumption. Emissions controls are generally accomplished with a combination of lean cycle combustion through fuel to air ratio control, as well as secondary control options such as SCR equipment.

Many different vendors, such as Wärtsilä, Fairbanks Morse, Caterpillar, Kawasaki, and Mitsubishi offer reciprocating engines and they are becoming popular as a means to follow renewable generation with their quick start times and operational flexibility. There are slight differences between manufacturers in engine sizes and other characteristics, but all largely share the common characteristics of quick ramp rates and quick start up.

For the Study, the Wärtsilä 20V34SG and 18V50SG natural gas engines were evaluated. These heavy duty, medium speed, four-stroke combustion engines are easily adaptable to grid-load variations. Each engine plant is assumed to include approximately 110 MW total net output.

4.5.2 Reciprocating Engine Performance and Cost Results

The performance and cost estimates are presented in 0 for the reciprocating engine technologies. The engines are evaluated based on natural gas operation. Fuel oil backup is not included.

4.5.3 Reciprocating Engine Emissions Controls

In addition to good combustion practices, it is expected that reciprocating engines will require SCR and CO catalysts to control NO_x and CO emissions. For engines operating on natural gas, CO_2 emissions are estimated to be 120 lbs/MMBtu. Sulfur dioxide emissions are not controlled and are therefore a function of the sulfur content of the fuel burned in the gas turbines.

4.5.4 Reciprocating Engine O&M Cost Estimate

O&M costs for reciprocating engines are presented in 0. General assumptions for fixed and variable O&M costs are listed in Section 4.3.5.

O&M costs are derived from vendor-supplied information and BMcD project experience. Variable O&M includes minor maintenance and consumables such as lube oil and SCR reagent. Catalyst replacement costs are embedded within major maintenance costs, which are presented on a per engine basis. There is no water consumption during normal operation except for maintaining water levels in the radiators.

Fixed costs for the option assume additional personnel are added to operate the plant.

4.6 Combined Cycle Technology

Based on recent technological advancements from the turbine manufacturers, large combined cycle units have been able to capture larger economies of scale and improved efficiencies compared to later model combustion turbines.

4.6.1 General Description

The basic principle of the combined cycle gas turbine plant is to utilize natural gas to produce power in a gas turbine which can be converted to electric power by a coupled generator, and to also use the hot exhaust gases from the gas turbine to produce steam in a heat recovery steam generator (HRSG). This steam is then used to drive a steam turbine and generator to produce electric power. Additional natural gas can be fired in the HRSG to increase steam production and associated output for peaking load, a process commonly referred to as duct firing. The heat rate will increase during duct fired operation, though this incremental duct fired heat rate is generally comparable or less than the resultant heat rate from a similarly sized SCGT peaking plant.

The use of both gas and steam turbine cycles (Brayton and Rankine) in a single plant to produce electricity results in high conversion efficiencies and low emissions. Combined cycle facilities have efficiencies typically in the range of 52 percent to 60 percent on a lower heating value (LHV) basis. Gas turbine manufacturers continue to develop high temperature materials and material cooling techniques to raise the firing temperature of the turbines and increase the efficiency.

Continued development by gas turbine manufacturers has resulted in the separation of gas turbine technology into various classes, grouped by output and heat rate. For this assessment, BMcD evaluated a 2x1 and 1x1 CCGT plant using a representative turbine from the "F-Class" technology.

Combined cycle plants are a mature technology, but technological advances continue, driven by efficiency, output, and competition. Each major OEM has incrementally improved its frame engine technology platforms to increase output and efficiency while lowering heat rate. Improved material design allows for higher firing temperatures and increased output in the emerging advanced class turbines. In addition, recent "F-Class" turbine design modifications have been driven largely toward faster startup times and operational flexibility, including peaking power capabilities and reduced load operation for off-peak turndown.

The 2x1 F-Class CCGT has a nominal output of approximately 785 MW (summer rating). Approximately 613 MW is attributable to baseload operation with the remaining capacity coming from duct firing. The 1x1 F-Class CCGT has a nominal output of approximately 385 MW (summer rating). Approximately 300 MW is attributable to baseload operation with the remaining capacity coming from duct firing.

4.6.2 Combined Cycle Performance and Cost Results

The performance and cost estimates are presented in 0 for the combined cycle technology. The CCGT is evaluated based on natural gas operation. Fuel oil backup is not included.

4.6.3 Combined Cycle Emissions Controls

The "F-class" gas turbines can achieve NO_x emissions at 9 ppm down to minimum emissions compliant load (MECL).

An SCR will be required for the CCGT options to reduce NO_x emissions to 2 ppm at 15 percent excess O2. With an SCR, the estimated emissions rate for NO_x is 0.01 lb/MMBtu. It is anticipated that a CO catalyst will also be required to reduce CO emissions. This assessment assumes CO emissions will be controlled to 2 ppm CO at 15 percent O_2.

The use of an SCR and CO catalyst requires additional site infrastructure. An SCR system injects ammonia into the exhaust gas to absorb and react with NO_x molecules. This requires on-site ammonia storage and provisions for ammonia unloading and transfer. The costs associated with these requirements have been included in this assessment.

For the CCGT options, CO_2 emissions are estimated to be 120 lb/MMBtu.

Sulfur dioxide emissions are not controlled and are therefore a function of the sulfur content of the fuel burned in the gas turbines. Sulfur dioxide emissions of a CCGT plant are very low compared to coal technologies, and the emission rate of sulfur dioxide for a combined cycle unit is estimated to be less than 0.01 lb/MMBtu.

4.6.4 Combined Cycle O&M Cost Estimate

O&M costs for reciprocating engines are presented in 0. General assumptions for fixed and variable O&M costs are listed in Section 4.3.5.

O&M costs are derived from vendor-supplied information and BMcD project experience. Variable O&M includes minor maintenance and consumables such as lube oil and SCR reagent. Catalyst replacement costs are embedded within major maintenance costs, which are presented on a per combustion turbine basis. Water consumption estimates are included in 0. Water consumption estimates account for evaporative coolers, cycle makeup, and cooling tower makeup. Water costs assume that an on-site water treatment facility is included.

Fixed costs for the option assume additional personnel are added to operate the plant.

4.7 Technology Assessment Summary

Table 4-1 presents the technology assessment summary for natural gas-fired technologies evaluated. The full details of the technology assessment are presented in 0.

4.8 Environmental Impact Summary

While significant debate continues about the science behind the global warming issues, the utility industry has already seen a significant impact on resource planning. It is quite clear that it will be increasingly difficult to construct new coal-fired generating resources, and that emissions restrictions on existing coal plants will continue to tighten. Though the appetite for so-called cap-and-trade programs appear to have diminished for now, it remains prudent to factor these issues into any resource planning program. The IRP does exactly that, testing a number of different regulation and cost scenarios to develop portfolio recommendations that stand up to a variety of outcomes.

Fuel Type - For now, natural gas seems to be the preferred fuel for new dispatchable generation facilities. This too was factored into the development of the IRP. In fact, as noted above, the new generation proposed for further consideration by Midwest Energy is all gas-fired.

CO2 Emission Liability - An increasing concern regarding global climate change has put specific emphasis on the carbon intensity associated with different power generating resource options. Although coal-fired generation remains one of the most efficient sources of power generation, its potential environmental impacts pose a growing concern to the public and utility planners alike. Moreover, the potential advent of significant costs associated with CO_2 emissions constitutes a major risk for coal plant owners.

Water Supply – Siting of new generation, particularly in the Midwest Energy zone, needs to take into consideration of the lack of a stable long-term water supply. Any generation requiring large water quantities are probably not a favorable solution.

4.9 Action Plan Update

The plan of action was built on the outlook for the period 2016 through 2030. Most of the significant recommendations provided in the IRP are intended to be implemented in the 2016-2017 timeframe, except for those related to additions of economic wind energy and solar energy, which extend beyond 2020. The specific Action Plan items recommended in the IRP and their current status are summarized below:

- **Negotiate PPAs:** By the beginning of 2017, finalize negotiations of new PPAs for UML type contracts with the preferred supplier. Due to the attractiveness of owned peaking resources, UML contracts should be negotiated with the shortest lengths possible.
- **Evaluate Renewable Energy Expansion**: Current Production Tax Credits for renewable generation and reduction of PPA costs associated with both Solar and Wind continue to make renewable a viable economic alternative. Exploration of further expanding Midwest's renewable portfolio should be considered in the 2016-2020 timeframe, in particular prior to the expiration or phasing out of the existing PTCs.

- **GHG Emissions Reductions:** Protect Midwest Energy as much as possible against imprudent risk management of carbon and fuel cost exposures. Prudent management language should be included in new contractual arrangements.
    - *The terms of the long-term power supply agreements include terms consistent with these recommendations.*

Significant steps will be taken in 2016-2025 to address the following:

- Re-assessment of load forecast and resulting need for capacity.
- Market conditions for capacity purchases.
- Need for short-term additions to the supply portfolio to meet growing demand.
- Assessment of current technologies available for new generation constructed by Midwest Energy.
- Continued expansion of the utilization of demand side resources as a key element in meeting load obligations.
- Siting, permitting, and financing requirements for new generating resources.
    - *With regards to the possible development of new generating resources by Midwest Energy, current planning envisions completion of these steps during 2022, with a decision regarding the construction of new generating resources to be made by the end of 2022 or early in 2023.*
    - *This will coincide with the expiration of the bridging agreement contemplated in this IRP. Market conditions and the value placed on capacity will factor heavily in the decision to build*

A Resource Plan is intended to be a living document. As such, it is imperative that Midwest Energy continually assess its progress in regard to the actions proposed in the IRP, and that it be prepared to modify and adapt the plan as conditions change. The IRP completed in 2016 will not have an indefinite life. It is anticipated that enough exogenous conditions will change that the IRP will need to be completely redone as early as 2019.

Although not an all-inclusive list, the following issues could change substantially over the next 2-4 years, and thereby impact the validity of the current IRP:

- Prices for natural gas and coal, including transportation;
- Emissions requirements for both coal-fired and gas-fired generating resources, existin and new;

- Inception of new climate control legislation, including cap-and-trade protocols, emissions allowance trading, etc.
- Technology developments related to emissions control, unit efficiency or capital cost changes;
- Retirement of existing generating units;
- Changes in customer energy use patterns, efficiency/conservation practices, and overall load growth;
- Further penetration of demand-side management technologies and customer acceptance;
- Development of additional renewable generating resources on a regional or national basis, as well as technology improvements in wind, solar and other so-called green resources;
- Continued appetite for transmission grid expansion;
- General economic factors, including interest rates, access to capital, and customer preferences.

Midwest Energy will use several metrics to assess whether its business practices are consistent with the current IRP. For example, it will obviously continue to measure the energy sales and demand requirements of its customer base, and comparing those requirements to available generating resources. In both the long-term and the near-term this will play a significant role in a determination of the need for additional generation capacity, either owned or purchased.

Table 4-1: Technology Assessment Summary

PROJECT TYPE	2x1 F Class Fully Fired	1x1 F Class Fully Fired	1 x F Class SCGT	1 x LMS100 SCGT	1 x LM6000 SCGT	12 x Wartsila 20V34SG	6 x Wartsila 18V50SG
BASE PLANT DESCRIPTION							
Number of Gas Turbines	2	1	1	1	1	12	6
Number of Steam Turbines	1	1	0	0	0	0	0
Fuel Design	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas
Technology Rating	Mature	Mature	Mature	Mature	Mature	Mature	Mature
ESTIMATED CCGT PERFORMANCE (Summer Peak)							
Base Load Performance @ 90°F, 48% RH							
Net Plant Output, kW	612,800	299,700	204,600	93,500	42,300	109,800	110,300
Net Plant Heat Rate, Btu/kWh (HHV)	6,600	6,750	9,930	9,120	9,720	9,030	8,930
Heat Input, MMBtu/h (HHV)	4,050	2,030	2,030	850	410	990	980
Incremental Duct Fired Performance @90°F, 48% RH							
Incremental Net Plant Output, kW	171,900	85,700	N/A	N/A	N/A	N/A	N/A
Incremental Net Plant Heat Rate, Btu/kWh (HHV)	8,590	8,070	N/A	N/A	N/A	N/A	N/A
Incremental Heat Input, MMBtu/h (HHV)	1,470	690	N/A	N/A	N/A	N/A	N/A
ESTIMATED CAPITAL AND O&M COSTS							
EPC Projects Cost, 2015 MM$ (w/o Owner's Costs)	**$520**	**$326**	**$105**	**$117**	**$60**	**$111**	**$108**
Owner's Costs, 2015 MM$	**$66**	**$49**	**$22**	**$19**	**$15**	**$18**	**$16**
Total Project Costs, 2015 MM$	**$586**	**$375**	**$127**	**$136**	**$75**	**$129**	**$125**
Total Project Costs, 2015 $/Unfired kW	**$900**	**$1,170**	**$600**	**$1,330**	**$1,610**	**$1,180**	**$1,130**
Total Project Costs, 2015 $/Fired kW	**$720**	**$930**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
FIXED O&M COSTS							
Fixed O&M Cost, 2015$/kW-Yr	$8.30	$13.60	$7.30	$11.40	$31.70	$11.70	$9.50
GAS TURBINE MAJOR MAINTENANCE COSTS							
Levelized Major Maintenance Cost, 2015$/GT-hour	$400	$400	$400	$400	$190	$20	$50
Levelized Major Maintenance Cost, 2015$/GT-Start	$15,000	$15,000	$15,000	N/A	N/A	N/A	N/A
NON-FUEL VARIABLE O&M COSTS							
Variable O&M Cost, 2015$/MWh (excl. major maint.)	$1.60	$1.70	$0.90	$4.30	$7.10	$3.90	$3.00
Incr. Duct Fired Variable O&M, 2015$/MWh (excl. major maint.)	$1.50	$1.40	N/A	N/A	N/A	N/A	N/A

5.0 ECONOMIC EVALUATION

The following section provides the assumptions, methodology, and results of the economic evaluation.

5.1 General Power Supply Assumptions

The analysis began with the development of baseline assumptions and constraints applicable to MWE. The following general assumptions were used:

- The study period covers 20 years, from 2016 through 2035.
- The general escalation rate was assumed to be 2.5 percent.

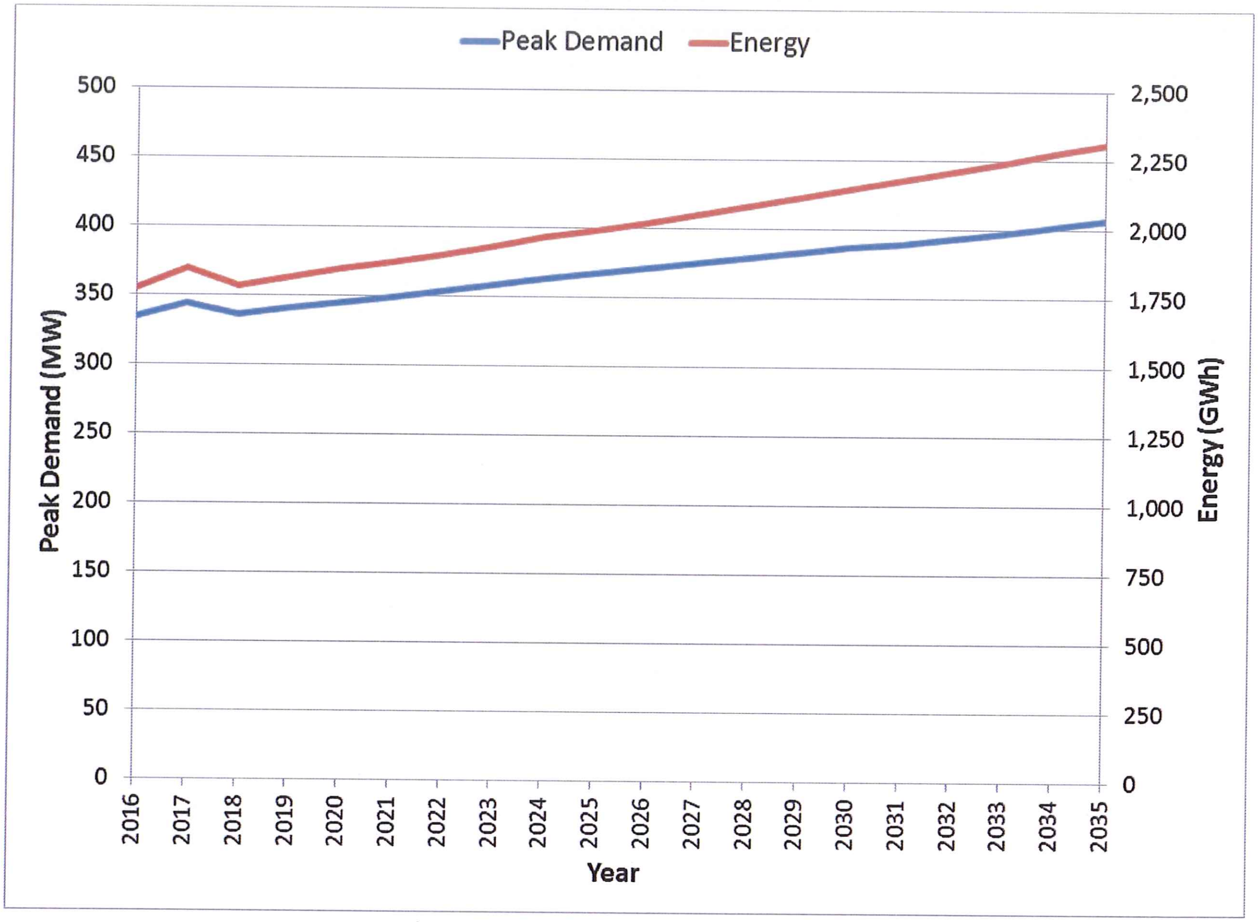
- MWE's interest rate for financing was 3.75 percent in 2015, and increased by 0.1 percent per year to a maximum of 4.75 percent in 2025.
- New resources were financed over 30 years with 60 percent debt and 40 percent equity.
- The return on equity was assumed to be 9.91 percent.
- The discount rate was assumed to be 6.21 percent.
- Resource options were assumed to be dispatched into the SPP integrated marketplace.

These assumptions, and others described herein, served as a basis for the economic analysis.

5.2 Load Forecast

SPP requires that all members conduct an annual load forecast that has a well-defined methodology. MWE's annual forecast was developed internally by MWE. The load forecast was based on a projection from July 2015 for MWE's demand and energy requirements through 2025; thereafter peak demand was escalated at 1.0 percent and the energy was escalated by 1.5 percent annually. The forecasts for demand and energy are summarized on an annual basis over the study period in Figure 5-1. The load forecast does include 10 MW of wholesale load through 2017 and a reduction of 20 MW due to DSM throughout the study period.

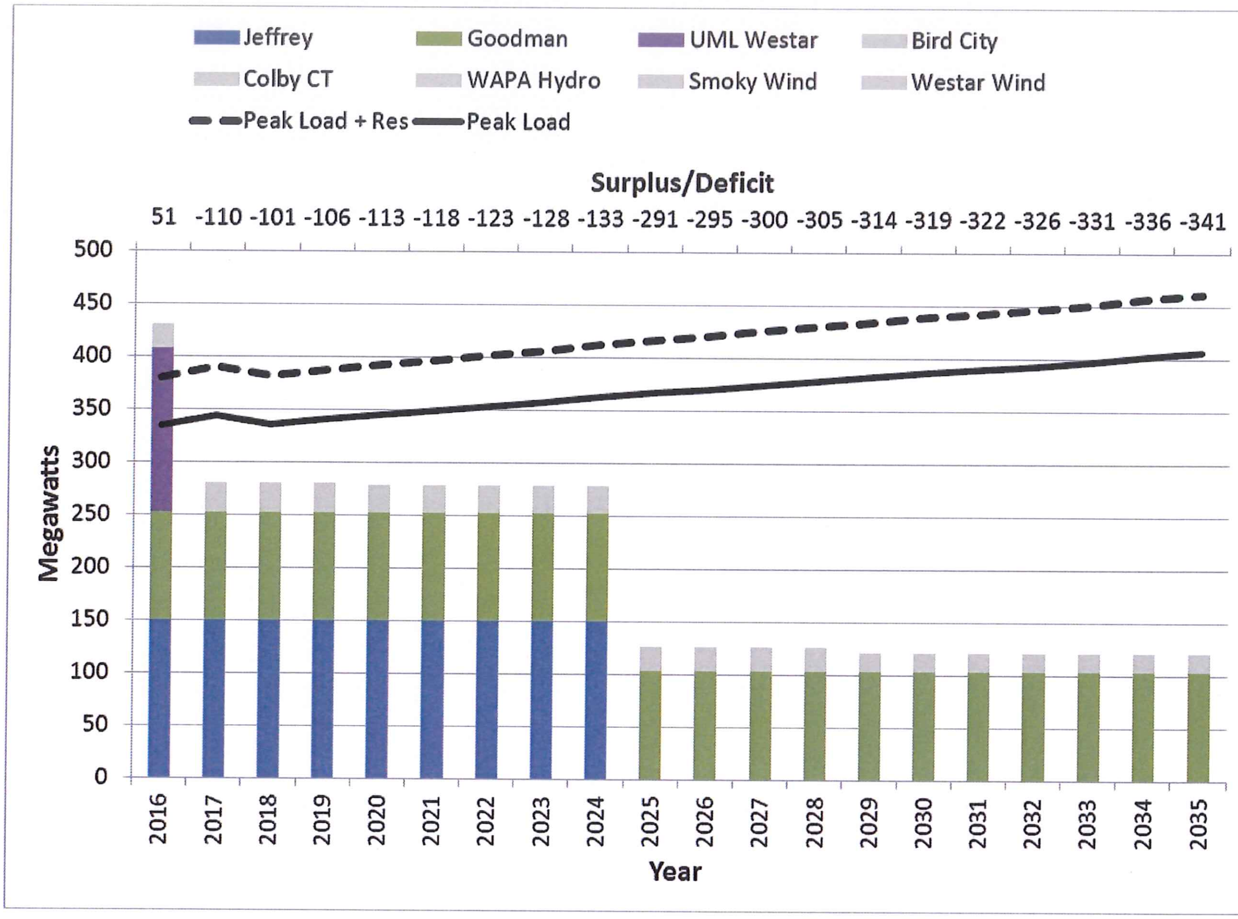
Figure 5-1: MWE Load Forecast



5.3 Balance of Loads and Resources

As described above in Section **Error! Reference source not found.**, MWE has a number of resources to meet its capacity reserve margin requirements. A BLR based on the load forecast and resources that MWE will have available to meet its obligations are presented in Figure 5-2. MWE must maintain a reserve margin of 13.64 percent, a number which is prescribed by SPP. Based on existing resources and current load projections, MWE will be capacity deficit by over 100 MW after the expiration of the UML Westar contract in 2017. The various resource selections evaluated to fill MWE's capacity deficit are covered in Section 5.6.

Figure 5-2: MWE Existing Resources Balance of Loads and Resources



5.4 Power Supply Options

In addition to the new, self-build power supply options discussed in Section 4.0, proposals received from a recent power supply RFI were also included as part of the economic evaluation. Table 5-1 summarizes the RFI proposals that were considered in this Study.

Table 5-1: RFI Proposal Summary

Proposal	Resource Type	Capacity
Airstream	Peaking PPA	153 MW/161 MW
Dogwood	Intermediate Ownership	150 MW
Invenergy	Intermediate PPA	150 MW
Southern Company	Peaking PPA	150 MW
Tradewind	Peaking PPA	112 MW/168 MW
Westar	Peaking PPA	130 MW

Levelized cost of electricity (LCOE) screening curves were then developed to help determine which assets, both new and RFI proposal options, would be carried forward into scenarios for analysis. Figure 5-3, Figure 5-4, and Figure 5-5 show the LCOE for each resource considered at varying capacity factors. The lower cost resources, those identified with markers on the screening curves, were chosen to be included in Section 5.6 Scenario Development.

Figure 5-3: Peaking PPA Resources LCOE

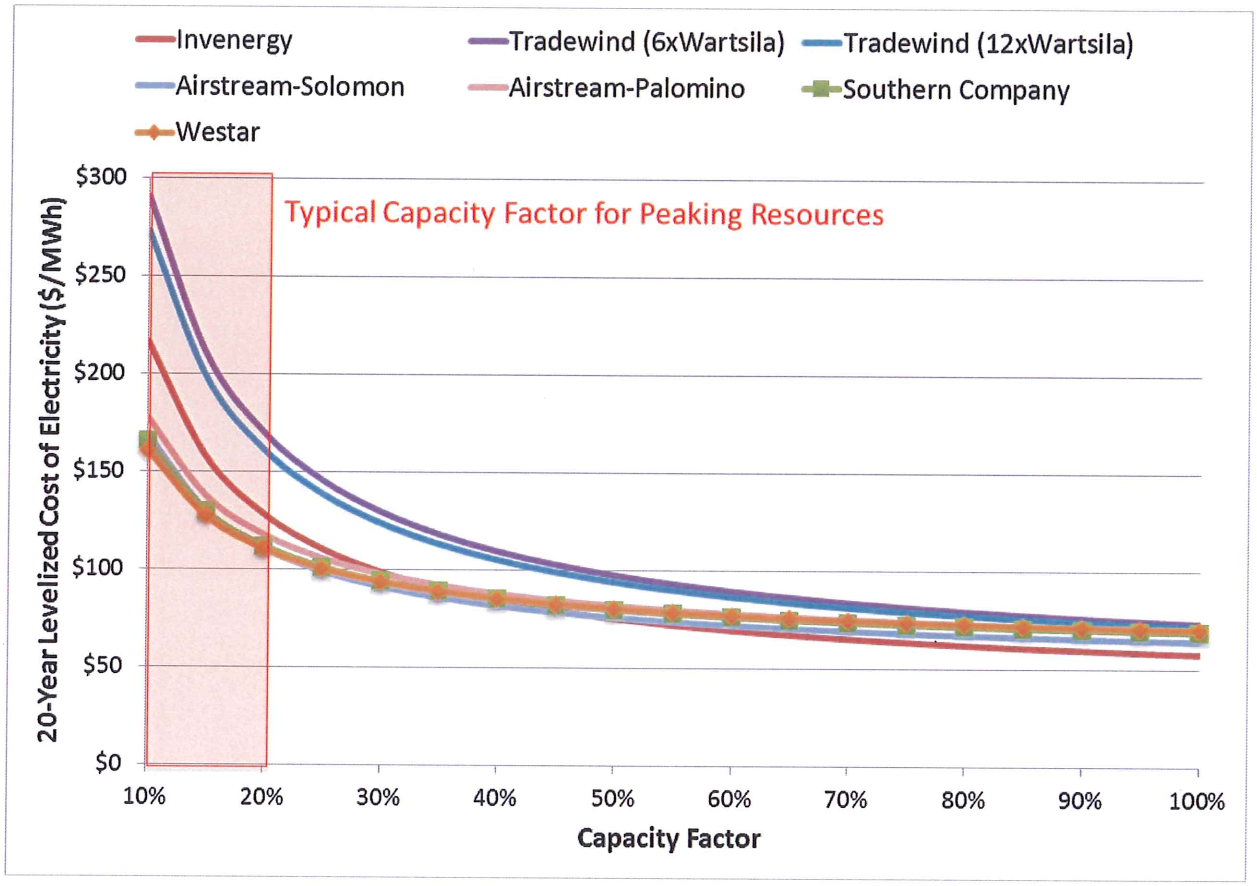


Figure 5-4: Peaking Self-Build Resource LCOE

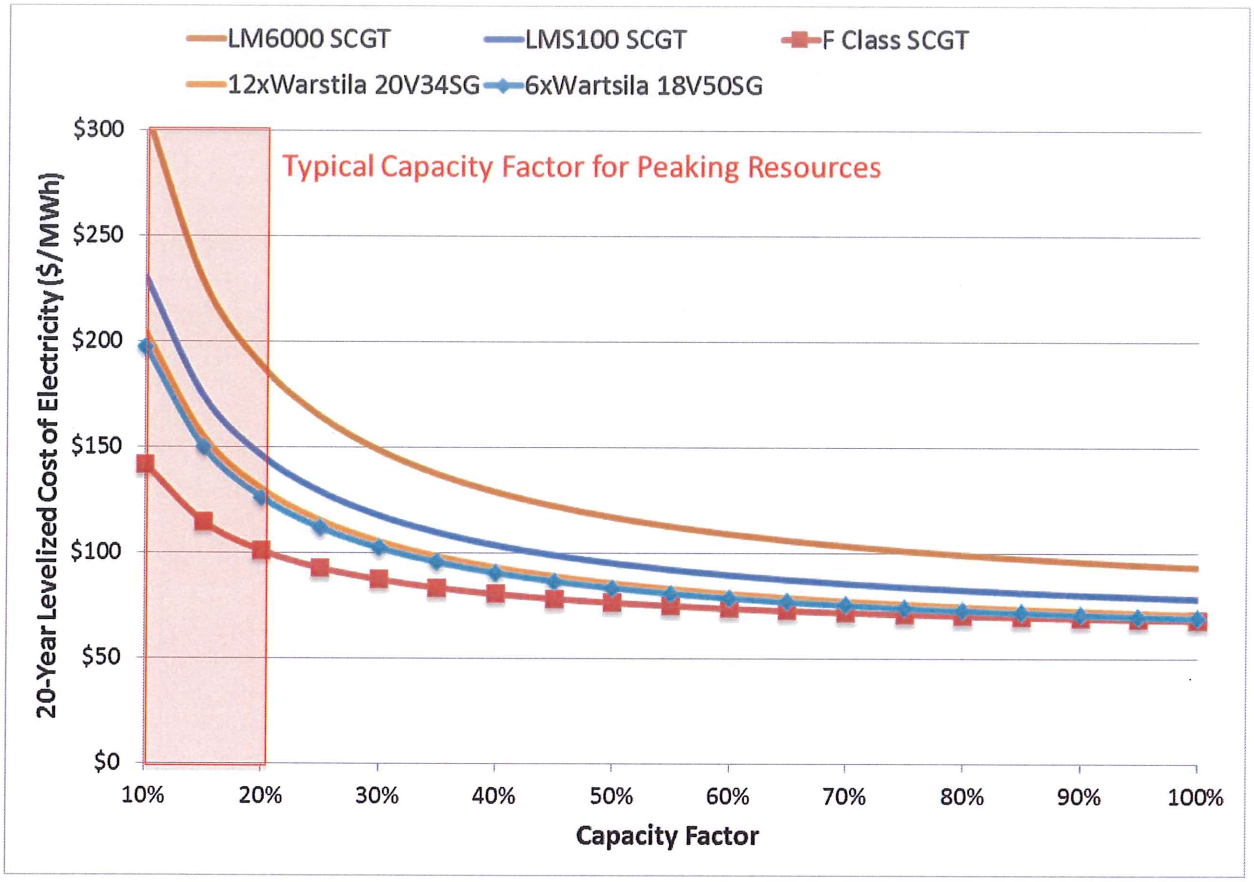
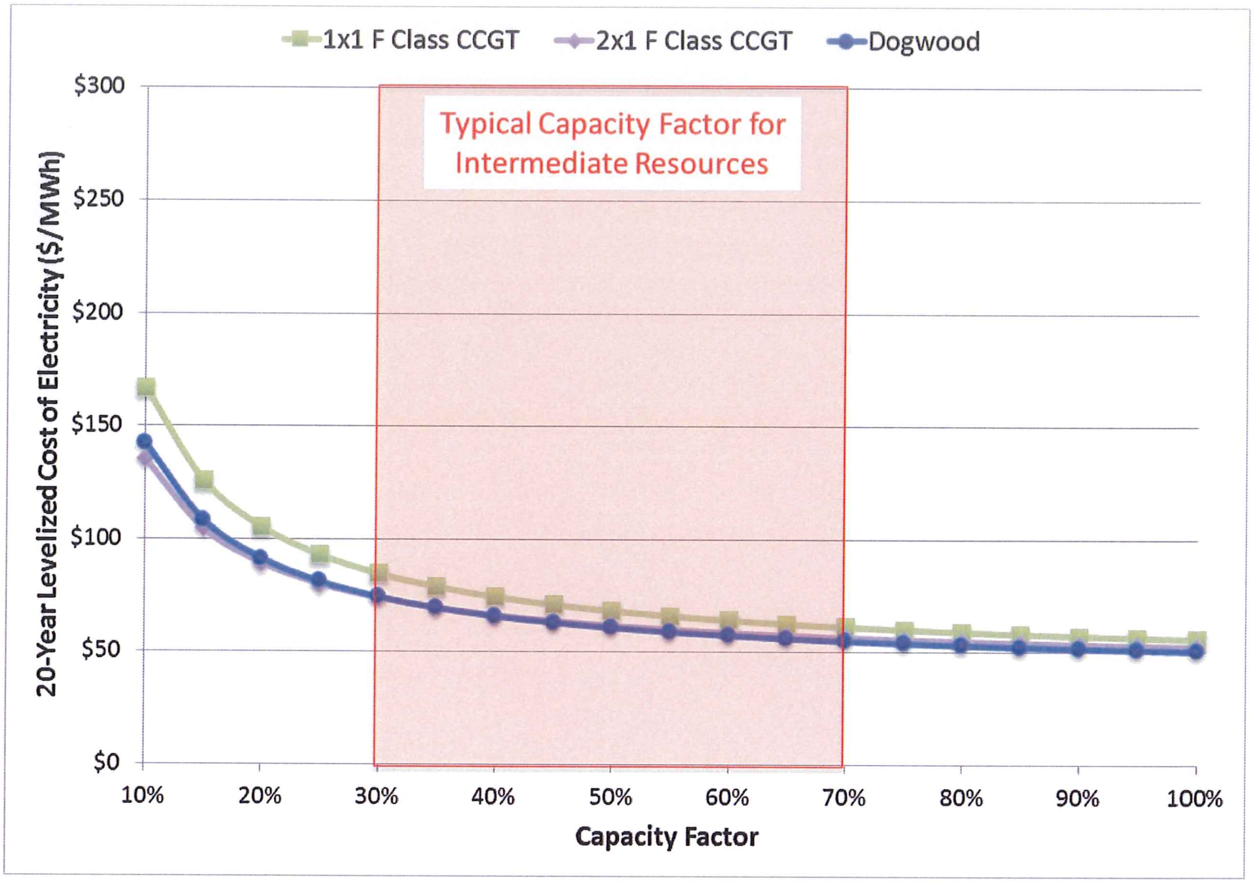


Figure 5-5: Intermediate Resource LCOE



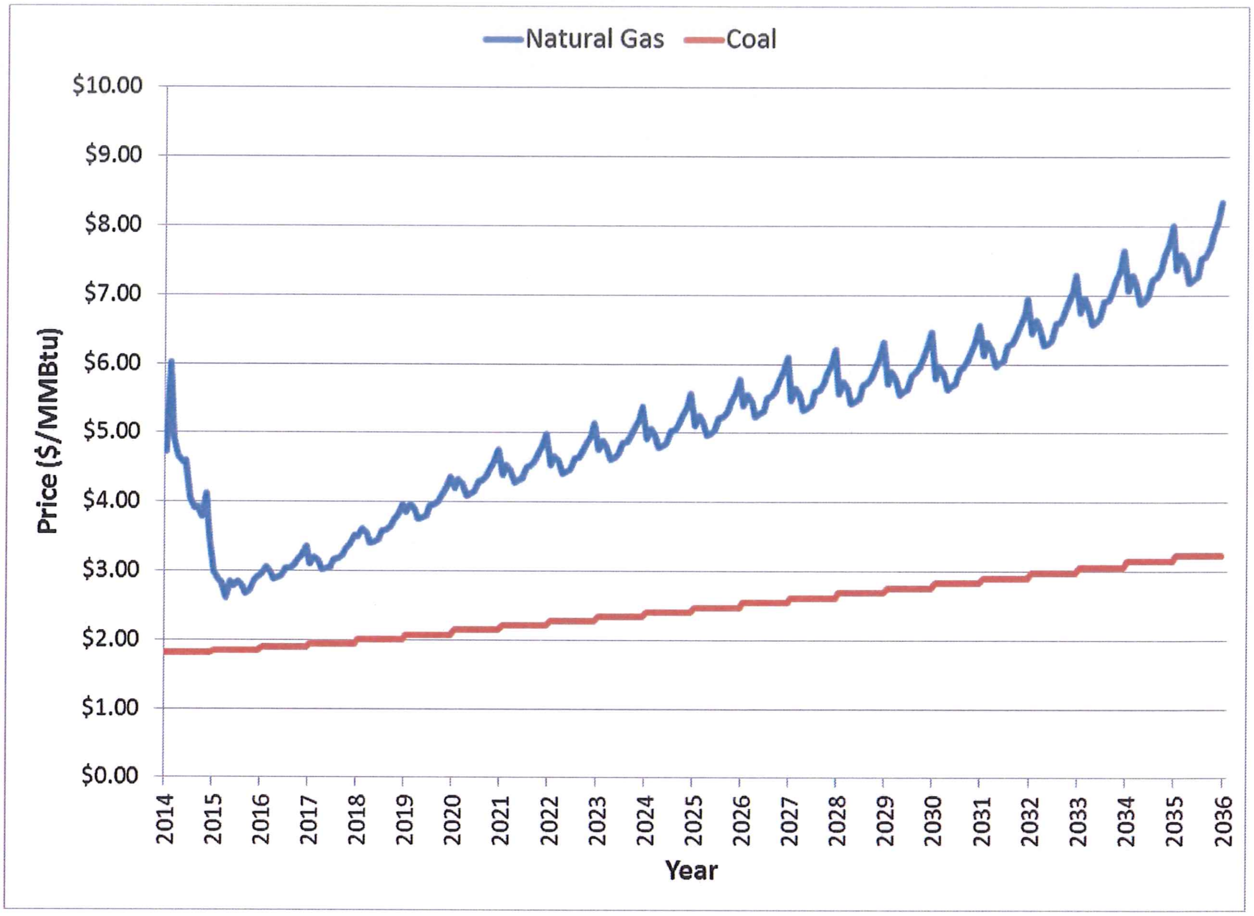
5.5 Forecasts

In order to conduct a long-term resource planning assessment for power supply, several forecasts have to be developed for evaluation. For this Study, BMcD developed key forecasts for fuel costs and wholesale market energy prices using reputable publicly available sources. The following sections provide a summary of the forecasts developed and utilized within this Study. Further details of the forecasts are presented in Appendix C.

5.5.1 Fuel Cost Forecast

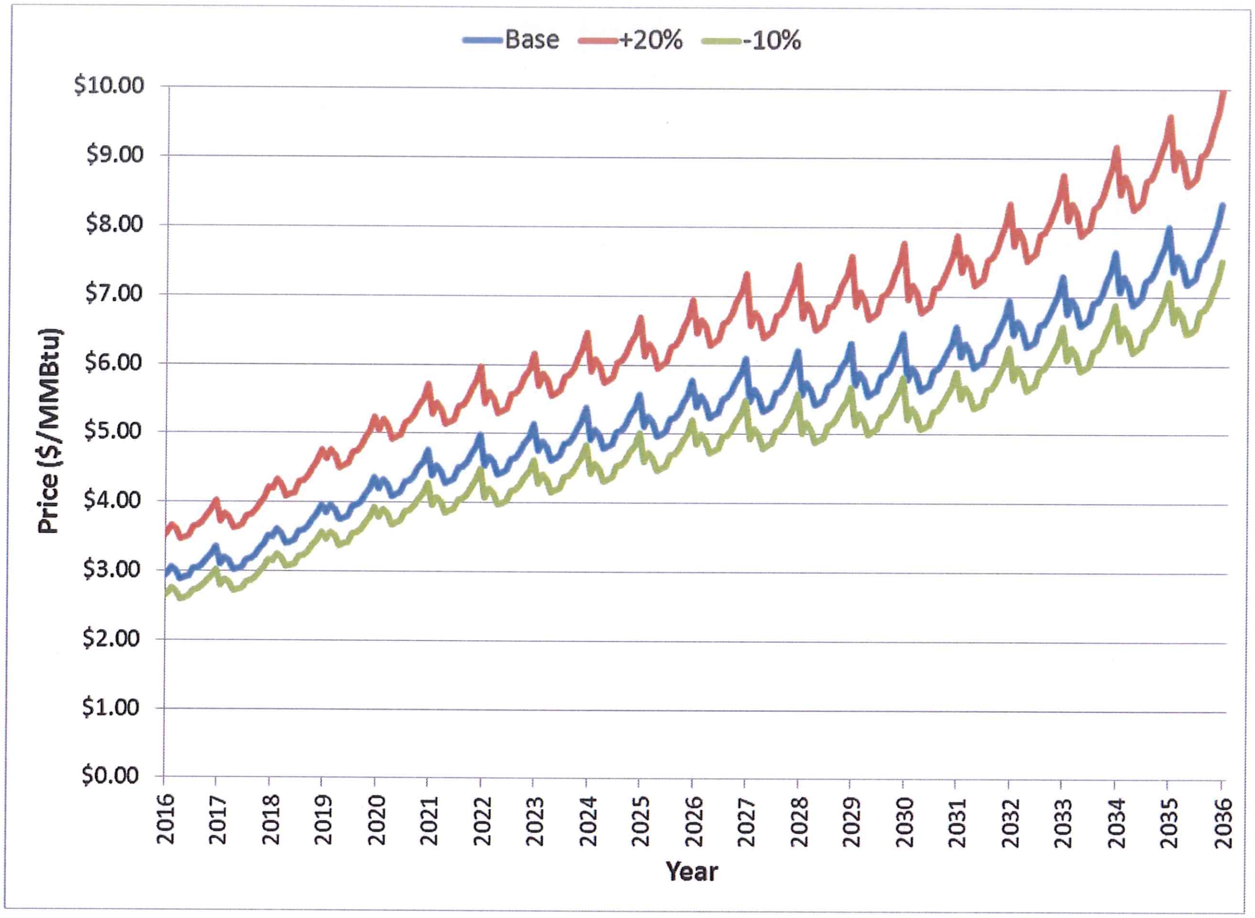
BMcD utilized projected information regarding natural gas fuel cost developed by the U.S. Department of Energy's Energy Information Administration. Coal fuel costs were based off historical Jeffrey Energy Center pricing and escalated by EIA's long-term coal forecast. Figure 5-6 presents both the base natural gas and coal fuel forecasts.

Figure 5-6: Fuel Cost Forecasts



Varying natural gas prices was performed as a sensitivity analysis and provides for a more robust evaluation to determine whether different resource paths appear more favorable under alternate economic forecasts. Figure 5-7 presents the high (+20 percent) and low (-10 percent) natural gas price sensitivities utilized in this study.

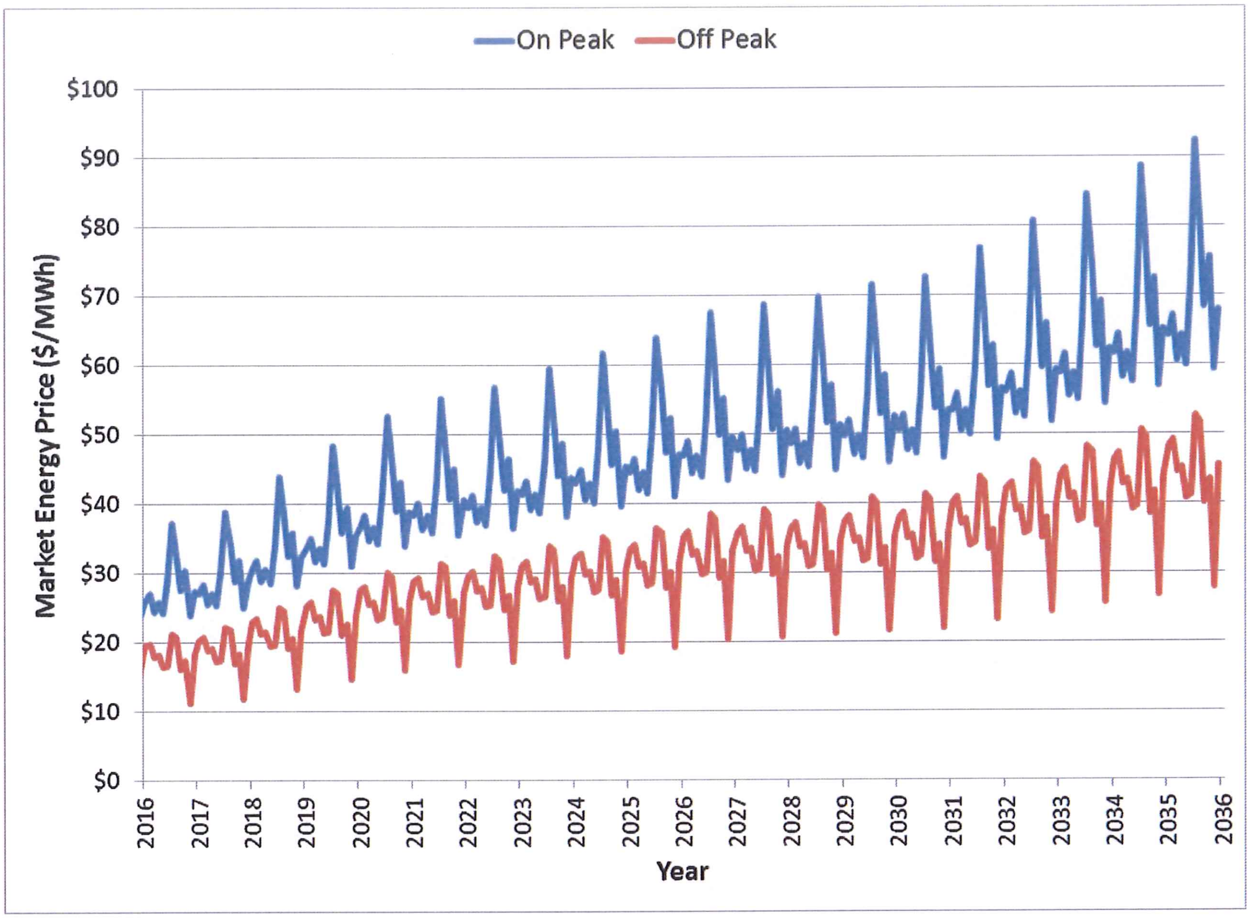
Figure 5-7: Sensitivity Natural Gas Cost Forecasts



5.5.2 Market Energy Cost Forecast

BMcD utilized historical market heat rate information from the SPP wholesale energy market, combined with the natural gas forecasts, to approximate the overall market price of energy. Figure 5-8 presents the market energy cost forecast utilizing the base fuel forecast costs. The market energy price was adjusted for variations in natural gas pricing within the sensitivity evaluation.

Figure 5-8: Market Energy Cost Forecast



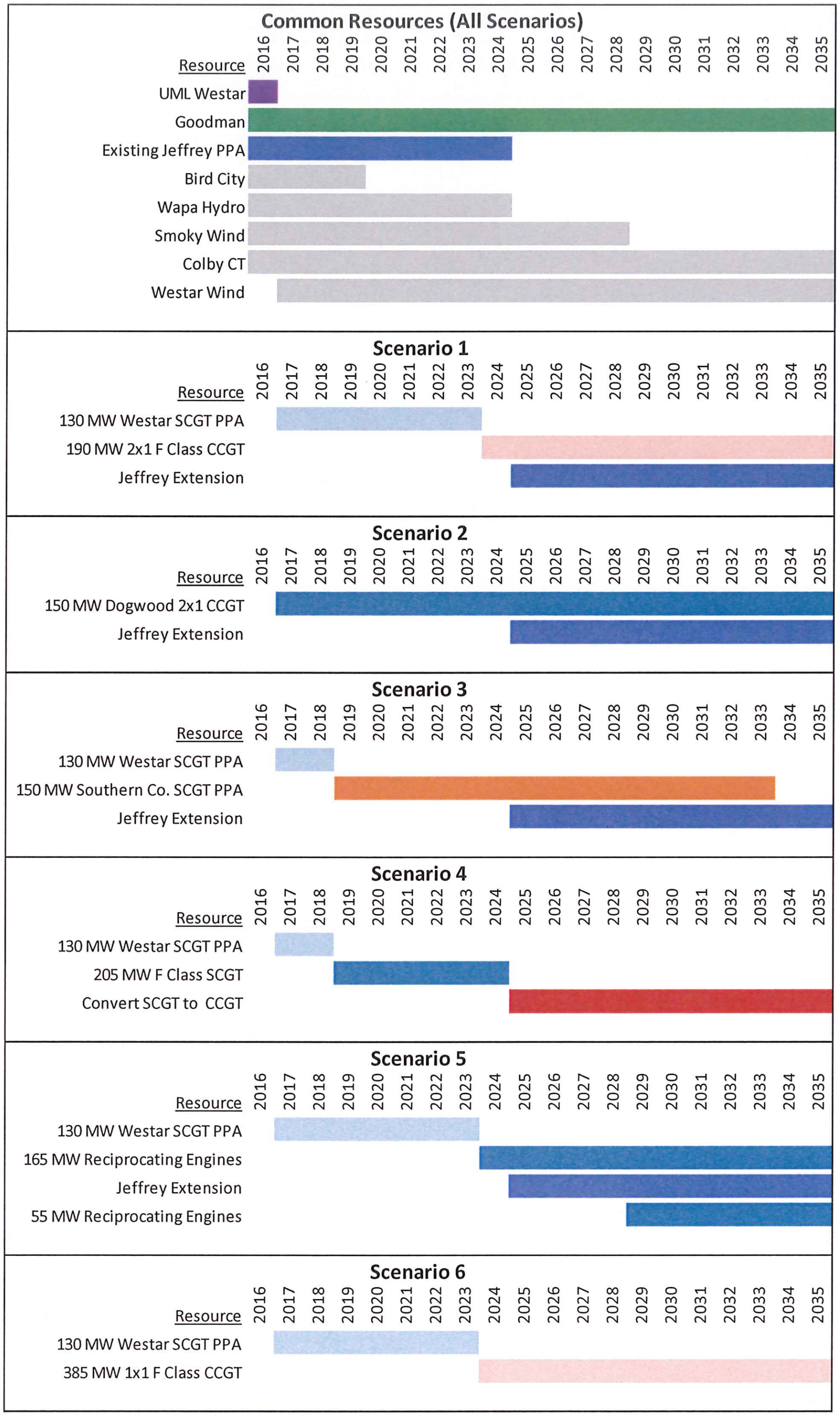
5.6 Scenario Development

BMcD and MWE developed distinct scenarios, or power supply paths, with specific options for MWE to meet projected power supply requirements. These scenarios focused on addressing the capacity deficits created by the expiration of the UML Westar contract in 2017 and the Jeffrey Energy Center contract in 2025. Six specific scenarios were developed and are presented in Table 5-2. Figure 5-9 presents a graphical illustration of the six scenarios, with the resources that are common to all scenarios summarized at the top.

Table 5-2: Scenario Summary

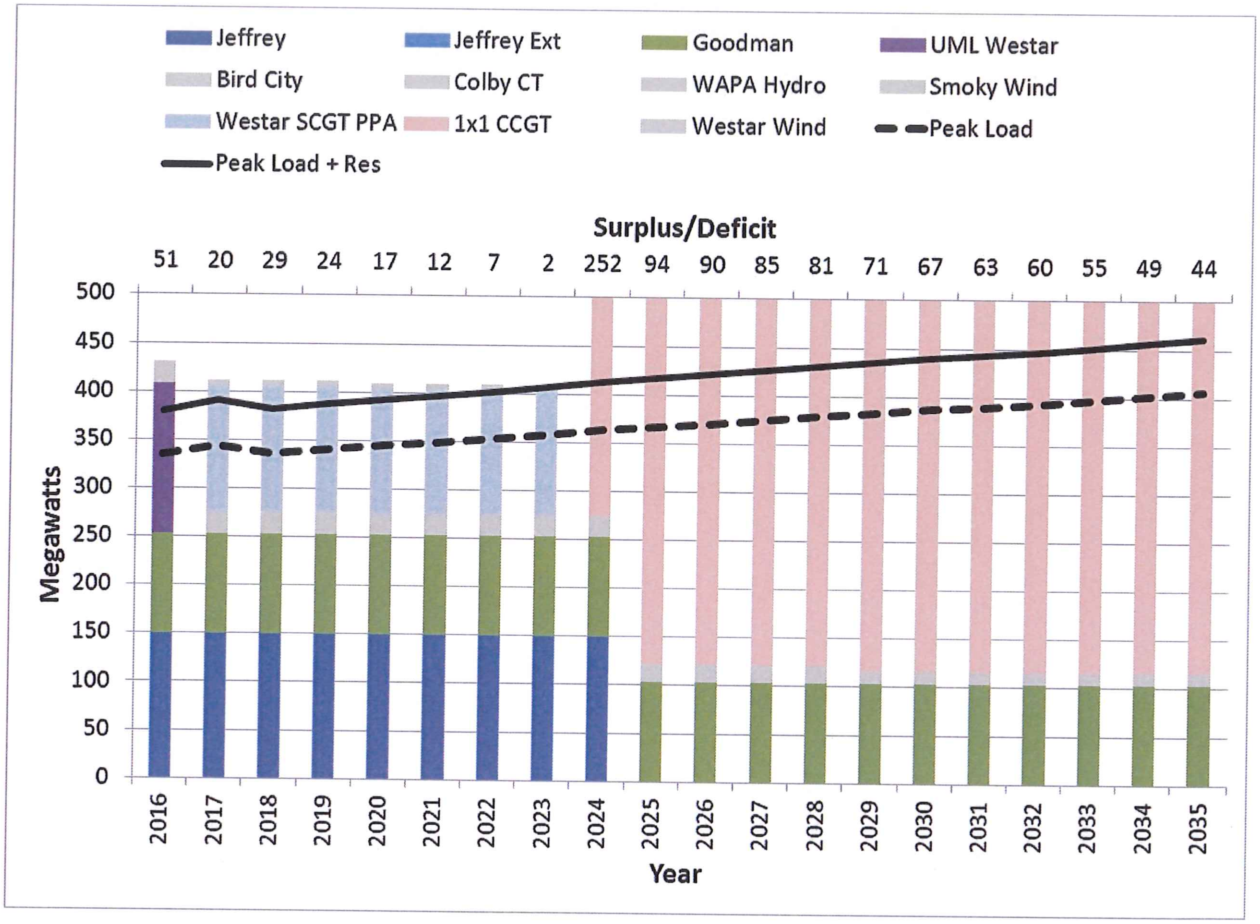
Scenario	Power Supply Selections	
1	2017-2023:	130 MW Westar SCGT PPA
	2024+:	190 MW 2x1 F Class CCGT
	2025+:	150 MW JEC Extension
2	2017+:	150 MW Dogwood 2x1 CCGT
	2025+:	150 MW JEC Extension
3	2017-2018:	130 MW Westar SCGT PPA
	2019-2033:	150 MW Southern Co. SCGT PPA
	2025+:	150 MW JEC Extension
4	2017-2018:	130 MW Westar SCGT PPA
	2019-2024:	205 MW F Class SCGT
	2025+:	Convert SCGT to 385 MW 1x1 F Class CCGT
5	2017-2023:	130 MW Westar SCGT PPA
	2024+:	165 MW Reciprocating Engines
	2025+:	150 MW JEC Extension
	2029+:	55 MW Reciprocating Engines
6	2017-2023:	130 MW Westar SCGT PPA
	2024+:	385 MW 1x1 F Class CCGT

Figure 5-9: Scenario Summary



A BLR for each of the scenarios was developed and is presented in Appendix C. Figure 5-10 presents the BLR for Scenario 6 as an illustrative example.

Figure 5-10: BLR for Scenarios 6



5.7 Power Supply Analysis

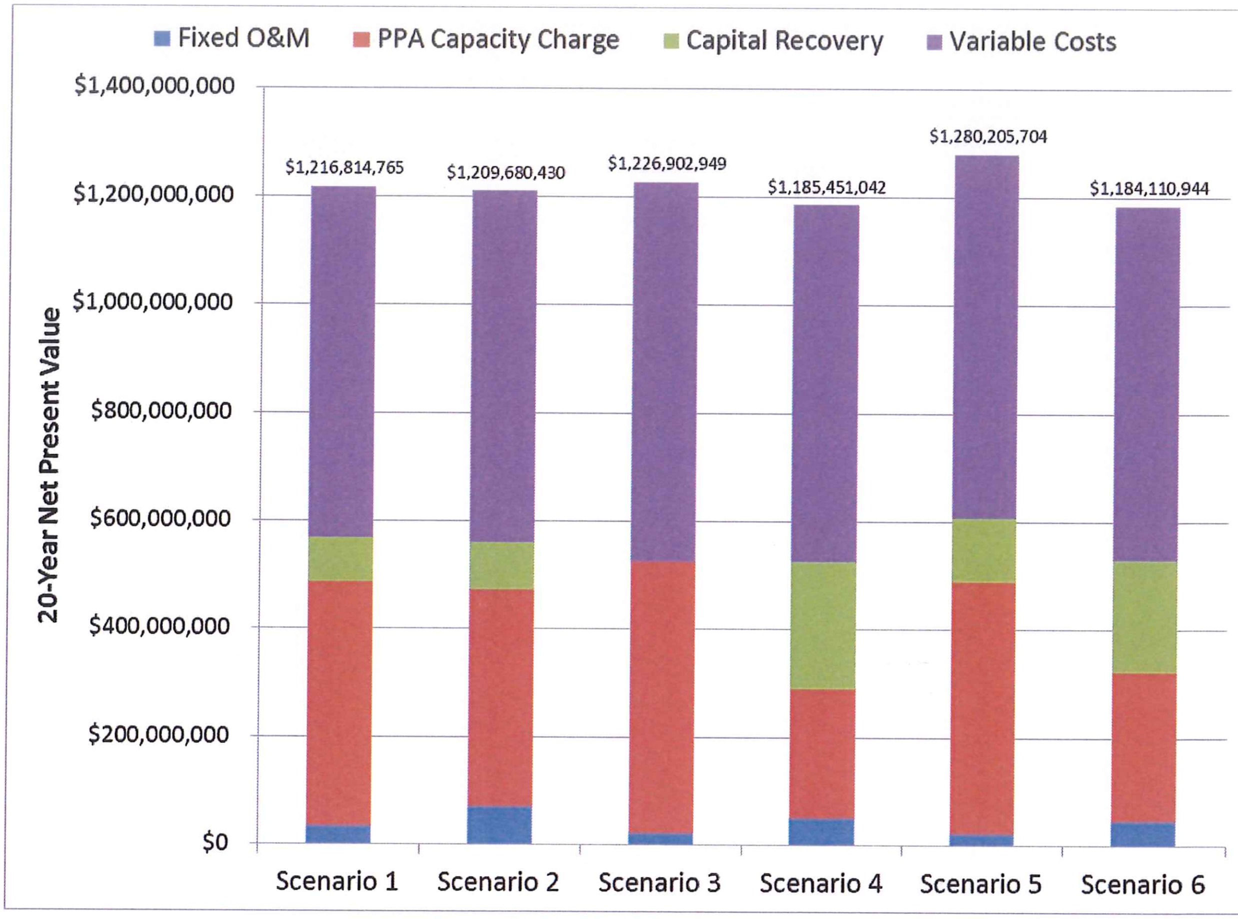
For each of the scenarios, BMcD simulated the power supply resources utilizing PROMOD, an hourly dispatch software, over the 20-year study period. PROMOD simulates the dispatch of power supply resources available to meet MWE's load requirements. UML Westar and WAPA Hydro resources were dispatched directly to MWE load, all other existing and new resources were dispatched against SPP market energy prices. When dispatched, those units would generate revenues within the SPP energy market, offsetting their cost of generation. The power supply analysis evaluated the total cost of generation including fuel, O&M costs, and capital recovery less any market revenues for each scenario. Existing debt and capital recovery were considered sunk costs and not included within the analysis. The total power supply costs over the 20-year period were brought back to a single net present value for comparison. Table 5-3 presents the net present value for each scenario under base case assumptions. The percent difference included in Table 5-3 illustrates how much higher cost each scenario is compared to the low cost scenario.

Table 5-3: Base Case Results

Year	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
2016						
2017	130MW Westar SCGT PPA	150MW Dogwood 2x1 CCGT	130MW Westar SCGT PPA	130MW Westar SCGT PPA	130MW Westar SCGT PPA	130MW Westar SCGT PPA
2018						
2019			150MW Southern Co. SCGT PPA	205MW SCGT		
2020						
2021						
2022						
2023						
2024	190MW 2x1 CCGT				165MW Reciprocating Engines	385MW 1x1 CCGT
2025	150MW JEC Extension	150MW JEC Extension	150MW JEC Extension	Convert SCGT to 385MW 1x1 CCGT	150MW JEC Extension	
2026						
2027						
2028						
2029					55MW Reciprocating Engines	
2030						
2031						
2032						
2033						
2034						
2035						
NPV	$1,216,814,762	$1,209,680,426	$1,226,902,949	$1,185,451,040	$1,280,205,700	$1,184,110,941
% DIFF	2.76%	2.16%	3.61%	0.11%	8.12%	0.00%

Figure 5-11 breaks down the total net present value into fixed O&M, PPA capacity charge, capital recovery, and variable cost components. Detailed PROMOD result summaries are included in Appendix D.

Figure 5-11: Net Present Value Breakdown: 2016-2035



As presented in Table 5-3, Scenario 6, participation in a short-term Westar SCGT PPA followed by a large "F-class" combined cycle gas turbine in the mid-2020s, provides the lower total power supply costs based on the net present value. Scenario 4, which replaces the Westar SCGT PPA with a "F-class" simple cycle gas turbine in 2019 before converting that unit to a combined cycle in the mid-2020s, comes in just behind Scenario 6 based on net present value. A short-term PPA does not have any capital risk and allows MWE to have flexibility in determining long-term carbon regulation compliance. Extending the contract with Jeffrey Energy Center, installing more reciprocating engines, or going with one of the other PPA options presents a higher projected power supply cost than the "F-class" technologies.

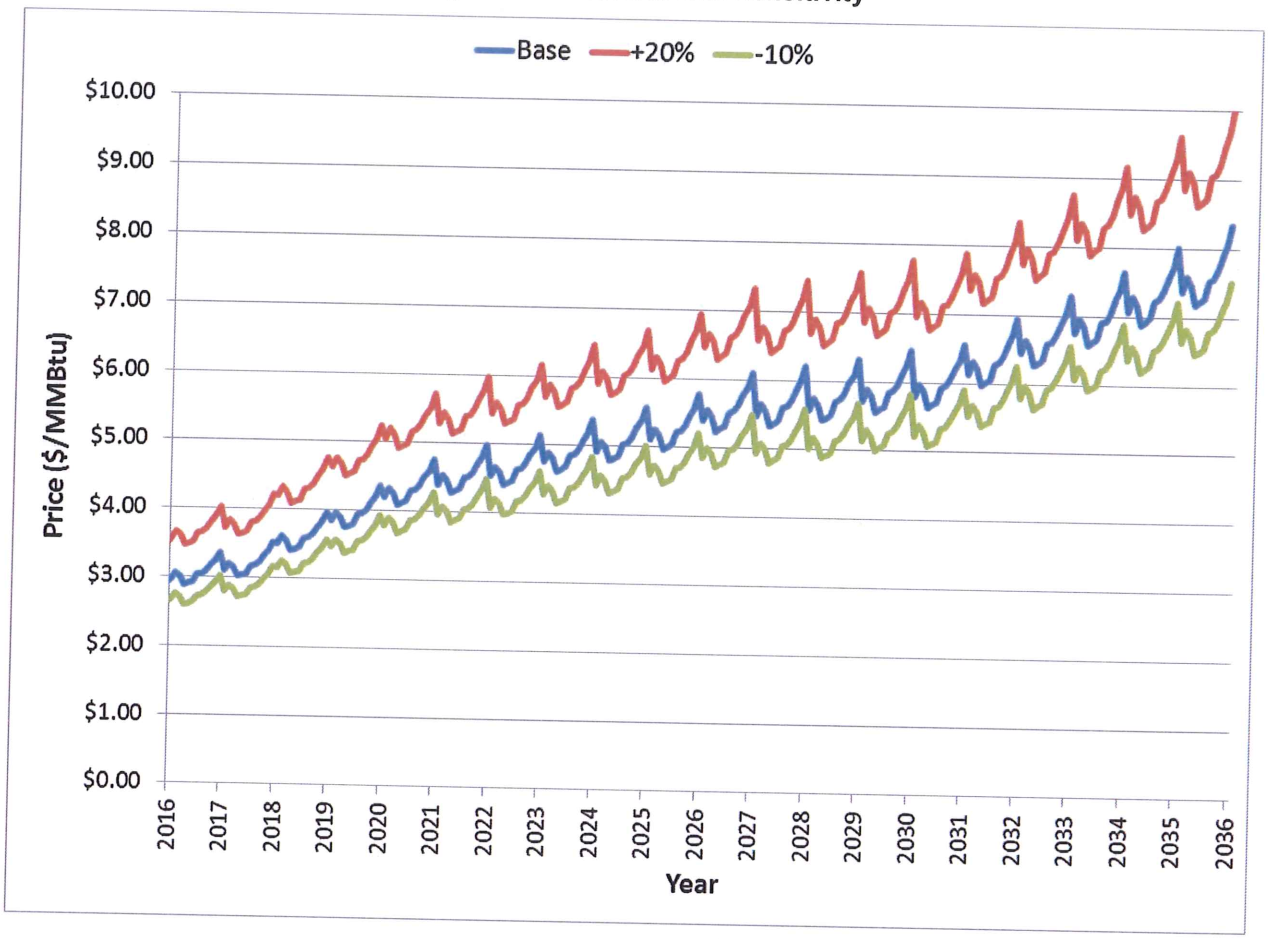
5.8 Sensitivity Analysis

In order to gauge the robustness of the base assumptions, BMcD conducted a sensitivity analysis by varying several key assumptions, including:

- Natural gas

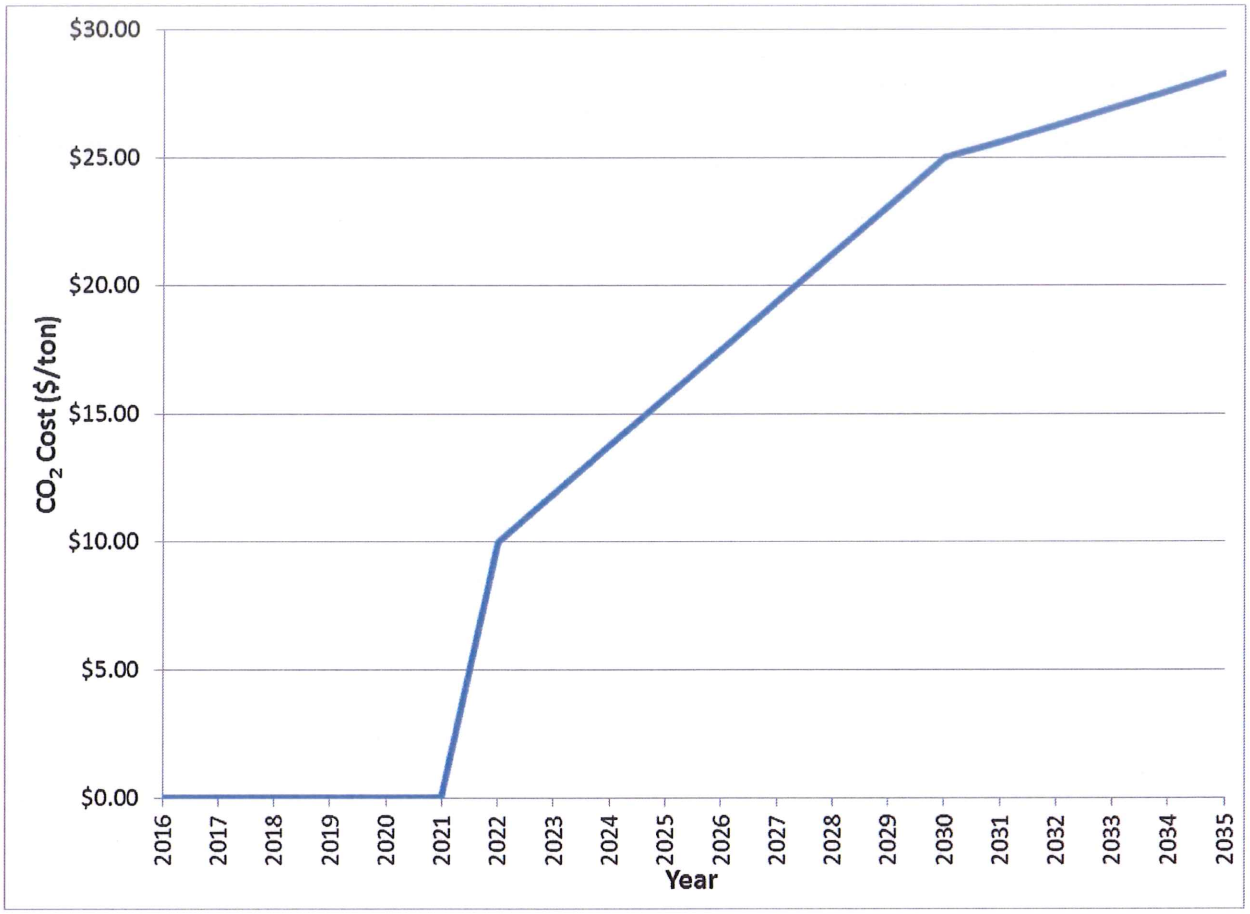
- Natural gas prices were varied by +20 percent and -10 percent, as presented in Figure 5-12. This impacted the cost of fuel to the natural gas-fired resources, the cost of the energy under the PPAs, and the price of market energy.

Figure 5-12: Natural Gas Sensitivity



- Carbon
  - A carbon sensitivity was performed to approximate the impact of future carbon regulations. $10/ton cost of CO_2 was added in 2022, this cost increased to $25/ton by 2030 and escalated by the general escalation rate from 2030 to the end of the study period. These carbon cost projections are shown in Figure 5-13.

Figure 5-13: Carbon Sensitivity



- Market capacity sales
  - Sell capacity in excess of MWE's reserve margin requirements. This excess capacity was valued at the cost of "F-class" SCGT capacity charges, which is the same price market capacity was purchased at when MWE was deficit
- Interest rate
  - Increase the interest rate by 1 percent. This interest rate was used in all capital recovery calculations.

The sensitivity analysis was conducted on all scenarios. Table 5-4 presents the net present value for each of the sensitivities. The percent difference illustrates how much higher cost each scenario is compared to the low cost scenario for each sensitivity. Scenario 6 demonstrates robustness and remains the low cost option in four of six sensitivities. In the remaining two sensitivities, +20 percent natural gas and market capacity sales, Scenario 6 is still within one percent of the low cost NPV.

Table 5-4: Sensitivity Analysis Summary

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Base Case						
NPV	$1,216,814,762	$1,209,680,426	$1,226,902,949	$1,185,451,040	$1,280,205,700	$1,184,110,941
% DIFF	2.76%	2.16%	3.61%	0.11%	8.12%	0.00%
-10% Natural Gas						
NPV	$1,197,216,877	$1,191,103,370	$1,202,328,981	$1,149,098,390	$1,258,005,222	$1,148,357,782
% DIFF	4.25%	3.72%	4.70%	0.06%	9.55%	0.00%
+20% Natural Gas						
NPV	$1,247,793,649	$1,238,541,475	$1,267,816,840	$1,252,868,679	$1,316,250,507	$1,250,478,473
% DIFF	0.75%	0.00%	2.36%	1.16%	6.27%	0.96%
CO_2 Cost						
NPV	$1,375,528,111	$1,370,493,099	$1,396,296,906	$1,275,217,554	$1,444,260,737	$1,261,679,242
% DIFF	9.02%	8.62%	10.67%	1.07%	14.47%	0.00%
Market Capacity Sales						
NPV	$1,195,139,965	$1,192,190,928	$1,211,666,994	$1,130,456,662	$1,256,454,121	$1,135,578,583
% DIFF	5.72%	5.46%	7.18%	0.00%	11.15%	0.45%
+1% Interest Rate						
NPV	$1,222,881,282	$1,215,511,589	$1,226,902,949	$1,202,784,188	$1,287,213,250	$1,199,729,179
% DIFF	1.93%	1.32%	2.26%	0.25%	7.29%	0.00%

5.9 Economic Evaluation Conclusions

The following provides conclusions and observations of the economic evaluation based on the assumptions and analysis herein:

1. Under base case assumptions:
   a. Scenario 6, which includes a peaking resource PPA from Westar and a self-build 1x1 CCGT unit, represents the lowest cost option of those evaluated.
   b. Scenario 4 has nearly the same overall cost as Scenario 6. Scenario 4 assumed a self-build SCGT unit was constructed and then later converted to a CCGT unit.
   c. The scenarios which include the extension of JEC (Scenario 1, Scenario 2, Scenario 3, and Scenario 5) are higher cost than those that assume the JEC PPA is not extended (Scenario 4 and Scenario 6).
   d. Both the Dogwood facility and the Westar SCGT PPA provide lower costs compared to the other resources from the RFI results.
   e. Scenario 5, which includes the JEC extension and reciprocating engines, is the highest cost scenario.
2. Sensitivity evaluation:

a. Scenario 6 is the low cost path for four out of the six sensitivity analyses conducted, including the base case, low natural gas and market, CO2 cost, and increased interest rate.
b. Scenario 2 is the low cost path for the high natural gas and market case, as both the Dogwood resource and JEC are able to capture increased profitability from higher market prices.
c. Scenario 4 is the low cost path when including market capacity sales, since this option has excess capacity beyond MWE's anticipated reserve requirements.

6.0 CONCLUSIONS

Based on the analysis conducted herein, BMcD provides the following conclusions and observations:

1. Electric Power Industry Review
   a. The electric power industry continues to be a target of increased regulations regarding water, coal combustion by-products, and air emissions.
   b. Overall, the power industry has experienced continued interest in wind and solar development. This interest is driven by technological advancements, which have lowered costs and increased energy production, as well as subsidies through tax incentives and renewable standards. The development of wind has been particularly robust in the Southwest Power Pool.
   c. Specific to MWE's power supply, the most immediate area of need will be fulfilling load requirements that are currently served by the Westar UML PPA when the contract expires at the end of May 2017.
2. Technology Assessment
   a. A new resource technology assessment was conducted, evaluating the following new resources:
      i. Natural gas-fired combined cycle, simple cycle, and reciprocating engine power plants
      ii. Resources were considered in which MWE may have the opportunity to self-develop and build or participate in a larger facility as a minority owner or power off-taker.
3. Economic Analysis
   a. Utilizing the information above, BMcD and MWE developed several scenarios to evaluate impacts to MWE's power supply. The scenarios focused on near-term and mid-term requirements driven by the expiration of the UML contract and the expiration of the JEC PPA.
   b. The economic analysis indicates that a new power supply resource, such as a natural gas-based peaking or intermediate resource, would be more economical for MWE's power supply portfolio than extending the JEC PPA.
4. Recommendation and Next Steps
   a. MWE should continue to monitor regulations that have potential to impact their power supply portfolio regarding water, coal combustion by-products, and air emissions.
   b. MWE may consider inquiring with its members about implementation of additional demand and energy reduction programs that may be able to reduce costs associated with power

supply. If desired, a more robust cost/benefit evaluation, that includes a thorough investigation of potential participation and a customer survey, would be required.

c. MWE may consider the next steps in regards to replacing the UML contract including negotiations of a mid-term, peaking/intermediate power purchase agreement with Westar or Dogwood.

d. A PPA appears to provide MWE lower cost and greater flexibility in determining long-term Clean Power Plan compliance without the deployment of capital. A mid-term PPA will allow MWE time and flexibility to determine its long-term power supply path.

e. A combined cycle gas turbine appears to provide lower overall power supply costs compared to extending the JEC PPA under similar terms. Therefore, MWE should continue to evaluate potential combined cycle opportunities that may be available. These opportunities may include participation in a combined cycle resource through a PPA, co-ownership, or self-build resource.

APPENDIX A –

APPENDIX B TECHNOLOGY ASSESSMENT RESULTS

APPENDIX C – ECONOMIC EVALUATION ASSUMPTIONS

APPENDIX D – ECONOMIC EVALUATION RESULTS

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Midwest Energy Resource Plan Cost Summary

Scenario 1 - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	190	190	190	190	190	190	190	190	190	190	190	190
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	631,757	644,934	652,861	640,021	643,931	638,906	628,325	646,093	642,646	667,650	640,683	661,862
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	130	130	130	143	143	130	156	143	143	130	143	143	143	117	143	156
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364	110,314	111,834	107,502	104,386	104,044	111,074	112,062	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,759	40,257	39,731	41,189	38,178	39,920	39,380	40,838	40,770	39,947	41,067	41,702
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	966,525	979,950	969,375	976,200	965,775	962,325	979,425	993,075	1,003,575	1,019,625	1,019,250
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	68,094	75,712	81,120	93,912	89,882	86,476	93,652	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	2 x 1 CCGT Self-build									38%	39%	39%	38%	39%	38%	38%	39%	39%	40%	38%	40%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%	17%	17%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	16%	17%	17%	17%	17%	17%	17%	18%
CAPACITY FACTOR	%	JEC Extension										74%	75%	74%	74%	73%	73%	75%	75%	76%	78%	78%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$1,970,300	$2,017,800	$2,069,100	$2,120,400	$2,173,600	$2,228,700	$2,283,800	$2,340,800	$2,399,700	$2,460,500	$2,521,300	$2,584,000
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	2 x 1 CCGT Self-build									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$2,230,532	$2,335,335	$2,423,318	$2,439,850	$2,511,332	$2,555,845	$2,576,595	$2,714,269	$2,771,279	$2,945,804	$2,895,889	$3,071,039
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,025	$2,691	$3,085	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$4,007	$4,108	$3,827	$4,316	$4,423	$4,535	$3,803	$4,703	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169	$881,667	$916,351	$903,017	$898,779	$917,752	$1,004,266	$1,039,112	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,952	$314,005	$317,447	$337,487	$320,695	$343,707	$347,357	$369,171	$377,938	$379,492	$399,993	$416,181
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,851,193	$35,242,535	$35,844,765	$37,066,314	$37,649,463	$38,509,362	$40,245,341	$41,007,647	$43,528,204	$45,383,507	$46,569,533
VARIABLE O&M COST	$	JEC Participation	$21,140,031	$22,174,320	$24,540,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$302,337	$345,247	$378,830	$449,923	$441,414	$435,068	$482,308	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,050,918
VARIABLE O&M COST	$/MWh	2 x 1 CCGT Self-build									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60

Midwest Energy Resource Plan Cost Summary

Scenario 1 - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$22,400,148	$23,759,950	$25,332,096	$25,297,238	$25,934,995	$26,355,058	$26,225,620	$28,551,301	$29,860,306	$32,523,602	$32,767,645	$35,193,867
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$10,811	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$15,478	$15,750	$14,700	$16,371	$17,329	$18,193	$15,506	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181	$5,433,945	$5,606,460	$5,499,261	$5,462,524	$5,508,414	$6,240,420	$6,607,520	$7,009,105	$7,374,072	$7,416,372
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,539,045	$1,603,484	$1,683,344	$1,751,731	$1,886,002	$1,963,233	$2,071,222	$1,953,682	$2,097,227	$2,093,031	$2,300,763	$2,410,791	$2,475,882	$2,665,192	$2,823,923
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,331,432	$2,929,599	$3,449,290	$4,349,280	$4,355,936	$4,322,103	$4,906,695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	2 x 1 CCGT Self-build									6.99	7.00	6.99	7.00	7.00	7.00	6.99	6.99	7.00	7.00	7.02	7.00
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.21	19.20	19.20	19.16	19.18	19.19	19.26	19.16	19.15	19.20	19.18	19.17	19.16	19.04	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89	8.88	8.87	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.93	8.91	8.91	8.90	8.90	8.90	8.92	8.90	8.91	8.91	8.91	8.90	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.70	10.72	10.71	10.70	10.70	10.70	10.69												
CAPTIAL RECOVERY	$	2 x 1 CCGT Self-build									$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	57	49	45	40	35	26	21	18	14	9	4	-1
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,150	149,751	150,201	153,166	145,823	144,436	143,567	152,055	152,975	153,418	155,020	151,868
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	1,671,857	1,611,459	1,632,811	1,609,396	1,620,131	1,604,681	1,590,650	1,625,518	1,635,721	1,671,225	1,660,308	1,681,112
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,150	149,751	150,201	153,166	145,823	144,436	143,567	152,055	152,975	153,418	155,020	151,868
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	1,671,857	1,611,459	1,632,811	1,609,396	1,620,131	1,604,680	1,590,650	1,625,518	1,635,721	1,671,225	1,660,308	1,681,112
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,031,299	$8,555,635	$8,399,299	$9,067,460	$9,627,302	$10,266,651	$10,850,823	$11,167,465	$10,906,235	$11,009,688	$11,170,368	$12,510,988	$13,156,255	$13,787,034	$14,552,396	$14,853,196
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,624,043	$25,276,218	$30,560,369	$35,353,082	$41,270,519	$42,763,074	$44,006,380	$46,697,297	$76,894,286	$77,693,543	$82,959,983	$82,590,779	$85,298,320	$86,562,544	$87,091,409	$93,390,617	$98,751,092	$105,364,874	$109,360,819	$115,732,386
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$57.00	$59.32	$60.72	$63.54	$66.33	$68.56	$72.24	$72.91	$74.79	$76.23	$77.81	$82.28	$86.00	$89.87	$93.87	$97.80
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.15	$28.98	$32.52	$35.53	$38.84	$40.33	$41.61	$43.37	$45.99	$48.21	$50.81	$51.32	$52.65	$53.94	$54.75	$57.45	$60.37	$63.05	$65.87	$68.84
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,195,066	$38,890,852	$39,862,909	$40,859,430	$41,880,480	$42,928,250	$44,000,152	$45,100,140	$46,228,820	$47,385,590	$48,569,489	$49,783,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,878,187	$30,410,453	$32,987,242	$35,412,927	$38,218,871	$39,284,200	$40,296,465	$41,791,979	$46,511,542	$44,910,685	$46,501,234	$47,255,244	$48,640,874	$45,968,202	$46,958,128	$49,026,384	$50,889,968	$52,803,013	$54,754,437	$56,216,898
TOTAL FUEL COSTS	$		$3,235,255	$5,727,368	$7,103,749	$8,214,497	$9,776,005	$10,178,241	$10,072,621	$11,134,553	$28,952,666	$30,772,254	$32,745,952	$32,990,398	$33,403,687	$33,929,508	$33,843,435	$37,109,813	$38,896,810	$42,024,095	$42,826,893	$45,456,970
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($38,326,148)	($45,630,901)	($52,176,382)	($60,020,187)	($62,401,011)	($63,857,431)	($67,900,555)	($98,975,081)	($100,864,216)	($107,517,172)	($107,561,947)	($110,558,197)	($104,666,093)	($105,478,523)	($113,601,156)	($119,903,621)	($127,553,521)	($132,832,200)	($139,735,543)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
TOTAL COSTS	$		$80,497,470	$83,089,245	$84,854,652	$88,681,253	$92,441,087	$96,154,510	$99,023,270	$103,638,878	$108,234,077	$111,243,031	$114,582,702	$118,888,437	$121,100,760	$129,251,817	$132,816,083	$138,202,386	$143,095,882	$148,331,990	$154,172,166	$159,587,126

NPV @ 6.21%: $1,218,814,762 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 1 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	190	190	190	190	190	190	190	190	190	190	190	190
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	657,220	668,808	679,567	670,857	670,773	667,887	656,449	672,041	672,008	690,428	669,754	684,423
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	117	143	143	156	143	156	143	156	156	156	156	156	143	156	156	156	117	195	169
GENERATION	MWh	Goodman Energy Center	97,584	98,040	106,894	109,782	112,442	116,622	110,200	114,038	115,406	118,940	120,916	121,676	117,952	113,430	113,848	120,650	123,500	124,336	122,816	118,826
GENERATION	MWh	Goodman Energy Center Expansion	36,450	37,314	38,394	39,636	41,904	41,918	42,296	42,120	41,837	43,565	43,241	44,550	41,837	43,173	42,498	44,280	44,604	44,105	44,172	44,847
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	1,069,725	1,083,450	1,073,100	1,077,075	1,071,000	1,065,225	1,082,400	1,092,375	1,096,125	1,108,050	1,110,900
GENERATION	MWh	JEC Participation	925,500	939,900	1,005,525	1,049,850	1,083,300	1,086,150	1,086,150	1,095,150	1,155,825	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	365,988	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	77,662	83,512	91,364	102,154	98,410	93,262	98,956	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	2 x 1 CCGT Self-build									39%	40%	41%	40%	40%	40%	39%	40%	40%	41%	40%	41%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	15%	15%	16%	16%	17%	18%	17%	17%	17%	18%	18%	18%	18%	17%	17%	18%	18%	19%	18%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	15%	16%	16%	17%	18%	18%	18%	18%	18%	18%	18%	19%	18%	18%	18%	19%	19%	19%	19%	19%
CAPACITY FACTOR	%	JEC Extension										81%	82%	82%	82%	82%	81%	82%	83%	83%	84%	85%
CAPACITY FACTOR	%	JEC Participation	70%	72%	77%	80%	82%	83%	83%	83%	88%											
CAPACITY FACTOR	%	UML Westar	27%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		7%	7%	8%	9%	9%	8%	9%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$1,970,300	$2,017,800	$2,069,100	$2,120,400	$2,173,600	$2,228,700	$2,283,800	$2,340,800	$2,399,700	$2,460,500	$2,521,300	$2,584,000
FIXED O&M COST	$	Bird City	$121,420	$124,400	$127,500	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	2 x 1 CCGT Self-build									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$2,320,419	$2,421,773	$2,522,435	$2,557,339	$2,616,016	$2,671,799	$2,691,918	$2,823,254	$2,897,859	$3,046,290	$3,027,289	$3,175,723
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,561	$3,209	$3,289	$3,678	$3,456	$3,864	$3,631	$4,059	$4,161	$4,265	$4,371	$4,482	$4,210	$4,708	$4,825	$4,947	$3,803	$6,495	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$609,082	$627,456	$701,237	$737,748	$774,893	$823,721	$798,190	$846,102	$878,326	$927,862	$966,423	$996,989	$990,797	$976,664	$1,004,223	$1,090,851	$1,145,317	$1,181,684	$1,196,228	$1,185,883
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$227,504	$238,810	$251,869	$266,359	$288,778	$296,069	$306,341	$312,530	$318,376	$339,803	$345,492	$365,029	$351,427	$371,720	$374,862	$400,291	$413,479	$418,993	$430,235	$447,573
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$37,465,536	$38,964,117	$39,679,502	$40,896,538	$41,751,288	$42,627,354	$44,476,379	$46,097,087	$47,541,901	$49,319,306	$50,757,021
VARIABLE O&M COST	$	JEC Participation	$24,816,855	$25,922,442	$28,570,139	$30,798,642	$32,848,004	$33,969,897	$35,015,769	$36,337,077	$39,374,312	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$11,680,458	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$344,819	$380,815	$426,670	$489,411	$483,287	$469,201	$509,623	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	2 x 1 CCGT Self-build									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 1 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$27,953,217	$29,566,248	$31,629,322	$31,810,396	$32,415,637	$33,045,491	$32,858,095	$35,627,542	$37,449,686	$40,363,340	$41,108,046	$43,671,833
FUEL COST	$	Colby	$8,248	$8,633	$11,866	$13,065	$15,618	$14,912	$16,812	$16,108	$18,275	$18,957	$20,013	$20,346	$20,623	$19,489	$21,520	$22,780	$23,915	$18,608	$32,886	$29,621
FUEL COST	$	Goodman Energy Center	$3,179,019	$3,346,966	$4,121,629	$4,657,047	$5,180,404	$5,633,540	$5,481,502	$5,946,293	$6,239,170	$6,668,675	$7,146,251	$7,317,009	$7,226,965	$7,118,610	$7,233,651	$8,124,588	$8,733,423	$9,217,938	$9,530,527	$9,610,601
FUEL COST	$	Goodman Energy Center Expansion	$1,193,247	$1,277,675	$1,485,386	$1,683,497	$1,940,069	$2,028,488	$2,111,673	$2,207,113	$2,268,852	$2,448,489	$2,564,186	$2,686,081	$2,564,152	$2,719,855	$2,708,855	$2,989,632	$3,162,201	$3,277,123	$3,433,260	$3,642,938
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$3,196,108	$3,876,916	$4,657,769	$5,676,499	$5,723,023	$5,592,424	$6,219,498	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	2 x 1 CCGT Self-build									8.39	8.40	8.39	8.39	8.40	8.40	8.38	8.39	8.39	8.40	8.42	8.40
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.04	23.06	22.99	23.01	23.12	23.02	23.08	22.99	23.11	23.10	23.11	23.08	22.99	23.14	23.11	23.11	23.09	22.85	23.13	23.06
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.65	10.67	10.68	10.69	10.64	10.66	10.65	10.64	10.66	10.66	10.65	10.64	10.66	10.65	10.64	10.66	10.65	10.65	10.64	10.64
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.70	10.70	10.72	10.70	10.69	10.68	10.69	10.69	10.70	10.69	10.68	10.67	10.66	10.70	10.68	10.68	10.68	10.68	10.66	10.69
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		12.86	12.86	12.84	12.83	12.84	12.84	12.83												
CAPTIAL RECOVERY	$	2 x 1 CCGT Self-build									$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	57	49	45	40	35	26	21	18	14	9	4	-1
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	134,151	135,471	145,431	149,561	154,502	158,683	152,652	156,301	157,399	162,661	164,313	166,382	159,945	156,746	156,502	165,086	168,260	168,558	167,183	163,842
GENERATION	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	925,500	1,017,562	1,089,037	1,141,214	1,185,454	1,184,560	1,179,412	1,194,106	1,813,045	1,738,533	1,763,017	1,743,957	1,747,848	1,738,887	1,721,674	1,754,441	1,764,383	1,786,553	1,777,804	1,795,323
MARKET SALES	MWh	MWE Generation	134,151	135,471	145,431	149,561	154,502	158,683	152,652	156,301	157,399	162,661	164,313	166,382	159,945	156,746	156,502	165,086	168,260	168,558	167,183	163,842
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	925,500	1,017,562	1,089,037	1,141,214	1,185,454	1,184,560	1,179,412	1,194,106	1,813,045	1,738,533	1,763,016	1,743,957	1,747,848	1,738,887	1,721,673	1,754,441	1,764,383	1,786,553	1,777,804	1,795,323
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$6,482,528	$6,821,274	$8,242,086	$9,276,751	$10,364,140	$11,070,072	$10,900,567	$11,687,289	$12,318,907	$13,151,545	$13,978,232	$14,310,945	$14,067,316	$14,095,966	$14,353,232	$16,007,200	$17,019,222	$17,817,071	$18,520,121	$18,922,902
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$4,569,609	$9,512,410	$10,566,805	$11,659,049	$12,862,076	$13,298,776	$13,742,113	$14,562,933	$14,944,178	$15,484,778	$16,447,673	$16,564,437	$17,224,382	$8,512,619	$8,660,082	$9,239,426	$9,703,535	$10,081,922	$10,702,826	$10,979,947
MARKET SALES	$	Westar	$28,761,850	$34,874,403	$41,500,877	$47,408,026	$53,852,253	$55,854,535	$57,353,570	$60,506,246	$97,778,118	$98,347,551	$104,989,627	$104,898,215	$107,995,623	$109,939,881	$110,560,986	$118,208,476	$124,878,673	$132,291,427	$137,519,041	$145,082,604
MARKET SALES	$/MWh	MWE Generation	$48.32	$50.35	$56.67	$62.03	$67.08	$69.76	$71.41	$74.77	$78.27	$80.85	$85.07	$86.01	$87.95	$89.93	$91.71	$96.96	$101.15	$105.70	$110.78	$115.49
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$24.75	$26.18	$29.09	$32.09	$35.28	$36.61	$37.83	$40.09	$40.99	$42.62	$45.27	$45.60	$47.15	$47.42	$48.24	$51.47	$53.93	$56.16	$59.62	$61.16
MARKET SALES	$/MWh	Westar	$31.08	$34.27	$38.11	$41.54	$45.43	$47.15	$48.63	$50.67	$53.93	$56.57	$59.55	$60.15	$61.79	$63.22	$64.22	$67.38	$70.78	$74.05	$77.35	$80.81
MARKET PURCHASES	MWh	MWE Load	1,402,278	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148	$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
MARKET PURCHASES	$/MWh	MWE Load	$24.78	$29.51	$33.35	$36.66	$40.10	$41.89	$43.13	$45.16	$46.73	$48.57	$51.27	$52.06	$52.87	$54.15	$54.89	$58.17	$61.01	$63.83	$66.84	$69.63
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,195,066	$38,890,852	$39,862,909	$40,859,430	$41,880,480	$42,928,250	$44,000,152	$45,100,140	$46,228,820	$47,385,590	$48,569,489	$49,783,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$40,914,591	$34,306,596	$37,151,165	$39,551,855	$41,825,140	$43,050,060	$44,146,302	$45,643,010	$50,637,355	$48,712,651	$50,434,734	$51,316,014	$52,694,667	$50,292,261	$51,305,812	$53,484,514	$55,348,146	$57,061,098	$58,941,329	$60,628,890
TOTAL FUEL COSTS	$		$4,380,514	$7,829,383	$9,495,797	$11,011,377	$12,812,590	$13,399,962	$13,202,411	$14,389,012	$36,479,515	$38,702,368	$41,359,772	$41,833,832	$42,227,376	$42,903,444	$42,822,122	$46,764,542	$49,369,225	$52,877,009	$54,104,720	$56,954,994
TOTAL MARKET ENERGY COSTS	$		$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148	$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
TOTAL MARKET ENERGY SALES	$		($39,813,987)	($51,208,087)	($60,309,767)	($68,343,826)	($77,078,468)	($80,223,382)	($81,996,250)	($86,756,468)	($125,041,202)	($126,983,874)	($135,415,531)	($135,773,597)	($139,287,321)	($132,548,466)	($133,574,300)	($143,455,102)	($151,601,431)	($160,190,420)	($166,741,987)	($174,985,453)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
TOTAL COSTS	$		$87,189,895	$85,255,419	$86,605,565	$90,485,858	$94,326,083	$98,330,027	$102,057,652	$106,355,813	$109,071,871	$112,905,145	$116,493,103	$121,374,878	$123,591,155	$133,737,458	$137,661,051	$143,550,377	$148,881,647	$154,654,952	$161,081,191	$167,054,374

NPV @ 6.21%: $1,247,793,649 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 1 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,902	2,209,009	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	190	190	190	190	190	190	190	190	190	190	190	190
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	606,012	622,992	636,241	620,011	622,841	620,287	609,039	629,751	626,945	646,196	625,523	644,109
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	91	91	91	117	117	117	117	117	130	117	130	130	130	130	117	130	130	117	143	143
GENERATION	MWh	Goodman Energy Center	79,078	79,192	89,148	92,302	97,166	100,168	93,176	98,534	99,712	102,410	103,968	105,032	102,448	99,294	97,926	104,500	106,438	107,996	106,932	104,766
GENERATION	MWh	Goodman Energy Center Expansion	29,633	30,227	31,995	33,615	36,288	36,032	36,059	36,707	36,450	38,138	37,679	38,840	36,477	37,773	37,071	38,570	38,745	38,219	38,664	39,798
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	888,450	908,175	893,625	898,125	889,725	883,200	900,150	923,325	933,525	953,025	960,150
GENERATION	MWh	JEC Participation	732,825	746,925	788,700	831,375	880,500	886,650	888,450	898,350	948,675	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	124,659	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	65,234	70,434	74,880	80,372	84,370	81,978	88,002	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	2 x 1 CCGT Self-build									36%	37%	38%	37%	37%	37%	37%	38%	38%	39%	38%	39%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	12%	12%	13%	14%	15%	15%	14%	15%	15%	15%	16%	16%	15%	15%	15%	16%	16%	16%	16%	16%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	12%	13%	14%	14%	15%	15%	15%	16%	15%	16%	16%	16%	15%	16%	16%	16%	16%	16%	16%	17%
CAPACITY FACTOR	%	JEC Extension										68%	69%	68%	68%	68%	67%	69%	70%	71%	73%	73%
CAPACITY FACTOR	%	JEC Participation	56%	57%	60%	63%	67%	67%	68%	68%	72%											
CAPACITY FACTOR	%	UML Westar	9%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%	7%	8%	7%	7%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$1,970,300	$2,017,800	$2,069,100	$2,120,400	$2,173,600	$2,228,700	$2,283,800	$2,340,800	$2,399,700	$2,460,500	$2,521,300	$2,584,000
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,000	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	2 x 1 CCGT Self-build									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$2,139,643	$2,255,904	$2,361,654	$2,365,886	$2,429,082	$2,481,370	$2,497,493	$2,645,634	$2,703,595	$2,851,177	$2,827,366	$2,988,664
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$1,944	$1,992	$2,042	$2,691	$2,759	$2,828	$2,898	$2,971	$3,383	$3,120	$3,554	$3,643	$3,735	$3,827	$3,531	$4,021	$4,122	$3,803	$4,763	$4,883
VARIABLE O&M COST	$	Goodman Energy Center	$493,593	$506,829	$584,823	$620,282	$669,635	$707,364	$674,772	$731,122	$758,881	$798,870	$830,902	$860,499	$860,563	$854,937	$863,724	$944,767	$986,908	$1,026,272	$1,041,518	$1,045,565
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$184,959	$193,450	$209,892	$225,897	$250,082	$254,446	$261,127	$272,362	$277,385	$297,473	$301,051	$318,198	$306,407	$325,226	$326,972	$348,668	$359,166	$363,076	$376,587	$397,184
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$31,116,867	$32,661,011	$33,043,606	$34,101,806	$34,684,339	$35,342,449	$37,234,214	$38,963,925	$40,489,972	$42,445,848	$43,869,254
VARIABLE O&M COST	$	JEC Participation	$19,650,006	$20,600,192	$22,408,968	$24,388,933	$26,698,358	$27,730,575	$28,641,699	$29,807,253	$32,316,911	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$3,977,265	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$289,639	$321,179	$349,690	$413,806	$414,350	$412,443	$453,519	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	2 x 1 CCGT Self-build									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 1 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$19,343,815	$20,651,206	$22,219,458	$22,084,472	$22,580,340	$23,034,957	$22,870,976	$25,041,150	$26,220,216	$28,339,470	$28,805,276	$30,824,878
FUEL COST	$	Colby	$4,822	$5,047	$5,671	$8,040	$8,774	$9,177	$9,461	$9,913	$11,394	$10,649	$12,468	$12,675	$12,908	$13,230	$12,090	$14,191	$14,899	$13,956	$17,986	$18,739
FUEL COST	$	Goodman Energy Center	$1,936,649	$2,030,114	$2,580,582	$2,938,211	$3,361,627	$3,633,141	$3,481,951	$3,860,733	$4,046,443	$4,308,810	$4,613,351	$4,742,178	$4,718,713	$4,675,852	$4,668,683	$5,283,570	$5,650,473	$6,010,199	$6,242,700	$6,361,330
FUEL COST	$	Goodman Energy Center Expansion	$729,421	$777,667	$930,081	$1,071,786	$1,262,307	$1,309,918	$1,353,172	$1,445,605	$1,484,103	$1,609,096	$1,677,268	$1,758,732	$1,681,128	$1,786,256	$1,774,617	$1,955,222	$2,062,948	$2,132,378	$2,260,240	$2,426,631
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,009,202	$2,452,801	$2,862,647	$3,599,714	$3,677,741	$3,685,152	$4,152,899	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	2 x 1 CCGT Self-build									6.30	6.30	6.29	6.30	6.31	6.30	6.29	6.29	6.30	6.30	6.32	6.30
AVERAGE HEAT RATE	MMBtu/MWh	Colby	17.32	17.33	17.26	17.31	17.32	17.31	17.32	17.29	17.29	17.30	17.28	17.26	17.27	17.28	17.31	17.27	17.26	17.14	17.25	17.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.00	8.01	8.02	8.02	7.99	8.01	8.00	8.00	8.00	8.00	8.00	7.99	8.01	8.00	7.99	8.00	8.00	8.00	8.01	7.99
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.04	8.04	8.05	8.03	8.03	8.03	8.04	8.04	8.03	8.02	8.02	8.01	8.02	8.03	8.02	8.02	8.02	8.02	8.02	8.02
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		9.62	9.65	9.63	9.63	9.62	9.63	9.62												
CAPTIAL RECOVERY	$	2 x 1 CCGT Self-build									$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	57	49	45	40	35	26	21	18	14	9	4	-1
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	108,802	109,510	121,234	126,034	133,571	136,317	129,352	135,358	136,292	140,665	141,777	144,002	139,055	137,197	135,114	143,200	145,313	146,332	145,739	144,707
GENERATION	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	732,825	812,159	859,134	906,255	966,872	971,020	970,428	986,412	1,554,687	1,511,442	1,544,416	1,514,236	1,520,966	1,510,012	1,492,239	1,535,901	1,550,270	1,579,721	1,579,148	1,604,259
MARKET SALES	MWh	MWE Generation	108,802	109,510	121,234	126,034	133,571	136,317	129,352	135,358	136,292	140,665	141,777	144,002	139,055	137,197	135,114	143,200	145,313	146,332	145,739	144,707
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	732,825	812,159	859,134	906,255	966,872	971,020	970,428	986,412	1,554,687	1,511,442	1,544,416	1,514,236	1,520,966	1,510,012	1,492,239	1,535,901	1,550,270	1,579,721	1,579,148	1,604,259
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$4,108,841	$4,309,183	$5,346,408	$6,072,766	$6,929,039	$7,358,987	$7,166,373	$7,820,019	$8,244,493	$8,790,055	$9,332,207	$9,568,414	$9,452,549	$9,507,403	$9,581,502	$10,733,525	$11,368,071	$11,951,067	$12,479,365	$12,869,804
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,427,215	$7,134,310	$7,925,126	$8,744,283	$9,646,547	$9,974,081	$10,306,560	$10,922,193	$11,208,132	$11,613,628	$12,335,754	$12,423,300	$12,918,293	$6,384,474	$6,495,068	$6,929,573	$7,277,637	$7,561,450	$8,027,108	$8,234,973
MARKET SALES	$	Westar	$17,143,776	$21,159,313	$25,276,148	$29,249,893	$34,255,969	$35,736,161	$36,853,275	$39,070,391	$65,334,964	$66,498,041	$71,558,516	$70,915,195	$73,113,774	$74,309,045	$74,549,196	$80,461,039	$85,349,776	$90,916,330	$94,881,695	$100,667,224
MARKET SALES	$/MWh	MWE Generation	$37.76	$39.35	$44.10	$48.18	$51.88	$53.98	$55.40	$57.77	$60.49	$62.49	$65.82	$66.45	$67.98	$69.30	$70.91	$74.96	$78.23	$81.67	$85.63	$88.94
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$18.56	$19.64	$21.81	$24.07	$26.46	$27.45	$28.37	$30.06	$30.75	$31.97	$33.96	$34.20	$35.36	$35.57	$36.18	$38.60	$40.45	$42.12	$44.72	$45.87
MARKET SALES	$/MWh	Westar	$23.39	$26.05	$29.42	$32.28	$35.43	$36.80	$37.98	$39.61	$42.02	$44.00	$46.33	$46.83	$48.07	$49.21	$49.96	$52.39	$55.05	$57.55	$60.08	$62.75
MARKET PURCHASES	MWh	MWE Load	1,643,607	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
MARKET PURCHASES	$/MWh	MWE Load	$19.88	$22.13	$25.01	$27.49	$30.08	$31.42	$32.34	$33.87	$35.05	$36.43	$38.45	$39.04	$39.65	$40.61	$41.17	$43.63	$45.76	$47.87	$50.13	$52.22
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$40,902,102	$40,027,871	$41,025,875	$42,049,408	$42,007,940	$44,041,844	$45,142,589	$46,276,382	$38,195,066	$38,890,852	$39,862,909	$40,859,430	$41,880,480	$42,928,250	$44,000,152	$45,100,140	$46,228,820	$47,385,590	$48,569,489	$49,783,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$27,885,959	$28,702,008	$30,770,800	$32,906,641	$35,455,014	$36,583,193	$37,545,876	$38,901,214	$43,238,004	$42,025,750	$43,790,176	$44,304,616	$45,537,001	$42,866,279	$43,630,916	$45,866,218	$47,807,174	$49,602,727	$51,657,857	$53,362,468
TOTAL FUEL COSTS	$		$2,670,892	$4,822,029	$5,969,135	$6,880,683	$8,232,422	$8,629,976	$8,529,736	$9,469,149	$24,885,755	$26,579,702	$28,522,545	$28,598,057	$28,993,088	$29,510,294	$29,326,366	$32,294,134	$33,948,536	$36,496,002	$37,326,203	$39,631,578
TOTAL MARKET ENERGY COSTS	$		$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
TOTAL MARKET ENERGY SALES	$		($24,679,832)	($32,602,806)	($38,547,681)	($44,066,941)	($50,831,555)	($53,069,229)	($54,326,208)	($57,812,602)	($84,787,589)	($86,901,724)	($93,226,476)	($92,906,908)	($95,484,615)	($90,200,922)	($90,625,766)	($98,124,137)	($103,995,484)	($110,428,847)	($115,388,167)	($121,772,001)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
TOTAL COSTS	$		$85,514,254	$81,734,473	$83,649,988	$87,432,530	$91,172,938	$94,731,981	$98,064,059	$101,937,075	$107,455,324	$110,074,335	$113,308,459	$117,303,182	$119,497,800	$126,660,803	$130,023,017	$135,156,176	$139,831,497	$144,803,340	$150,341,894	$155,467,866

NPV @ 6.21%: $1,197,216,877 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 1 (CO2) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	190	190	190	190	190	190	190	190	190	190	190	190
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	653,820	666,529	678,311	670,693	674,966	669,597	664,200	675,554	677,573	692,786	671,830	688,220
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	130	130	156	143	156	156	156	156	169	156	156	156	156	130	195	169
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,450	105,716	111,872	114,532	118,370	120,916	121,752	119,168	116,014	116,584	123,728	125,020	126,122	124,830	120,954
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	37,922	40,419	41,351	41,553	43,524	43,376	44,712	42,471	43,929	43,308	45,374	45,279	44,820	44,861	45,536
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	779,775	783,975	769,800	762,150	750,750	742,050	751,575	766,650	772,050	785,025	789,150
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	965,925	828,450	820,575	850,050	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	68,094	75,712	81,120	93,912	89,102	91,208	97,760	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	2 x 1 CCGT Self-build									39%	40%	41%	40%	40%	40%	40%	41%	41%	42%	40%	41%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	16%	17%	17%	18%	18%	18%	18%	17%	18%	19%	19%	19%	19%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	17%	17%	18%	18%	18%	19%	18%	19%	18%	19%	19%	19%	19%	19%
CAPACITY FACTOR	%	JEC Extension										59%	60%	59%	58%	57%	56%	57%	58%	59%	60%	60%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	63%	62%	65%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	9%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$1,970,300	$2,017,800	$2,069,100	$2,120,400	$2,173,600	$2,228,700	$2,283,800	$2,340,800	$2,399,700	$2,460,500	$2,521,300	$2,584,000
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	2 x 1 CCGT Self-build									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.10	$83.18	$85.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.10	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$2,308,402	$2,413,493	$2,517,731	$2,550,679	$2,632,368	$2,678,610	$2,723,684	$2,838,007	$2,921,814	$3,056,653	$3,036,671	$3,193,339
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$3,065	$3,142	$3,864	$3,631	$4,059	$4,101	$4,265	$4,371	$4,855	$4,593	$4,708	$4,825	$4,947	$4,225	$6,495	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$744,614	$765,562	$830,090	$871,661	$923,416	$966,377	$997,532	$1,001,011	$998,896	$1,028,354	$1,118,058	$1,159,337	$1,198,615	$1,215,844	$1,207,121
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$267,774	$292,697	$306,821	$316,218	$339,487	$346,570	$366,327	$356,756	$378,229	$382,000	$410,176	$419,736	$425,790	$436,941	$454,444
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$27,310,301	$28,193,522	$28,403,701	$28,938,836	$29,266,308	$29,694,075	$30,881,962	$32,351,162	$33,484,550	$34,941,403	$36,056,204
VARIABLE O&M COST	$	JEC Participation	$21,140,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,205,832	$26,706,123	$27,226,679	$28,957,023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$302,337	$345,247	$378,830	$449,923	$437,491	$458,870	$503,464	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	2 x 1 CCGT Self-build									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.27	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 1 (CO2) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$23,180,870	$24,551,886	$26,306,408	$26,502,543	$27,179,512	$27,612,108	$27,705,603	$29,843,510	$31,471,505	$33,751,372	$34,364,734	$36,594,336
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$10,811	$11,307	$14,010	$13,423	$15,229	$15,797	$16,677	$16,955	$18,621	$17,694	$17,933	$18,983	$19,929	$17,245	$27,405	$24,684
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,250,475	$4,383,474	$4,864,745	$5,159,930	$5,529,616	$5,955,773	$6,101,802	$6,085,747	$6,068,247	$6,171,284	$6,940,778	$7,367,994	$7,792,470	$8,074,959	$8,150,682
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,531,411	$1,682,922	$1,807,147	$1,877,960	$2,037,987	$2,143,232	$2,247,323	$2,169,575	$2,305,953	$2,299,715	$2,551,654	$2,675,499	$2,775,307	$2,906,113	$3,082,414
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,331,432	$2,929,599	$3,449,290	$4,349,280	$4,318,119	$4,557,430	$5,119,310	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 EMISSIONS	lbs	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	547,053,438	557,812,105	567,540,192	561,083,131	564,689,755	560,188,177	555,577,225	565,200,980	566,925,234	579,561,948	562,070,726	575,888,202
CO2 EMISSIONS	lbs	Colby	266,760	237,120	266,760	266,760	296,400	296,400	355,680	326,040	355,680	355,680	355,680	355,680	385,320	355,680	355,680	355,680	355,680	296,400	444,600	385,320
CO2 EMISSIONS	lbs	Goodman Energy Center	92,352,912	92,325,744	101,854,272	105,571,968	109,538,160	112,806,720	113,113,536	119,685,552	122,513,952	126,573,360	129,294,336	130,164,192	127,467,888	124,143,744	124,687,344	132,289,728	133,680,000	134,817,792	133,414,560	129,386,304
CO2 EMISSIONS	lbs	Goodman Energy Center Expansion	34,651,920	35,067,744	36,735,840	38,268,288	41,050,752	40,573,104	43,248,864	44,254,128	44,463,168	46,551,744	46,387,728	47,827,872	45,432,576	46,993,824	46,323,648	48,519,216	48,421,824	47,951,520	47,967,888	48,726,288
CO2 EMISSIONS	lbs	JEC Extension	0	0	0	0	0	0	0	0	0	1,809,593,688	1,817,909,440	1,787,937,656	1,768,880,360	1,741,160,548	1,721,063,856	1,740,294,212	1,775,117,154	1,793,135,154	1,817,563,072	1,832,635,616
CO2 EMISSIONS	lbs	JEC Participation	1,831,423,720	1,869,711,544	2,006,750,872	2,115,203,760	2,248,951,976	2,243,754,216	1,924,804,360	1,899,683,312	1,973,314,720	0	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	UML Westar	426,849,429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Westar PPA	0	87,350,981	97,123,350	104,060,733	120,470,311	114,300,041	117,001,620	125,406,527	0	0	0	0	0	0	0	0	0	0	0	0
CO2 COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$3,764,642	$4,363,646	$4,975,349	$5,447,162	$5,999,829	$6,478,934	$6,945,930	$7,243,285	$7,449,365	$7,805,298	$7,755,259	$8,144,550
CO2 COST	$	Colby	$0	$0	$0	$0	$0	$0	$1,778	$1,936	$2,445	$2,779	$3,112	$3,446	$4,094	$4,113	$4,446	$4,557	$4,671	$3,990	$6,134	$5,449
CO2 COST	$	Goodman Energy Center	$0	$0	$0	$0	$0	$4,142	$566,570	$710,633	$842,672	$989,550	$1,132,635	$1,262,813	$1,354,346	$1,435,494	$1,558,722	$1,695,201	$1,756,214	$1,815,491	$1,840,808	$1,829,860
CO2 COST	$	Goodman Energy Center Expansion	$0	$0	$0	$0	$0	$1,474	$216,601	$262,759	$305,684	$363,685	$405,893	$463,990	$482,721	$543,367	$579,091	$621,652	$635,915	$645,482	$661,844	$689,117
CO2 COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$14,144,760	$15,927,360	$17,346,213	$18,794,376	$20,136,800	$21,516,458	$22,302,360	$23,321,269	$24,148,562	$25,078,101	$25,918,313
CO2 COST	$	JEC Participation	$0	$0	$0	$0	$0	$132,536	$9,654,410	$11,279,387	$13,576,303	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$585,946	$744,602	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	2 x 1 CCGT Self-build									6.99	7.00	6.99	6.99	7.00	7.00	6.99	6.99	7.00	7.00	7.02	7.00
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.21	19.20	19.23	19.16	19.26	19.25	19.26	19.24	19.16	19.26	19.26	19.25	19.24	19.06	19.28	19.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.87	8.89	8.88	8.87	8.87	8.88	8.88	8.87	8.88	8.88	8.88	8.87	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.92	8.91	8.90	8.90	8.90	8.88	8.91	8.89	8.90	8.90	8.90	8.89	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.70	10.72	10.71	10.70	10.70	10.70	10.69												
CAPTIAL RECOVERY	$	2 x 1 CCGT Self-build									$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	57	49	45	40	35	26	21	18	14	9	4	-1
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	143,502	146,291	153,366	156,241	162,050	164,448	166,620	161,808	160,099	160,048	169,258	170,455	171,072	169,886	166,659
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,055,027	919,658	918,335	1,503,870	1,446,304	1,462,286	1,440,493	1,437,116	1,420,347	1,406,250	1,427,129	1,444,223	1,464,836	1,456,855	1,477,370
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	143,502	146,291	153,366	156,241	162,050	164,448	166,620	161,808	160,099	160,048	169,258	170,455	171,072	169,886	166,659
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,055,027	919,658	918,335	1,503,870	1,446,304	1,462,286	1,440,493	1,437,116	1,420,346	1,406,250	1,427,129	1,444,223	1,464,836	1,456,855	1,477,369
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,031,299	$8,519,943	$9,915,322	$11,000,584	$11,870,631	$12,877,650	$13,866,783	$14,405,295	$14,468,484	$14,772,928	$15,242,627	$16,917,867	$17,743,114	$18,523,414	$19,200,221	$19,567,196
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$12,929,898	$13,911,298	$14,489,882	$15,215,874	$16,311,271	$16,660,381	$17,553,793	$8,774,973	$9,039,981	$9,583,469	$10,016,290	$10,362,281	$10,955,075	$11,206,171
MARKET SALES	$	Westar	$20,624,043	$25,276,218	$30,560,369	$35,353,082	$41,270,519	$42,553,078	$44,241,885	$46,904,959	$81,934,535	$83,762,751	$90,228,416	$90,842,280	$94,332,162	$96,545,734	$98,096,880	$104,124,099	$110,309,598	$116,704,241	$120,990,193	$127,948,156
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$57.00	$59.37	$67.78	$71.73	$75.98	$79.47	$84.32	$86.46	$89.42	$92.27	$95.24	$99.95	$104.09	$108.28	$113.02	$117.41
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$35.59	$38.29	$39.75	$41.88	$44.90	$45.86	$48.05	$48.88	$50.36	$53.39	$55.67	$57.72	$61.03	$62.42
MARKET SALES	$/MWh	Westar	$26.15	$28.98	$32.52	$35.53	$38.84	$40.33	$48.11	$51.08	$54.48	$57.92	$61.70	$63.06	$65.64	$67.97	$69.76	$72.96	$76.38	$79.67	$83.05	$86.61
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$70,717,385	$82,889,564	$88,693,250	$94,934,346	$102,665,466	$107,336,250	$112,079,036	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$40.56	$43.12	$45.29	$47.71	$50.82	$52.33	$53.86	$55.78	$57.26	$60.29	$62.95	$65.57	$68.38	$71.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$40,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,195,066	$38,890,852	$39,862,909	$40,859,430	$41,880,480	$42,928,250	$44,000,152	$45,100,140	$46,228,820	$47,385,590	$48,569,489	$49,783,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,878,187	$30,410,453	$32,987,242	$35,412,927	$38,218,871	$39,132,483	$35,780,052	$36,504,671	$40,199,226	$38,544,374	$39,660,468	$40,101,394	$40,769,234	$37,843,305	$38,435,575	$39,942,543	$41,646,453	$43,038,261	$44,599,190	$45,973,857
TOTAL FUEL COSTS	$		$3,235,255	$5,727,368	$7,103,749	$8,214,497	$9,776,005	$10,111,312	$10,637,835	$11,804,625	$30,233,990	$32,135,286	$34,422,090	$34,868,624	$35,453,455	$36,004,002	$36,194,535	$39,354,926	$41,534,927	$44,336,393	$45,373,210	$47,852,117
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$70,717,385	$82,889,564	$88,693,250	$94,934,346	$102,665,466	$107,336,250	$112,079,036	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($38,326,148)	($45,630,901)	($52,176,382)	($60,020,187)	($62,155,323)	($67,087,105)	($71,816,842)	($108,295,048)	($111,856,275)	($120,406,469)	($121,907,955)	($126,354,440)	($120,093,635)	($122,379,488)	($130,625,435)	($138,069,002)	($145,589,935)	($151,145,488)	($158,721,522)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
TOTAL CO2 COSTS	$		$0	$0	$0	$0	$0	$138,152	$11,025,306	$12,999,316	$18,491,746	$19,864,420	$22,444,349	$24,523,625	$26,635,366	$28,598,707	$30,604,648	$31,867,055	$33,167,435	$34,418,824	$35,342,146	$36,587,290
TOTAL COSTS	$		$86,497,470	$83,089,245	$84,854,652	$88,681,253	$92,441,687	$96,319,703	$112,216,062	$118,657,716	$124,811,231	$129,503,002	$135,332,313	$142,154,867	$146,522,982	$158,896,733	$165,043,861	$171,925,778	$178,320,594	$185,014,547	$192,460,664	$199,385,370

NPV @ 6.21%: $1,375,528,111 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 1 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,990	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,009	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	190	190	190	190	190	190	190	190	190	190	190	190
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	631,757	644,934	652,861	640,021	643,931	638,906	628,325	646,093	642,646	667,650	640,683	661,862
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	130	130	130	143	143	130	156	143	143	130	143	143	143	117	143	156
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364	110,314	111,834	107,502	104,386	104,044	111,074	112,062	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,759	40,257	39,731	41,189	38,178	39,920	39,380	40,838	40,770	39,947	41,067	41,702
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	966,525	979,950	969,375	976,200	965,775	962,325	979,425	993,075	1,003,575	1,019,625	1,019,250
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	68,094	75,712	81,120	93,912	89,882	86,476	93,652	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	2 x 1 CCGT Self-build									38%	39%	39%	38%	39%	38%	38%	39%	39%	40%	38%	40%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%	17%	17%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	16%	17%	17%	17%	17%	17%	17%	18%
CAPACITY FACTOR	%	JEC Extension										74%	75%	74%	74%	73%	73%	75%	75%	76%	78%	78%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$1,970,300	$2,017,800	$2,069,100	$2,120,400	$2,173,600	$2,228,700	$2,283,800	$2,340,800	$2,399,700	$2,460,500	$2,521,300	$2,584,000
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	2 x 1 CCGT Self-build									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$2,230,532	$2,335,335	$2,423,318	$2,439,850	$2,511,332	$2,555,845	$2,576,595	$2,714,269	$2,771,279	$2,945,804	$2,895,889	$3,071,039
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,025	$2,691	$3,005	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$4,007	$4,108	$3,827	$4,316	$4,423	$4,535	$3,803	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$602,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169	$881,667	$916,351	$903,017	$898,779	$917,752	$1,004,266	$1,039,112	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,952	$314,005	$317,447	$337,487	$320,695	$343,707	$347,357	$369,171	$377,938	$379,492	$399,993	$416,181
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,851,193	$35,242,535	$35,844,765	$37,066,314	$37,649,463	$38,509,362	$40,245,341	$41,907,647	$43,528,204	$45,383,507	$46,569,533
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$302,337	$345,247	$378,830	$449,923	$441,414	$435,068	$482,308	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	2 x 1 CCGT Self-build									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 1 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$22,400,148	$23,759,950	$25,332,096	$25,297,238	$25,934,995	$26,355,058	$26,225,620	$28,551,301	$29,860,306	$32,523,602	$32,767,645	$35,193,867
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$10,811	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$15,478	$15,750	$14,700	$16,371	$17,329	$18,193	$15,506	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181	$5,433,945	$5,606,460	$5,499,261	$5,402,524	$5,508,414	$6,240,420	$6,607,520	$7,009,105	$7,374,072	$7,416,372
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,100,812	$1,266,550	$1,481,300	$1,539,045	$1,603,484	$1,683,344	$1,751,731	$1,886,002	$1,903,233	$2,071,222	$1,953,682	$2,097,227	$2,093,031	$2,300,763	$2,410,791	$2,475,882	$2,665,192	$2,823,923
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,331,432	$2,929,599	$3,449,290	$4,349,280	$4,355,936	$4,322,103	$4,906,695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	2 x 1 CCGT Self-build									6.99	7.00	6.99	7.00	7.00	7.00	6.99	6.99	7.00	7.00	7.02	7.00
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.21	19.20	19.20	19.16	19.18	19.19	19.26	19.16	19.15	19.20	19.18	19.17	19.16	19.04	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89	8.88	8.87	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.93	8.91	8.91	8.90	8.90	8.90	8.92	8.90	8.91	8.91	8.91	8.90	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.70	10.72	10.71	10.70	10.70	10.70	10.69												
CAPTIAL RECOVERY	$	2 x 1 CCGT Self-build									$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	57	49	45	40	35	26	21	18	14	9	4	-1
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	($3,204,658)	($1,283,849)	($1,904,752)	($1,615,276)	($1,164,016)	($872,060)	($537,750)	($162,652)	($4,363,190)	($3,841,332)	($3,606,524)	($3,298,108)	($2,983,398)	($2,259,531)	($1,908,173)	($1,653,953)	($1,330,470)	($893,755)	($376,883)	$97,852
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,150	149,751	150,201	153,166	145,823	144,436	143,567	152,055	152,975	153,418	155,020	151,868
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	1,671,857	1,611,459	1,632,811	1,609,396	1,620,131	1,604,681	1,590,650	1,625,518	1,635,721	1,671,225	1,660,308	1,681,112
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,150	149,751	150,201	153,166	145,823	144,436	143,567	152,055	152,975	153,418	155,020	151,868
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	1,671,857	1,611,459	1,632,811	1,609,396	1,620,131	1,604,680	1,590,650	1,625,518	1,635,721	1,671,225	1,660,308	1,681,112
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,031,299	$8,555,635	$8,399,299	$9,067,460	$9,627,302	$10,266,651	$10,850,823	$11,167,465	$10,906,235	$11,009,688	$11,170,368	$12,510,988	$13,156,255	$13,787,034	$14,552,396	$14,853,196
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,624,043	$25,276,218	$30,560,369	$35,353,082	$41,270,519	$42,763,074	$44,006,380	$46,697,297	$76,894,286	$77,693,543	$82,959,983	$82,590,779	$85,298,320	$86,562,544	$87,091,409	$93,390,617	$98,751,092	$105,364,874	$109,360,819	$115,732,386
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$57.00	$59.32	$60.72	$63.54	$66.33	$68.56	$72.24	$72.91	$74.79	$76.23	$77.81	$82.28	$86.00	$89.87	$93.87	$97.80
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.15	$28.98	$32.52	$35.53	$38.84	$40.33	$41.61	$43.37	$45.99	$48.21	$50.81	$51.32	$52.65	$53.94	$54.75	$57.45	$60.37	$63.05	$65.87	$68.84
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,195,066	$38,890,852	$39,862,909	$40,859,430	$41,880,480	$42,928,250	$44,000,152	$45,100,140	$46,228,820	$47,385,590	$48,569,489	$49,783,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,878,187	$30,410,453	$32,987,242	$35,412,927	$38,218,871	$39,284,200	$40,296,465	$41,791,979	$46,511,542	$44,910,685	$46,501,234	$47,255,244	$48,640,874	$45,968,202	$46,958,128	$49,026,384	$50,889,968	$52,803,013	$54,754,437	$56,216,898
TOTAL FUEL COSTS	$		$3,235,255	$5,727,368	$7,103,749	$8,214,497	$9,776,005	$10,178,241	$10,072,621	$11,134,553	$28,952,666	$30,772,254	$32,745,952	$32,990,398	$33,403,687	$33,929,508	$33,843,435	$37,109,813	$38,896,810	$42,024,095	$42,826,893	$45,456,970
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($38,326,148)	($45,630,901)	($52,176,382)	($60,020,187)	($62,401,011)	($63,857,431)	($67,900,555)	($98,975,081)	($100,864,216)	($107,517,172)	($107,561,947)	($110,558,197)	($104,666,093)	($105,478,523)	($113,601,156)	($119,993,621)	($127,553,521)	($132,832,209)	($139,735,543)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$17,293,000	$16,990,000	$16,683,500	$16,373,500	$16,059,250	$15,741,000	$15,418,750	$15,091,750	$14,760,250	$14,423,750	$14,082,250	$13,735,250
TOTAL MARKET CAPACITY COSTS	$		($3,204,658)	($1,283,849)	($1,904,752)	($1,615,276)	($1,164,016)	($872,060)	($537,750)	($162,652)	($4,363,190)	($3,841,332)	($3,606,524)	($3,298,108)	($2,983,398)	($2,259,531)	($1,908,173)	($1,653,953)	($1,330,470)	($893,755)	($376,883)	$97,852
TOTAL COSTS	$		$83,292,812	$81,805,396	$82,949,900	$87,065,977	$91,277,671	$95,282,450	$99,085,521	$103,476,226	$103,870,887	$107,402,299	$110,976,238	$115,590,329	$118,123,362	$126,992,287	$130,907,910	$136,548,434	$141,765,392	$147,438,235	$153,795,284	$159,587,126

NPV @ 6.21%: $1,195,139,965 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 1 (+1% Interest Rate) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,990	2,050,991	2,080,975	2,113,044	2,143,980	2,175,902	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	190	190	190	190	190	190	190	190	190	190	190	190
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	2 x 1 CCGT Self-build	0	0	0	0	0	0	0	0	631,757	644,934	652,861	640,021	643,931	638,906	628,325	646,093	642,646	667,650	640,683	661,862
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	130	130	130	143	143	130	156	143	143	130	143	143	143	117	143	156
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364	110,314	111,834	107,502	104,386	104,044	111,074	112,062	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,759	40,257	39,731	41,189	38,178	39,920	39,380	40,838	40,770	39,947	41,067	41,702
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	966,525	979,950	969,375	976,200	965,775	962,325	979,425	993,075	1,003,575	1,019,625	1,019,250
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	68,094	75,712	81,120	93,912	89,882	86,476	93,652	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	2 x 1 CCGT Self-build									38%	39%	39%	38%	39%	38%	38%	39%	39%	40%	38%	40%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%	17%	17%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	16%	17%	17%	17%	17%	17%	17%	18%
CAPACITY FACTOR	%	JEC Extension										74%	75%	74%	74%	73%	73%	75%	75%	76%	78%	78%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$1,970,300	$2,017,800	$2,069,100	$2,120,400	$2,173,600	$2,228,700	$2,283,800	$2,340,800	$2,399,700	$2,460,500	$2,521,300	$2,584,000
FIXED O&M COST	$	Bird City	$121,420	$124,400	$127,500	$130,700	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,000	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	2 x 1 CCGT Self-build									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$2,230,532	$2,335,335	$2,423,318	$2,439,850	$2,511,332	$2,555,845	$2,576,595	$2,714,269	$2,771,279	$2,945,804	$2,895,889	$3,071,039
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$3,065	$3,142	$3,220	$3,031	$3,721	$3,467	$4,265	$4,007	$4,108	$3,827	$4,316	$4,423	$4,535	$3,803	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169	$881,667	$916,351	$903,017	$898,779	$917,752	$1,004,266	$1,039,112	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,952	$314,005	$317,447	$337,487	$320,695	$343,707	$347,357	$369,171	$377,938	$379,492	$399,993	$416,181
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,851,193	$35,242,535	$35,844,765	$37,066,314	$37,649,463	$38,509,362	$40,245,341	$41,907,647	$43,528,204	$45,383,507	$46,569,533
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$302,337	$345,247	$378,830	$449,923	$441,414	$435,068	$482,308	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	2 x 1 CCGT Self-build									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 1 (+1% Interest Rate) - 130 MW Westar SCGT PPA (2017-2023), 190 MW 2x1 F Class CCGT (2024+), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	2 x 1 CCGT Self-build	$0	$0	$0	$0	$0	$0	$0	$0	$22,400,148	$23,759,950	$25,332,096	$25,297,238	$25,934,995	$26,355,058	$26,225,620	$28,551,301	$29,860,306	$32,523,602	$32,767,645	$35,193,867
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$10,811	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$15,478	$15,750	$14,700	$16,371	$17,329	$18,193	$15,506	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181	$5,433,945	$5,606,460	$5,499,261	$5,462,524	$5,508,414	$6,240,420	$6,607,520	$7,009,105	$7,374,072	$7,416,372
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,539,045	$1,603,484	$1,683,344	$1,751,731	$1,886,002	$1,963,233	$2,071,222	$1,953,682	$2,097,227	$2,093,031	$2,300,763	$2,410,791	$2,475,882	$2,665,192	$2,823,923
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,331,432	$2,929,599	$3,449,290	$4,349,280	$4,355,936	$4,322,103	$4,906,695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	2 x 1 CCGT Self-build									6.99	7.00	6.99	7.00	7.00	7.00	6.99	6.99	7.00	7.00	7.02	7.00
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.21	19.20	19.20	19.16	19.18	19.19	19.26	19.16	19.15	19.20	19.18	19.17	19.16	19.04	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89	8.88	8.87	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.93	8.91	8.91	8.90	8.90	8.90	8.92	8.90	8.91	8.91	8.91	8.90	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.70	10.72	10.71	10.70	10.70	10.70	10.69												
CAPTIAL RECOVERY	$	2 x 1 CCGT Self-build									$18,519,000	$18,211,000	$17,898,750	$17,581,500	$17,259,500	$16,932,000	$16,599,000	$16,260,000	$15,915,000	$15,563,500	$15,204,750	$14,839,250
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	57	49	45	40	35	26	21	18	14	9	4	-1
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,150	149,751	150,201	153,166	145,823	144,436	143,567	152,055	152,975	153,418	155,020	151,868
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	1,671,857	1,611,459	1,632,811	1,609,396	1,620,131	1,604,681	1,590,650	1,625,518	1,635,721	1,671,225	1,660,308	1,681,112
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,150	149,751	150,201	153,166	145,823	144,436	143,567	152,055	152,975	153,418	155,020	151,868
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	1,671,857	1,611,459	1,632,811	1,609,396	1,620,131	1,604,680	1,590,650	1,625,518	1,635,721	1,671,225	1,660,308	1,681,112
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,031,299	$8,555,635	$8,399,299	$9,067,460	$9,627,302	$10,266,651	$10,850,823	$11,167,465	$10,906,235	$11,009,688	$11,170,368	$12,510,988	$13,156,255	$13,787,034	$14,552,396	$14,853,196
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,624,043	$25,276,218	$30,560,369	$35,353,082	$41,270,519	$42,763,074	$44,006,380	$46,697,297	$76,894,286	$77,693,543	$82,959,983	$82,590,779	$85,298,320	$86,562,544	$87,091,409	$93,390,617	$98,751,092	$105,364,874	$109,360,819	$115,732,386
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$57.00	$59.32	$60.72	$63.54	$66.33	$68.56	$72.24	$72.91	$74.79	$76.23	$77.81	$82.28	$86.00	$89.87	$93.87	$97.80
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.15	$28.98	$32.52	$35.53	$38.84	$40.33	$41.61	$43.37	$45.99	$48.21	$50.81	$51.32	$52.65	$53.94	$54.75	$57.45	$60.37	$63.05	$65.87	$68.84
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,195,066	$38,890,852	$39,862,909	$40,859,430	$41,880,480	$42,928,250	$44,000,152	$45,100,140	$46,228,820	$47,385,590	$48,569,489	$49,783,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,878,187	$30,410,453	$32,987,242	$35,412,927	$38,218,871	$39,284,200	$40,296,465	$41,791,979	$46,511,542	$44,910,685	$46,501,234	$47,255,244	$48,640,874	$45,968,202	$46,958,128	$49,020,384	$50,889,968	$52,803,013	$54,754,437	$56,216,898
TOTAL FUEL COSTS	$		$3,235,255	$5,727,368	$7,103,749	$8,214,497	$9,776,005	$10,178,241	$10,072,621	$11,134,553	$28,952,666	$30,772,254	$32,745,952	$32,990,398	$33,403,687	$33,929,508	$33,843,435	$37,109,813	$38,896,810	$42,024,095	$42,826,893	$45,456,970
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($38,326,148)	($45,630,901)	($52,176,382)	($60,020,187)	($62,401,011)	($63,857,431)	($67,900,555)	($98,975,081)	($100,864,216)	($107,517,172)	($107,561,947)	($110,558,197)	($104,666,093)	($105,478,523)	($113,601,156)	($119,993,621)	($127,553,521)	($132,832,209)	($139,735,543)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$18,519,000	$18,211,000	$17,898,750	$17,581,500	$17,259,500	$16,932,000	$16,599,000	$16,260,000	$15,915,000	$15,563,500	$15,204,750	$14,839,250
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,852
TOTAL COSTS	$		$86,497,470	$83,089,245	$84,854,652	$88,681,253	$92,441,687	$96,154,510	$99,623,270	$103,638,878	$109,460,077	$112,464,631	$115,798,012	$120,096,437	$122,307,010	$130,442,817	$133,996,333	$139,370,636	$144,250,612	$149,471,740	$155,294,666	$160,691,126

NPV @ 6.21%: $1,222,881,282 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 2 - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	0	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364	110,314	108,034	107,502	104,386	104,044	111,074	112,100	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,759	40,257	40,163	40,136	38,178	39,920	39,380	40,838	40,595	39,947	41,175	41,702
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood		34%	35%	36%	37%	37%	36%	37%	37%	38%	37%	38%	38%	38%	37%	38%	38%	38%	38%	38%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%	17%	16%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	16%	17%	17%	17%	17%	17%	17%	18%
CAPACITY FACTOR	%	JEC Extension										73%	74%	73%	74%	73%	73%	74%	76%	76%	77%	77%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Dogwood	$0	$3,933,000	$4,032,000	$4,132,500	$4,236,000	$4,342,500	$4,450,500	$4,561,500	$4,675,500	$4,792,500	$4,912,500	$5,035,500	$5,161,500	$5,290,500	$5,422,500	$5,557,500	$5,697,000	$5,839,500	$5,985,000	$6,135,000
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Dogwood		$26.22	$26.88	$27.55	$28.24	$28.95	$29.67	$30.41	$31.17	$31.95	$32.75	$33.57	$34.41	$35.27	$36.15	$37.05	$37.98	$38.93	$39.90	$40.90
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Dogwood	$0	$1,544,204	$1,643,209	$1,742,604	$1,839,298	$1,885,720	$1,885,515	$1,982,478	$2,038,382	$2,102,286	$2,150,026	$2,258,129	$2,305,704	$2,363,384	$2,337,422	$2,444,886	$2,531,533	$2,562,501	$2,647,884	$2,740,292
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169	$881,667	$885,229	$903,017	$898,779	$917,752	$1,004,266	$1,039,464	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,952	$314,005	$320,990	$328,863	$320,695	$343,707	$347,357	$369,171	$376,410	$379,641	$401,044	$416,181
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,725,121	$35,137,381	$35,692,305	$36,872,667	$37,506,212	$38,353,323	$40,112,858	$42,040,514	$43,518,450	$45,176,535	$46,477,011
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Dogwood		$3.50	$3.59	$3.68	$3.77	$3.86	$3.96	$4.06	$4.16	$4.26	$4.37	$4.48	$4.59	$4.71	$4.82	$4.94	$5.07	$5.19	$5.32	$5.46
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Dogwood	$0	$10,232,497	$11,940,349	$13,602,575	$15,278,576	$15,993,866	$16,071,066	$17,357,535	$17,979,043	$18,755,798	$19,753,065	$20,580,392	$20,920,774	$21,347,802	$20,911,659	$22,629,889	$23,841,143	$24,784,503	$26,289,130	$27,538,208
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181	$5,433,945	$5,404,165	$5,499,261	$5,462,524	$5,508,414	$6,240,420	$6,609,959	$7,009,105	$7,374,072	$7,416,372
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,539,045	$1,603,484	$1,682,092	$1,751,731	$1,886,002	$1,984,912	$2,018,599	$1,953,682	$2,097,227	$2,093,031	$2,300,763	$2,396,839	$2,472,433	$2,672,058	$2,823,923
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 2 - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood		7.25	7.23	7.24	7.24	7.23	7.23	7.25	7.24	7.23
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.92	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
CAPITAL RECOVERY	$	Dogwood		$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	40	49	44	37	32	27	22	17	9
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,881	144,223	138,331	142,700	145,150	149,751
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	962,925
MARKET SALES	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,881	144,223	138,331	142,700	145,150	149,751
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	962,925
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$0	$14,849,202	$17,250,063	$19,594,268	$21,968,630	$22,959,034	$23,025,559	$24,873,301	$25,501,777	$26,835,186
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,027,650	$8,555,635	$8,399,299	$9,067,230	$9,627,302	$10,266,651
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023
MARKET SALES	$	Westar	$20,624,043	$22,261,963	$26,797,476	$30,966,863	$35,731,932	$37,218,089	$38,507,068	$40,497,426	$44,615,304	$42,907,699
MARKET SALES	$/MWh	Dogwood		$33.66	$37.69	$41.39	$45.05	$47.02	$48.39	$50.94	$52.05	$54.38
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$56.98	$59.32	$60.72	$63.54	$66.33	$68.56
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52
MARKET SALES	$/MWh	Westar	$26.15	$27.69	$31.02	$33.89	$36.88	$38.36	$39.66	$41.20	$42.90	$44.56
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$34,537,170	$35,397,575	$36,281,108	$37,054,840	$37,981,744	$38,930,489	$39,908,782	$40,900,266	$41,665,552
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,878,187	$31,652,319	$34,285,204	$36,776,700	$39,607,633	$40,728,506	$41,746,912	$43,292,149	$46,319,392	$44,551,564
TOTAL FUEL COSTS	$		$3,235,255	$13,628,433	$16,114,500	$18,367,782	$20,703,078	$21,816,171	$21,821,584	$23,584,142	$24,531,561	$25,768,102
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($50,161,095)	($59,118,071)	($67,384,431)	($76,446,581)	($79,815,060)	($81,383,679)	($86,573,755)	($92,197,876)	($92,913,558)
TOTAL CAPITAL RECOVERY	$		$0	$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$86,497,470	$84,737,529	$85,701,893	$88,696,963	$91,711,028	$94,872,596	$98,009,333	$101,285,836	$104,360,226	$107,973,716

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood	7.24	7.23	7.24	7.22	7.22	7.24	7.19	7.21	7.25	7.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.88	8.85	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.90	8.90	8.90	8.92	8.90	8.91	8.89	8.89	8.90	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
CAPITAL RECOVERY	$	Dogwood	$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	5	0	-5	-14	-19	-22	-26	-31	-36	-41
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
SUMMARY BY AREA												
GENERATION	MWh	Dogwood	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
GENERATION	MWh	MWE Generation	150,633	148,287	145,823	144,436	143,567	152,042	152,812	153,405	155,128	151,868
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
MARKET SALES	MWh	Dogwood	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
MARKET SALES	MWh	MWE Generation	150,633	148,287	145,823	144,436	143,567	152,042	152,812	153,405	155,128	151,868
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$28,200,816	$29,393,240	$30,018,615	$30,636,541	$29,822,988	$32,203,582	$34,074,316	$35,403,124	$37,320,552	$39,031,606
MARKET SALES	$	MWE Generation	$10,876,591	$10,795,842	$10,906,235	$11,009,622	$11,170,368	$12,508,978	$13,135,360	$13,780,513	$14,561,970	$14,853,196
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$45,835,434	$45,922,224	$47,202,854	$47,888,558	$48,612,571	$51,748,861	$55,849,766	$58,468,871	$61,735,503	$64,390,372
MARKET SALES	$/MWh	Dogwood	$57.35	$58.35	$59.76	$61.06	$61.51	$65.09	$68.28	$71.73	$74.98	$77.77
MARKET SALES	$/MWh	MWE Generation	$72.21	$72.80	$74.79	$76.23	$77.81	$82.27	$85.96	$89.83	$93.87	$97.80
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$46.91	$47.58	$48.61	$49.78	$50.72	$53.01	$56.06	$58.27	$60.82	$63.30
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$42,706,309	$43,774,530	$44,868,381	$45,990,050	$47,138,852	$48,316,840	$49,526,120	$50,764,590	$52,033,189	$53,334,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$46,126,332	$46,880,588	$48,241,599	$45,632,489	$46,562,916	$48,624,116	$50,781,089	$52,409,743	$54,300,511	$55,793,629
TOTAL FUEL COSTS	$		$27,188,600	$28,015,737	$28,389,466	$28,922,246	$28,529,475	$31,186,852	$32,862,729	$34,280,029	$36,355,243	$37,801,311
TOTAL MARKET ENERGY COSTS	$		$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($98,619,207)	($99,915,010)	($102,481,346)	($96,628,581)	($96,822,673)	($104,160,973)	($111,145,715)	($116,054,120)	($122,537,018)	($127,425,135)
TOTAL CAPITAL RECOVERY	$		$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
TOTAL MARKET CAPACITY COSTS	$		$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
TOTAL COSTS	$		$111,873,373	$115,710,526	$118,880,143	$128,057,270	$132,507,174	$138,604,140	$143,706,586	$150,335,427	$157,008,249	$163,976,679

NPV @ 6.21%: $1,209,680,426 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 2 (+20% Natural Gas Prices) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	0	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	117	143	143	130	143	156	143	156	156
GENERATION	MWh	Dogwood	0	468,768	487,628	498,095	507,611	512,081	505,329	510,194	510,042	515,897
GENERATION	MWh	Goodman Energy Center	97,584	98,040	106,894	109,782	112,442	116,622	110,200	114,038	115,406	118,940
GENERATION	MWh	Goodman Energy Center Expansion	36,450	37,314	38,394	39,636	41,904	41,918	42,296	42,174	41,837	43,565
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	1,067,550
GENERATION	MWh	JEC Participation	925,500	939,900	1,005,525	1,049,850	1,083,300	1,086,150	1,086,150	1,095,150	1,155,825	0
GENERATION	MWh	UML Westar	365,988	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood		36%	37%	38%	39%	39%	38%	39%	39%	39%
CAPACITY FACTOR	%	Goodman Energy Center	15%	15%	16%	16%	17%	18%	17%	17%	17%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	15%	16%	16%	17%	18%	18%	18%	18%	18%	18%
CAPACITY FACTOR	%	JEC Extension										81%
CAPACITY FACTOR	%	JEC Participation	70%	72%	77%	80%	82%	83%	83%	83%	88%	
CAPACITY FACTOR	%	UML Westar	27%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470
FIXED O&M COST	$	Dogwood	$0	$3,933,000	$4,032,000	$4,132,500	$4,236,000	$4,342,500	$4,450,500	$4,561,500	$4,675,500	$4,792,500
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Dogwood		$26.22	$26.88	$27.55	$28.24	$28.95	$29.67	$30.41	$31.17	$31.95
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,561	$3,209	$3,289	$3,065	$3,456	$3,864	$3,631	$4,059	$4,161
VARIABLE O&M COST	$	Dogwood	$0	$1,640,688	$1,750,749	$1,833,248	$1,914,461	$1,977,759	$2,002,186	$2,071,386	$2,122,163	$2,197,848
VARIABLE O&M COST	$	Goodman Energy Center	$609,082	$627,456	$701,237	$737,748	$774,893	$823,721	$798,190	$846,162	$878,326	$927,862
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$227,504	$238,810	$251,869	$266,359	$288,778	$296,069	$306,341	$312,931	$318,376	$339,803
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$37,389,368
VARIABLE O&M COST	$	JEC Participation	$24,816,855	$25,922,442	$28,570,139	$30,798,642	$32,848,004	$33,969,897	$35,015,769	$36,337,077	$39,374,312	$0
VARIABLE O&M COST	$	UML Westar	$11,680,458	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,404	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,303,152	$3,303,152	$3,363,153	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,680	$3,958,290	$4,033,686	$4,120,157	$4,188,009
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Dogwood		$3.50	$3.59	$3.68	$3.77	$3.86	$3.96	$4.06	$4.16	$4.26
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47
FUEL COST	$	Colby	$8,248	$8,633	$11,806	$13,065	$12,950	$14,912	$16,812	$16,108	$18,275	$18,957
FUEL COST	$	Dogwood	$0	$13,043,467	$15,272,745	$17,178,244	$19,092,376	$20,137,928	$20,483,319	$21,773,031	$22,477,993	$23,545,286
FUEL COST	$	Goodman Energy Center	$3,179,019	$3,346,966	$4,121,629	$4,657,047	$5,180,404	$5,633,540	$5,481,502	$5,946,293	$6,239,170	$6,668,675
FUEL COST	$	Goodman Energy Center Expansion	$1,193,247	$1,277,675	$1,485,386	$1,683,497	$1,940,069	$2,028,488	$2,111,073	$2,208,080	$2,268,852	$2,448,489
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	156	130	156	143	156	130	117	104	182	169
GENERATION	MWh	Dogwood	511,949	522,092	524,955	526,926	508,358	516,183	520,754	508,154	517,116	520,907
GENERATION	MWh	Goodman Energy Center	120,916	117,800	117,952	113,430	113,848	120,650	123,500	124,336	122,816	118,826
GENERATION	MWh	Goodman Energy Center Expansion	43,754	43,551	41,837	43,173	42,498	44,280	44,483	43,943	44,280	44,847
GENERATION	MWh	JEC Extension	1,081,650	1,070,550	1,072,875	1,068,450	1,062,975	1,080,300	1,093,200	1,095,000	1,104,750	1,109,325
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood	39%	40%	40%	40%	39%	39%	40%	39%	39%	40%
CAPACITY FACTOR	%	Goodman Energy Center	18%	18%	18%	17%	17%	18%	18%	19%	18%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	18%	18%	18%	18%	18%	19%	19%	19%	19%	19%
CAPACITY FACTOR	%	JEC Extension	82%	81%	81%	81%	81%	82%	83%	83%	84%	84%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Dogwood	$4,912,500	$5,035,500	$5,161,500	$5,290,500	$5,422,500	$5,557,500	$5,697,000	$5,839,500	$5,985,000	$6,135,000
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Dogwood	$32.75	$33.57	$34.41	$35.27	$36.15	$37.05	$37.98	$38.93	$39.90	$40.90
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$4,265	$3,643	$4,482	$4,210	$4,708	$4,021	$3,710	$3,380	$6,062	$5,771
VARIABLE O&M COST	$	Dogwood	$2,238,210	$2,340,214	$2,409,544	$2,482,043	$2,450,646	$2,550,733	$2,641,523	$2,638,255	$2,751,057	$2,844,150
VARIABLE O&M COST	$	Goodman Energy Center	$966,423	$965,245	$990,797	$976,664	$1,004,223	$1,090,851	$1,145,317	$1,181,684	$1,196,228	$1,185,883
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$349,698	$356,847	$351,427	$371,720	$374,862	$400,291	$412,514	$417,629	$431,287	$447,573
VARIABLE O&M COST	$	JEC Extension	$38,899,407	$39,585,254	$40,737,064	$41,651,889	$42,537,332	$44,390,111	$46,131,885	$47,493,132	$49,172,423	$50,685,059
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,208,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,808,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Dogwood	$4.37	$4.48	$4.59	$4.71	$4.82	$4.94	$5.07	$5.19	$5.32	$5.46
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	Colby	$20,013	$16,871	$20,623	$19,482	$21,520	$18,936	$17,746	$16,786	$30,700	$29,621
FUEL COST	$	Dogwood	$24,681,573	$25,611,938	$26,241,697	$26,902,098	$26,317,356	$28,341,182	$29,872,433	$30,650,433	$32,790,288	$34,290,240
FUEL COST	$	Goodman Energy Center	$7,146,251	$7,069,453	$7,226,905	$7,118,610	$7,233,051	$8,124,588	$8,733,423	$9,217,938	$9,530,527	$9,610,601
FUEL COST	$	Goodman Energy Center Expansion	$2,594,887	$2,626,196	$2,504,152	$2,719,855	$2,708,855	$2,989,032	$3,147,915	$3,258,797	$3,441,499	$3,642,938
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 2 (+20% Natural Gas Prices) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.04	23.06	22.99	23.01	23.01	23.02	23.08	22.99	23.11	23.10
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood		8.70	8.68	8.69	8.69	8.68	8.68	8.71	8.69	8.68
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.65	10.67	10.68	10.69	10.64	10.66	10.65	10.64	10.66	10.66
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.70	10.70	10.72	10.70	10.69	10.68	10.69	10.68	10.70	10.69
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
CAPITAL RECOVERY	$	Dogwood		$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	40	49	44	37	32	27	22	17	9
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	Dogwood	0	468,768	487,628	498,095	507,611	512,081	505,329	510,194	510,042	515,897
GENERATION	MWh	MWE Generation	134,151	135,471	145,431	149,561	154,476	158,683	152,652	156,355	157,399	162,661
GENERATION	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	925,500	939,900	1,005,525	1,049,850	1,083,300	1,086,150	1,086,150	1,095,150	1,155,825	1,067,550
MARKET SALES	MWh	Dogwood	0	468,768	487,628	498,095	507,611	512,081	505,329	510,194	510,042	515,897
MARKET SALES	MWh	MWE Generation	134,151	135,471	145,431	149,561	154,476	158,683	152,652	156,355	157,399	162,661
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	925,500	939,900	1,005,525	1,049,850	1,083,300	1,086,150	1,086,150	1,095,150	1,155,825	1,067,550
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$0	$18,688,807	$21,761,830	$24,469,802	$27,203,238	$28,597,026	$28,958,726	$30,889,680	$31,597,932	$33,345,602
MARKET SALES	$	MWE Generation	$6,482,528	$6,821,274	$8,242,086	$9,276,751	$10,359,761	$11,070,072	$10,900,567	$11,689,899	$12,318,907	$13,151,545
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$4,569,609	$9,512,410	$10,566,805	$11,659,049	$12,862,076	$13,298,776	$13,742,113	$14,562,933	$14,944,178	$15,484,778
MARKET SALES	$	Westar	$28,761,850	$30,811,659	$36,585,085	$41,572,977	$46,704,562	$48,659,534	$50,312,152	$52,705,239	$57,862,997	$55,510,672
MARKET SALES	$/MWh	Dogwood		$39.87	$44.63	$49.13	$53.59	$55.84	$57.31	$60.55	$61.95	$64.64
MARKET SALES	$/MWh	MWE Generation	$48.32	$50.35	$56.67	$62.03	$67.06	$69.76	$71.41	$74.77	$78.27	$80.85
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$24.75	$26.18	$29.09	$32.09	$35.28	$36.61	$37.83	$40.09	$40.99	$42.62
MARKET SALES	$/MWh	Westar	$31.08	$32.78	$36.38	$39.60	$43.11	$44.80	$46.32	$48.13	$50.06	$52.00
MARKET PURCHASES	MWh	MWE Load	1,402,278	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148
MARKET PURCHASES	$/MWh	MWE Load	$24.78	$29.51	$33.35	$36.66	$40.10	$41.89	$43.13	$45.16	$46.73	$48.57
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$34,537,170	$35,397,575	$36,281,108	$37,054,840	$37,981,744	$38,930,489	$39,908,782	$40,900,266	$41,665,552
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$40,914,591	$35,602,464	$38,521,099	$40,958,433	$43,240,577	$44,544,532	$45,679,287	$47,205,173	$50,439,099	$48,412,558
TOTAL FUEL COSTS	$		$4,380,514	$17,676,742	$20,891,626	$23,531,852	$26,225,800	$27,814,867	$28,093,306	$29,943,512	$31,004,290	$32,681,407
TOTAL MARKET ENERGY COSTS	$		$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148
TOTAL MARKET ENERGY SALES	$		($39,813,987)	($65,834,149)	($77,155,805)	($86,978,579)	($97,129,638)	($101,625,408)	($103,913,558)	($109,847,751)	($110,724,013)	($117,492,597)
TOTAL CAPITAL RECOVERY	$		$0	$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$87,189,895	$86,112,884	$86,550,990	$89,484,858	$92,492,460	$95,887,278	$99,277,124	$102,751,592	$105,677,779	$110,278,008

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.11	22.97	22.99	23.13	23.11	23.05	22.84	23.19	23.14	23.06
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood	8.69	8.68	8.69	8.67	8.67	8.69	8.64	8.67	8.70	8.66
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.65	10.62	10.66	10.65	10.64	10.66	10.65	10.65	10.64	10.64
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.69	10.67	10.66	10.70	10.68	10.68	10.66	10.66	10.66	10.69
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
CAPITAL RECOVERY	$	Dogwood	$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	5	0	-5	-14	-19	-22	-26	-31	-36	-41
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
SUMMARY BY AREA												
GENERATION	MWh	Dogwood	511,949	522,092	524,955	526,926	508,358	516,183	520,754	508,154	517,116	520,907
GENERATION	MWh	MWE Generation	164,826	161,481	159,945	156,746	156,502	165,060	168,100	168,383	167,278	163,842
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,081,650	1,070,550	1,072,875	1,068,450	1,062,975	1,080,300	1,093,200	1,095,000	1,104,750	1,109,325
MARKET SALES	MWh	Dogwood	511,949	522,092	524,955	526,926	508,358	516,183	520,754	508,154	517,116	520,907
MARKET SALES	MWh	MWE Generation	164,826	161,481	159,945	156,746	156,502	165,060	168,100	168,383	167,278	163,842
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,081,650	1,070,550	1,072,875	1,068,450	1,062,975	1,080,300	1,093,200	1,095,000	1,104,750	1,109,325
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$34,912,294	$36,277,156	$37,273,809	$38,179,682	$37,135,676	$39,947,572	$42,271,845	$43,477,100	$46,143,617	$48,196,604
MARKET SALES	$	MWE Generation	$14,014,556	$13,863,311	$14,067,316	$14,095,885	$14,353,232	$16,002,374	$16,991,239	$17,793,485	$18,528,948	$18,922,902
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$16,447,673	$16,564,437	$17,224,382	$8,512,619	$8,660,082	$9,239,426	$9,703,535	$10,081,922	$10,702,826	$10,979,947
MARKET SALES	$	Westar	$59,136,773	$59,379,957	$60,895,801	$62,015,601	$62,924,475	$66,798,581	$71,516,544	$74,530,281	$78,483,705	$81,922,697
MARKET SALES	$/MWh	Dogwood	$68.19	$69.48	$71.00	$72.46	$73.05	$77.39	$81.17	$85.56	$89.23	$92.52
MARKET SALES	$/MWh	MWE Generation	$85.03	$85.85	$87.95	$89.93	$91.71	$96.95	$101.08	$105.67	$110.77	$115.49
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$45.27	$45.60	$47.15	$47.42	$48.24	$51.47	$53.93	$56.16	$59.62	$61.16
MARKET SALES	$/MWh	Westar	$54.67	$55.47	$56.76	$58.04	$59.20	$61.83	$65.42	$68.06	$71.04	$73.85
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
MARKET PURCHASES	$/MWh	MWE Load	$51.27	$52.06	$52.87	$54.15	$54.89	$58.17	$61.01	$63.83	$66.84	$69.63
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$42,706,309	$43,774,530	$44,868,381	$45,990,050	$47,138,852	$48,316,840	$49,526,120	$50,764,590	$52,033,189	$53,334,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$50,090,000	$50,963,986	$52,328,720	$50,003,106	$50,974,517	$53,124,920	$55,124,407	$56,602,508	$58,518,833	$60,225,355
TOTAL FUEL COSTS	$		$34,442,724	$35,324,458	$36,053,437	$36,760,044	$38,281,383	$39,474,339	$41,771,517	$43,143,955	$45,793,014	$47,573,401
TOTAL MARKET ENERGY COSTS	$		$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
TOTAL MARKET ENERGY SALES	$		($124,511,295)	($126,084,861)	($129,461,309)	($122,803,787)	($123,073,465)	($131,967,953)	($140,483,164)	($145,882,788)	($153,859,096)	($160,022,150)
TOTAL CAPITAL RECOVERY	$		$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
TOTAL MARKET CAPACITY COSTS	$		$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
TOTAL COSTS	$		$114,400,464	$118,726,681	$121,987,310	$133,160,497	$138,034,266	$144,000,529	$150,084,245	$157,412,313	$164,096,347	$172,390,622

NPV @ 6.21%: $1,238,541,475 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 2 (-10% Natural Gas Prices) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	0	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	91	91	91	117	91	117	117	117	130	117
GENERATION	MWh	Dogwood	0	422,753	444,522	459,557	472,133	476,634	464,532	473,520	474,818	480,758
GENERATION	MWh	Goodman Energy Center	79,078	79,192	89,148	92,302	97,166	100,168	93,176	98,534	99,712	102,410
GENERATION	MWh	Goodman Energy Center Expansion	29,633	30,227	31,995	33,615	36,288	36,032	36,059	36,707	36,450	38,138
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	883,200
GENERATION	MWh	JEC Participation	732,825	746,925	788,700	831,375	880,500	886,650	888,450	898,350	948,675	0
GENERATION	MWh	UML Westar	124,659	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood		32%	34%	35%	36%	36%	35%	36%	36%	37%
CAPACITY FACTOR	%	Goodman Energy Center	12%	12%	13%	14%	15%	15%	14%	15%	15%	15%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	12%	13%	14%	14%	15%	15%	15%	16%	15%	16%
CAPACITY FACTOR	%	JEC Extension										67%
CAPACITY FACTOR	%	JEC Participation	56%	57%	60%	63%	67%	67%	68%	68%	72%	
CAPACITY FACTOR	%	UML Westar	9%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470
FIXED O&M COST	$	Dogwood	$0	$3,933,000	$4,032,000	$4,132,500	$4,236,000	$4,342,500	$4,450,500	$4,561,500	$4,675,500	$4,792,500
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Dogwood		$26.22	$26.88	$27.55	$28.24	$28.95	$29.67	$30.41	$31.17	$31.95
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$1,944	$1,992	$2,042	$2,691	$2,146	$2,828	$2,898	$2,971	$3,383	$3,120
VARIABLE O&M COST	$	Dogwood	$0	$1,479,634	$1,595,977	$1,691,405	$1,780,622	$1,840,870	$1,840,593	$1,922,491	$1,975,610	$2,048,156
VARIABLE O&M COST	$	Goodman Energy Center	$493,593	$506,829	$584,823	$620,282	$669,635	$707,364	$674,772	$731,122	$758,881	$798,870
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$184,959	$193,450	$209,892	$225,897	$250,082	$254,446	$261,127	$272,362	$277,385	$297,473
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$30,933,012
VARIABLE O&M COST	$	JEC Participation	$19,650,006	$20,600,192	$22,408,968	$24,388,933	$26,698,358	$27,730,575	$28,641,699	$29,807,253	$32,316,911	$0
VARIABLE O&M COST	$	UML Westar	$3,977,265	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Dogwood		$3.50	$3.59	$3.68	$3.77	$3.86	$3.96	$4.06	$4.16	$4.26
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47
FUEL COST	$	Colby	$4,822	$5,047	$5,671	$8,040	$6,773	$9,177	$9,461	$9,913	$11,394	$10,649
FUEL COST	$	Dogwood	$0	$8,819,435	$10,429,977	$11,877,689	$13,312,562	$14,053,502	$14,117,700	$15,140,337	$15,681,123	$16,438,900
FUEL COST	$	Goodman Energy Center	$1,936,649	$2,030,114	$2,580,582	$2,938,211	$3,361,627	$3,633,141	$3,481,951	$3,860,733	$4,046,443	$4,308,810
FUEL COST	$	Goodman Energy Center Expansion	$729,421	$777,667	$930,081	$1,071,786	$1,262,307	$1,309,918	$1,353,172	$1,444,560	$1,484,103	$1,609,096
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	130	104	130	117	117	117	104	91	143	143
GENERATION	MWh	Dogwood	479,903	487,064	487,140	489,197	472,115	484,424	486,248	477,308	482,021	485,250
GENERATION	MWh	Goodman Energy Center	103,968	101,726	102,448	99,294	97,926	104,500	106,438	107,996	106,932	104,766
GENERATION	MWh	Goodman Energy Center Expansion	38,003	37,868	36,477	37,773	37,071	38,570	38,529	38,124	38,772	39,798
GENERATION	MWh	JEC Extension	903,300	887,025	890,700	883,500	877,050	901,050	925,350	931,950	947,700	956,475
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood	37%	37%	37%	37%	36%	37%	37%	36%	37%	37%
CAPACITY FACTOR	%	Goodman Energy Center	16%	15%	15%	15%	15%	16%	16%	16%	16%	16%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	16%	16%	15%	16%	16%	16%	16%	16%	16%	17%
CAPACITY FACTOR	%	JEC Extension	69%	68%	68%	67%	67%	69%	70%	71%	72%	73%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Dogwood	$4,912,500	$5,035,500	$5,161,500	$5,290,500	$5,422,500	$5,557,500	$5,697,000	$5,839,500	$5,985,000	$6,135,000
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Dogwood	$32.75	$33.57	$34.41	$35.27	$36.15	$37.05	$37.98	$38.93	$39.90	$40.90
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$3,554	$2,914	$3,735	$3,444	$3,531	$3,619	$3,298	$2,958	$4,763	$4,883
VARIABLE O&M COST	$	Dogwood	$2,098,117	$2,183,269	$2,235,973	$2,304,321	$2,275,858	$2,393,816	$2,466,517	$2,478,137	$2,564,349	$2,649,465
VARIABLE O&M COST	$	Goodman Energy Center	$830,902	$833,423	$860,563	$854,937	$863,724	$944,767	$986,908	$1,026,272	$1,041,518	$1,045,565
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$303,710	$310,237	$306,407	$325,226	$326,972	$348,668	$357,238	$362,288	$377,639	$397,184
VARIABLE O&M COST	$	JEC Extension	$32,485,755	$32,799,670	$33,819,879	$34,441,688	$35,096,387	$37,024,706	$39,049,340	$40,421,695	$42,182,126	$43,701,343
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Dogwood	$4.37	$4.48	$4.59	$4.71	$4.82	$4.94	$5.07	$5.19	$5.32	$5.46
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	Colby	$12,468	$10,069	$12,908	$11,926	$12,090	$12,797	$11,835	$10,983	$17,986	$18,739
FUEL COST	$	Dogwood	$17,338,431	$17,908,597	$18,254,395	$18,725,953	$18,318,966	$19,931,057	$20,900,388	$21,569,395	$22,914,824	$23,965,897
FUEL COST	$	Goodman Energy Center	$4,613,351	$4,583,225	$4,718,713	$4,675,852	$4,668,683	$5,283,570	$5,650,473	$6,010,199	$6,242,700	$6,361,330
FUEL COST	$	Goodman Energy Center Expansion	$1,691,994	$1,715,033	$1,681,128	$1,786,256	$1,774,617	$1,955,222	$2,048,260	$2,124,029	$2,266,419	$2,426,631
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 2 (-10% Natural Gas Prices) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	Colby	17.32	17.33	17.26	17.31	17.19	17.31	17.32	17.29	17.29	17.30	17.28	17.14	17.27	17.31	17.31	17.31	17.14	17.34	17.25	17.24
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood		6.52	6.50	6.51	6.51	6.51	6.51	6.53	6.51	6.50	6.51	6.51	6.52	6.50	6.50	6.51	6.47	6.49	6.52	6.50
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.00	8.01	8.02	8.02	7.99	8.01	8.00	8.00	8.00	8.00	8.00	7.97	8.01	8.00	7.99	8.00	8.00	8.00	8.01	7.99
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.04	8.04	8.05	8.03	8.03	8.03	8.04	8.03	8.03	8.02	8.02	8.02	8.02	8.03	8.02	8.02	8.01	8.00	8.02	8.02
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
CAPITAL RECOVERY	$	Dogwood		$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000	$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	40	49	44	37	32	27	22	17	9	5	0	-5	-14	-19	-22	-26	-31	-36	-41
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
SUMMARY BY AREA																						
GENERATION	MWh	Dogwood	0	422,753	444,522	459,557	472,133	476,634	464,532	473,520	474,818	480,758	479,903	487,064	487,140	489,197	472,115	484,424	486,248	477,308	482,021	485,250
GENERATION	MWh	MWE Generation	108,802	109,510	121,234	126,034	133,545	136,317	129,352	135,358	136,292	140,665	142,101	139,698	139,055	137,184	135,114	143,187	145,071	146,211	145,847	144,707
GENERATION	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	732,825	746,925	788,700	831,375	880,500	886,650	888,450	898,350	948,675	883,200	903,300	887,025	890,700	883,500	877,050	901,050	925,350	931,950	947,700	956,475
MARKET SALES	MWh	Dogwood	0	422,753	444,522	459,557	472,133	476,634	464,532	473,520	474,818	480,758	479,903	487,064	487,140	489,197	472,115	484,424	486,248	477,308	482,021	485,250
MARKET SALES	MWh	MWE Generation	108,802	109,510	121,234	126,034	133,545	136,317	129,352	135,358	136,292	140,665	142,101	139,698	139,055	137,184	135,114	143,187	145,071	146,211	145,847	144,707
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	732,825	746,925	788,700	831,375	880,500	886,650	888,450	898,350	948,675	883,200	903,300	887,025	890,700	883,500	877,050	901,050	925,350	931,950	947,700	956,475
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$0	$12,912,988	$15,163,319	$17,221,559	$19,278,435	$20,279,405	$20,333,778	$21,847,592	$22,391,866	$23,659,746	$24,891,818	$25,768,898	$26,376,834	$27,029,295	$26,280,475	$28,499,128	$30,048,747	$31,046,736	$32,758,114	$34,224,156
MARKET SALES	$	MWE Generation	$4,108,841	$4,309,183	$5,346,408	$6,072,766	$6,925,755	$7,358,987	$7,166,373	$7,819,899	$8,244,493	$8,790,055	$9,349,769	$9,265,453	$9,452,549	$9,505,666	$9,581,502	$10,731,717	$11,344,214	$11,937,140	$12,487,981	$12,869,804
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,427,215	$7,134,310	$7,925,126	$8,744,283	$9,646,547	$9,974,081	$10,306,560	$10,922,193	$11,208,132	$11,613,628	$12,335,754	$12,423,300	$12,918,293	$6,384,474	$6,495,068	$6,929,573	$7,277,637	$7,561,450	$8,027,108	$8,234,973
MARKET SALES	$	Westar	$17,143,776	$18,547,535	$22,095,909	$25,571,583	$29,620,967	$31,014,121	$32,130,131	$33,780,978	$37,189,448	$35,958,155	$38,724,457	$38,580,767	$39,580,894	$40,177,218	$40,648,455	$43,629,038	$47,420,547	$49,675,357	$52,709,173	$55,315,952
MARKET SALES	$/MWh	Dogwood		$30.55	$34.11	$37.47	$40.83	$42.55	$43.77	$46.14	$47.16	$49.21	$51.87	$52.91	$54.15	$55.25	$55.67	$58.83	$61.80	$65.05	$67.96	$70.53
MARKET SALES	$/MWh	MWE Generation	$37.76	$39.35	$44.10	$48.18	$51.86	$53.98	$55.40	$57.77	$60.49	$62.49	$65.80	$66.33	$67.98	$69.29	$70.91	$74.95	$78.20	$81.64	$85.62	$88.94
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$18.56	$19.64	$21.81	$24.07	$26.46	$27.45	$28.37	$30.06	$30.75	$31.97	$33.96	$34.20	$35.36	$35.57	$36.18	$38.60	$40.45	$42.12	$44.72	$45.87
MARKET SALES	$/MWh	Westar	$23.39	$24.83	$28.02	$30.76	$33.64	$34.98	$36.16	$37.60	$39.20	$40.71	$42.87	$43.49	$44.44	$45.48	$46.35	$48.42	$51.25	$53.30	$55.62	$57.83
MARKET PURCHASES	MWh	MWE Load	1,643,607	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
MARKET PURCHASES	$/MWh	MWE Load	$19.88	$22.13	$25.01	$27.49	$30.08	$31.42	$32.34	$33.87	$35.05	$36.43	$38.45	$39.04	$39.65	$40.61	$41.17	$43.63	$45.76	$47.87	$50.13	$52.22
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$34,537,170	$35,397,575	$36,281,108	$37,054,840	$37,981,744	$38,930,489	$39,908,782	$40,900,266	$41,665,552	$42,706,309	$43,774,530	$44,868,381	$45,990,050	$47,138,852	$48,316,840	$49,526,120	$50,764,590	$52,033,189	$53,334,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$27,885,959	$29,952,603	$32,045,598	$34,248,356	$36,821,217	$38,009,713	$38,974,025	$40,370,186	$43,074,032	$41,634,148	$43,354,041	$43,842,297	$45,061,964	$42,446,196	$43,169,219	$45,404,491	$47,652,758	$49,159,778	$51,132,171	$52,855,358
TOTAL FUEL COSTS	$		$2,670,892	$11,632,203	$13,946,311	$15,895,725	$17,943,270	$19,005,737	$18,962,284	$20,455,543	$21,223,093	$22,307,455	$23,656,244	$24,216,924	$24,607,143	$25,199,986	$24,774,356	$27,182,646	$28,610,955	$29,714,606	$31,441,929	$32,772,597
TOTAL MARKET ENERGY COSTS	$		$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
TOTAL MARKET ENERGY SALES	$		($24,679,831)	($42,904,016)	($50,530,762)	($57,610,190)	($65,471,703)	($68,626,594)	($69,936,843)	($74,370,661)	($79,033,939)	($80,021,583)	($85,301,799)	($86,038,418)	($88,328,570)	($83,096,653)	($83,005,500)	($89,789,455)	($96,091,144)	($100,220,682)	($105,982,376)	($110,644,885)
TOTAL CAPITAL RECOVERY	$		$0	$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000	$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
TOTAL COSTS	$		$85,514,254	$83,773,791	$84,944,582	$87,952,738	$90,989,740	$94,026,797	$97,027,022	$100,204,781	$103,344,449	$106,433,267	$110,255,601	$113,852,689	$116,902,893	$125,145,596	$129,367,991	$135,204,443	$140,149,618	$146,428,533	$152,804,192	$159,380,903

NPV @ 6.21%: $1,191,103,370 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 2 (CO2) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	0	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	156	143	156	156	156	130	169	156	156	130	117	130	182	169
GENERATION	MWh	Dogwood	0	441,201	457,679	473,463	487,697	486,126	496,856	506,933	508,073	513,020	510,468	523,736	525,189	529,803	512,024	520,646	522,750	510,078	520,430	523,640
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,450	105,716	111,872	114,532	118,370	120,916	117,876	119,168	116,014	116,584	123,728	125,020	126,122	124,830	120,954
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	37,922	40,419	41,297	41,553	43,524	43,808	43,713	42,471	43,929	43,308	45,374	45,063	44,604	44,969	45,536
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	774,675	779,025	764,250	755,550	744,975	736,950	746,475	763,425	767,700	777,975	782,475
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	965,925	828,450	820,575	850,050	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood		34%	35%	36%	37%	37%	38%	39%	39%	39%	39%	40%	40%	40%	39%	40%	40%	39%	40%	40%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	16%	17%	17%	18%	18%	18%	18%	17%	18%	19%	19%	19%	19%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	17%	17%	18%	18%	19%	18%	18%	19%	18%	19%	19%	19%	19%	19%
CAPACITY FACTOR	%	JEC Extension										59%	59%	58%	57%	57%	56%	57%	58%	58%	59%	60%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	63%	62%	65%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Dogwood	$0	$3,933,000	$4,032,000	$4,132,500	$4,236,000	$4,342,500	$4,450,500	$4,561,500	$4,675,500	$4,792,500	$4,912,500	$5,035,500	$5,161,500	$5,290,500	$5,422,500	$5,557,500	$5,697,000	$5,839,500	$5,985,000	$6,135,000
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Dogwood		$26.22	$26.88	$27.55	$28.24	$28.95	$29.67	$30.41	$31.17	$31.95	$32.75	$33.57	$34.41	$35.27	$36.15	$37.05	$37.98	$38.93	$39.90	$40.90
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,025	$2,691	$2,452	$3,142	$3,864	$3,631	$4,059	$4,161	$4,265	$3,643	$4,855	$4,593	$4,708	$4,021	$3,710	$4,225	$6,062	$5,771
VARIABLE O&M COST	$	Dogwood	$0	$1,544,204	$1,643,209	$1,742,604	$1,839,298	$1,877,327	$1,968,588	$2,058,146	$2,113,951	$2,185,592	$2,231,086	$2,347,537	$2,410,018	$2,495,577	$2,468,316	$2,572,753	$2,651,616	$2,648,233	$2,768,685	$2,859,072
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$744,614	$765,562	$830,090	$871,661	$923,416	$966,377	$965,787	$1,001,011	$998,896	$1,028,354	$1,118,658	$1,159,337	$1,198,615	$1,215,844	$1,207,121
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$267,774	$292,697	$306,420	$316,218	$339,487	$350,114	$358,146	$356,756	$378,229	$382,006	$410,176	$417,871	$423,900	$437,993	$454,444
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$27,131,699	$28,015,569	$28,258,573	$28,688,234	$29,041,289	$29,490,024	$30,672,454	$32,215,131	$33,295,977	$34,627,667	$35,751,283
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,205,832	$26,706,123	$27,226,679	$28,957,023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Dogwood		$3.50	$3.59	$3.68	$3.77	$3.86	$3.96	$4.06	$4.16	$4.26	$4.37	$4.48	$4.59	$4.71	$4.82	$4.94	$5.07	$5.19	$5.32	$5.46
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.27	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$14,010	$13,423	$15,229	$15,797	$16,677	$14,059	$18,621	$17,689	$17,933	$15,780	$14,788	$17,512	$25,583	$24,684
FUEL COST	$	Dogwood	$0	$10,232,497	$11,940,349	$13,602,575	$15,278,576	$15,922,553	$16,778,275	$18,026,520	$18,656,041	$19,504,830	$20,508,069	$21,407,213	$21,881,117	$22,537,981	$22,088,178	$23,817,727	$24,986,259	$25,636,606	$27,497,618	$28,732,516
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,250,475	$4,383,474	$4,864,745	$5,159,930	$5,529,616	$5,955,773	$5,895,506	$6,085,747	$6,068,247	$6,171,284	$6,940,778	$7,367,994	$7,792,470	$8,074,959	$8,150,682
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,531,411	$1,682,922	$1,803,466	$1,877,960	$2,037,987	$2,164,911	$2,197,419	$2,169,575	$2,305,953	$2,299,715	$2,551,654	$2,657,795	$2,756,673	$2,912,978	$3,082,414
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 2 (CO2) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.23	19.16	19.26	19.25	19.26	19.14	19.16	19.25	19.26	19.21	19.04	19.35	19.28	19.22
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood		7.25	7.23	7.24	7.24	7.23	7.23	7.26	7.24	7.23	7.24	7.23	7.25	7.22	7.23	7.24	7.20	7.22	7.25	7.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.87	8.89	8.88	8.87	8.85	8.88	8.88	8.87	8.88	8.88	8.88	8.87	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.91	8.91	8.90	8.90	8.90	8.88	8.91	8.89	8.90	8.88	8.88	8.89	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
CO2 EMISSIONS	lbs	Colby	266,760	237,120	266,760	266,760	237,120	296,400	355,680	326,040	355,680	355,680	355,680	296,400	385,320	355,680	355,680	296,400	266,760	296,400	414,960	385,320
CO2 EMISSIONS	lbs	Dogwood	0	382,475,339	396,848,966	410,729,368	423,147,910	421,664,056	431,102,588	439,985,188	440,621,674	445,230,708	443,073,034	454,690,140	456,041,926	459,913,654	444,214,722	451,852,272	453,866,706	443,102,554	451,716,832	454,473,350
CO2 EMISSIONS	lbs	Goodman Energy Center	92,352,912	92,325,744	101,854,272	105,571,968	109,538,160	112,806,720	113,113,536	119,685,552	122,513,952	126,573,360	129,294,336	126,025,776	127,467,888	124,143,744	124,687,344	132,289,728	133,680,000	134,817,792	133,414,560	129,386,304
CO2 EMISSIONS	lbs	Goodman Energy Center Expansion	34,651,920	35,067,744	36,735,840	38,268,288	41,050,752	40,573,104	43,248,864	44,189,904	44,463,168	46,551,744	46,858,320	46,753,728	45,432,576	46,993,824	46,323,648	48,519,216	48,196,128	47,723,424	48,084,336	48,726,288
CO2 EMISSIONS	lbs	JEC Extension	0	0	0	0	0	0	0	0	0	1,797,812,818	1,806,475,076	1,775,117,336	1,753,634,528	1,727,820,438	1,709,282,988	1,728,513,360	1,767,667,488	1,783,086,752	1,801,277,744	1,817,216,532
CO2 EMISSIONS	lbs	JEC Participation	1,831,423,720	1,869,711,544	2,006,750,872	2,115,203,760	2,248,951,976	2,243,754,216	1,924,804,360	1,899,683,312	1,973,314,720	0	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	UML Westar	426,849,429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO2 COST	$	Colby	$0	$0	$0	$0	$0	$0	$1,778	$1,936	$2,445	$2,779	$3,112	$2,871	$4,094	$4,113	$4,446	$3,798	$3,503	$3,990	$5,725	$5,449
CO2 COST	$	Dogwood	$0	$0	$0	$0	$0	$37,792	$2,163,912	$2,612,412	$3,032,238	$3,479,303	$3,883,805	$4,413,670	$4,845,446	$5,319,261	$5,553,494	$5,790,976	$5,963,556	$5,966,748	$6,232,640	$6,427,441
CO2 COST	$	Goodman Energy Center	$0	$0	$0	$0	$0	$4,142	$566,570	$710,633	$842,672	$989,550	$1,132,635	$1,222,723	$1,354,346	$1,435,494	$1,558,722	$1,695,201	$1,756,214	$1,815,491	$1,840,808	$1,829,860
CO2 COST	$	Goodman Energy Center Expansion	$0	$0	$0	$0	$0	$1,474	$216,601	$262,377	$305,684	$363,685	$410,476	$453,585	$482,721	$543,367	$579,091	$621,652	$633,161	$642,658	$663,451	$689,117
CO2 COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$14,052,722	$15,827,308	$17,222,014	$18,632,388	$19,982,552	$21,369,195	$22,151,417	$23,223,434	$24,013,298	$24,853,400	$25,700,246
CO2 COST	$	JEC Participation	$0	$0	$0	$0	$0	$132,536	$9,654,410	$11,279,387	$13,576,303	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CAPITAL RECOVERY	$	Dogwood		$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000	$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	40	49	44	37	32	27	22	17	9	5	0	-5	-14	-19	-22	-26	-31	-36	-41
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
SUMMARY BY AREA																						
GENERATION	MWh	Dogwood	0	441,201	457,679	473,463	487,697	486,126	496,856	506,933	508,073	513,020	510,468	523,736	525,189	529,803	512,024	520,646	522,750	510,078	520,430	523,640
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,881	143,502	146,291	153,312	156,241	162,050	164,880	161,719	161,808	160,099	160,048	169,232	170,200	170,856	169,981	166,659
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	804,000	863,925	913,875	968,775	965,925	828,450	820,575	850,050	774,675	779,025	764,250	755,550	744,975	736,950	746,475	763,425	767,700	777,975	782,475
MARKET SALES	MWh	Dogwood	0	441,201	457,679	473,463	487,697	486,126	496,856	506,933	508,073	513,020	510,468	523,736	525,189	529,803	512,024	520,646	522,750	510,078	520,430	523,640
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,881	143,502	146,291	153,312	156,241	162,050	164,880	161,719	161,808	160,099	160,048	169,232	170,200	170,856	169,981	166,659
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	804,000	863,925	913,875	968,775	965,925	828,450	820,575	850,050	774,675	779,025	764,250	755,550	744,975	736,950	746,475	763,425	767,700	777,975	782,475
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$0	$14,849,202	$17,250,063	$19,594,268	$21,968,630	$22,875,507	$26,871,493	$29,335,972	$30,514,762	$32,597,595	$34,512,987	$36,530,118	$37,974,377	$39,496,104	$38,948,637	$41,653,823	$43,756,154	$44,797,457	$47,420,904	$49,371,420
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,027,650	$8,519,943	$9,915,322	$10,997,293	$11,870,631	$12,877,650	$13,896,877	$13,958,777	$14,468,484	$14,772,848	$15,242,627	$16,912,891	$17,707,058	$18,497,629	$19,209,319	$19,567,196
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$12,929,898	$13,911,298	$14,489,882	$15,215,874	$16,311,271	$16,660,381	$17,553,793	$8,774,973	$9,039,981	$9,583,469	$10,016,290	$10,362,281	$10,955,075	$11,206,171
MARKET SALES	$	Westar	$20,624,043	$22,261,963	$26,797,476	$30,966,863	$35,731,932	$37,052,870	$37,745,340	$39,534,795	$43,418,857	$41,699,990	$44,709,966	$44,998,650	$46,053,979	$46,954,625	$47,842,594	$50,490,603	$54,667,682	$57,055,058	$60,292,631	$62,983,121
MARKET SALES	$/MWh	Dogwood		$33.66	$37.69	$41.39	$45.05	$47.06	$54.08	$57.87	$60.06	$63.54	$67.61	$69.75	$72.31	$74.55	$76.07	$80.00	$83.70	$87.82	$91.12	$94.29
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$56.98	$59.37	$67.78	$71.73	$75.98	$79.47	$84.29	$86.32	$89.42	$92.27	$95.24	$99.94	$104.04	$108.26	$113.01	$117.41
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$35.59	$38.29	$39.75	$41.88	$44.90	$45.86	$48.05	$48.88	$50.36	$53.39	$55.67	$57.72	$61.03	$62.42
MARKET SALES	$/MWh	Westar	$26.15	$27.69	$31.02	$33.89	$36.88	$38.36	$45.56	$48.18	$51.08	$53.83	$57.39	$58.88	$60.95	$63.03	$64.92	$67.64	$71.61	$74.32	$77.50	$80.49
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,028	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346	$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$40.56	$43.12	$45.29	$47.71	$50.82	$52.33	$53.86	$55.78	$57.26	$60.29	$62.95	$65.57	$68.38	$71.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$34,537,170	$35,397,575	$36,281,108	$37,054,840	$37,981,744	$38,930,489	$39,908,782	$40,900,266	$41,665,552	$42,700,309	$43,774,530	$44,868,381	$45,990,050	$47,138,852	$48,316,840	$49,526,120	$50,764,500	$52,033,189	$53,334,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,878,187	$31,652,319	$34,285,204	$36,776,700	$39,607,633	$40,572,319	$37,289,770	$38,058,952	$40,004,775	$38,137,872	$39,200,014	$39,646,469	$40,296,882	$37,435,163	$37,976,155	$39,466,976	$41,237,122	$42,430,378	$44,018,027	$45,334,609
TOTAL FUEL COSTS	$		$3,235,255	$13,628,433	$16,114,500	$18,387,782	$20,703,078	$21,715,746	$22,858,681	$24,708,154	$25,709,160	$27,088,230	$28,645,431	$29,514,197	$30,155,061	$30,929,869	$30,577,111	$33,325,938	$35,026,836	$36,203,261	$38,511,138	$39,990,296
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346	$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($50,161,095)	($59,118,071)	($67,384,431)	($76,446,581)	($79,530,622)	($87,462,053)	($93,779,358)	($100,294,132)	($102,391,109)	($109,431,100)	($112,147,026)	($116,050,633)	($109,998,550)	($111,073,838)	($118,640,785)	($126,147,183)	($130,712,426)	($137,877,929)	($143,127,907)
TOTAL CAPITAL RECOVERY	$		$0	$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000	$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
TOTAL CO2 COSTS	$		$0	$0	$0	$0	$0	$175,944	$12,603,271	$14,866,745	$17,759,342	$18,888,039	$21,257,337	$23,314,862	$25,318,994	$27,284,786	$29,064,949	$30,263,044	$31,579,868	$32,442,185	$33,506,024	$34,652,114
TOTAL COSTS	$		$86,497,470	$84,737,529	$85,701,893	$88,696,963	$91,711,028	$95,076,366	$109,862,544	$115,390,839	$121,322,662	$126,680,928	$133,208,456	$139,421,251	$144,849,700	$158,306,538	$165,477,382	$173,088,663	$179,643,203	$187,824,775	$196,005,333	$204,680,814

NPV @ 6.21%: $1,370,493,099 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 2 (Market Capacity Sales) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	0	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364	110,314	108,034	107,502	104,386	104,044	111,074	112,100	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,759	40,257	40,163	40,136	38,178	39,920	39,380	40,838	40,595	39,947	41,175	41,702
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood		34%	35%	36%	37%	37%	36%	37%	37%	38%	37%	38%	38%	38%	37%	38%	38%	38%	38%	38%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%	17%	16%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	16%	17%	17%	17%	17%	17%	17%	18%
CAPACITY FACTOR	%	JEC Extension										73%	74%	73%	74%	73%	73%	74%	76%	76%	77%	77%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Dogwood	$0	$3,933,000	$4,032,000	$4,132,500	$4,236,000	$4,342,500	$4,450,500	$4,561,500	$4,675,500	$4,792,500	$4,912,500	$5,035,500	$5,161,500	$5,290,500	$5,422,500	$5,557,500	$5,697,000	$5,839,500	$5,985,000	$6,135,000
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Dogwood		$26.22	$26.88	$27.55	$28.24	$28.95	$29.67	$30.41	$31.17	$31.95	$32.75	$33.57	$34.41	$35.27	$36.15	$37.05	$37.98	$38.93	$39.90	$40.90
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Dogwood	$0	$1,544,204	$1,643,209	$1,742,604	$1,839,298	$1,885,720	$1,885,515	$1,982,478	$2,038,382	$2,102,286	$2,150,026	$2,258,129	$2,305,704	$2,363,384	$2,337,422	$2,444,886	$2,531,533	$2,562,561	$2,647,884	$2,740,292
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169	$881,667	$885,229	$903,017	$898,779	$917,752	$1,004,266	$1,039,464	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,952	$314,005	$320,990	$328,863	$320,695	$343,707	$347,357	$369,171	$376,410	$379,641	$401,044	$416,181
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,725,121	$35,137,381	$35,692,305	$36,872,667	$37,506,212	$38,353,323	$40,112,858	$42,040,514	$43,518,450	$45,176,535	$46,477,011
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Dogwood		$3.50	$3.59	$3.68	$3.77	$3.86	$3.96	$4.06	$4.16	$4.26	$4.37	$4.48	$4.59	$4.71	$4.82	$4.94	$5.07	$5.19	$5.32	$5.46
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Dogwood	$0	$10,232,497	$11,940,349	$13,602,575	$15,278,576	$15,993,866	$16,071,066	$17,357,535	$17,979,043	$18,755,798	$19,753,065	$20,580,392	$20,920,774	$21,347,802	$20,911,059	$22,629,889	$23,841,143	$24,784,503	$26,289,130	$27,538,208
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181	$5,433,945	$5,404,165	$5,499,261	$5,462,524	$5,508,414	$6,240,420	$6,609,959	$7,009,105	$7,374,072	$7,410,372
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,539,045	$1,603,484	$1,682,092	$1,751,731	$1,886,002	$1,984,912	$2,018,599	$1,953,682	$2,097,227	$2,093,031	$2,300,763	$2,396,839	$2,472,433	$2,672,058	$2,823,923
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 2 (Market Capacity Sales) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood		7.25	7.23	7.24	7.24	7.23	7.23	7.25	7.24	7.23
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.92	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
CAPITAL RECOVERY	$	Dogwood		$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	40	49	44	37	32	27	22	17	9
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	($3,204,658)	($2,577,505)	($3,230,749)	($2,974,423)	($2,557,141)	($2,300,013)	($2,001,402)	($1,662,896)	($1,287,690)	($688,944)
SUMMARY BY AREA												
GENERATION	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,881	144,223	138,331	142,700	145,150	149,751
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	962,925
MARKET SALES	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,881	144,223	138,331	142,700	145,150	149,751
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	962,925
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$0	$14,849,202	$17,250,063	$19,594,268	$21,968,630	$22,959,034	$23,025,559	$24,873,301	$25,501,777	$26,835,186
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,027,650	$8,555,635	$8,399,299	$9,067,230	$9,627,302	$10,266,651
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023
MARKET SALES	$	Westar	$20,624,043	$22,261,963	$26,797,476	$30,966,863	$35,731,932	$37,218,089	$38,507,068	$40,497,426	$44,615,304	$42,907,699
MARKET SALES	$/MWh	Dogwood		$33.66	$37.69	$41.39	$45.05	$47.02	$48.39	$50.94	$52.05	$54.38
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$56.98	$59.32	$60.72	$63.54	$66.33	$68.56
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52
MARKET SALES	$/MWh	Westar	$26.15	$27.69	$31.02	$33.89	$36.88	$38.36	$39.66	$41.20	$42.90	$44.56
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$34,537,170	$35,397,575	$36,281,108	$37,054,840	$37,981,744	$38,930,489	$39,908,782	$40,900,266	$41,665,552
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,878,187	$31,652,319	$34,285,204	$36,776,700	$39,607,633	$40,728,506	$41,746,912	$43,292,149	$46,319,392	$44,551,564
TOTAL FUEL COSTS	$		$3,235,255	$13,628,433	$16,114,500	$18,367,782	$20,703,078	$21,816,171	$21,821,584	$23,584,142	$24,531,561	$25,768,102
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($50,161,095)	($59,118,071)	($67,384,431)	($76,446,581)	($79,815,060)	($81,383,679)	($86,573,755)	($92,197,876)	($92,913,558)
TOTAL CAPITAL RECOVERY	$		$0	$9,831,000	$9,654,000	$9,475,000	$9,293,000	$9,110,000	$8,925,000	$8,738,000	$8,550,000	$8,358,000
TOTAL MARKET CAPACITY COSTS	$		($3,204,658)	($2,577,505)	($3,230,749)	($2,974,423)	($2,557,141)	($2,300,013)	($2,001,402)	($1,662,896)	($1,287,690)	($688,944)
TOTAL COSTS	$		$83,292,812	$82,160,024	$82,471,145	$85,722,540	$89,153,887	$92,572,582	$96,007,930	$99,622,940	$103,072,536	$107,284,771

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood	7.24	7.23	7.24	7.22	7.22	7.24	7.19	7.21	7.25	7.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.88	8.85	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.90	8.90	8.90	8.92	8.90	8.91	8.89	8.89	8.90	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
CAPITAL RECOVERY	$	Dogwood	$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	5	0	-5	-14	-19	-22	-26	-31	-36	-41
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	($375,327)	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
SUMMARY BY AREA												
GENERATION	MWh	Dogwood	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
GENERATION	MWh	MWE Generation	150,633	148,287	145,823	144,436	143,567	152,042	152,812	153,405	155,128	151,868
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
MARKET SALES	MWh	Dogwood	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
MARKET SALES	MWh	MWE Generation	150,633	148,287	145,823	144,436	143,567	152,042	152,812	153,405	155,128	151,868
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$28,200,816	$29,393,240	$30,018,615	$30,636,541	$29,822,988	$32,203,582	$34,074,316	$35,403,124	$37,320,552	$39,031,606
MARKET SALES	$	MWE Generation	$10,876,591	$10,795,842	$10,906,235	$11,009,622	$11,170,368	$12,508,978	$13,135,360	$13,780,513	$14,561,970	$14,853,196
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$45,835,434	$45,922,224	$47,202,854	$47,888,558	$48,612,571	$51,748,861	$55,849,766	$58,468,871	$61,735,503	$64,390,372
MARKET SALES	$/MWh	Dogwood	$57.35	$58.35	$59.76	$61.06	$61.51	$65.09	$68.28	$71.73	$74.98	$77.77
MARKET SALES	$/MWh	MWE Generation	$72.21	$72.80	$74.79	$76.23	$77.81	$82.27	$85.96	$89.83	$93.87	$97.80
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$46.91	$47.58	$48.61	$49.78	$50.72	$53.01	$56.06	$58.27	$60.82	$63.30
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$42,706,309	$43,774,530	$44,868,381	$45,990,050	$47,138,852	$48,316,840	$49,526,120	$50,764,590	$52,033,189	$53,334,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$46,126,332	$46,880,588	$48,241,599	$45,632,489	$46,562,916	$48,624,116	$50,781,089	$52,409,743	$54,300,511	$55,793,629
TOTAL FUEL COSTS	$		$27,188,600	$28,015,737	$28,389,466	$28,922,246	$28,529,475	$31,186,852	$32,862,729	$34,280,029	$36,355,243	$37,801,311
TOTAL MARKET ENERGY COSTS	$		$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($98,619,207)	($99,915,010)	($102,481,346)	($96,628,581)	($96,822,673)	($104,160,973)	($111,145,715)	($116,054,120)	($122,537,018)	($127,425,135)
TOTAL CAPITAL RECOVERY	$		$8,165,000	$7,969,000	$7,770,000	$7,570,000	$7,366,000	$7,160,000	$6,952,000	$6,739,000	$6,525,000	$6,307,000
TOTAL MARKET CAPACITY COSTS	$		($375,327)	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
TOTAL COSTS	$		$111,498,046	$115,710,526	$118,880,143	$128,057,270	$132,507,174	$138,604,140	$143,706,586	$150,335,427	$157,008,249	$163,976,679

NPV @ 6.21%: $1,192,190,928 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 2 (+1% Interest Rate) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	0	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130
GENERATION	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,759	40,257
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	962,925
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood		34%	35%	36%	37%	37%	36%	37%	37%	38%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%
CAPACITY FACTOR	%	JEC Extension										73%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%	
CAPACITY FACTOR	%	UML Westar	15%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470
FIXED O&M COST	$	Dogwood	$0	$3,933,000	$4,032,000	$4,132,500	$4,236,000	$4,342,500	$4,450,500	$4,561,500	$4,675,500	$4,792,500
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Dogwood		$26.22	$26.88	$27.55	$28.24	$28.95	$29.67	$30.41	$31.17	$31.95
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467
VARIABLE O&M COST	$	Dogwood	$0	$1,544,204	$1,643,209	$1,742,604	$1,839,298	$1,885,720	$1,885,515	$1,982,478	$2,038,382	$2,102,286
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,952	$314,005
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,725,121
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,080	$4,120,157	$4,188,069
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Dogwood		$3.50	$3.59	$3.68	$3.77	$3.86	$3.96	$4.06	$4.16	$4.26
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122
FUEL COST	$	Dogwood	$0	$10,232,497	$11,940,349	$13,602,575	$15,278,576	$15,993,866	$16,071,066	$17,357,535	$17,979,043	$18,755,798
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,539,045	$1,603,484	$1,682,092	$1,751,731	$1,880,002
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Dogwood	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Dogwood	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
GENERATION	MWh	Goodman Energy Center	110,314	108,034	107,502	104,386	104,044	111,074	112,100	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	40,163	40,136	38,178	39,920	39,380	40,838	40,595	39,947	41,175	41,702
GENERATION	MWh	JEC Extension	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Dogwood	37%	38%	38%	38%	37%	38%	38%	38%	38%	38%
CAPACITY FACTOR	%	Goodman Energy Center	17%	16%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	17%	17%	16%	17%	17%	17%	17%	17%	17%	18%
CAPACITY FACTOR	%	JEC Extension	74%	73%	74%	73%	73%	74%	76%	76%	77%	77%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Dogwood	$4,912,500	$5,035,500	$5,161,500	$5,290,500	$5,422,500	$5,557,500	$5,697,000	$5,839,500	$5,985,000	$6,135,000
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,000	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Dogwood	$32.75	$33.57	$34.41	$35.27	$36.15	$37.05	$37.98	$38.93	$39.90	$40.90
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Dogwood	$2,150,026	$2,258,129	$2,305,704	$2,363,384	$2,337,422	$2,444,886	$2,531,533	$2,562,561	$2,647,884	$2,740,292
VARIABLE O&M COST	$	Goodman Energy Center	$881,667	$885,229	$903,017	$898,779	$917,752	$1,004,266	$1,039,464	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$320,990	$328,883	$320,695	$343,707	$347,357	$369,171	$376,410	$379,641	$401,044	$416,181
VARIABLE O&M COST	$	JEC Extension	$35,137,381	$35,692,305	$36,872,667	$37,506,212	$38,353,323	$40,112,858	$42,040,514	$43,518,450	$45,176,535	$46,477,011
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Dogwood	$4.37	$4.48	$4.59	$4.71	$4.82	$4.94	$5.07	$5.19	$5.32	$5.46
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	Colby	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Dogwood	$19,753,065	$20,580,392	$20,920,774	$21,347,802	$20,911,659	$22,629,889	$23,841,143	$24,784,503	$26,289,130	$27,538,208
FUEL COST	$	Goodman Energy Center	$5,433,945	$5,404,165	$5,499,261	$5,462,524	$5,508,414	$6,240,420	$6,609,959	$7,009,105	$7,374,072	$7,416,372
FUEL COST	$	Goodman Energy Center Expansion	$1,984,912	$2,018,599	$1,953,682	$2,097,227	$2,093,031	$2,300,763	$2,396,839	$2,472,433	$2,672,058	$2,823,923
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 2 (+1% Interest Rate) - 150 MW Dogwood 2x1 CCGT (2017+) and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Dogwood		7.25	7.23	7.24	7.24	7.23	7.23	7.25	7.24	7.23	7.24	7.23	7.24	7.22	7.22	7.24	7.19	7.21	7.25	7.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89	8.88	8.85	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.92	8.91	8.91	8.90	8.90	8.90	8.92	8.90	8.91	8.89	8.89	8.90	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
CAPITAL RECOVERY	$	Dogwood		$10,441,000	$10,262,000	$10,080,000	$9,894,000	$9,707,000	$9,516,000	$9,324,000	$9,129,000	$8,929,000	$8,728,000	$8,523,000	$8,314,000	$8,102,000	$7,885,000	$7,665,000	$7,441,000	$7,211,000	$6,978,000	$6,739,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	40	49	44	37	32	27	22	17	9	5	0	-5	-14	-19	-22	-26	-31	-36	-41
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
SUMMARY BY AREA																						
GENERATION	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,881	144,223	138,331	142,700	145,150	149,751	150,633	148,287	145,823	144,436	143,567	152,042	152,812	153,405	155,128	151,868
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
MARKET SALES	MWh	Dogwood	0	441,201	457,679	473,463	487,697	488,246	475,875	488,295	489,906	493,464	491,774	503,769	502,332	501,734	484,887	494,762	499,065	493,571	497,723	501,885
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,881	144,223	138,331	142,700	145,150	149,751	150,633	148,287	145,823	144,436	143,567	152,042	152,812	153,405	155,128	151,868
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION LESS MARKET SALES	MWh	Dogwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	Dogwood	$0	$14,849,202	$17,250,063	$19,594,268	$21,968,630	$22,959,034	$23,025,559	$24,873,301	$25,501,777	$26,835,186	$28,200,816	$29,393,240	$30,018,615	$30,636,541	$29,822,988	$32,203,582	$34,074,316	$35,403,124	$37,320,552	$39,031,606
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,027,650	$8,555,635	$8,399,299	$9,067,230	$9,627,302	$10,266,651	$10,876,591	$10,795,842	$10,906,235	$11,009,622	$11,170,368	$12,508,978	$13,135,360	$13,780,513	$14,561,970	$14,853,196
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,624,043	$22,261,963	$26,797,476	$30,966,863	$35,731,932	$37,218,089	$38,507,068	$40,497,426	$44,615,304	$42,907,699	$45,835,434	$45,922,224	$47,202,854	$47,888,558	$48,612,571	$51,748,861	$55,849,766	$58,468,871	$61,735,503	$64,390,372
MARKET SALES	$/MWh	Dogwood		$33.66	$37.69	$41.39	$45.05	$47.02	$48.39	$50.94	$52.05	$54.38	$57.35	$58.35	$59.76	$61.06	$61.51	$65.09	$68.28	$71.73	$74.98	$77.77
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$56.98	$59.32	$60.72	$63.54	$66.33	$68.56	$72.21	$72.80	$74.79	$76.23	$77.81	$82.27	$85.96	$89.83	$93.87	$97.80
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.15	$27.69	$31.02	$33.89	$36.88	$38.36	$39.66	$41.20	$42.90	$44.56	$46.91	$47.58	$48.61	$49.78	$50.72	$53.01	$56.06	$58.27	$60.82	$63.30
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$34,537,170	$35,397,575	$36,281,108	$37,054,840	$37,981,744	$38,930,489	$39,908,782	$40,900,266	$41,665,552	$42,706,309	$43,774,530	$44,868,381	$45,990,050	$47,138,852	$48,316,840	$49,526,120	$50,764,590	$52,033,189	$53,334,110
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,878,187	$31,652,319	$34,285,204	$36,776,700	$39,607,633	$40,728,506	$41,746,912	$43,292,149	$46,319,392	$44,551,564	$46,126,332	$46,880,588	$48,241,599	$45,632,489	$46,562,916	$48,624,116	$50,781,089	$52,409,743	$54,300,511	$55,793,629
TOTAL FUEL COSTS	$		$3,235,255	$13,628,433	$16,114,500	$18,367,782	$20,703,078	$21,816,171	$21,821,584	$23,584,142	$24,531,561	$25,768,102	$27,188,600	$28,015,737	$28,389,466	$28,922,246	$28,529,475	$31,186,852	$32,862,729	$34,280,029	$36,355,243	$37,801,311
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($50,161,095)	($59,118,071)	($67,384,431)	($76,446,581)	($79,815,060)	($81,383,679)	($86,573,755)	($92,197,876)	($92,913,558)	($98,619,207)	($99,915,010)	($102,481,346)	($96,628,581)	($96,822,673)	($104,160,973)	($111,145,715)	($116,054,120)	($122,537,018)	($127,425,135)
TOTAL CAPITAL RECOVERY	$		$0	$10,441,000	$10,262,000	$10,080,000	$9,894,000	$9,707,000	$9,516,000	$9,324,000	$9,129,000	$8,929,000	$8,728,000	$8,523,000	$8,314,000	$8,102,000	$7,885,000	$7,665,000	$7,441,000	$7,211,000	$6,978,000	$6,739,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$3,560,017	$4,133,174
TOTAL COSTS	$		$86,497,470	$85,347,529	$86,309,893	$89,301,963	$92,312,028	$95,469,596	$98,600,333	$101,871,836	$104,939,226	$108,544,716	$112,436,373	$116,264,526	$119,424,143	$128,589,270	$133,026,174	$139,109,140	$144,195,586	$150,807,427	$157,461,249	$164,408,679

NPV @ 6.21%: $1,215,511,589 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 3 - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,010	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,902	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Southern Co	0	0	0	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	88,806	90,098	96,102	100,586	106,286	108,946	104,880	108,414	110,656	110,276	110,580	114,874	107,274	109,212	114,570	111,036	113,658	114,646	117,990	116,014
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732	39,083	37,895	38,286	37,625	37,382	39,339	39,947	39,582	40,392	38,286
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	67,184	71,032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	16%	16%	16%	16%	17%	17%	17%	17%	16%	16%	17%	17%	17%	17%	18%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	16%	17%	16%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Extension										73%	74%	73%	74%	73%	73%	74%	76%	76%	77%	77%
CAPACITY FACTOR	%	JEC Participation	60%	61%	65%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	Southern Co				12%	12%	12%	12%	12%	12%	12%	12%	13%	12%	13%	12%	13%	12%	12%		
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%																	
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Southern Co	$0	$0	$0	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	Southern Co				$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00		
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31																	
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$3,278	$4,108	$3,827	$4,310	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,027	$630,441	$675,951	$732,479	$769,391	$759,564	$804,432	$842,164	$860,283	$883,793	$941,249	$901,102	$940,315	$1,010,591	$1,003,923	$1,053,907	$1,089,429	$1,149,223	$1,157,820
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152	$312,361	$310,509	$321,602	$323,953	$329,735	$355,680	$370,410	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,725,121	$35,137,381	$35,692,305	$36,872,667	$37,506,212	$38,353,323	$40,112,858	$42,040,514	$43,518,450	$45,176,535	$46,477,011
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Southern Co	$0	$0	$0	$209,088	$215,010	$223,728	$227,576	$231,702	$228,544	$248,978	$255,754	$272,502	$262,783	$283,241	$282,598	$302,474	$300,843	$299,018	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$323,906	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	Southern Co				$1.32	$1.36	$1.39	$1.43	$1.46	$1.50	$1.54	$1.57	$1.61	$1.65	$1.70	$1.74	$1.78	$1.83	$1.87		
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56																	
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 3 - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,102,057	$3,568,448	$4,098,789	$4,405,720	$4,371,640	$4,741,337	$4,996,934	$5,169,619	$5,458,092	$5,774,224	$5,502,151	$5,743,677	$6,095,309	$6,254,618	$6,724,938	$7,089,525	$7,663,141	$7,858,137
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278	$1,926,141	$1,896,600	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,356,468	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Southern Co	$0	$0	$0	$6,582,092	$7,176,069	$7,632,486	$7,785,554	$8,157,100	$8,080,131	$8,897,914	$9,456,664	$9,988,825	$9,600,090	$10,261,613	$10,164,728	$11,234,492	$11,433,585	$11,668,606	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,751,436	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.94	8.94	8.91	8.93	8.93	8.93	8.91	8.91	8.89	8.90	8.92	8.93	8.91	8.91	8.91	8.88	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89	8.88	8.86	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Southern Co				10.47	10.49	10.47	10.48	10.49	10.46	10.46	10.46	10.45	10.48	10.46	10.48	10.46	10.48	10.49		
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.73																	
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	44	37	32	27	22	17	9	5	0	-5	-14	-19	-22	-26	-31	-186	-191
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	130,604	135,601	143,421	146,525	142,824	146,168	149,112	149,138	149,819	152,886	145,703	146,967	152,095	150,505	153,722	154,332	158,525	154,456
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co.	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	933,382	914,175	969,975	971,325	971,700	987,300	1,040,100	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
MARKET SALES	MWh	MWE Generation	121,701	122,629	130,604	135,601	143,421	146,525	142,824	146,168	149,112	149,138	149,819	152,886	145,703	146,967	152,095	150,505	153,722	154,332	158,525	154,456
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Southern Co.	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	933,382	914,175	969,975	971,325	971,700	987,300	1,040,100	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Southern Co.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,354,362	$7,182,138	$8,196,174	$8,733,320	$8,748,542	$9,363,222	$9,925,155	$10,262,681	$10,845,768	$11,180,509	$10,943,866	$11,302,302	$11,883,647	$12,403,287	$13,256,095	$13,892,981	$14,900,749	$15,186,431
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Southern Co.	$0	$0	$0	$8,270,753	$8,996,986	$9,565,962	$9,749,374	$10,187,483	$10,098,422	$11,095,188	$11,772,320	$12,438,879	$11,941,089	$12,846,828	$12,762,040	$14,050,586	$14,238,738	$14,493,760	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,097,028	$30,989,547	$35,645,626	$37,124,048	$38,307,753	$40,693,079	$44,615,304	$42,907,699	$45,835,434	$45,922,224	$47,202,854	$47,888,558	$48,612,571	$51,748,861	$55,849,766	$58,468,871	$61,735,503	$64,390,372
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.65	$52.97	$57.15	$59.60	$61.25	$64.06	$66.56	$68.81	$72.39	$73.13	$75.11	$76.90	$78.13	$82.41	$86.23	$90.02	$94.00	$98.32
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Southern Co.				$52.21	$56.92	$59.45	$61.27	$64.19	$66.28	$68.63	$72.28	$73.52	$74.98	$77.11	$78.58	$82.69	$86.63	$90.66		
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.25	$33.90	$36.75	$38.22	$39.42	$41.22	$42.90	$44.56	$46.91	$47.58	$48.61	$49.78	$50.72	$53.01	$56.06	$58.27	$60.82	$63.30
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,948,609	$43,618,840	$44,439,244	$45,279,990	$46,147,282	$47,024,766	$47,673,053	$48,593,809	$49,539,030	$50,506,881	$51,499,550	$52,516,352	$53,559,340	$54,629,120	$55,725,090	$46,048,189	$47,199,111
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,928,007	$35,259,291	$38,037,214	$39,113,248	$40,143,251	$41,711,430	$44,539,734	$42,603,517	$44,225,556	$44,932,627	$46,197,670	$43,574,128	$44,583,309	$46,467,870	$48,558,842	$50,154,883	$51,685,714	$53,079,170
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$6,970,225	$11,392,182	$12,708,435	$13,558,632	$13,742,967	$14,552,003	$14,819,563	$15,890,932	$16,857,574	$17,672,231	$17,075,148	$17,987,463	$18,256,682	$19,715,825	$20,529,780	$21,221,054	$10,299,969	$10,462,930
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,257,067)	($56,158,323)	($63,557,156)	($66,505,632)	($68,257,421)	($72,379,582)	($77,092,374)	($77,169,591)	($82,159,888)	($83,345,315)	($84,441,450)	($79,131,549)	($80,475,004)	($85,902,285)	($91,430,873)	($95,257,224)	($85,555,246)	($88,726,764)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL MARKET CAPACITY COST	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
TOTAL COSTS	$		$86,495,289	$83,268,555	$85,035,727	$88,622,562	$92,300,392	$95,656,728	$98,877,813	$102,367,661	$105,548,572	$109,631,966	$113,823,391	$117,784,254	$121,430,292	$130,500,057	$134,613,943	$141,318,055	$147,017,232	$154,039,989	$167,573,324	$175,312,687

NPV @ 6.21%: $1,226,902,949 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 3 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	Southern Co	0	0	0	150	150	150	150	150	150	150
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	117	143	143	130	143	156	143	156	156
GENERATION	MWh	Goodman Energy Center	99,484	102,258	105,792	111,834	116,242	119,396	115,482	118,864	119,472	119,700
GENERATION	MWh	Goodman Energy Center Expansion	36,869	37,004	38,367	38,529	40,500	41,135	41,715	41,310	41,472	42,161
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	1,067,550
GENERATION	MWh	JEC Participation	925,125	938,475	1,008,075	1,052,475	1,086,150	1,087,500	1,088,325	1,100,700	1,155,825	0
GENERATION	MWh	Southern Co	0	0	0	160,950	161,363	166,613	163,013	165,600	155,513	165,863
GENERATION	MWh	UML Westar	365,988	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Westar PPA	0	76,830	79,690	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	15%	15%	16%	17%	17%	18%	17%	18%	18%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	16%	16%	16%	16%	17%	17%	18%	17%	17%	18%
CAPACITY FACTOR	%	JEC Extension										81%
CAPACITY FACTOR	%	JEC Participation	70%	71%	77%	80%	82%	83%	83%	84%	88%	
CAPACITY FACTOR	%	Southern Co				12%	12%	13%	12%	13%	12%	13%
CAPACITY FACTOR	%	UML Westar	27%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Westar PPA		7%	7%							
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,080	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,800	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	Southern Co	$0	$0	$0	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	Southern Co				$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31							
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,561	$3,209	$3,289	$3,065	$3,456	$3,864	$3,631	$4,059	$4,161
VARIABLE O&M COST	$	Goodman Energy Center	$620,938	$654,451	$694,008	$751,537	$801,075	$843,305	$836,432	$881,971	$909,269	$933,790
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$230,059	$236,822	$251,692	$258,919	$279,105	$290,541	$302,138	$306,520	$315,633	$328,898
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$37,389,368
VARIABLE O&M COST	$	JEC Participation	$24,806,805	$25,883,141	$28,642,585	$30,875,633	$32,934,388	$34,012,098	$35,085,848	$36,521,226	$39,374,312	$0
VARIABLE O&M COST	$	Southern Co	$0	$0	$0	$212,454	$219,498	$231,657	$233,153	$241,776	$233,269	$255,446
VARIABLE O&M COST	$	UML Westar	$11,680,458	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Westar PPA	$0	$341,125	$363,386	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	Southern Co				$1.32	$1.36	$1.39	$1.43	$1.46	$1.50	$1.54
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56							
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Southern Co	150	150	150	150	150	150	150	150	0	0
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	156	130	156	143	156	130	117	104	182	169
GENERATION	MWh	Goodman Energy Center	120,802	124,830	117,154	118,256	124,070	120,498	124,868	124,222	127,528	125,134
GENERATION	MWh	Goodman Energy Center Expansion	42,903	41,202	41,877	40,797	40,851	42,606	44,132	43,646	43,511	41,499
GENERATION	MWh	JEC Extension	1,081,650	1,070,550	1,072,875	1,068,450	1,062,975	1,080,300	1,093,200	1,095,000	1,104,750	1,109,325
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co	166,463	173,550	165,713	168,713	166,013	173,813	167,963	163,913	0	0
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	18%	19%	18%	18%	19%	18%	19%	19%	19%	19%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	18%	17%	18%	17%	17%	18%	19%	18%	18%	18%
CAPACITY FACTOR	%	JEC Extension	82%	81%	81%	81%	81%	82%	83%	83%	84%	84%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	Southern Co	13%	13%	13%	13%	13%	13%	13%	12%		
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Westar PPA										
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Southern Co	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$0	$0
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	Southern Co	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00		
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Westar PPA										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$4,265	$3,643	$4,482	$4,210	$4,708	$4,021	$3,710	$3,380	$6,062	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$965,512	$1,022,820	$984,094	$1,018,184	$1,094,381	$1,089,477	$1,157,998	$1,180,456	$1,242,123	$1,248,837
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$342,903	$337,609	$351,767	$351,274	$360,336	$385,220	$409,267	$414,807	$423,792	$414,160
VARIABLE O&M COST	$	JEC Extension	$38,899,407	$39,585,254	$40,737,064	$41,651,889	$42,537,332	$44,390,111	$46,131,885	$47,493,132	$49,172,423	$50,685,059
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Southern Co	$261,406	$279,506	$273,426	$286,811	$288,862	$309,416	$307,431	$306,591	$0	$0
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	Southern Co	$1.57	$1.61	$1.65	$1.70	$1.74	$1.78	$1.83	$1.87		
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Westar PPA										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 3 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$8,248	$8,633	$11,866	$13,065	$12,950	$14,912	$16,812	$16,108	$18,275	$18,957	$20,013	$16,871	$20,623	$19,482	$21,520	$18,936	$17,746	$16,786	$30,700	$29,621
FUEL COST	$	Goodman Energy Center	$3,257,957	$3,502,394	$4,097,929	$4,756,362	$5,374,982	$5,787,479	$5,773,594	$6,226,439	$6,473,211	$6,728,806	$7,153,093	$7,526,693	$7,195,116	$7,455,517	$7,919,633	$8,135,215	$8,859,633	$9,211,088	$9,920,392	$10,165,686
FUEL COST	$	Goodman Energy Center Expansion	$1,205,570	$1,266,301	$1,482,670	$1,632,344	$1,869,114	$1,986,453	$2,080,504	$2,156,830	$2,245,455	$2,364,662	$2,537,453	$2,473,194	$2,564,796	$2,558,711	$2,596,888	$2,870,533	$3,122,110	$3,237,682	$3,375,604	$3,357,425
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Southern Co	$0	$0	$0	$8,025,445	$8,788,509	$9,497,172	$9,567,272	$10,217,267	$9,891,973	$10,948,118	$11,594,458	$12,304,650	$11,986,778	$12,465,496	$12,461,760	$13,786,012	$14,025,839	$14,360,768	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$3,163,874	$3,702,404	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.04	23.06	22.99	23.01	23.01	23.02	23.08	22.99	23.11	23.10	23.11	22.97	22.99	23.13	23.11	23.05	22.84	23.19	23.14	23.06
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.70	10.70	10.73	10.71	10.68	10.70	10.71	10.69	10.69	10.69	10.67	10.67	10.68	10.70	10.69	10.68	10.69	10.65	10.67	10.69
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.69	10.69	10.70	10.67	10.66	10.66	10.68	10.66	10.68	10.66	10.66	10.62	10.65	10.65	10.65	10.66	10.65	10.66	10.64	10.65
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Southern Co				12.56	12.58	12.58	12.57	12.59	12.55	12.55	12.55	12.55	12.58	12.54	12.57	12.55	12.58	12.59		
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		12.87	12.87																	
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	44	37	32	27	22	17	9	5	0	-5	-14	-19	-22	-26	-31	-186	-191
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	136,470	139,379	144,302	150,506	156,872	160,674	157,353	160,317	161,100	162,017	163,861	166,162	159,187	159,196	165,077	163,234	169,117	167,972	171,221	166,802
GENERATION	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co.	0	0	0	160,950	161,363	166,613	163,013	165,600	155,513	165,863	166,463	173,550	165,713	168,713	166,013	173,813	167,963	163,913	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	925,125	1,015,305	1,087,765	1,052,475	1,086,150	1,087,500	1,088,325	1,100,700	1,155,825	1,067,550	1,081,650	1,070,550	1,072,875	1,068,450	1,062,975	1,080,300	1,093,200	1,095,000	1,104,750	1,109,325
MARKET SALES	MWh	MWE Generation	136,470	139,379	144,302	150,506	156,872	160,674	157,353	160,317	161,100	162,017	163,861	166,162	159,187	159,196	165,077	163,234	169,117	167,972	171,221	166,802
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Southern Co.	0	0	0	160,950	161,363	166,613	163,013	165,600	155,513	165,863	166,463	173,550	165,713	168,713	166,013	173,813	167,963	163,913	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	925,125	1,015,305	1,087,765	1,052,475	1,086,150	1,087,500	1,088,325	1,100,700	1,155,825	1,067,550	1,081,650	1,070,550	1,072,875	1,068,450	1,062,975	1,080,300	1,093,200	1,095,000	1,104,750	1,109,325
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Southern Co.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$6,651,243	$7,026,192	$8,254,309	$9,359,576	$10,555,111	$11,268,207	$11,333,889	$12,075,991	$12,660,411	$13,145,963	$13,967,214	$14,332,073	$14,067,684	$14,440,763	$15,214,367	$15,855,705	$17,148,137	$17,817,139	$18,984,334	$19,356,537
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Southern Co.	$0	$0	$0	$10,058,181	$10,982,177	$11,836,767	$11,935,162	$12,674,650	$12,323,867	$13,596,403	$14,383,016	$15,261,355	$14,817,500	$15,572,792	$15,588,856	$17,175,852	$17,406,828	$17,768,033	$0	$0
MARKET SALES	$	Wind	$4,569,609	$9,512,410	$10,566,805	$11,659,049	$12,862,076	$13,298,776	$13,742,113	$14,562,933	$14,944,178	$15,484,778	$16,447,673	$16,564,437	$17,224,382	$8,512,619	$8,660,082	$9,239,426	$9,703,535	$10,081,922	$10,702,826	$10,979,947
MARKET SALES	$	Westar	$28,694,316	$34,534,365	$41,116,162	$41,680,474	$46,661,212	$48,563,281	$50,127,276	$52,986,353	$57,862,997	$55,510,672	$59,136,773	$59,379,957	$60,895,801	$62,015,601	$62,924,475	$66,798,581	$71,516,544	$74,530,281	$78,483,705	$81,922,697
MARKET SALES	$/MWh	MWE Generation	$48.74	$50.41	$57.20	$62.19	$67.28	$70.13	$72.03	$75.33	$78.59	$81.14	$85.24	$86.25	$88.37	$90.71	$92.17	$97.13	$101.40	$106.07	$110.88	$116.04
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Southern Co.				$62.49	$68.06	$71.04	$73.22	$76.54	$79.25	$81.97	$86.40	$87.94	$89.42	$92.30	$93.90	$98.82	$103.64	$108.40		
MARKET SALES	$/MWh	Wind	$24.75	$26.18	$29.09	$32.09	$35.28	$36.61	$37.83	$40.09	$40.99	$42.62	$45.27	$45.60	$47.15	$47.42	$48.24	$51.47	$53.93	$56.16	$59.62	$61.16
MARKET SALES	$/MWh	Westar	$31.02	$34.01	$37.80	$39.60	$42.96	$44.66	$46.06	$48.14	$50.06	$52.00	$54.67	$55.47	$56.76	$58.04	$59.20	$61.83	$65.42	$68.06	$71.04	$73.85
MARKET PURCHASES	MWh	MWE Load	1,402,278	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148	$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
MARKET PURCHASES	$/MWh	MWE Load	$24.78	$29.51	$33.35	$36.66	$40.10	$41.89	$43.13	$45.16	$46.73	$48.57	$51.27	$52.06	$52.87	$54.15	$54.89	$58.17	$61.01	$63.83	$66.84	$69.63
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,948,609	$43,618,840	$44,439,244	$45,279,990	$46,147,282	$47,024,766	$47,673,053	$48,593,809	$49,539,030	$50,506,881	$51,499,550	$52,516,352	$53,559,340	$54,629,120	$55,725,090	$46,048,189	$47,199,111
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$40,918,952	$34,288,608	$37,198,776	$39,420,981	$41,657,506	$42,854,688	$44,014,371	$45,580,111	$48,578,405	$46,465,179	$48,105,496	$48,941,615	$50,186,239	$47,828,948	$48,888,365	$50,867,159	$52,799,749	$54,206,794	$55,806,176	$57,410,746
TOTAL FUEL COSTS	$		$4,471,775	$7,941,203	$9,294,869	$14,427,215	$16,045,556	$17,286,016	$17,438,182	$18,616,644	$18,628,914	$20,060,542	$21,305,017	$22,321,407	$21,767,312	$22,499,207	$22,999,801	$24,810,695	$26,025,327	$26,826,324	$13,326,696	$13,552,732
TOTAL MARKET ENERGY COSTS	$		$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148	$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
TOTAL MARKET ENERGY SALES	$		($39,915,167)	($51,072,967)	($59,937,275)	($72,757,279)	($81,060,576)	($84,967,030)	($87,138,439)	($92,299,927)	($97,791,452)	($97,737,815)	($103,934,675)	($105,537,822)	($107,005,367)	($100,541,775)	($102,387,779)	($109,069,564)	($115,775,044)	($120,197,375)	($108,170,865)	($112,259,181)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL MARKET CAPACITY COST	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
TOTAL COSTS	$		$87,184,336	$85,484,370	$86,824,741	$90,256,569	$94,060,207	$97,674,460	$101,156,703	$104,850,986	$107,948,769	$113,114,106	$117,637,367	$122,043,799	$125,883,146	$136,927,013	$141,363,718	$148,740,014	$154,872,518	$162,605,881	$177,458,977	$186,008,773

NPV @ 6.21%: $1,267,816,840 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 3 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	Southern Co	0	0	0	150	150	150	150	150	150	150
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	91	91	91	117	91	117	117	117	130	117
GENERATION	MWh	Goodman Energy Center	81,814	82,840	89,984	94,848	101,004	102,980	98,344	103,094	104,310	103,816
GENERATION	MWh	Goodman Energy Center Expansion	30,078	29,930	32,063	32,670	35,100	35,546	35,613	35,897	35,897	36,531
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	883,200
GENERATION	MWh	JEC Participation	732,075	741,225	786,900	831,900	878,775	885,825	886,350	900,450	948,675	0
GENERATION	MWh	Southern Co	0	0	0	156,600	155,513	157,013	155,813	156,300	151,163	160,613
GENERATION	MWh	UML Westar	124,659	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Westar PPA	0	64,324	65,780	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	12%	12%	13%	14%	15%	15%	15%	15%	16%	16%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	13%	13%	14%	14%	15%	15%	15%	15%	15%	15%
CAPACITY FACTOR	%	JEC Extension										67%
CAPACITY FACTOR	%	JEC Participation	56%	56%	60%	63%	67%	67%	67%	69%	72%	
CAPACITY FACTOR	%	Southern Co				12%	12%	12%	12%	12%	11%	12%
CAPACITY FACTOR	%	UML Westar	9%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Westar PPA		6%	6%							
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	Southern Co	$0	$0	$0	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	Southern Co				$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31							
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$1,944	$1,992	$2,042	$2,691	$2,146	$2,828	$2,898	$2,971	$3,383	$3,120
VARIABLE O&M COST	$	Goodman Energy Center	$510,665	$530,176	$590,307	$637,391	$696,079	$727,217	$712,188	$764,957	$793,871	$809,837
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$187,687	$191,549	$210,334	$219,547	$241,896	$251,014	$257,901	$266,352	$273,178	$284,967
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$30,933,012
VARIABLE O&M COST	$	JEC Participation	$19,629,906	$20,442,986	$22,357,830	$24,404,331	$26,646,073	$27,704,786	$28,574,037	$29,876,931	$32,316,911	$0
VARIABLE O&M COST	$	Southern Co	$0	$0	$0	$206,712	$211,542	$218,307	$222,857	$228,198	$226,744	$247,361
VARIABLE O&M COST	$	UML Westar	$3,977,205	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Westar PPA	$0	$285,509	$299,957	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,400	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,009
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	Southern Co				$1.32	$1.36	$1.39	$1.43	$1.46	$1.50	$1.54
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.50							
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Southern Co	150	150	150	150	150	150	150	150	0	0
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	130	104	130	117	117	117	104	91	143	143
GENERATION	MWh	Goodman Energy Center	104,500	107,882	102,638	104,006	107,996	103,968	107,730	109,174	111,492	110,808
GENERATION	MWh	Goodman Energy Center Expansion	36,801	35,775	36,410	35,546	35,073	37,085	37,935	37,625	37,908	36,545
GENERATION	MWh	JEC Extension	903,300	887,025	890,700	883,500	877,050	901,050	925,350	931,950	947,700	956,475
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co	161,363	163,950	157,163	162,713	161,363	167,363	161,213	157,313	0	0
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	16%	16%	15%	16%	16%	16%	16%	16%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	16%	15%	15%	15%	15%	16%	16%	16%	16%	15%
CAPACITY FACTOR	%	JEC Extension	69%	68%	68%	67%	67%	69%	70%	71%	72%	73%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	Southern Co	12%	12%	12%	12%	12%	13%	12%	12%		
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Westar PPA										
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Southern Co	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$0	$0
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	Southern Co	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00		
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Westar PPA										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$3,554	$2,914	$3,735	$3,444	$3,531	$3,619	$3,298	$2,958	$4,763	$4,883
VARIABLE O&M COST	$	Goodman Energy Center	$835,153	$883,841	$862,159	$895,492	$952,541	$939,958	$998,884	$1,037,335	$1,085,932	$1,105,864
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$294,110	$293,099	$305,840	$306,052	$309,350	$335,275	$351,738	$357,543	$369,224	$364,714
VARIABLE O&M COST	$	JEC Extension	$32,485,755	$32,799,670	$33,819,879	$34,441,688	$35,096,387	$37,024,706	$39,049,340	$40,421,695	$42,182,126	$43,701,343
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Southern Co	$253,399	$264,026	$259,318	$276,611	$280,771	$297,935	$295,079	$294,240	$0	$0
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	Southern Co	$1.57	$1.61	$1.65	$1.70	$1.74	$1.78	$1.83	$1.87		
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Westar PPA										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.90	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 3 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$4,822	$5,047	$5,671	$8,040	$6,773	$9,177	$9,461	$9,913	$11,394	$10,649	$12,468	$10,069	$12,908	$11,926	$12,090	$12,797	$11,835	$10,983	$17,986	$18,739
FUEL COST	$	Goodman Energy Center	$2,013,083	$2,132,446	$2,615,288	$3,027,252	$3,508,202	$3,747,932	$3,692,710	$4,058,409	$4,243,224	$4,380,323	$4,647,002	$4,884,405	$4,739,980	$4,923,211	$5,173,783	$5,271,104	$5,739,029	$6,076,834	$6,524,080	$6,759,547
FUEL COST	$	Goodman Energy Center Expansion	$739,312	$769,673	$930,931	$1,038,700	$1,216,919	$1,289,556	$1,335,681	$1,409,237	$1,458,806	$1,537,444	$1,633,911	$1,612,845	$1,676,093	$1,672,849	$1,673,487	$1,875,330	$2,015,189	$2,095,471	$2,212,415	$2,218,880
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Southern Co	$0	$0	$0	$5,857,736	$6,355,409	$6,706,910	$6,858,477	$7,232,146	$7,214,948	$7,957,115	$8,432,481	$8,709,056	$8,524,159	$9,019,234	$9,088,980	$9,963,359	$10,082,989	$10,337,342	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$1,982,760	$2,293,934	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	17.32	17.33	17.26	17.31	17.19	17.31	17.32	17.29	17.29	17.30	17.28	17.14	17.27	17.31	17.31	17.31	17.14	17.34	17.25	17.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.04	8.04	8.05	8.04	8.02	8.03	8.04	8.03	8.02	8.02	8.01	8.01	8.03	8.04	8.02	8.02	8.02	8.00	8.03	8.03
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.03	8.04	8.04	8.01	8.01	8.01	8.03	8.01	8.02	8.00	8.00	7.98	8.01	7.99	7.99	8.00	8.00	8.00	8.01	7.99
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Southern Co				9.42	9.44	9.43	9.43	9.44	9.41	9.42	9.42	9.40	9.43	9.41	9.43	9.42	9.42	9.44		
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		9.63	9.66																	
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	44	37	32	27	22	17	9	5	0	-5	-14	-19	-22	-26	-31	-186	-191
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	111,983	112,861	122,138	127,635	136,195	138,643	134,074	139,108	140,337	140,464	141,431	143,761	139,178	139,669	143,186	141,170	145,769	146,890	149,543	147,496
GENERATION	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co.	0	0	0	156,600	155,513	157,013	155,813	156,300	151,163	160,613	161,363	163,950	157,163	162,713	161,363	167,363	161,213	157,313	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	732,075	805,549	852,680	831,900	878,775	885,825	886,350	900,450	948,675	883,200	903,300	887,025	890,700	883,500	877,050	901,050	925,350	931,950	947,700	956,475
MARKET SALES	MWh	MWE Generation	111,983	112,861	122,138	127,635	136,195	138,643	134,074	139,108	140,337	140,464	141,431	143,761	139,178	139,669	143,186	141,170	145,769	146,890	149,543	147,496
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Southern Co.	0	0	0	156,600	155,513	157,013	155,813	156,300	151,163	160,613	161,363	163,950	157,163	162,713	161,363	167,363	161,213	157,313	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	732,075	805,549	852,680	831,900	878,775	885,825	886,350	900,450	948,675	883,200	903,300	887,025	890,700	883,500	877,050	901,050	925,350	931,950	947,700	956,475
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Southern Co.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$4,258,052	$4,445,942	$5,421,652	$6,158,572	$7,081,983	$7,519,782	$7,489,368	$8,098,916	$8,516,064	$8,806,746	$9,329,989	$9,583,108	$9,498,807	$9,766,122	$10,196,660	$10,608,017	$11,439,221	$12,022,994	$12,812,309	$13,182,274
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Southern Co.	$0	$0	$0	$7,373,788	$7,990,139	$8,439,375	$8,619,288	$9,054,486	$9,028,333	$9,933,148	$10,513,247	$10,898,529	$10,624,912	$11,336,212	$11,423,343	$12,490,970	$12,595,912	$12,870,475	$0	$0
MARKET SALES	$	Wind	$3,427,215	$7,134,310	$7,925,126	$8,744,283	$9,646,547	$9,974,081	$10,306,560	$10,922,193	$11,208,132	$11,613,628	$12,335,754	$12,423,300	$12,918,293	$6,384,474	$6,495,068	$6,929,573	$7,277,637	$7,561,450	$8,027,108	$8,234,973
MARKET SALES	$	Westar	$17,081,895	$20,800,907	$24,854,958	$25,599,305	$29,461,676	$30,876,983	$31,866,926	$33,886,594	$37,189,448	$35,958,155	$38,724,457	$38,580,767	$39,580,894	$40,177,218	$40,648,455	$43,629,038	$47,420,547	$49,675,357	$52,709,173	$55,315,952
MARKET SALES	$/MWh	MWE Generation	$38.02	$39.39	$44.39	$48.25	$52.00	$54.24	$55.86	$58.22	$60.68	$62.70	$65.97	$66.66	$68.25	$69.92	$71.21	$75.14	$78.47	$81.85	$85.68	$89.37
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Southern Co.				$47.09	$51.38	$53.75	$55.32	$57.93	$59.73	$61.85	$65.15	$66.47	$67.60	$69.67	$70.79	$74.63	$78.13	$81.81		
MARKET SALES	$/MWh	Wind	$18.56	$19.64	$21.81	$24.07	$26.46	$27.45	$28.37	$30.06	$30.75	$31.97	$33.96	$34.20	$35.36	$35.57	$36.18	$38.60	$40.45	$42.12	$44.72	$45.87
MARKET SALES	$/MWh	Westar	$23.33	$25.82	$29.15	$30.77	$33.53	$34.86	$35.95	$37.63	$39.20	$40.71	$42.87	$43.49	$44.44	$45.48	$46.35	$48.42	$51.25	$53.30	$55.62	$57.83
MARKET PURCHASES	MWh	MWE Load	1,643,607	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
MARKET PURCHASES	$/MWh	MWE Load	$19.88	$22.13	$25.01	$27.49	$30.08	$31.42	$32.34	$33.87	$35.05	$36.43	$38.45	$39.04	$39.65	$40.61	$41.17	$43.63	$45.76	$47.87	$50.13	$52.22
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,948,609	$43,618,840	$44,439,244	$45,279,990	$46,147,282	$47,024,766	$47,673,053	$48,593,809	$49,539,030	$50,506,881	$51,499,550	$52,516,352	$53,559,340	$54,629,120	$55,725,090	$46,048,189	$47,199,111
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$27,885,660	$28,022,808	$30,704,307	$32,789,820	$35,218,111	$36,377,782	$37,322,819	$38,773,396	$41,355,949	$39,831,814	$41,503,974	$41,956,333	$43,086,339	$40,439,808	$41,245,327	$43,290,407	$45,487,796	$46,982,209	$48,603,821	$50,233,722
TOTAL FUEL COSTS	$		$2,757,217	$4,889,926	$5,845,823	$9,931,728	$11,087,303	$11,753,575	$11,896,328	$12,709,705	$12,928,372	$13,885,531	$14,725,861	$15,216,374	$14,953,139	$15,627,220	$15,948,340	$17,122,589	$17,849,043	$18,520,631	$8,754,481	$8,997,167
TOTAL MARKET ENERGY COSTS	$		$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
TOTAL MARKET ENERGY SALES	$		($24,767,162)	($32,381,160)	($38,201,735)	($47,875,947)	($54,180,345)	($56,810,221)	($58,282,142)	($61,962,188)	($65,941,977)	($66,311,677)	($70,903,446)	($71,485,703)	($72,622,907)	($67,664,026)	($68,763,526)	($73,657,597)	($78,733,316)	($82,130,275)	($73,548,590)	($76,733,199)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL MARKET CAPACITY COST	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
TOTAL COSTS	$		$85,512,949	$81,884,216	$83,806,189	$87,456,949	$91,093,025	$94,306,576	$97,389,060	$100,771,126	$103,998,138	$107,568,416	$111,596,004	$115,314,391	$118,847,426	$126,938,629	$130,871,557	$137,244,661	$142,731,573	$149,368,895	$162,275,554	$169,592,043

NPV @ 6.21%: $1,202,328,981 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 3 (CO2) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,840,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	Southern Co	0	0	0	150	150	150	150	150	150	150
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	156	143	156	156
GENERATION	MWh	Goodman Energy Center	88,806	90,098	96,102	100,586	100,286	108,414	111,302	116,622	118,598	119,130
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,260	39,866	40,419	41,189	42,147
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	774,675
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	909,975	966,900	826,650	822,675	850,050	0
GENERATION	MWh	Southern Co	0	0	0	158,400	158,083	159,413	162,713	164,100	154,763	165,563
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,729	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Westar PPA	0	67,184	71,032	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	16%	16%	17%	18%	18%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	17%	17%	17%	18%
CAPACITY FACTOR	%	JEC Extension										59%
CAPACITY FACTOR	%	JEC Participation	60%	61%	65%	70%	74%	74%	63%	63%	65%	
CAPACITY FACTOR	%	Southern Co				12%	12%	12%	12%	12%	12%	13%
CAPACITY FACTOR	%	UML Westar	15%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Westar PPA		6%	6%							
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,400	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,600	$237,380	$243,360	$249,470
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	Southern Co	$0	$0	$0	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	Southern Co				$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31							
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,864	$3,631	$4,059	$4,161
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$630,441	$675,951	$732,479	$765,540	$806,004	$865,335	$902,603	$929,344
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$263,104	$288,689	$299,909	$313,470	$328,793
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$27,131,699
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,236,310	$26,648,127	$27,296,357	$28,957,023	$0
VARIABLE O&M COST	$	Southern Co	$0	$0	$0	$209,088	$215,010	$221,583	$232,724	$239,586	$232,144	$254,984
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$323,906	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.27	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	Southern Co				$1.32	$1.36	$1.39	$1.43	$1.46	$1.50	$1.54
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56							
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Southern Co	150	150	150	150	150	150	150	150	0	0
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	156	130	169	156	156	130	117	130	182	169
GENERATION	MWh	Goodman Energy Center	120,878	124,906	118,294	120,460	126,578	123,576	125,970	125,970	129,466	127,300
GENERATION	MWh	Goodman Energy Center Expansion	42,930	41,364	42,512	41,661	41,715	43,551	44,753	44,213	44,240	42,309
GENERATION	MWh	JEC Extension	779,025	764,250	755,550	744,975	736,950	746,475	763,425	767,700	777,975	782,475
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co	166,013	173,250	166,613	170,363	166,763	173,813	168,263	163,913	0	0
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	18%	19%	18%	18%	19%	19%	19%	19%	19%	19%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	18%	17%	18%	18%	18%	18%	19%	19%	19%	18%
CAPACITY FACTOR	%	JEC Extension	59%	58%	57%	57%	56%	57%	58%	58%	59%	60%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	Southern Co	13%	13%	13%	13%	13%	13%	13%	12%		
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Westar PPA										
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Southern Co	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$0	$0
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	Southern Co	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00		
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Westar PPA										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$4,265	$3,643	$4,855	$4,593	$4,708	$4,021	$3,710	$4,225	$6,062	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$966,074	$1,023,363	$993,670	$1,037,161	$1,116,502	$1,117,284	$1,168,144	$1,197,025	$1,260,999	$1,270,454
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$343,102	$338,907	$357,097	$358,707	$367,956	$393,757	$414,999	$420,181	$430,893	$422,244
VARIABLE O&M COST	$	JEC Extension	$28,015,569	$28,258,573	$28,688,234	$29,041,289	$29,490,024	$30,672,454	$32,215,131	$33,295,977	$34,627,667	$35,751,283
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Southern Co	$260,700	$278,993	$274,911	$289,616	$290,167	$309,416	$307,980	$306,591	$0	$0
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	Southern Co	$1.57	$1.61	$1.65	$1.70	$1.74	$1.78	$1.83	$1.87		
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Westar PPA										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 3 (CO2) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$14,010	$13,423	$15,229	$15,797
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,102,057	$3,568,448	$4,098,789	$4,384,242	$4,636,641	$5,094,731	$5,354,964	$5,579,724
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,501,485	$1,658,227	$1,760,237	$1,858,685	$1,969,620
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Southern Co	$0	$0	$0	$6,582,092	$7,176,069	$7,561,052	$7,959,481	$8,436,064	$8,203,815	$9,106,668
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,751,436	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.23	19.16	19.26	19.25
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.94	8.94	8.91	8.93	8.92	8.92	8.91	8.90
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.89	8.90	8.88
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	Southern Co				10.47	10.49	10.47	10.47	10.49	10.46	10.46
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.73							
CO2 EMISSIONS	lbs	Colby	266,760	237,120	266,760	266,760	237,120	296,400	355,680	326,040	355,680	355,680
CO2 EMISSIONS	lbs	Goodman Energy Center	95,068,656	96,530,208	102,825,072	107,624,976	113,663,616	115,969,104	119,077,152	124,766,352	126,801,168	127,362,960
CO2 EMISSIONS	lbs	Goodman Energy Center Expansion	35,122,368	34,744,512	36,838,032	37,348,560	39,627,408	39,869,760	42,666,768	43,263,264	44,075,856	45,088,032
CO2 EMISSIONS	lbs	JEC Extension	0	0	0	0	0	0	0	0	0	1,797,812,818
CO2 EMISSIONS	lbs	JEC Participation	1,831,423,696	1,860,529,432	2,003,112,672	2,115,896,736	2,251,723,928	2,246,006,488	1,920,646,472	1,904,534,224	1,973,314,720	0
CO2 EMISSIONS	lbs	Southern Co	0	0	0	199,584,031	199,168,447	200,869,447	205,027,449	206,766,034	195,010,446	208,618,450
CO2 EMISSIONS	lbs	UML Westar	426,849,429	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Westar PPA	0	86,183,633	91,119,845	0	0	0	0	0	0	0
CO2 COST	$	Colby	$0	$0	$0	$0	$0	$0	$1,778	$1,936	$2,445	$2,779
CO2 COST	$	Goodman Energy Center	$0	$0	$0	$0	$0	$4,142	$596,388	$740,800	$872,146	$995,719
CO2 COST	$	Goodman Energy Center Expansion	$0	$0	$0	$0	$0	$1,474	$213,690	$256,875	$303,159	$352,498
CO2 COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$14,052,722
CO2 COST	$	JEC Participation	$0	$0	$0	$0	$0	$132,536	$9,633,620	$11,308,190	$13,576,303	$0
CO2 COST	$	Southern Co	$0	$0	$0	$0	$0	$0	$1,026,909	$1,227,675	$1,340,697	$1,630,540
CO2 COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	44	37	32	27	22	17	9
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	121,701	122,629	130,604	135,601	143,421	145,804	151,324	157,184	159,943	161,433
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Southern Co.	0	0	0	158,400	158,063	159,413	162,713	164,100	154,763	165,563
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	867,209	933,382	914,175	969,975	966,900	826,650	822,675	850,050	774,675
MARKET SALES	MWh	MWE Generation	121,701	122,629	130,604	135,601	143,421	145,804	151,324	157,184	159,943	161,433
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Southern Co.	0	0	0	158,400	158,063	159,413	162,713	164,100	154,763	165,563
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	867,209	933,382	914,175	969,975	966,900	826,650	822,675	850,050	774,675
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Southern Co.	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,354,362	$7,182,138	$8,196,174	$8,697,628	$10,334,790	$11,356,800	$12,199,011	$12,870,919
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Southern Co.	$0	$0	$0	$8,270,753	$8,996,986	$9,484,107	$11,213,465	$12,010,222	$11,900,014	$13,338,155
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$12,929,898	$13,911,298	$14,489,882	$15,215,874
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,097,028	$30,989,547	$35,645,626	$36,958,829	$37,452,593	$39,696,658	$43,418,857	$41,699,990
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.65	$52.97	$57.15	$59.65	$68.30	$72.25	$76.27	$79.73
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Southern Co.				$52.21	$56.92	$59.49	$68.92	$73.19	$76.89	$80.56
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$35.59	$38.29	$39.75	$41.88
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.25	$33.90	$36.75	$38.22	$45.31	$48.25	$51.08	$53.83
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$40.56	$43.12	$45.29	$47.71
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,948,609	$43,618,840	$44,439,244	$45,279,990	$46,147,282	$47,024,766	$47,673,053
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,928,007	$35,259,291	$38,037,214	$38,963,310	$35,532,346	$36,338,804	$38,151,162	$36,202,497
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$6,970,225	$11,392,182	$12,708,435	$13,458,087	$14,268,358	$15,304,456	$15,432,692	$16,671,809
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,257,067)	($56,158,323)	($63,557,156)	($66,222,866)	($71,930,745)	($76,974,978)	($82,007,764)	($83,124,938)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL MARKET CAPACITY COST	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CO2 COSTS	$		$0	$0	$0	$0	$0	$138,152	$11,472,387	$13,535,476	$16,094,752	$17,034,257
TOTAL COSTS	$		$86,495,289	$83,268,555	$85,035,727	$88,622,562	$92,306,392	$95,827,162	$111,339,720	$117,240,603	$123,388,859	$129,391,023

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$16,677	$14,059	$18,621	$17,689	$17,933	$15,780	$14,788	$17,512	$25,583	$24,684
FUEL COST	$	Goodman Energy Center	$5,965,232	$6,276,539	$6,055,258	$6,328,161	$6,731,307	$6,950,221	$7,447,571	$7,784,121	$8,394,990	$8,616,378
FUEL COST	$	Goodman Energy Center Expansion	$2,115,769	$2,069,918	$2,170,112	$2,177,458	$2,209,710	$2,444,496	$2,638,656	$2,733,571	$2,860,955	$2,852,093
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Southern Co	$9,634,914	$10,235,816	$10,044,746	$10,491,310	$10,431,091	$11,488,090	$11,708,940	$11,967,306	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.14	19.16	19.25	19.26	19.21	19.04	19.35	19.28	19.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.89	8.90	8.92	8.91	8.90	8.90	8.88	8.89	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.88	8.86	8.88	8.87	8.87	8.88	8.88	8.88	8.87	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	Southern Co	10.46	10.46	10.48	10.46	10.48	10.46	10.48	10.49		
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CO2 EMISSIONS	lbs	Colby	355,680	296,400	385,320	355,680	355,680	296,400	266,760	296,400	414,960	385,320
CO2 EMISSIONS	lbs	Goodman Energy Center	129,234,768	133,520,736	126,519,024	128,832,240	135,325,248	132,116,256	134,650,800	134,637,840	138,387,936	136,139,520
CO2 EMISSIONS	lbs	Goodman Energy Center Expansion	45,919,680	44,256,384	45,492,144	44,582,016	44,639,040	46,580,256	47,873,040	47,305,200	47,304,912	45,290,304
CO2 EMISSIONS	lbs	JEC Extension	1,806,475,076	1,775,117,336	1,753,634,528	1,727,820,438	1,709,282,988	1,728,513,360	1,767,667,488	1,783,086,752	1,801,277,744	1,817,216,532
CO2 EMISSIONS	lbs	JEC Participation	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Southern Co	209,185,450	218,295,036	209,941,451	214,666,446	210,130,448	219,013,450	212,020,452	206,539,452	0	0
CO2 EMISSIONS	lbs	UML Westar	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Westar PPA	0	0	0	0	0	0	0	0	0	0
CO2 COST	$	Colby	$3,112	$2,871	$4,094	$4,113	$4,446	$3,798	$3,503	$3,990	$5,725	$5,449
CO2 COST	$	Goodman Energy Center	$1,132,114	$1,295,330	$1,344,264	$1,489,623	$1,691,696	$1,692,978	$1,768,964	$1,812,853	$1,909,429	$1,925,368
CO2 COST	$	Goodman Energy Center Expansion	$402,263	$429,391	$483,354	$515,509	$558,034	$596,894	$628,928	$637,028	$652,697	$640,523
CO2 COST	$	JEC Extension	$15,827,308	$17,222,014	$18,632,388	$19,982,552	$21,369,195	$22,151,417	$23,223,434	$24,013,298	$24,853,400	$25,700,246
CO2 COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Southern Co	$1,832,143	$2,116,505	$2,230,629	$2,482,079	$2,626,631	$2,806,354	$2,785,047	$2,780,892	$0	$0
CO2 COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SURPLUS/DEFICIT CAPACITY	MW	MWE	5	0	-5	-14	-19	-22	-26	-31	-186	-191
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	163,964	166,400	160,975	162,277	168,449	167,257	170,840	170,313	173,888	169,778
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co.	166,013	173,250	166,613	170,363	166,763	173,813	168,263	163,913	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	779,025	764,250	755,550	744,975	736,950	746,475	763,425	767,700	777,975	782,475
MARKET SALES	MWh	MWE Generation	163,964	166,400	160,975	162,277	168,449	167,257	170,840	170,313	173,888	169,778
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Southern Co.	166,013	173,250	166,613	170,363	166,763	173,813	168,263	163,913	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	779,025	764,250	755,550	744,975	736,950	746,475	763,425	767,700	777,975	782,475
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Southern Co.	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$13,851,735	$14,424,513	$14,459,689	$15,100,032	$16,119,215	$16,746,051	$17,828,545	$18,510,086	$19,668,664	$20,015,789
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Southern Co.	$14,229,778	$15,322,850	$15,166,507	$16,184,051	$16,322,147	$17,809,180	$17,986,539	$18,249,407	$0	$0
MARKET SALES	$	Wind	$16,311,271	$16,660,381	$17,553,793	$8,774,973	$9,039,981	$9,583,469	$10,016,290	$10,362,281	$10,955,075	$11,206,171
MARKET SALES	$	Westar	$44,709,966	$44,998,650	$46,053,979	$46,954,625	$47,842,594	$50,490,603	$54,667,682	$57,055,058	$60,292,631	$62,983,121
MARKET SALES	$/MWh	MWE Generation	$84.48	$86.69	$89.83	$93.05	$95.69	$100.12	$104.36	$108.68	$113.11	$117.89
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Southern Co.	$85.72	$88.44	$91.03	$95.00	$97.88	$102.46	$106.90	$111.34		
MARKET SALES	$/MWh	Wind	$44.90	$45.86	$48.05	$48.88	$50.36	$53.39	$55.67	$57.72	$61.03	$62.42
MARKET SALES	$/MWh	Westar	$57.39	$58.88	$60.95	$63.03	$64.92	$67.64	$71.61	$74.32	$77.50	$80.49
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
MARKET PURCHASES	$/MWh	MWE Load	$50.82	$52.33	$53.86	$55.78	$57.26	$60.29	$62.95	$65.57	$68.38	$71.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$48,593,809	$49,539,030	$50,506,881	$51,499,550	$52,516,352	$53,559,340	$54,629,120	$55,725,090	$46,048,189	$47,199,111
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$37,221,713	$37,616,262	$38,154,173	$35,247,945	$35,872,103	$37,185,846	$38,899,422	$40,092,427	$41,287,396	$42,506,670
TOTAL FUEL COSTS	$		$17,732,592	$18,596,332	$18,288,737	$19,014,618	$19,390,042	$20,898,588	$21,809,955	$22,502,510	$11,281,529	$11,493,155
TOTAL MARKET ENERGY COSTS	$		$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
TOTAL MARKET ENERGY SALES	$		($89,102,750)	($91,406,394)	($93,233,968)	($87,013,681)	($89,323,937)	($94,629,303)	($100,499,055)	($104,176,832)	($90,916,371)	($94,205,080)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL MARKET CAPACITY COST	$		$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
TOTAL CO2 COSTS	$		$19,196,941	$21,066,111	$22,694,729	$24,473,876	$26,250,002	$27,251,441	$28,409,875	$29,248,061	$27,421,250	$28,271,587
TOTAL COSTS	$		$136,307,771	$142,761,460	$148,901,567	$162,317,527	$169,132,715	$177,462,562	$184,717,756	$193,340,043	$209,085,252	$218,588,493

NPV @ 6.21%: $1,396,296,906 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 3 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	Southern Co	0	0	0	150	150	150	150	150	150	150
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130
GENERATION	MWh	Goodman Energy Center	88,806	90,098	96,102	100,586	106,286	108,946	104,880	108,414	110,656	110,276
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	962,925
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0
GENERATION	MWh	Southern Co	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Westar PPA	0	67,184	71,032	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	16%	16%	16%	16%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	16%
CAPACITY FACTOR	%	JEC Extension										73%
CAPACITY FACTOR	%	JEC Participation	60%	61%	65%	70%	74%	74%	74%	75%	79%	
CAPACITY FACTOR	%	Southern Co				12%	12%	12%	12%	12%	12%	12%
CAPACITY FACTOR	%	UML Westar	15%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Westar PPA		6%	6%							
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,600	$237,380	$243,360	$249,470
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,800	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,000,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	Southern Co	$0	$0	$0	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$210,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	Southern Co				$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31							
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$630,441	$675,951	$732,479	$769,391	$759,564	$804,432	$842,164	$860,283
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,725,121
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0
VARIABLE O&M COST	$	Southern Co	$0	$0	$0	$209,088	$215,010	$223,728	$227,576	$231,702	$228,544	$248,978
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$323,906	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	Southern Co				$1.32	$1.36	$1.39	$1.43	$1.46	$1.50	$1.54
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56							
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Southern Co	150	150	150	150	150	150	150	150	0	0
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	110,580	114,874	107,274	109,212	114,570	111,036	113,658	114,646	117,990	116,014
GENERATION	MWh	Goodman Energy Center Expansion	39,083	37,895	38,286	37,625	37,382	39,339	39,947	39,582	40,392	38,286
GENERATION	MWh	JEC Extension	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	17%	17%	16%	16%	17%	17%	17%	17%	18%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	17%	16%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Extension	74%	73%	74%	73%	73%	74%	76%	76%	77%	77%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	Southern Co	12%	13%	12%	13%	12%	13%	12%	12%		
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Westar PPA										
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,040	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Southern Co	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$0	$0
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	Southern Co	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00		
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Westar PPA										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$883,793	$941,249	$901,102	$940,315	$1,010,591	$1,003,923	$1,053,907	$1,089,429	$1,149,223	$1,157,820
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$312,361	$310,509	$321,602	$323,953	$329,735	$355,680	$370,410	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Extension	$35,137,381	$35,692,305	$36,872,667	$37,506,212	$38,353,323	$40,112,858	$42,040,514	$43,518,450	$45,176,535	$46,477,011
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Southern Co	$255,754	$272,502	$262,783	$283,241	$282,598	$302,474	$300,843	$299,018	$0	$0
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	Southern Co	$1.57	$1.61	$1.65	$1.70	$1.74	$1.78	$1.83	$1.87		
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Westar PPA										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 3 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,102,057	$3,568,448	$4,098,789	$4,405,720	$4,371,640	$4,741,337	$4,996,934	$5,169,619	$5,458,092	$5,774,224	$5,502,151	$5,743,677	$6,095,309	$6,254,618	$6,724,938	$7,089,525	$7,663,141	$7,858,137
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278	$1,926,141	$1,896,600	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,356,468	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Southern Co	$0	$0	$0	$6,582,092	$7,176,069	$7,632,486	$7,785,554	$8,157,100	$8,080,131	$8,897,914	$9,456,664	$9,988,825	$9,600,090	$10,261,613	$10,164,728	$11,234,492	$11,433,585	$11,668,606	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,751,436	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.94	8.94	8.91	8.93	8.93	8.93	8.91	8.91	8.89	8.90	8.92	8.93	8.91	8.91	8.91	8.88	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89	8.88	8.86	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Southern Co				10.47	10.49	10.47	10.48	10.49	10.46	10.46	10.46	10.45	10.48	10.46	10.48	10.46	10.48	10.49		
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.73																	
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	44	37	32	27	22	17	9	5	0	-5	-14	-19	-22	-26	-31	-186	-191
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	($3,204,658)	($1,283,849)	($1,904,752)	($2,974,423)	($2,557,141)	($2,300,013)	($2,001,402)	($1,662,896)	($1,287,690)	($688,944)	($375,327)	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	130,604	135,601	143,421	146,525	142,824	146,168	149,112	149,138	149,819	152,886	145,703	146,967	152,095	150,505	153,722	154,332	158,525	154,456
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co.	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	933,382	914,175	969,975	971,325	971,700	987,300	1,040,100	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
MARKET SALES	MWh	MWE Generation	121,701	122,629	130,604	135,601	143,421	146,525	142,824	146,168	149,112	149,138	149,819	152,886	145,703	146,967	152,095	150,505	153,722	154,332	158,525	154,456
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Southern Co.	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	933,382	914,175	969,975	971,325	971,700	987,300	1,040,100	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Southern Co.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,354,362	$7,182,138	$8,196,174	$8,733,320	$8,748,542	$9,363,222	$9,925,155	$10,262,681	$10,845,768	$11,180,509	$10,943,866	$11,302,302	$11,883,647	$12,403,287	$13,256,095	$13,892,981	$14,900,749	$15,186,431
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Southern Co.	$0	$0	$0	$8,270,753	$8,996,986	$9,565,962	$9,749,374	$10,187,483	$10,098,422	$11,095,188	$11,772,320	$12,438,879	$11,941,089	$12,846,828	$12,762,040	$14,050,586	$14,238,738	$14,493,760	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,097,028	$30,989,547	$35,645,626	$37,124,048	$38,307,753	$40,693,079	$44,615,304	$42,907,699	$45,835,434	$45,922,224	$47,202,854	$47,888,558	$48,612,571	$51,748,861	$55,849,766	$58,468,871	$61,735,503	$64,390,372
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.65	$52.97	$57.15	$59.60	$61.25	$64.06	$66.56	$68.81	$72.39	$73.13	$75.11	$76.90	$78.13	$82.41	$86.23	$90.02	$94.00	$98.32
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Southern Co.				$52.21	$56.92	$59.45	$61.27	$64.19	$66.28	$68.63	$72.28	$73.52	$74.98	$77.11	$78.58	$82.69	$86.63	$90.66		
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.25	$33.90	$36.75	$38.22	$39.42	$41.22	$42.90	$44.56	$46.91	$47.58	$48.61	$49.78	$50.72	$53.01	$56.06	$58.27	$60.82	$63.30
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$40,062,102	$40,027,871	$41,025,875	$42,948,609	$43,618,840	$44,439,244	$45,279,990	$46,147,282	$47,024,766	$47,673,053	$48,593,809	$49,539,030	$50,506,881	$51,499,550	$52,516,352	$53,559,340	$54,629,120	$55,725,000	$46,048,189	$47,199,111
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,928,007	$35,259,291	$38,037,214	$39,113,248	$40,143,251	$41,711,439	$44,539,734	$42,093,517	$44,225,556	$44,932,627	$46,197,670	$43,574,128	$44,583,309	$46,467,870	$48,558,842	$50,154,883	$51,085,714	$53,079,170
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$6,970,225	$11,392,182	$12,708,435	$13,558,632	$13,742,967	$14,552,003	$14,819,563	$15,890,932	$16,857,574	$17,672,231	$17,075,148	$17,987,463	$18,256,682	$19,715,825	$20,529,780	$21,221,054	$10,299,969	$10,462,930
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,257,067)	($56,158,323)	($63,557,150)	($66,505,632)	($68,257,421)	($72,379,582)	($77,092,374)	($77,169,591)	($82,159,888)	($83,345,315)	($84,441,450)	($79,131,549)	($80,475,004)	($85,902,285)	($91,430,873)	($95,257,224)	($85,555,246)	($88,726,764)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL MARKET CAPACITY COST	$		($3,204,658)	($1,283,849)	($1,904,752)	($2,974,423)	($2,557,141)	($2,300,013)	($2,001,402)	($1,662,896)	($1,287,690)	($688,944)	($375,327)	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
TOTAL COSTS	$		$83,290,631	$81,984,706	$83,130,975	$85,648,140	$89,749,251	$93,350,714	$96,876,410	$100,704,765	$104,260,882	$108,943,022	$113,448,064	$117,784,254	$121,430,292	$130,500,657	$134,613,943	$141,318,055	$147,017,232	$154,039,989	$167,573,324	$175,312,687

NPV @ 8.21%: $1,211,666,994 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 3 (+1% Interest Rate) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Southern Co	0	0	0	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	88,806	90,098	96,102	100,586	106,286	108,946	104,880	108,414	110,656	110,276	110,580	114,874	107,274	109,212	114,570	111,036	113,658	114,646	117,990	116,014
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732	39,083	37,895	38,286	37,625	37,382	39,339	39,947	39,582	40,392	38,286
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	67,184	71,032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smokey Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	16%	16%	16%	16%	17%	17%	17%	17%	16%	16%	17%	17%	17%	17%	18%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	16%	17%	16%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Extension										73%	74%	73%	74%	73%	73%	74%	76%	76%	77%	77%
CAPACITY FACTOR	%	JEC Participation	60%	61%	65%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	Southern Co				12%	12%	12%	12%	12%	12%	12%	12%	13%	12%	13%	12%	13%	12%	12%		
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%																	
CAPACITY FACTOR	%	Smokey Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,080	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Southern Co	$0	$0	$0	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$10,800,000	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	Southern Co				$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00	$72.00		
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31																	
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$630,441	$675,951	$732,479	$769,391	$759,564	$804,432	$842,164	$860,283	$883,793	$941,249	$901,102	$940,315	$1,010,591	$1,003,923	$1,053,907	$1,089,429	$1,149,223	$1,157,820
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152	$312,361	$310,509	$321,602	$323,953	$329,735	$355,680	$370,410	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,725,121	$35,137,381	$35,692,305	$36,872,667	$37,506,212	$38,353,323	$40,112,858	$42,040,514	$43,518,450	$45,176,535	$46,477,011
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Southern Co	$0	$0	$0	$209,088	$215,010	$223,728	$227,576	$231,702	$228,544	$248,978	$255,754	$272,502	$262,783	$283,241	$282,598	$302,474	$300,843	$299,018	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$323,906	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	Southern Co				$1.32	$1.36	$1.39	$1.43	$1.46	$1.50	$1.54	$1.57	$1.61	$1.65	$1.70	$1.74	$1.78	$1.83	$1.87		
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56																	
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 3 (+1% Interest Rate) - 130 MW Westar SCGT PPA (2017-2018), 150 MW Southern Co. SCGT PPA (2019-2033), and 150 MW JEC Extension (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,102,057	$3,568,448	$4,098,789	$4,405,720	$4,371,640	$4,741,337	$4,996,934	$5,169,619	$5,458,092	$5,774,224	$5,502,151	$5,743,677	$6,095,309	$6,254,618	$6,724,938	$7,089,525	$7,663,141	$7,858,137
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278	$1,926,141	$1,896,600	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,356,468	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Southern Co	$0	$0	$0	$6,582,092	$7,176,069	$7,632,486	$7,785,554	$8,157,100	$8,080,131	$8,897,914	$9,456,664	$9,988,825	$9,600,090	$10,261,613	$10,164,728	$11,234,492	$11,433,585	$11,668,606	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,751,436	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.94	8.94	8.91	8.93	8.93	8.93	8.91	8.91	8.89	8.90	8.92	8.93	8.91	8.91	8.91	8.88	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89	8.88	8.86	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Southern Co				10.47	10.49	10.47	10.48	10.49	10.46	10.46	10.46	10.45	10.48	10.46	10.48	10.46	10.48	10.49		
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.73																	
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	44	37	32	27	22	17	9	5	0	-5	-14	-19	-22	-26	-31	-186	-191
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	130,604	135,601	143,421	146,525	142,824	146,168	149,112	149,138	149,819	152,886	145,703	146,967	152,095	150,505	153,722	154,332	158,525	154,456
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Southern Co.	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	933,382	914,175	969,975	971,325	971,700	987,300	1,040,100	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
MARKET SALES	MWh	MWE Generation	121,701	122,629	130,604	135,601	143,421	146,525	142,824	146,168	149,112	149,138	149,819	152,886	145,703	146,967	152,095	150,505	153,722	154,332	158,525	154,456
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Southern Co.	0	0	0	158,400	158,063	160,913	159,113	158,700	152,363	161,663	162,863	169,200	159,263	166,613	162,413	169,913	164,363	159,863	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	933,382	914,175	969,975	971,325	971,700	987,300	1,040,100	962,925	977,025	965,250	971,100	962,100	958,425	976,200	996,225	1,003,350	1,014,975	1,017,225
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Southern Co.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,354,362	$7,182,138	$8,196,174	$8,733,320	$8,748,542	$9,363,222	$9,925,155	$10,262,681	$10,845,768	$11,180,509	$10,943,866	$11,302,302	$11,883,647	$12,403,287	$13,256,095	$13,892,981	$14,900,749	$15,186,431
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Southern Co.	$0	$0	$0	$8,270,753	$8,996,986	$9,565,962	$9,749,374	$10,187,483	$10,098,422	$11,095,188	$11,772,320	$12,438,879	$11,941,089	$12,846,828	$12,762,040	$14,050,586	$14,238,738	$14,493,760	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,097,028	$30,989,547	$35,645,626	$37,124,048	$38,307,753	$40,693,079	$44,615,304	$42,907,699	$45,835,434	$45,922,224	$47,202,854	$47,888,558	$48,612,571	$51,748,861	$55,849,766	$58,468,871	$61,735,503	$64,390,372
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.65	$52.97	$57.15	$59.60	$61.25	$64.06	$66.56	$68.81	$72.39	$73.13	$75.11	$76.90	$78.13	$82.41	$86.23	$90.02	$94.00	$98.32
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Southern Co.				$52.21	$56.92	$59.45	$61.27	$64.19	$66.28	$68.63	$72.28	$73.52	$74.98	$77.11	$78.58	$82.69	$86.63	$90.66		
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.25	$33.90	$36.75	$38.22	$39.42	$41.22	$42.90	$44.56	$46.91	$47.58	$48.61	$49.78	$50.72	$53.01	$56.06	$58.27	$60.82	$63.30
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,948,609	$43,618,840	$44,439,244	$45,279,990	$46,147,282	$47,024,766	$47,673,053	$48,593,809	$49,539,030	$50,506,881	$51,499,550	$52,516,352	$53,559,340	$54,629,120	$55,725,090	$46,048,189	$47,199,111
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,928,007	$35,259,291	$38,037,214	$39,113,248	$40,143,251	$41,711,439	$44,539,734	$42,693,517	$44,225,556	$44,932,627	$46,197,670	$43,574,128	$44,583,309	$46,467,870	$48,558,842	$50,154,883	$51,685,714	$53,079,170
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$6,970,225	$11,392,182	$12,708,435	$13,558,632	$13,742,967	$14,552,003	$14,819,563	$15,890,932	$16,857,574	$17,672,231	$17,075,148	$17,987,463	$18,256,682	$19,715,825	$20,529,780	$21,221,054	$10,299,969	$10,462,930
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,257,067)	($56,158,323)	($63,557,155)	($66,505,632)	($68,257,421)	($72,379,582)	($77,092,374)	($77,169,591)	($82,159,888)	($83,345,315)	($84,441,450)	($79,131,549)	($80,475,004)	($85,902,285)	($91,430,873)	($95,257,224)	($85,555,246)	($88,726,764)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL MARKET CAPACITY COST	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,869	$411,379	$1,220,115	$1,658,464	$2,001,850	$2,416,728	$2,947,123	$18,323,392	$19,265,633
TOTAL COSTS	$		$86,495,289	$83,268,555	$85,035,727	$88,622,562	$92,306,392	$95,656,728	$98,877,813	$102,367,661	$105,548,572	$109,631,966	$113,823,391	$117,784,254	$121,430,292	$130,500,657	$134,613,943	$141,318,055	$147,017,232	$154,039,989	$167,573,324	$175,312,667

NPV @ 6.21%: $1,226,902,949 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 4 - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	7FA Self Build	0	0	0	205	205	205	205	205	205	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	CCGT Conversion	0	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	7FA Self Build	0	0	0	197,440	200,099	206,544	201,839	176,775	211,660	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	CCGT Conversion	0	0	0	0	0	0	0	0	0	1,296,261	1,306,074	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,300
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	88,806	90,098	96,102	101,422	107,198	109,402	105,488	108,946	107,882	112,936	112,024	116,242	109,250	110,428	112,480	112,936	115,178	117,002	116,546	116,014
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732	39,083	39,245	38,286	37,625	37,382	39,339	39,947	39,582	40,392	38,286
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	67,184	71,032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	7FA Self Build				11%	11%	12%	11%	10%	12%											
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	CCGT Conversion										38%	39%	39%	38%	38%	38%	39%	39%	39%	40%	39%
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	16%	17%	17%	17%	17%	18%	18%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	15%	15%	16%	16%	16%	16%	16%	16%	17%	17%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%																	
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	7FA Self Build	$0	$0	$0	$1,604,064	$1,642,938	$1,683,858	$1,726,824	$1,769,790	$1,814,802	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	7FA Self Build				$7.84	$8.03	$8.23	$8.44	$8.65	$8.87											
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	CCGT Conversion										$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31																	
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	7FA Self Build	$0	$0	$0	$582,449	$604,397	$640,473	$640,042	$574,519	$704,826	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,693,833	$4,847,913	$5,014,434	$5,036,391	$5,070,607	$5,270,357	$5,465,233	$5,761,785	$5,800,122	$6,118,485	$6,093,710
VARIABLE O&M COST	$	Colby	$2,409	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467	$4,205	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$630,441	$681,569	$738,762	$772,611	$763,966	$808,379	$820,982	$881,031	$895,330	$952,453	$917,700	$950,801	$992,157	$1,021,099	$1,067,997	$1,111,939	$1,135,158	$1,157,820
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152	$312,361	$321,506	$321,602	$323,953	$329,735	$355,080	$370,410	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,099	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$208,297	$323,906	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	7FA Self Build				$2.95	$3.02	$3.10	$3.17	$3.25	$3.33											
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	CCGT Conversion										$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56																	
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 4 - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	7FA Self Build	$0	$0	$0	$7,819,665	$8,632,818	$9,318,863	$9,404,933	$8,609,881	$10,667,446	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$47,536,391	$50,480,350	$51,731,311	$51,724,889	$51,953,712	$53,599,622	$57,061,144	$61,823,867	$63,867,834	$68,839,212	$69,624,446
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,102,057	$3,594,130	$4,129,667	$4,420,126	$4,392,516	$4,760,383	$4,879,520	$5,293,854	$5,528,365	$5,841,955	$5,601,298	$5,807,693	$5,987,264	$6,359,885	$6,813,631	$7,249,483	$7,568,977	$7,858,137
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278	$1,926,141	$1,968,503	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,356,468	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,751,436	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build				9.98	9.96	9.96	9.98	9.94	9.94											
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion										6.97	6.96	6.96	6.97	6.96	6.99	6.94	6.97	6.98	6.98	6.98
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.94	8.93	8.90	8.92	8.92	8.92	8.92	8.91	8.89	8.90	8.92	8.93	8.92	8.91	8.91	8.90	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89	8.88	8.88	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.73																	
CAPITAL RECOVERY	$	7FA Self Build				$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$13,093,000	$12,812,000	$12,527,000	$12,237,000	$11,946,000	$11,649,000	$11,348,000	$11,044,000	$10,734,000	$10,420,000	$10,102,000
CAPITAL RECOVERY	$	CCGT Conversion										$30,001,000	$29,478,000	$28,949,000	$28,413,000	$27,870,000	$27,320,000	$26,762,000	$26,197,000	$25,623,000	$25,041,000	$24,449,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	15	24	93	86	82	77	72	66	89	85	80	76	66	62	58	55	50	44	39
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	130,604	136,437	144,333	146,981	143,432	146,700	146,338	151,798	151,263	155,604	147,679	148,183	150,005	152,405	155,242	156,688	157,081	154,456
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	933,382	1,111,615	1,170,074	1,177,869	1,173,539	1,164,075	1,251,760	1,296,261	1,306,074	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,300
MARKET SALES	MWh	MWE Generation	121,701	122,629	130,604	136,437	144,333	146,981	143,432	146,700	146,338	151,798	151,263	155,604	147,679	148,183	150,005	152,405	155,242	156,688	157,081	154,456
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	933,382	1,111,615	1,170,074	1,177,869	1,173,539	1,164,075	1,251,759	1,296,261	1,306,075	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,299
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,354,362	$7,220,406	$8,245,786	$8,760,316	$8,782,697	$9,394,975	$9,766,247	$10,426,529	$10,945,640	$11,379,864	$11,080,175	$11,388,928	$11,742,739	$12,551,043	$13,379,253	$14,095,704	$14,781,099	$15,186,431
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,097,028	$41,040,396	$46,652,777	$49,021,346	$50,333,787	$51,437,696	$58,154,634	$68,675,677	$73,514,664	$74,828,748	$74,676,267	$75,184,943	$77,702,374	$82,198,567	$89,303,336	$92,299,927	$99,218,717	$99,942,072
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.65	$52.92	$57.13	$59.60	$61.23	$64.04	$66.74	$68.69	$72.36	$73.13	$75.03	$76.86	$78.28	$82.35	$86.18	$89.96	$94.10	$98.32
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.25	$36.92	$39.87	$41.62	$42.89	$44.19	$46.46	$52.98	$56.29	$56.88	$57.83	$59.32	$60.46	$63.19	$66.84	$70.22	$73.30	$76.10
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$33,752,672	$34,461,778	$35,323,102	$36,206,813	$37,117,072	$38,039,568	$6,122,500	$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,928,007	$35,638,270	$38,432,884	$39,533,212	$40,560,119	$42,058,203	$44,994,834	$13,433,999	$13,691,872	$14,004,515	$14,115,209	$10,865,767	$11,199,311	$11,534,947	$11,993,360	$12,160,046	$12,613,600	$12,695,869
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$6,970,225	$12,655,438	$14,196,062	$15,259,415	$15,383,222	$15,023,831	$17,289,464	$54,653,645	$57,951,533	$59,554,350	$59,299,093	$59,743,578	$61,583,531	$65,647,744	$71,008,754	$73,580,240	$79,045,017	$80,087,376
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,257,067)	($57,976,686)	($65,616,932)	($68,863,964)	($70,568,237)	($72,968,470)	($80,374,373)	($92,006,229)	($98,166,670)	($100,012,316)	($100,110,083)	($93,667,732)	($96,661,859)	($102,449,161)	($110,768,863)	($114,797,244)	($122,918,810)	($124,278,465)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$43,094,000	$42,290,000	$41,476,000	$40,650,000	$39,816,000	$38,969,000	$38,110,000	$37,241,000	$36,357,000	$35,461,000	$34,551,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$86,495,289	$83,268,555	$85,035,727	$93,970,497	$97,428,851	$100,492,000	$103,469,943	$107,215,155	$109,578,377	$105,841,970	$108,348,890	$110,420,955	$112,228,240	$118,868,856	$120,091,480	$125,419,454	$129,066,607	$134,012,126	$138,619,562	$144,926,418

NPV @ 6.21%: $1,185,451,040 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 4 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	7FA Self Build	0	0	0	205	205	205	205	205	205	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	CCGT Conversion	0	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	7FA Self Build	0	0	0	208,386	213,808	223,424	217,695	187,619	226,186	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	CCGT Conversion	0	0	0	0	0	0	0	0	0	1,342,418	1,354,758	1,381,682	1,363,747	1,324,777	1,348,793	1,359,542	1,378,907	1,372,014	1,399,039	1,368,364
GENERATION	MWh	Colby	117	117	143	143	130	143	156	143	156	156	156	130	156	143	156	130	117	104	182	169
GENERATION	MWh	Goodman Energy Center	99,484	102,258	105,792	112,518	117,306	120,308	116,318	119,624	116,774	122,056	122,474	126,426	119,282	119,776	121,638	122,474	126,616	127,490	125,704	125,134
GENERATION	MWh	Goodman Energy Center Expansion	36,869	37,004	38,367	38,529	40,500	41,135	41,715	41,310	41,472	42,161	42,903	42,579	41,877	40,797	40,851	42,606	44,132	43,646	43,511	41,499
GENERATION	MWh	JEC Participation	925,125	938,475	1,008,075	1,052,475	1,086,150	1,087,500	1,088,325	1,100,700	1,155,825	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	365,988	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	76,830	79,690	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	7FA Self Build				12%	12%	12%	12%	10%	13%											
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	CCGT Conversion										40%	40%	41%	40%	39%	40%	40%	41%	41%	41%	41%
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	15%	15%	16%	17%	18%	18%	17%	18%	17%	18%	18%	19%	18%	18%	18%	18%	19%	19%	19%	19%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	16%	16%	16%	16%	17%	17%	18%	17%	17%	18%	18%	18%	18%	17%	17%	18%	19%	18%	18%	18%
CAPACITY FACTOR	%	JEC Participation	70%	71%	77%	80%	82%	83%	83%	84%	88%											
CAPACITY FACTOR	%	UML Westar	27%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		7%	7%																	
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	7FA Self Build	$0	$0	$0	$1,604,064	$1,642,938	$1,683,858	$1,726,824	$1,769,790	$1,814,802	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	7FA Self Build				$7.84	$8.03	$8.23	$8.44	$8.65	$8.87											
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	CCGT Conversion										$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.05	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.40	$74.31																	
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	7FA Self Build	$0	$0	$0	$614,739	$645,797	$692,800	$690,306	$609,761	$753,200	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,860,921	$5,028,546	$5,266,878	$5,318,614	$5,299,595	$5,531,030	$5,711,748	$5,946,030	$6,053,970	$6,323,657	$6,349,210
VARIABLE O&M COST	$	Colby	$2,499	$2,561	$3,209	$3,289	$3,065	$3,456	$3,864	$3,631	$4,059	$4,161	$4,265	$3,643	$4,482	$4,210	$4,708	$4,021	$3,710	$3,380	$6,062	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$620,938	$654,451	$694,008	$756,134	$808,406	$849,744	$842,484	$887,610	$888,650	$952,167	$978,871	$1,035,892	$1,001,969	$1,031,303	$1,072,931	$1,107,340	$1,174,202	$1,211,647	$1,224,357	$1,248,837
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$230,059	$236,822	$251,692	$258,919	$279,105	$290,541	$302,138	$306,520	$315,633	$328,898	$342,903	$348,886	$351,767	$351,274	$360,336	$385,220	$409,267	$414,807	$423,792	$414,160
VARIABLE O&M COST	$	JEC Participation	$24,806,805	$25,883,141	$28,642,585	$30,875,633	$32,934,388	$34,012,098	$35,085,848	$36,521,226	$39,374,312	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$11,680,458	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$341,125	$363,386	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	7FA Self Build				$2.95	$3.02	$3.10	$3.17	$3.25	$3.33											
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	CCGT Conversion										$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56																	
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 4 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FUEL COST	$	7FA Self Build	$0	$0	$0	$9,908,572	$11,073,123	$12,099,120	$12,168,969	$10,956,265	$13,661,787	$0
FUEL COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$59,077,164
FUEL COST	$	Colby	$8,248	$8,633	$11,866	$13,065	$12,950	$14,912	$16,812	$16,108	$18,275	$18,957
FUEL COST	$	Goodman Energy Center	$3,257,957	$3,502,394	$4,097,929	$4,780,411	$5,418,598	$5,825,512	$5,809,410	$6,260,420	$6,335,872	$6,860,945
FUEL COST	$	Goodman Energy Center Expansion	$1,205,570	$1,266,301	$1,482,670	$1,632,344	$1,869,114	$1,986,453	$2,080,504	$2,156,830	$2,245,455	$2,364,662
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$3,163,874	$3,702,404	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build				11.98	11.96	11.95	11.97	11.92	11.91	
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion										8.37
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.04	23.06	22.99	23.01	23.01	23.02	23.08	22.99	23.11	23.10
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.70	10.70	10.73	10.70	10.67	10.69	10.69	10.68	10.70	10.69
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.69	10.69	10.70	10.67	10.66	10.66	10.68	10.66	10.68	10.66
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		12.87	12.87							
CAPITAL RECOVERY	$	7FA Self Build				$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$13,093,000
CAPITAL RECOVERY	$	CCGT Conversion										$30,001,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	15	24	93	86	82	77	72	66	89
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	136,470	139,379	144,302	151,190	157,936	161,586	158,189	161,077	158,402	164,373
GENERATION	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	925,125	1,015,305	1,087,765	1,260,861	1,299,958	1,310,924	1,306,020	1,288,319	1,382,011	1,342,418
MARKET SALES	MWh	MWE Generation	136,470	139,379	144,302	151,190	157,936	161,586	158,189	161,077	158,402	164,373
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	925,125	1,015,305	1,087,765	1,260,861	1,299,957	1,310,924	1,306,020	1,288,319	1,382,011	1,342,418
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$6,651,243	$7,026,192	$8,254,309	$9,397,676	$10,622,131	$11,324,985	$11,387,299	$12,126,987	$12,474,042	$13,323,113
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$4,569,609	$9,512,410	$10,566,805	$11,659,049	$12,862,076	$13,298,776	$13,742,113	$14,562,933	$14,944,178	$15,484,778
MARKET SALES	$	Westar	$28,694,316	$34,534,365	$41,116,162	$54,314,759	$60,642,807	$63,836,161	$65,522,960	$66,560,841	$75,045,595	$84,615,137
MARKET SALES	$/MWh	MWE Generation	$48.74	$50.41	$57.20	$62.16	$67.26	$70.09	$71.99	$75.29	$78.75	$81.05
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$24.75	$26.18	$29.09	$32.09	$35.28	$36.61	$37.83	$40.09	$40.99	$42.62
MARKET SALES	$/MWh	Westar	$31.02	$34.01	$37.80	$43.08	$46.65	$48.70	$50.17	$51.66	$54.30	$63.03
MARKET PURCHASES	MWh	MWE Load	1,402,278	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148
MARKET PURCHASES	$/MWh	MWE Load	$24.78	$29.51	$33.35	$36.66	$40.10	$41.89	$43.13	$45.16	$46.73	$48.57
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$33,752,672	$34,461,778	$35,323,102	$36,206,813	$37,117,072	$38,039,568	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$40,918,952	$34,288,608	$37,198,776	$39,827,862	$42,091,136	$43,322,269	$44,477,577	$45,962,735	$49,077,717	$13,699,663
TOTAL FUEL COSTS	$		$4,471,775	$7,941,203	$9,294,869	$16,334,392	$18,373,786	$19,925,997	$20,075,695	$19,389,623	$22,261,390	$68,321,728
TOTAL MARKET ENERGY COSTS	$		$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148
TOTAL MARKET ENERGY SALES	$		($39,915,167)	($51,072,967)	($59,937,275)	($75,371,483)	($84,127,014)	($88,459,922)	($90,652,372)	($93,250,761)	($102,463,815)	($113,423,028)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$43,094,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$87,184,336	$85,484,370	$86,824,741	$95,480,487	$99,054,566	$102,361,988	$105,589,312	$109,670,544	$111,794,997	$114,468,010

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	7FA Self Build	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	CCGT Conversion	$62,830,873	$65,186,472	$65,547,256	$65,146,119	$67,473,080	$71,578,254	$76,588,869	$79,968,461	$85,436,418	$87,025,885
FUEL COST	$	Colby	$20,013	$16,871	$20,623	$19,482	$21,520	$18,936	$17,746	$16,786	$30,700	$29,621
FUEL COST	$	Goodman Energy Center	$7,250,568	$7,621,337	$7,323,891	$7,552,269	$7,770,754	$8,266,524	$8,981,775	$9,477,701	$9,778,278	$10,165,686
FUEL COST	$	Goodman Energy Center Expansion	$2,537,453	$2,561,182	$2,564,796	$2,558,711	$2,596,888	$2,870,533	$3,122,110	$3,237,682	$3,375,604	$3,357,425
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build										
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion	8.36	8.35	8.36	8.35	8.38	8.33	8.36	8.37	8.38	8.37
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.11	22.97	22.99	23.13	23.11	23.05	22.84	23.19	23.14	23.06
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.67	10.67	10.68	10.71	10.70	10.68	10.68	10.68	10.67	10.69
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.66	10.65	10.65	10.65	10.65	10.66	10.65	10.66	10.64	10.65
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	7FA Self Build	$12,812,000	$12,527,000	$12,237,000	$11,946,000	$11,649,000	$11,348,000	$11,044,000	$10,734,000	$10,420,000	$10,102,000
CAPITAL RECOVERY	$	CCGT Conversion	$29,478,000	$28,949,000	$28,413,000	$27,870,000	$27,320,000	$26,762,000	$26,197,000	$25,623,000	$25,041,000	$24,449,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	85	80	76	66	62	58	55	50	44	39
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	165,533	169,135	161,315	160,716	162,645	165,210	170,865	171,240	169,397	166,802
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,354,758	1,381,682	1,363,747	1,324,777	1,348,793	1,359,542	1,378,907	1,372,014	1,399,039	1,368,364
MARKET SALES	MWh	MWE Generation	165,533	169,135	161,315	160,716	162,645	165,210	170,865	171,240	169,397	166,802
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,354,758	1,381,682	1,363,747	1,324,777	1,348,793	1,359,542	1,378,907	1,372,014	1,399,039	1,368,364
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$14,102,233	$14,588,576	$14,242,529	$14,567,472	$15,022,618	$16,038,752	$17,313,958	$18,145,005	$18,807,419	$19,356,537
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$16,447,673	$16,564,437	$17,224,382	$8,512,619	$8,660,082	$9,239,426	$9,703,535	$10,081,922	$10,702,826	$10,979,947
MARKET SALES	$	Westar	$90,673,529	$93,191,060	$93,435,366	$93,267,255	$96,644,724	$101,992,843	$109,788,257	$114,434,674	$122,152,412	$123,711,320
MARKET SALES	$/MWh	MWE Generation	$85.19	$86.25	$88.29	$90.64	$92.36	$97.08	$101.33	$105.96	$111.03	$116.04
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$45.27	$45.60	$47.15	$47.42	$48.24	$51.47	$53.93	$56.16	$59.62	$61.16
MARKET SALES	$/MWh	Westar	$66.93	$67.45	$68.51	$70.40	$71.65	$75.02	$79.62	$83.41	$87.31	$90.41
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
MARKET PURCHASES	$/MWh	MWE Load	$51.27	$52.06	$52.87	$54.15	$54.89	$58.17	$61.01	$63.83	$66.84	$69.63
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$13,986,588	$14,368,083	$14,512,239	$11,202,962	$11,571,751	$11,897,243	$12,322,667	$12,552,233	$12,939,644	$13,074,897
TOTAL FUEL COSTS	$		$72,638,906	$75,385,861	$75,456,565	$75,276,581	$77,862,242	$82,734,246	$88,710,499	$92,700,629	$98,621,000	$100,578,617
TOTAL MARKET ENERGY COSTS	$		$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
TOTAL MARKET ENERGY SALES	$		($121,223,434)	($124,344,073)	($124,902,278)	($116,347,345)	($120,327,423)	($127,271,021)	($136,805,751)	($142,661,601)	($151,662,656)	($154,047,803)
TOTAL CAPITAL RECOVERY	$		$42,290,000	$41,476,000	$40,650,000	$39,816,000	$38,969,000	$38,110,000	$37,241,000	$36,357,000	$35,461,000	$34,551,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$117,535,596	$120,084,164	$122,326,586	$131,129,459	$132,691,443	$139,141,470	$143,523,774	$149,509,207	$155,131,827	$162,834,492

NPV @ 6.21%: $1,252,868,679 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 4 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	7FA Self Build	0	0	0	205	205	205	205	205	205	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	CCGT Conversion	0	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	7FA Self Build	0	0	0	187,312	195,291	197,849	189,665	167,159	205,726	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	CCGT Conversion	0	0	0	0	0	0	0	0	0	1,249,288	1,264,327	1,283,160	1,268,938	1,227,370	1,250,917	1,259,270	1,307,476	1,284,100	1,321,484	1,275,196
GENERATION	MWh	Colby	91	91	91	117	91	117	117	117	130	117	130	104	130	117	117	117	104	91	143	143
GENERATION	MWh	Goodman Energy Center	81,814	82,840	89,984	95,304	101,840	103,436	98,876	103,626	101,536	106,096	105,792	109,098	104,234	105,374	105,944	105,792	109,250	111,340	109,972	110,808
GENERATION	MWh	Goodman Energy Center Expansion	30,078	29,930	32,063	32,670	35,100	35,546	35,613	35,897	35,897	36,531	36,801	36,950	36,410	35,546	35,073	37,085	37,935	37,625	37,908	36,545
GENERATION	MWh	JEC Participation	732,075	741,225	786,900	831,900	878,775	885,825	886,350	900,450	948,675	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	124,659	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	64,324	65,780	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	7FA Self Build				10%	11%	11%	11%	9%	11%											
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	CCGT Conversion										37%	37%	38%	37%	36%	37%	37%	39%	38%	39%	38%
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	12%	12%	14%	14%	15%	16%	15%	16%	15%	16%	16%	16%	16%	16%	16%	16%	16%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	13%	13%	14%	14%	15%	15%	15%	15%	15%	15%	16%	16%	15%	15%	15%	16%	16%	16%	16%	15%
CAPACITY FACTOR	%	JEC Participation	56%	56%	60%	63%	67%	67%	67%	69%	72%											
CAPACITY FACTOR	%	UML Westar	9%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%																	
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	7FA Self Build	$0	$0	$0	$1,604,064	$1,642,938	$1,683,858	$1,726,824	$1,769,790	$1,814,802	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	7FA Self Build				$7.84	$8.03	$8.23	$8.44	$8.65	$8.87											
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	CCGT Conversion										$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31																	
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	7FA Self Build	$0	$0	$0	$552,571	$589,877	$613,517	$601,450	$543,206	$685,068	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,523,775	$4,693,022	$4,891,255	$4,948,858	$4,909,951	$5,129,730	$5,290,605	$5,638,114	$5,666,230	$5,973,100	$5,916,910
VARIABLE O&M COST	$	Colby	$1,944	$1,992	$2,042	$2,691	$2,146	$2,828	$2,898	$2,971	$3,383	$3,120	$3,554	$2,914	$3,735	$3,444	$3,531	$3,619	$3,298	$2,958	$4,763	$4,883
VARIABLE O&M COST	$	Goodman Energy Center	$510,665	$530,176	$590,307	$640,456	$701,839	$730,436	$716,040	$768,905	$772,689	$827,621	$845,476	$893,800	$875,566	$907,286	$934,443	$956,447	$1,012,975	$1,058,040	$1,071,127	$1,105,864
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$187,687	$191,549	$210,334	$219,547	$241,896	$251,014	$257,901	$266,352	$273,178	$284,967	$294,110	$302,718	$305,840	$306,052	$309,350	$335,275	$351,738	$357,543	$369,224	$364,714
VARIABLE O&M COST	$	JEC Participation	$19,629,906	$20,442,986	$22,357,830	$24,404,331	$26,646,073	$27,704,786	$28,574,037	$29,876,931	$32,316,911	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$3,977,265	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$285,599	$299,957	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	7FA Self Build				$2.95	$3.02	$3.10	$3.17	$3.25	$3.33											
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	CCGT Conversion										$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56																	
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 4 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FUEL COST	$	7FA Self Build	$0	$0	$0	$6,660,705	$7,576,725	$8,027,471	$7,948,574	$7,330,016	$9,328,089	$0
FUEL COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$41,248,805
FUEL COST	$	Colby	$4,822	$5,047	$5,671	$8,040	$6,773	$9,177	$9,461	$9,913	$11,394	$10,649
FUEL COST	$	Goodman Energy Center	$2,013,083	$2,132,446	$2,615,288	$3,039,274	$3,533,939	$3,761,003	$3,709,285	$4,076,015	$4,137,190	$4,476,065
FUEL COST	$	Goodman Energy Center Expansion	$739,312	$769,673	$930,931	$1,038,700	$1,216,919	$1,289,556	$1,335,681	$1,409,237	$1,458,806	$1,537,444
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$1,982,760	$2,293,934	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build				8.96	8.96	8.96	8.97	8.95	8.94	
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion										6.28
AVERAGE HEAT RATE	MMBtu/MWh	Colby	17.32	17.33	17.26	17.31	17.19	17.31	17.32	17.29	17.29	17.30
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.04	8.04	8.05	8.03	8.01	8.03	8.03	8.03	8.04	8.02
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.03	8.04	8.04	8.01	8.01	8.01	8.03	8.01	8.02	8.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		9.63	9.66							
CAPITAL RECOVERY	$	7FA Self Build				$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$13,093,000
CAPITAL RECOVERY	$	CCGT Conversion										$30,001,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	15	24	93	86	82	77	72	66	89
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	111,983	112,861	122,138	128,091	137,031	139,099	134,606	139,640	137,563	142,744
GENERATION	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	732,075	805,549	852,680	1,019,212	1,074,066	1,083,674	1,076,015	1,067,609	1,154,401	1,249,288
MARKET SALES	MWh	MWE Generation	111,983	112,861	122,138	128,091	137,031	139,099	134,606	139,640	137,563	142,744
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	732,075	805,549	852,680	1,019,212	1,074,066	1,083,674	1,076,015	1,067,609	1,154,401	1,249,288
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$4,258,052	$4,445,942	$5,421,652	$6,179,356	$7,124,071	$7,544,197	$7,517,444	$8,128,041	$8,372,718	$8,935,317
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,427,215	$7,134,310	$7,925,126	$8,744,283	$9,646,547	$9,974,081	$10,306,560	$10,922,193	$11,208,132	$11,613,628
MARKET SALES	$	Westar	$17,081,895	$20,800,907	$24,854,958	$34,230,446	$39,157,131	$41,186,351	$42,125,727	$43,098,046	$49,075,669	$60,106,651
MARKET SALES	$/MWh	MWE Generation	$38.02	$39.39	$44.39	$48.24	$51.99	$54.24	$55.85	$58.21	$60.86	$62.60
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$18.56	$19.64	$21.81	$24.07	$26.46	$27.45	$28.37	$30.06	$30.75	$31.97
MARKET SALES	$/MWh	Westar	$23.33	$25.82	$29.15	$33.59	$36.46	$38.01	$39.15	$40.37	$42.51	$48.11
MARKET PURCHASES	MWh	MWE Load	1,643,607	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695
MARKET PURCHASES	$/MWh	MWE Load	$19.88	$22.13	$25.01	$27.49	$30.08	$31.42	$32.34	$33.87	$35.05	$36.43
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$33,752,672	$34,461,778	$35,323,102	$36,206,813	$37,117,072	$38,039,568	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$27,885,660	$28,622,808	$30,704,367	$33,138,744	$35,602,206	$36,776,212	$37,705,264	$39,092,411	$41,793,091	$13,193,000
TOTAL FUEL COSTS	$		$2,757,217	$4,889,926	$5,845,823	$10,746,718	$12,334,356	$13,087,207	$13,003,001	$12,825,181	$14,935,478	$47,272,962
TOTAL MARKET ENERGY COSTS	$		$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695
TOTAL MARKET ENERGY SALES	$		($24,767,162)	($32,381,160)	($38,201,735)	($49,154,084)	($55,927,748)	($58,704,629)	($59,949,731)	($62,148,279)	($68,656,519)	($80,655,597)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$43,094,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$85,512,949	$81,884,216	$83,806,189	$92,866,789	$96,275,708	$99,217,088	$102,056,413	$105,637,316	$108,114,646	$101,516,561

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	7FA Self Build	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	CCGT Conversion	$43,994,059	$45,425,969	$45,733,326	$45,273,729	$46,943,347	$49,722,001	$54,456,527	$56,133,730	$60,487,775	$60,852,212
FUEL COST	$	Colby	$12,468	$10,069	$12,908	$11,926	$12,090	$12,797	$11,835	$10,983	$17,986	$18,739
FUEL COST	$	Goodman Energy Center	$4,703,408	$4,938,410	$4,811,935	$4,988,077	$5,078,427	$5,362,102	$5,818,852	$6,209,293	$6,434,742	$6,759,547
FUEL COST	$	Goodman Energy Center Expansion	$1,633,911	$1,669,350	$1,676,093	$1,672,849	$1,673,487	$1,875,330	$2,015,189	$2,095,471	$2,212,415	$2,218,880
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build										
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion	6.27	6.27	6.27	6.26	6.29	6.25	6.27	6.28	6.28	6.28
AVERAGE HEAT RATE	MMBtu/MWh	Colby	17.28	17.14	17.27	17.31	17.31	17.31	17.14	17.34	17.25	17.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.01	8.01	8.03	8.04	8.03	8.02	8.02	8.01	8.03	8.03
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.00	8.00	8.01	7.99	7.99	8.00	8.00	8.00	8.01	7.99
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	7FA Self Build	$12,812,000	$12,527,000	$12,237,000	$11,946,000	$11,649,000	$11,348,000	$11,044,000	$10,734,000	$10,420,000	$10,102,000
CAPITAL RECOVERY	$	CCGT Conversion	$29,478,000	$28,949,000	$28,413,000	$27,870,000	$27,320,000	$26,762,000	$26,197,000	$25,623,000	$25,041,000	$24,449,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	85	80	76	66	62	58	55	50	44	39
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	142,723	146,152	140,774	141,037	141,134	142,994	147,289	149,056	148,023	147,496
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,264,327	1,283,160	1,268,938	1,227,370	1,250,917	1,259,270	1,307,476	1,284,100	1,321,484	1,275,196
MARKET SALES	MWh	MWE Generation	142,723	146,152	140,774	141,037	141,134	142,994	147,289	149,056	148,023	147,496
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,264,327	1,283,160	1,268,938	1,227,370	1,250,917	1,259,270	1,307,476	1,284,100	1,321,484	1,275,196
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$9,411,891	$9,744,709	$9,601,198	$9,852,623	$10,072,166	$10,736,583	$11,550,067	$12,192,187	$12,699,325	$13,182,274
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$12,335,754	$12,423,300	$12,918,293	$6,384,474	$6,495,068	$6,929,573	$7,277,637	$7,561,450	$8,027,108	$8,234,973
MARKET SALES	$	Westar	$64,561,205	$66,085,298	$66,285,894	$66,013,459	$68,489,499	$72,171,925	$79,059,040	$81,585,155	$87,689,351	$87,991,139
MARKET SALES	$/MWh	MWE Generation	$65.95	$66.68	$68.20	$69.86	$71.37	$75.08	$78.42	$81.80	$85.79	$89.37
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$33.96	$34.20	$35.36	$35.57	$36.18	$38.60	$40.45	$42.12	$44.72	$45.87
MARKET SALES	$/MWh	Westar	$51.06	$51.50	$52.24	$53.78	$54.75	$57.31	$60.47	$63.53	$66.36	$69.00
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
MARKET PURCHASES	$/MWh	MWE Load	$38.45	$39.04	$39.65	$40.61	$41.17	$43.63	$45.76	$47.87	$50.13	$52.22
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$13,468,164	$13,803,471	$13,969,406	$10,643,314	$10,979,801	$11,274,860	$11,795,583	$11,953,198	$12,379,996	$12,449,289
TOTAL FUEL COSTS	$		$50,343,845	$52,043,798	$52,234,262	$51,946,581	$53,707,350	$56,972,230	$62,302,404	$64,449,477	$69,152,918	$69,849,379
TOTAL MARKET ENERGY COSTS	$		$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
TOTAL MARKET ENERGY SALES	$		($86,308,850)	($88,253,308)	($88,805,384)	($82,250,556)	($85,056,733)	($89,838,081)	($97,886,743)	($101,338,792)	($108,415,784)	($109,408,385)
TOTAL CAPITAL RECOVERY	$		$42,290,000	$41,476,000	$40,650,000	$39,816,000	$38,969,000	$38,110,000	$37,241,000	$36,357,000	$35,461,000	$34,551,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$103,744,782	$105,577,042	$107,154,236	$112,731,533	$113,793,376	$118,547,548	$121,813,167	$126,208,021	$130,319,840	$135,908,942

NPV @ 6.21%: $1,149,098,390 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 4 (CO2) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	7FA Self Build	0	0	0	205	205	205	205	205	205	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	CCGT Conversion	0	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	7FA Self Build	0	0	0	197,440	200,099	205,112	210,329	184,652	224,140	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	CCGT Conversion	0	0	0	0	0	0	0	0	0	1,337,965	1,352,831	1,377,402	1,371,755	1,333,855	1,364,550	1,370,806	1,385,244	1,378,824	1,406,875	1,373,506
GENERATION	MWh	Colby	117	104	117	117	104	130	156	143	156	156	156	130	169	156	156	130	117	130	182	169
GENERATION	MWh	Goodman Energy Center	88,806	90,098	96,102	101,422	107,198	108,870	111,834	117,154	115,976	121,486	122,550	126,502	120,422	121,980	124,374	125,552	127,794	129,238	127,642	127,300
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,260	39,866	40,419	41,189	42,147	42,930	42,741	42,512	41,661	41,715	43,551	44,753	44,213	44,240	42,309
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	966,900	826,650	822,675	850,050	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	67,184	71,032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	7FA Self Build				11%	11%	11%	12%	10%	12%											
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	CCGT Conversion										40%	40%	41%	41%	40%	40%	41%	41%	41%	42%	41%
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	14%	14%	15%	16%	16%	17%	18%	17%	18%	18%	19%	18%	18%	19%	19%	19%	19%	19%	19%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	15%	15%	16%	16%	17%	17%	17%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%	18%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	63%	63%	65%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%																	
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	7FA Self Build	$0	$0	$0	$1,604,064	$1,642,938	$1,683,858	$1,726,824	$1,769,790	$1,814,802	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	7FA Self Build				$7.84	$8.03	$8.23	$8.44	$8.65	$8.87											
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	CCGT Conversion										$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.08	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31																	
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	7FA Self Build	$0	$0	$0	$582,449	$604,397	$635,933	$666,842	$600,120	$746,387	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,844,784	$5,021,371	$5,250,304	$5,349,845	$5,335,889	$5,595,627	$5,759,055	$5,973,295	$6,083,970	$6,359,076	$6,373,067
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,864	$3,631	$4,059	$4,161	$4,205	$3,643	$4,855	$4,593	$4,708	$4,021	$3,710	$4,225	$6,062	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$630,441	$681,569	$738,762	$768,759	$809,856	$869,283	$882,577	$947,721	$979,433	$1,036,434	$1,011,545	$1,050,264	$1,097,062	$1,135,147	$1,185,052	$1,228,217	$1,243,233	$1,270,454
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$263,104	$288,689	$299,909	$313,470	$328,793	$343,102	$350,185	$357,097	$358,707	$367,956	$393,757	$414,999	$420,181	$430,893	$422,244
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,236,310	$26,648,127	$27,296,357	$28,957,023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$323,906	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	7FA Self Build				$2.95	$3.02	$3.10	$3.17	$3.25	$3.33											
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	CCGT Conversion										$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.27	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56																	
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 4 (CO2) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	7FA Self Build	$0	$0	$0	$7,819,665	$8,632,818	$9,254,360	$9,807,377	$8,990,047	$11,282,430	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$49,066,330	$52,284,871	$54,156,014	$54,941,556	$54,658,394	$56,882,155	$60,136,994	$64,121,106	$66,967,476	$71,578,308	$72,786,574
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$14,010	$13,423	$15,229	$15,797	$16,677	$14,059	$18,621	$17,689	$17,933	$15,780	$14,788	$17,512	$25,583	$24,684
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,102,057	$3,594,130	$4,129,667	$4,398,647	$4,054,444	$5,113,772	$5,243,929	$5,689,841	$6,046,460	$6,355,409	$6,162,571	$6,409,587	$6,618,870	$7,059,645	$7,554,072	$8,006,298	$8,276,562	$8,616,378
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,501,485	$1,658,227	$1,760,237	$1,858,685	$1,969,620	$2,115,769	$2,143,241	$2,170,112	$2,177,458	$2,209,710	$2,444,496	$2,638,656	$2,733,571	$2,860,955	$2,852,093
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,751,436	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build				9.98	9.96	9.96	9.98	9.94	9.93											
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion										6.97	6.96	6.96	6.97	6.96	6.98	6.94	6.97	6.98	6.98	6.97
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.23	19.16	19.26	19.25	19.26	19.14	19.16	19.25	19.26	19.21	19.04	19.35	19.28	19.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.94	8.93	8.90	8.92	8.91	8.91	8.92	8.90	8.89	8.89	8.90	8.92	8.91	8.90	8.90	8.90	8.89	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.89	8.90	8.88	8.88	8.88	8.88	8.87	8.87	8.88	8.88	8.88	8.87	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.73																	
CO2 EMISSIONS	lbs	7FA Self Build	0	0	0	235,395,051	238,437,956	244,442,736	250,691,265	220,125,800	267,179,518	0	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	CCGT Conversion	0	0	0	0	0	0	0	0	0	1,115,462,840	1,128,115,992	1,148,220,646	1,143,060,150	1,111,446,478	1,137,387,520	1,142,389,688	1,155,245,532	1,149,573,768	1,173,322,734	1,144,708,102
CO2 EMISSIONS	lbs	Colby	266,760	237,120	266,760	266,760	237,120	296,400	355,680	326,040	355,680	355,680	355,680	296,400	385,320	355,680	355,680	296,400	266,760	296,400	414,960	385,320
CO2 EMISSIONS	lbs	Goodman Energy Center	95,068,056	96,530,208	102,825,072	108,507,792	114,613,728	116,431,200	119,619,504	125,315,184	123,999,936	129,902,736	131,019,840	135,225,552	128,798,592	130,489,200	132,971,904	134,228,832	136,609,344	138,147,168	136,409,952	136,139,520
CO2 EMISSIONS	lbs	Goodman Energy Center Expansion	35,122,368	34,744,512	36,838,032	37,348,560	39,627,408	39,869,760	42,666,768	43,263,264	44,075,856	45,088,032	45,919,680	45,727,296	45,492,144	44,582,016	44,639,040	46,580,256	47,873,040	47,305,200	47,304,912	45,290,304
CO2 EMISSIONS	lbs	JEC Participation	1,831,423,696	1,860,529,432	2,003,112,672	2,115,806,736	2,251,723,928	2,246,006,488	1,920,646,472	1,904,534,224	1,973,314,720	0	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	UML Westar	420,849,429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Westar PPA	0	86,183,633	91,119,845	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO2 COST	$	7FA Self Build	$0	$0	$0	$0	$0	$7,314	$1,254,827	$1,306,997	$1,836,859	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,726,196	$9,889,450	$11,144,182	$12,145,009	$12,854,767	$14,219,873	$14,640,897	$15,179,518	$15,483,108	$16,189,103	$16,189,141
CO2 COST	$	Colby	$0	$0	$0	$0	$0	$0	$1,778	$1,936	$2,445	$2,779	$3,112	$2,871	$4,094	$4,113	$4,446	$3,708	$3,503	$3,990	$5,725	$5,449
CO2 COST	$	Goodman Energy Center	$0	$0	$0	$0	$0	$4,142	$599,100	$744,059	$852,500	$1,015,561	$1,147,733	$1,311,845	$1,368,484	$1,508,863	$1,662,279	$1,720,045	$1,794,685	$1,860,308	$1,882,137	$1,925,368
CO2 COST	$	Goodman Energy Center Expansion	$0	$0	$0	$0	$0	$1,474	$213,690	$256,875	$303,159	$352,498	$402,263	$443,641	$483,354	$515,509	$558,034	$596,894	$628,928	$637,028	$652,697	$640,523
CO2 COST	$	JEC Participation	$0	$0	$0	$0	$0	$132,536	$9,633,620	$11,308,190	$13,576,303	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CAPITAL RECOVERY	$	7FA Self Build				$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$13,093,000	$12,812,000	$12,527,000	$12,237,000	$11,946,000	$11,649,000	$11,348,000	$11,044,000	$10,734,000	$10,420,000	$10,102,000
CAPITAL RECOVERY	$	CCGT Conversion										$30,001,000	$29,478,000	$28,949,000	$28,413,000	$27,870,000	$27,320,000	$26,762,000	$26,197,000	$25,623,000	$25,041,000	$24,449,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	15	24	93	86	82	77	72	66	89	85	80	76	66	62	58	55	50	44	39
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	130,604	136,437	144,333	146,260	151,856	157,716	157,321	163,789	165,636	169,373	163,103	163,797	166,245	169,233	172,664	173,581	172,064	169,778
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	933,382	1,111,615	1,170,074	1,172,012	1,036,979	1,007,327	1,074,190	1,337,965	1,352,831	1,377,402	1,371,755	1,333,855	1,364,550	1,370,806	1,385,244	1,378,824	1,406,875	1,373,506
MARKET SALES	MWh	MWE Generation	121,701	122,629	130,604	136,437	144,333	146,260	151,856	157,716	157,321	163,789	165,636	169,373	163,103	163,797	166,245	169,233	172,664	173,581	172,064	169,778
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	933,382	1,111,615	1,170,074	1,172,012	1,036,979	1,007,327	1,074,190	1,337,965	1,352,831	1,377,402	1,371,755	1,333,855	1,364,550	1,370,806	1,385,244	1,378,824	1,406,875	1,373,506
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,354,362	$7,220,406	$8,245,786	$8,724,624	$10,369,709	$11,393,636	$12,021,677	$13,045,159	$13,985,887	$14,681,425	$14,638,218	$15,231,229	$15,934,454	$16,936,340	$18,006,575	$18,840,609	$19,487,241	$20,015,789
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$12,929,898	$13,911,298	$14,489,882	$15,215,874	$16,311,271	$16,660,381	$17,553,793	$8,774,973	$9,039,981	$9,583,469	$10,016,290	$10,302,281	$10,955,075	$11,206,171
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,097,028	$41,040,396	$46,652,777	$48,784,758	$51,511,712	$52,482,826	$59,939,584	$82,821,863	$89,714,954	$93,390,388	$95,518,066	$96,512,522	$101,596,300	$106,352,663	$113,535,796	$117,817,447	$125,349,585	$126,416,928
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.65	$52.92	$57.13	$59.65	$68.29	$72.24	$76.42	$79.65	$84.44	$86.68	$89.75	$92.99	$95.85	$100.08	$104.29	$108.54	$113.26	$117.89
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$35.59	$38.29	$39.75	$41.88	$44.90	$45.86	$48.05	$48.88	$50.36	$53.39	$55.67	$57.72	$61.03	$62.42
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.25	$36.92	$39.87	$41.62	$49.67	$52.10	$55.80	$61.90	$66.32	$67.80	$69.03	$72.36	$74.45	$77.58	$81.96	$85.45	$89.10	$92.04
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346	$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,709,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$40.56	$43.12	$45.29	$47.71	$50.82	$52.33	$53.86	$55.78	$57.26	$60.29	$62.95	$65.57	$68.38	$71.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$40,902,102	$40,027,871	$41,025,875	$33,752,672	$34,461,778	$35,323,102	$36,206,813	$37,117,072	$38,039,568	$6,122,500	$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,928,007	$35,638,270	$38,432,884	$39,380,878	$35,970,316	$36,703,286	$38,645,380	$13,678,975	$13,980,174	$14,353,350	$14,558,750	$11,266,032	$11,668,099	$11,980,894	$12,306,514	$12,605,021	$13,001,040	$13,128,454
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$6,970,225	$12,655,438	$14,196,062	$15,165,800	$16,134,057	$15,877,479	$18,400,273	$56,741,587	$60,463,777	$62,668,723	$63,292,860	$63,263,127	$65,728,668	$69,656,915	$74,328,022	$77,724,857	$82,741,409	$84,270,729
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346	$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,709,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,257,067)	($57,976,686)	($65,616,932)	($68,591,684)	($74,811,319)	($77,787,760)	($86,451,143)	($111,082,896)	($120,012,112)	($124,732,193)	($127,710,077)	($120,518,724)	($126,570,735)	($132,872,472)	($141,558,661)	($147,020,336)	($155,791,900)	($157,638,888)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$43,094,000	$42,290,000	$41,476,000	$40,650,000	$39,816,000	$38,969,000	$38,110,000	$37,241,000	$36,357,000	$35,461,000	$34,551,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CO2 COSTS	$		$0	$0	$0	$0	$0	$145,466	$11,703,016	$13,618,057	$16,571,266	$10,097,033	$11,442,559	$12,902,539	$14,000,942	$14,883,252	$16,444,632	$16,961,634	$17,606,635	$17,984,434	$18,729,062	$18,760,482
TOTAL COSTS	$		$80,495,289	$83,268,555	$85,035,727	$93,970,497	$97,428,851	$100,603,798	$115,839,268	$122,005,697	$127,270,595	$113,585,544	$117,105,681	$120,437,262	$123,405,467	$133,345,083	$135,936,712	$142,132,240	$146,314,543	$152,115,661	$157,428,525	$164,976,245

NPV @ 6.21%: $1,275,217,554 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 4 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	7FA Self Build	0	0	0	205	205	205	205	205	205	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	CCGT Conversion	0	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	7FA Self Build	0	0	0	197,440	200,099	206,544	201,839	176,775	211,660	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	CCGT Conversion	0	0	0	0	0	0	0	0	0	1,296,261	1,306,074	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,300
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	88,806	90,098	96,102	101,422	107,198	109,402	105,488	108,946	107,882	112,936	112,024	116,242	109,250	110,428	112,480	112,936	115,178	117,002	116,546	116,014
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732	39,083	39,245	38,286	37,625	37,382	39,339	39,947	39,582	40,392	38,286
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	67,184	71,032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	7FA Self Build				11%	11%	12%	11%	10%	12%											
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	CCGT Conversion										38%	39%	39%	38%	38%	38%	39%	39%	39%	40%	39%
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	16%	17%	17%	17%	17%	18%	18%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	15%	15%	16%	16%	16%	16%	16%	16%	17%	17%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%																	
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	7FA Self Build	$0	$0	$0	$1,604,064	$1,642,938	$1,683,858	$1,726,824	$1,769,790	$1,814,802	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Bird City	$121,420	$124,400	$127,500	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	7FA Self Build				$7.84	$8.03	$8.23	$8.44	$8.65	$8.87											
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	CCGT Conversion										$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31																	
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	7FA Self Build	$0	$0	$0	$582,449	$604,397	$640,473	$640,042	$574,519	$704,826	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,693,833	$4,847,913	$5,014,434	$5,036,391	$5,070,607	$5,270,357	$5,465,233	$5,761,785	$5,800,122	$6,118,485	$6,093,710
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,703	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$630,441	$681,569	$738,762	$772,611	$763,966	$808,379	$820,982	$881,031	$895,330	$952,453	$917,700	$950,801	$992,157	$1,021,099	$1,067,997	$1,111,939	$1,135,158	$1,157,820
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152	$312,361	$321,566	$321,602	$323,953	$329,735	$355,680	$370,410	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$323,906	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	7FA Self Build				$2.95	$3.02	$3.10	$3.17	$3.25	$3.33											
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	CCGT Conversion										$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56																	
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 4 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FUEL COST	$	7FA Self Build	$0	$0	$0	$7,819,665	$8,632,818	$9,318,863	$9,404,933	$8,609,881	$10,667,446	$0
FUEL COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$47,536,391
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,102,057	$3,594,130	$4,129,667	$4,420,126	$4,392,516	$4,760,383	$4,879,520	$5,293,854
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,751,436	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build				9.98	9.96	9.96	9.98	9.94	9.94	
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion										6.97
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.94	8.93	8.90	8.92	8.92	8.92	8.92	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.73							
CAPITAL RECOVERY	$	7FA Self Build				$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$13,093,000
CAPITAL RECOVERY	$	CCGT Conversion										$30,001,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	15	24	93	86	82	77	72	66	89
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	($3,204,658)	($960,435)	($1,573,253)	($6,345,107)	($6,012,093)	($5,841,339)	($5,631,261)	($5,383,501)	($5,101,310)	($7,025,243)
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	121,701	122,629	130,604	136,437	144,333	146,981	143,432	146,700	146,338	151,798
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	867,209	933,382	1,111,615	1,170,074	1,177,869	1,173,539	1,164,075	1,251,760	1,296,261
MARKET SALES	MWh	MWE Generation	121,701	122,629	130,604	136,437	144,333	146,981	143,432	146,700	146,338	151,798
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	867,209	933,382	1,111,615	1,170,074	1,177,869	1,173,539	1,164,075	1,251,759	1,296,261
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,354,362	$7,220,406	$8,245,786	$8,760,316	$8,782,697	$9,394,975	$9,766,247	$10,426,529
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,097,028	$41,040,396	$46,652,777	$49,021,346	$50,333,787	$51,437,696	$58,154,634	$68,675,677
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.65	$52.92	$57.13	$59.60	$61.23	$64.04	$66.74	$68.69
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.25	$36.92	$39.87	$41.62	$42.89	$44.19	$46.46	$52.98
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$33,752,672	$34,401,778	$35,323,102	$36,206,813	$37,117,072	$38,039,568	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,928,007	$35,638,270	$38,432,884	$39,533,212	$40,500,119	$42,058,203	$44,994,834	$13,433,999
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$6,970,225	$12,655,438	$14,196,062	$15,259,415	$15,383,222	$15,023,831	$17,289,464	$54,653,645
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,257,067)	($57,976,686)	($65,616,932)	($68,863,964)	($70,568,237)	($72,968,470)	($80,374,373)	($92,006,229)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$14,720,000	$14,456,000	$14,189,000	$13,919,000	$13,648,000	$13,372,000	$43,094,000
TOTAL MARKET CAPACITY COSTS	$		($3,204,658)	($960,435)	($1,573,253)	($6,345,107)	($6,012,093)	($5,841,339)	($5,631,261)	($5,383,501)	($5,101,310)	($7,025,243)
TOTAL COSTS	$		$83,290,631	$82,308,120	$83,462,474	$87,625,390	$91,416,758	$94,650,661	$97,838,683	$101,831,655	$104,477,067	$98,816,727

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	7FA Self Build	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	CCGT Conversion	$50,480,350	$51,731,311	$51,724,889	$51,953,712	$53,599,622	$57,061,144	$61,823,867	$63,867,834	$68,839,212	$69,624,446
FUEL COST	$	Colby	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$5,528,365	$5,841,955	$5,601,298	$5,807,693	$5,987,264	$6,359,885	$6,813,631	$7,249,483	$7,568,977	$7,858,137
FUEL COST	$	Goodman Energy Center Expansion	$1,926,141	$1,968,503	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,356,468	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build										
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion	6.96	6.96	6.97	6.96	6.99	6.94	6.97	6.98	6.98	6.98
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.92	8.93	8.92	8.91	8.91	8.90	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.88	8.88	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	7FA Self Build	$12,812,000	$12,527,000	$12,237,000	$11,946,000	$11,649,000	$11,348,000	$11,044,000	$10,734,000	$10,420,000	$10,102,000
CAPITAL RECOVERY	$	CCGT Conversion	$29,478,000	$28,949,000	$28,413,000	$27,870,000	$27,320,000	$26,762,000	$26,197,000	$25,623,000	$25,041,000	$24,449,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	85	80	76	66	62	58	55	50	44	39
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	($6,870,033)	($6,643,205)	($6,412,122)	($5,773,973)	($5,510,477)	($5,346,313)	($5,115,140)	($4,773,042)	($4,353,152)	($3,977,824)
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	151,263	155,604	147,679	148,183	150,005	152,405	155,242	156,688	157,081	154,456
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,306,074	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,300
MARKET SALES	MWh	MWE Generation	151,263	155,604	147,679	148,183	150,005	152,405	155,242	156,688	157,081	154,456
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,306,075	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,299
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$10,945,640	$11,379,864	$11,080,175	$11,388,928	$11,742,739	$12,551,043	$13,379,253	$14,095,704	$14,781,099	$15,186,431
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$73,514,664	$74,828,748	$74,676,267	$75,184,943	$77,702,374	$82,198,567	$89,303,336	$92,299,927	$99,218,717	$99,942,072
MARKET SALES	$/MWh	MWE Generation	$72.36	$73.13	$75.03	$76.86	$78.28	$82.35	$86.18	$89.96	$94.10	$98.32
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$56.29	$56.88	$57.83	$59.32	$60.46	$63.19	$66.84	$70.22	$73.30	$76.10
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$13,691,872	$14,004,515	$14,115,209	$10,805,767	$11,199,311	$11,534,947	$11,993,360	$12,160,046	$12,613,600	$12,695,809
TOTAL FUEL COSTS	$		$57,951,533	$59,554,350	$59,299,093	$59,743,578	$61,583,531	$65,647,744	$71,008,754	$73,580,240	$79,045,017	$80,087,376
TOTAL MARKET ENERGY COSTS	$		$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($98,166,670)	($100,012,316)	($100,110,083)	($93,667,732)	($96,661,859)	($102,449,161)	($110,768,863)	($114,797,244)	($122,918,810)	($124,278,465)
TOTAL CAPITAL RECOVERY	$		$42,290,000	$41,476,000	$40,650,000	$39,816,000	$38,969,000	$38,110,000	$37,241,000	$36,357,000	$35,461,000	$34,551,000
TOTAL MARKET CAPACITY COSTS	$		($6,870,033)	($6,643,205)	($6,412,122)	($5,773,973)	($5,510,477)	($5,346,313)	($5,115,140)	($4,773,042)	($4,353,152)	($3,977,824)
TOTAL COSTS	$		$101,478,856	$103,783,750	$105,816,118	$113,094,883	$114,581,004	$120,073,141	$123,951,467	$129,239,084	$134,266,410	$140,948,595

NPV @ 6.21%: $1,130,456,662 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 4 (+1% Interest Rate) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	7FA Self Build	0	0	0	205	205	205	205	205	205	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	CCGT Conversion	0	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	4	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	7FA Self Build	0	0	0	197,440	200,099	206,544	201,839	176,775	211,660	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	CCGT Conversion	0	0	0	0	0	0	0	0	0	1,296,261	1,306,074	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,300
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	88,806	90,098	96,102	101,422	107,198	109,402	105,488	108,946	107,882	112,936	112,024	116,242	109,250	110,428	112,480	112,936	115,178	117,002	116,546	116,014
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732	39,083	39,245	38,286	37,625	37,382	39,339	39,947	39,582	40,392	38,286
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	67,184	71,032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	7FA Self Build				11%	11%	12%	11%	10%	12%											
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	CCGT Conversion										38%	39%	39%	38%	38%	38%	39%	39%	39%	40%	39%
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	16%	17%	17%	17%	17%	18%	18%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	15%	15%	16%	16%	16%	16%	16%	16%	17%	17%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%																	
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	0%						
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	7FA Self Build	$0	$0	$0	$1,604,064	$1,642,938	$1,683,858	$1,726,824	$1,769,790	$1,814,802	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	7FA Self Build				$7.84	$8.03	$8.23	$8.44	$8.65	$8.87											
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	CCGT Conversion										$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31																	
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00						
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	7FA Self Build	$0	$0	$0	$582,449	$604,397	$640,473	$640,042	$574,519	$704,826	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,693,833	$4,847,913	$5,014,434	$5,036,391	$5,070,607	$5,270,357	$5,465,233	$5,761,785	$5,800,122	$6,118,485	$6,093,710
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,703	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$570,627	$630,441	$681,569	$738,762	$772,611	$703,966	$808,379	$820,982	$881,031	$895,330	$952,453	$917,700	$950,801	$992,157	$1,021,099	$1,067,997	$1,111,939	$1,135,158	$1,157,820
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152	$312,361	$321,566	$321,602	$323,953	$329,735	$355,680	$370,410	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,090	$24,501,572	$26,817,898	$29,411,699	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$323,906	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	7FA Self Build				$2.95	$3.02	$3.10	$3.17	$3.25	$3.33											
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	CCGT Conversion										$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56																	
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 4 (+1% Interest Rate) - 130 MW Westar SCGT PPA (2017-2018), 205 MW F Class SCGT (2019-2024) and 385 MW 1x1 F Class CCGT (2025+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	7FA Self Build	$0	$0	$0	$7,819,665	$8,632,818	$9,318,863	$9,404,933	$8,609,881	$10,667,446	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	CCGT Conversion	$0	$0	$0	$0	$0	$0	$0	$0	$0	$47,536,391	$50,480,350	$51,731,311	$51,724,889	$51,953,712	$53,599,622	$57,061,144	$61,823,867	$63,867,834	$68,839,212	$69,624,446
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,102,057	$3,594,130	$4,129,667	$4,420,126	$4,392,516	$4,760,383	$4,879,520	$5,293,854	$5,528,365	$5,841,955	$5,601,298	$5,807,693	$5,987,264	$6,359,885	$6,813,631	$7,249,483	$7,568,977	$7,858,137
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278	$1,926,141	$1,968,503	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,356,468	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,751,436	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	7FA Self Build				9.98	9.96	9.96	9.98	9.94	9.94											
AVERAGE HEAT RATE	MMBtu/MWh	CCGT Conversion										6.97	6.96	6.96	6.97	6.96	6.99	6.94	6.97	6.98	6.98	6.98
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.94	8.93	8.90	8.92	8.92	8.92	8.92	8.91	8.89	8.90	8.92	8.93	8.92	8.91	8.91	8.90	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89	8.88	8.88	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.73																	
CAPITAL RECOVERY	$	7FA Self Build				$15,712,000	$15,443,000	$15,171,000	$14,895,000	$14,616,000	$14,332,000	$14,044,000	$13,751,000	$13,455,000	$13,152,000	$12,844,000	$12,531,000	$12,212,000	$11,887,000	$11,555,000	$11,217,000	$10,871,000
CAPITAL RECOVERY	$	CCGT Conversion										$32,117,000	$31,586,000	$31,047,000	$30,499,000	$29,943,000	$29,379,000	$28,804,000	$28,218,000	$27,621,000	$27,013,000	$26,393,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	15	24	93	86	82	77	72	66	89	85	80	76	66	62	58	55	50	44	39
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	130,604	136,437	144,333	146,981	143,432	146,700	146,338	151,798	151,263	155,604	147,679	148,183	150,005	152,405	155,242	156,688	157,081	154,456
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	933,382	1,111,615	1,170,074	1,177,869	1,173,539	1,164,075	1,251,760	1,296,261	1,306,074	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,300
MARKET SALES	MWh	MWE Generation	121,701	122,629	130,604	136,437	144,333	146,981	143,432	146,700	146,338	151,798	151,263	155,604	147,679	148,183	150,005	152,405	155,242	156,688	157,081	154,456
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	933,382	1,111,615	1,170,074	1,177,869	1,173,539	1,164,075	1,251,759	1,296,261	1,306,075	1,315,490	1,291,382	1,267,532	1,285,216	1,300,848	1,336,168	1,314,459	1,353,647	1,313,299
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,354,362	$7,220,406	$8,245,786	$8,760,316	$8,782,697	$9,394,975	$9,766,247	$10,426,529	$10,945,640	$11,379,864	$11,080,175	$11,388,928	$11,742,739	$12,551,043	$13,379,253	$14,095,704	$14,781,099	$15,186,431
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,097,028	$41,040,396	$46,652,777	$49,021,346	$50,333,787	$51,437,696	$58,154,634	$68,675,677	$73,514,664	$74,828,748	$74,676,267	$75,184,943	$77,702,374	$82,198,567	$89,303,336	$92,299,927	$99,218,717	$99,942,072
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.65	$52.92	$57.13	$59.60	$61.23	$64.04	$66.74	$68.69	$72.36	$73.13	$75.03	$76.86	$78.28	$82.35	$86.18	$89.96	$94.10	$98.32
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.25	$36.92	$39.87	$41.62	$42.89	$44.19	$46.46	$52.98	$56.29	$56.88	$57.83	$59.32	$60.46	$63.19	$66.84	$70.22	$73.30	$76.10
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$33,752,672	$34,461,778	$35,323,102	$36,206,813	$37,117,072	$38,039,568	$6,122,500	$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,928,007	$35,638,270	$38,432,884	$39,533,212	$40,560,119	$42,058,203	$44,994,834	$13,433,999	$13,691,872	$14,004,515	$14,115,209	$10,865,767	$11,199,311	$11,534,947	$11,993,360	$12,160,046	$12,613,600	$12,695,869
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$6,970,225	$12,655,438	$14,196,062	$15,259,415	$15,383,222	$15,023,831	$17,289,464	$54,653,645	$57,951,533	$59,554,350	$59,299,093	$59,743,578	$61,583,531	$65,647,744	$71,008,754	$73,580,240	$79,045,017	$80,087,376
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,257,067)	($57,976,686)	($65,616,932)	($68,863,964)	($70,568,237)	($72,968,470)	($80,374,373)	($92,006,229)	($98,166,670)	($100,012,316)	($100,110,083)	($93,667,732)	($96,661,859)	($102,449,161)	($110,768,863)	($114,797,244)	($122,918,810)	($124,278,465)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$15,712,000	$15,443,000	$15,171,000	$14,895,000	$14,616,000	$14,332,000	$46,161,000	$45,337,000	$44,502,000	$43,651,000	$42,787,000	$41,910,000	$41,016,000	$40,105,000	$39,176,000	$38,230,000	$37,264,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$86,495,289	$83,268,555	$85,035,727	$94,902,497	$98,415,851	$101,474,000	$104,445,943	$108,183,155	$110,538,377	$108,908,970	$111,395,890	$113,452,955	$115,229,240	$121,839,856	$123,032,480	$128,325,454	$131,930,607	$136,831,126	$141,388,562	$147,639,418

NPV @ 6.21%: $1,202,784,188 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 5 - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	Recips	0	0	0	0	0	0	0	0	165	165
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130
GENERATION	MWh	Goodman Energy Center	88,806	90,098	98,990	101,422	107,198	109,402	105,488	106,590	110,200	112,936
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	966,525
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0
GENERATION	MWh	Recips	0	0	0	0	0	0	0	0	225,674	229,645
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Westar PPA	0	67,184	76,180	81,120	92,690	88,738	85,176	93,652	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	14%	15%	15%	16%	16%	16%	16%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	15%	15%	16%	16%	16%	16%	16%	16%
CAPACITY FACTOR	%	JEC Extension										74%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%	
CAPACITY FACTOR	%	Recips									16%	16%
CAPACITY FACTOR	%	UML Westar	15%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	7%	8%		
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,962,237	$2,011,872
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	Recips									$11.86	$12.16
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07		
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$649,387	$681,569	$738,762	$772,611	$763,966	$790,898	$838,622	$881,031
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,851,193
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0
VARIABLE O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,717,566	$1,791,448
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$347,381	$378,830	$444,069	$435,797	$428,529	$482,308	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	Recips									$7.61	$7.80
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15		
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Recips	165	165	165	221	221	221	221	221	221	221
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	108,832	114,038	108,794	109,364	111,986	111,036	111,872	118,142	115,938	114,874
GENERATION	MWh	Goodman Energy Center Expansion	39,083	37,895	38,286	37,625	37,382	39,339	39,960	39,582	40,392	38,286
GENERATION	MWh	JEC Extension	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,900
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Recips	230,637	244,204	232,623	309,281	315,237	294,942	318,767	315,899	313,031	322,076
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	16%	17%	16%	16%	17%	17%	17%	18%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	17%	16%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Extension	75%	74%	74%	74%	73%	75%	76%	77%	78%	78%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	Recips	16%	17%	16%	16%	16%	15%	16%	16%	16%	17%
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Westar PPA										
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Recips	$2,061,507	$2,114,451	$2,167,395	$2,960,452	$3,035,456	$3,110,460	$3,189,876	$3,269,292	$3,350,914	$3,434,742
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	Recips	$12.46	$12.78	$13.10	$13.42	$13.76	$14.10	$14.46	$14.82	$15.19	$15.57
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Westar PPA										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$869,826	$934,402	$913,870	$941,040	$987,800	$1,003,923	$1,037,351	$1,122,769	$1,129,236	$1,140,442
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$312,361	$310,509	$321,602	$323,953	$329,735	$355,680	$370,535	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Extension	$35,242,535	$35,844,765	$37,023,598	$37,681,622	$38,545,371	$40,310,042	$42,176,545	$43,622,490	$45,350,124	$46,644,922
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Recips	$1,843,354	$2,000,866	$1,954,030	$2,662,958	$2,780,540	$2,666,785	$2,956,036	$3,002,260	$3,048,926	$3,214,318
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	Recips	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Westar PPA										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 5 - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,188,693	$3,594,130	$4,129,667	$4,420,126	$4,392,516	$4,664,875	$4,975,283	$5,293,854	$5,381,304	$5,738,810	$5,578,934	$5,752,542	$5,958,814	$6,254,618	$6,607,361	$7,319,784	$7,530,626	$7,781,602
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278	$1,926,141	$1,896,600	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,357,334	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$10,242,360	$10,800,557	$11,428,861	$12,318,804	$11,963,254	$16,288,446	$16,843,293	$16,691,994	$18,937,160	$19,645,973	$20,393,786	$21,870,469
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,947,857	$3,449,290	$4,295,820	$4,303,591	$4,260,777	$4,906,695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.92	8.93	8.90	8.92	8.92	8.93	8.90	8.91	8.91	8.91	8.92	8.93	8.91	8.91	8.89	8.90	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89	8.88	8.86	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Recips									8.95	8.94	8.93	8.93	8.94	8.94	8.95	8.95	8.95	8.94	8.94	8.93
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.72	10.71	10.70	10.71	10.71	10.69												
CAPITAL RECOVERY	$	Recips									$21,525,000	$21,147,500	$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	32	24	20	15	11	57	52	49	45	40	34	30
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	133,492	136,437	144,333	146,981	143,432	144,344	374,330	381,442	378,708	396,254	379,846	456,400	464,748	445,447	470,716	473,727	469,504	475,392
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	938,530	995,295	1,062,665	1,060,063	1,056,876	1,080,952	1,040,100	966,525	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,900
MARKET SALES	MWh	MWE Generation	121,701	122,629	133,492	136,437	144,333	146,981	143,432	144,344	374,330	381,442	378,708	396,254	379,846	456,400	464,748	445,447	470,716	473,727	469,504	475,392
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	938,530	995,295	1,062,665	1,060,063	1,056,876	1,080,952	1,040,100	966,525	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,900
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,471,862	$7,220,406	$8,245,786	$8,760,316	$8,782,697	$9,268,674	$25,046,755	$26,397,888	$27,594,614	$29,222,054	$28,559,106	$35,350,322	$36,600,579	$36,813,444	$40,789,568	$42,745,932	$44,409,144	$47,090,995
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,387,750	$35,375,765	$41,116,344	$42,602,492	$43,728,500	$46,892,950	$44,615,304	$43,267,307	$46,181,981	$46,369,917	$47,635,700	$48,430,430	$49,169,698	$52,311,208	$56,325,293	$58,923,990	$62,282,112	$65,051,844
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.48	$52.92	$57.13	$59.60	$61.23	$64.21	$66.91	$69.21	$72.87	$73.75	$75.19	$77.45	$78.75	$82.64	$86.65	$90.23	$94.59	$99.06
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.38	$35.54	$38.69	$40.19	$41.38	$43.38	$42.90	$44.77	$47.13	$47.83	$48.85	$50.10	$51.05	$53.32	$56.36	$58.59	$61.13	$63.72
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,187,003	$38,884,924	$39,855,316	$40,853,481	$41,874,276	$43,660,002	$44,751,808	$45,869,800	$47,018,996	$48,194,381	$49,399,103	$50,633,853
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,970,427	$35,434,652	$38,272,557	$39,328,536	$40,348,606	$41,948,511	$46,025,214	$44,382,807	$45,904,344	$46,806,604	$48,052,616	$46,130,579	$47,250,508	$49,029,365	$51,333,634	$52,995,505	$54,888,243	$56,450,022
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$7,253,282	$8,285,063	$9,859,064	$10,244,143	$10,239,066	$11,225,136	$16,960,141	$17,917,810	$18,752,983	$19,966,796	$19,515,094	$24,023,161	$24,798,752	$25,173,327	$27,916,644	$29,428,679	$30,561,240	$32,256,864
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,665,289)	($52,312,055)	($60,080,498)	($62,445,110)	($63,962,949)	($68,297,422)	($82,115,552)	($82,569,217)	($87,482,961)	($89,395,674)	($90,548,447)	($90,874,613)	($92,987,023)	($96,824,204)	($105,201,135)	($110,071,536)	($115,610,250)	($121,292,800)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$21,525,000	$21,147,500	$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$86,495,289	$83,268,555	$84,952,983	$88,637,871	$92,518,122	$96,220,649	$99,736,337	$103,489,126	$116,838,689	$120,307,880	$124,102,020	$127,583,518	$130,562,703	$144,915,580	$147,989,684	$154,294,243	$158,413,774	$164,283,094	$169,941,643	$175,451,027

NPV @ 6.21%: $1,280,205,700 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 5 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Recips	0	0	0	0	0	0	0	0	165	165	165	165	165	221	221	221	221	221	221	221
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	117	143	143	130	143	156	143	156	156	156	130	156	143	156	130	117	104	182	169
GENERATION	MWh	Goodman Energy Center	99,484	102,258	109,478	112,518	117,306	120,308	116,318	116,280	118,864	122,056	118,522	122,512	118,750	118,560	121,790	120,498	122,246	129,314	125,172	123,918
GENERATION	MWh	Goodman Energy Center Expansion	36,869	37,004	38,367	38,529	40,500	41,135	41,715	41,310	41,472	42,161	42,903	41,202	41,877	40,797	40,851	42,606	44,132	43,646	43,511	41,499
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	1,069,725	1,083,450	1,073,100	1,076,100	1,071,975	1,066,425	1,083,450	1,095,750	1,097,175	1,107,375	1,111,650
GENERATION	MWh	JEC Participation	925,125	938,475	1,008,075	1,052,475	1,086,150	1,087,500	1,088,325	1,100,700	1,155,825	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Recips	0	0	0	0	0	0	0	0	246,355	251,656	249,829	266,374	251,815	333,106	339,283	317,664	343,033	341,048	336,636	343,254
GENERATION	MWh	UML Westar	365,988	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	76,830	83,668	90,584	99,684	96,174	90,792	98,956	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	15%	15%	16%	17%	18%	18%	17%	17%	18%	18%	18%	18%	18%	18%	18%	18%	18%	19%	19%	19%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	16%	16%	16%	16%	17%	17%	18%	17%	17%	18%	18%	17%	18%	17%	17%	18%	19%	18%	18%	18%
CAPACITY FACTOR	%	JEC Extension										81%	82%	82%	82%	82%	81%	82%	83%	83%	84%	85%
CAPACITY FACTOR	%	JEC Participation	70%	71%	77%	80%	82%	83%	83%	84%	88%											
CAPACITY FACTOR	%	Recips									17%	17%	17%	18%	17%	17%	18%	16%	18%	18%	17%	18%
CAPACITY FACTOR	%	UML Westar	27%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		7%	7%	8%	9%	8%	8%	9%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,962,237	$2,011,872	$2,061,507	$2,114,451	$2,167,395	$2,960,452	$3,035,456	$3,110,460	$3,189,876	$3,269,292	$3,350,914	$3,434,742
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	Recips									$11.86	$12.16	$12.46	$12.78	$13.10	$13.42	$13.76	$14.10	$14.46	$14.82	$15.19	$15.57
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,561	$3,209	$3,289	$3,005	$3,456	$3,864	$3,631	$4,059	$4,161	$4,265	$3,643	$4,482	$4,210	$4,708	$4,021	$3,710	$3,380	$6,062	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$620,938	$654,451	$718,188	$756,134	$808,406	$849,744	$842,484	$862,708	$904,555	$952,167	$947,295	$1,003,836	$997,500	$1,020,834	$1,074,271	$1,089,477	$1,133,692	$1,228,975	$1,219,175	$1,236,702
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$230,059	$236,822	$251,692	$258,919	$279,105	$290,541	$302,138	$306,520	$315,633	$328,898	$342,903	$337,609	$351,767	$351,274	$360,336	$385,220	$409,267	$414,807	$423,792	$414,160
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$37,405,536	$38,964,117	$39,679,502	$40,859,517	$41,789,294	$42,675,366	$44,519,513	$46,239,444	$47,587,418	$49,289,282	$50,791,289
VARIABLE O&M COST	$	JEC Participation	$24,806,805	$25,883,141	$28,642,585	$30,875,633	$32,934,388	$34,012,098	$35,085,848	$36,521,226	$39,374,312	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,874,950	$1,903,234	$1,996,766	$2,182,580	$2,115,245	$2,868,135	$2,992,766	$2,872,190	$3,181,134	$3,241,435	$3,278,831	$3,425,671
VARIABLE O&M COST	$	UML Westar	$11,680,458	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$341,125	$381,526	$423,027	$477,580	$472,308	$456,777	$509,623	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,032	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	Recips									$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 5 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FUEL COST	$	Colby	$8,248	$8,633	$11,866	$13,065	$12,950	$14,912	$16,812	$16,108	$18,275	$18,957
FUEL COST	$	Goodman Energy Center	$3,257,957	$3,502,394	$4,229,679	$4,780,411	$5,418,598	$5,825,512	$5,809,410	$6,097,877	$6,438,301	$6,860,945
FUEL COST	$	Goodman Energy Center Expansion	$1,205,570	$1,266,301	$1,482,670	$1,632,344	$1,869,114	$1,986,453	$2,080,504	$2,156,830	$2,245,455	$2,364,662
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$13,414,802	$14,197,391
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$3,163,874	$3,885,680	$4,620,246	$5,546,829	$5,600,251	$5,452,601	$6,219,498	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.04	23.06	22.99	23.01	23.01	23.02	23.08	22.99	23.11	23.10
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.70	10.70	10.70	10.70	10.67	10.69	10.69	10.70	10.68	10.69
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.69	10.69	10.70	10.67	10.66	10.66	10.68	10.66	10.68	10.66
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	Recips									10.74	10.73
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		12.87	12.86	12.85	12.85	12.85	12.86	12.83		
CAPITAL RECOVERY	$	Recips									$21,525,000	$21,147,500
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	32	24
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	136,470	139,379	147,988	151,190	157,936	161,586	158,189	157,733	406,847	416,029
GENERATION	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	925,125	1,015,305	1,091,743	1,143,059	1,185,834	1,183,674	1,179,117	1,199,656	1,155,825	1,069,725
MARKET SALES	MWh	MWE Generation	136,470	139,379	147,988	151,190	157,936	161,586	158,189	157,733	406,847	416,029
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	925,125	1,015,305	1,091,743	1,143,059	1,185,834	1,183,674	1,179,117	1,199,656	1,155,825	1,069,725
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	374,715	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$6,651,243	$7,026,192	$8,428,776	$9,397,676	$10,622,131	$11,324,985	$11,387,299	$11,919,635	$32,093,549	$33,915,437
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$4,569,609	$9,512,410	$10,566,805	$11,659,049	$12,862,076	$13,298,776	$13,742,113	$14,562,933	$14,944,178	$15,484,778
MARKET SALES	$	Westar	$28,694,316	$34,534,365	$41,406,657	$47,474,102	$53,655,420	$55,612,902	$57,001,863	$60,787,359	$57,862,997	$55,883,976
MARKET SALES	$/MWh	MWE Generation	$48.74	$50.41	$56.96	$62.16	$67.26	$70.09	$71.99	$75.57	$78.88	$81.52
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$24.75	$26.18	$29.09	$32.09	$35.28	$36.61	$37.83	$40.09	$40.99	$42.62
MARKET SALES	$/MWh	Westar	$31.02	$34.01	$37.93	$41.53	$45.25	$46.98	$48.34	$50.67	$50.06	$52.24
MARKET PURCHASES	MWh	MWE Load	1,402,278	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148
MARKET PURCHASES	$/MWh	MWE Load	$24.78	$29.51	$33.35	$36.66	$40.10	$41.89	$43.13	$45.16	$46.73	$48.57
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,187,003	$38,884,924
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$40,918,952	$34,288,608	$37,241,096	$39,636,151	$41,922,919	$43,101,777	$44,244,048	$45,837,785	$50,215,373	$48,267,511
TOTAL FUEL COSTS	$		$4,471,775	$7,941,203	$9,609,895	$11,046,066	$12,847,492	$13,427,128	$13,359,327	$14,490,313	$22,116,833	$23,441,955
TOTAL MARKET ENERGY COSTS	$		$34,746,674	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148
TOTAL MARKET ENERGY SALES	$		($39,915,167)	($51,072,967)	($60,402,238)	($68,530,827)	($77,130,627)	($80,236,663)	($82,131,275)	($87,269,927)	($104,900,724)	($105,284,190)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$21,525,000	$21,147,500
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$87,184,336	$85,484,370	$86,717,123	$90,417,841	$94,397,604	$98,395,629	$102,177,289	$106,138,430	$118,651,622	$123,110,848

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$20,013	$16,871	$20,623	$19,482	$21,520	$18,936	$17,746	$16,786	$30,700	$29,621
FUEL COST	$	Goodman Energy Center	$7,032,037	$7,401,231	$7,292,155	$7,476,418	$7,774,693	$8,135,215	$8,652,284	$9,611,054	$9,738,010	$10,067,850
FUEL COST	$	Goodman Energy Center Expansion	$2,537,453	$2,473,194	$2,564,796	$2,558,711	$2,596,888	$2,870,533	$3,122,110	$3,237,682	$3,375,604	$3,357,425
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Recips	$14,846,695	$16,122,451	$15,531,991	$21,051,437	$21,760,865	$21,571,481	$24,449,920	$25,450,889	$26,311,087	$27,969,628
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.11	22.97	22.99	23.13	23.11	23.05	22.84	23.19	23.14	23.06
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.69	10.69	10.68	10.71	10.69	10.68	10.66	10.68	10.67	10.69
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.66	10.62	10.65	10.65	10.65	10.66	10.65	10.66	10.64	10.65
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	Recips	10.71	10.71	10.73	10.73	10.74	10.74	10.73	10.72	10.72	10.72
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	Recips	$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
SURPLUS/DEFICIT CAPACITY	MW	MWE	20	15	11	57	52	49	45	40	34	30
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	411,410	430,218	412,598	492,606	502,080	480,898	509,528	514,111	505,500	508,840
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,083,450	1,073,100	1,076,100	1,071,975	1,066,425	1,083,450	1,095,750	1,097,175	1,107,375	1,111,650
MARKET SALES	MWh	MWE Generation	411,411	430,219	412,598	492,606	502,080	480,898	509,527	514,111	505,500	508,839
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,083,450	1,073,100	1,076,100	1,071,975	1,066,425	1,083,450	1,095,750	1,097,175	1,107,375	1,111,650
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$35,332,444	$37,425,573	$36,565,105	$45,039,284	$46,678,706	$46,915,118	$52,085,284	$54,717,037	$56,459,112	$59,594,030
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$16,447,673	$16,564,437	$17,224,382	$8,512,619	$8,660,082	$9,239,426	$9,703,535	$10,081,922	$10,702,826	$10,979,947
MARKET SALES	$	Westar	$59,504,390	$59,852,747	$61,385,476	$62,625,033	$63,534,993	$67,397,007	$72,056,043	$75,068,209	$79,076,910	$82,651,576
MARKET SALES	$/MWh	MWE Generation	$85.88	$86.99	$88.62	$91.43	$92.97	$97.56	$102.22	$106.43	$111.69	$117.12
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$45.27	$45.60	$47.15	$47.42	$48.24	$51.47	$53.93	$56.16	$59.62	$61.16
MARKET SALES	$/MWh	Westar	$54.92	$55.78	$57.04	$58.42	$59.58	$62.21	$65.76	$68.42	$71.41	$74.35
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
MARKET PURCHASES	$/MWh	MWE Load	$51.27	$52.06	$52.87	$54.15	$54.89	$58.17	$61.01	$63.83	$66.84	$69.63
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$39,855,316	$40,853,481	$41,874,276	$43,660,002	$44,751,808	$45,869,800	$47,018,996	$48,194,381	$49,399,103	$50,633,853
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$49,887,349	$50,919,953	$52,163,918	$50,550,326	$51,710,193	$53,559,334	$55,756,705	$57,344,444	$59,178,898	$60,930,510
TOTAL FUEL COSTS	$		$24,436,198	$26,013,746	$25,409,565	$31,106,048	$32,153,965	$32,596,165	$36,242,060	$38,316,411	$39,455,401	$41,424,524
TOTAL MARKET ENERGY COSTS	$		$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
TOTAL MARKET ENERGY SALES	$		($111,284,506)	($113,842,757)	($115,174,963)	($116,176,936)	($118,873,781)	($123,551,551)	($133,844,862)	($139,867,168)	($146,238,847)	($153,225,553)
TOTAL CAPITAL RECOVERY	$		$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$127,228,077	$131,090,621	$134,277,998	$150,185,909	$153,532,201	$160,614,782	$164,981,537	$171,572,994	$177,851,945	$183,973,567

NPV @ 6.21%: $1,316,250,507 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 5 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Recips	0	0	0	0	0	0	0	0	165	165	165	165	165	221	221	221	221	221	221	221
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	91	91	91	117	91	117	117	117	130	117	130	104	130	117	117	117	104	91	143	143
GENERATION	MWh	Goodman Energy Center	81,814	82,840	92,492	95,304	101,840	103,436	98,876	101,346	103,854	106,096	103,740	107,426	103,854	104,158	105,184	103,968	106,134	112,480	109,516	109,744
GENERATION	MWh	Goodman Energy Center Expansion	30,078	29,930	32,063	32,670	35,100	35,546	35,613	35,897	35,897	36,531	36,869	35,775	36,410	35,546	35,073	37,085	37,935	37,625	37,908	36,545
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	888,450	908,175	893,625	895,875	889,500	883,050	906,375	929,175	935,400	952,275	961,050
GENERATION	MWh	JEC Participation	732,075	741,225	786,900	831,900	878,775	885,825	886,350	900,450	948,675	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Recips	0	0	0	0	0	0	0	0	210,949	220,379	218,559	232,623	223,027	290,971	298,251	279,280	300,678	298,251	298,692	309,281
GENERATION	MWh	UML Westar	124,659	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	64,324	70,902	74,880	85,228	83,226	80,678	88,062	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	12%	12%	14%	14%	15%	16%	15%	15%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%	16%	16%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	13%	13%	14%	14%	15%	15%	15%	15%	15%	15%	16%	15%	15%	15%	15%	16%	16%	16%	16%	15%
CAPACITY FACTOR	%	JEC Extension										68%	69%	68%	68%	68%	67%	69%	71%	71%	72%	73%
CAPACITY FACTOR	%	JEC Participation	56%	56%	60%	63%	67%	67%	67%	69%	72%											
CAPACITY FACTOR	%	Recips									15%	15%	15%	16%	15%	15%	15%	14%	16%	15%	15%	16%
CAPACITY FACTOR	%	UML Westar	9%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%	7%	7%	7%	7%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,962,237	$2,011,872	$2,061,507	$2,114,451	$2,167,395	$2,960,452	$3,035,456	$3,110,460	$3,189,876	$3,269,292	$3,350,914	$3,434,742
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	Recips									$11.86	$12.16	$12.46	$12.78	$13.10	$13.42	$13.76	$14.10	$14.46	$14.82	$15.19	$15.57
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$1,944	$1,992	$2,042	$2,691	$2,146	$2,828	$2,898	$2,971	$3,383	$3,120	$3,554	$2,914	$3,735	$3,444	$3,531	$3,619	$3,298	$2,958	$4,763	$4,883
VARIABLE O&M COST	$	Goodman Energy Center	$510,685	$530,176	$606,760	$640,456	$701,839	$730,436	$716,040	$751,987	$790,329	$827,621	$829,080	$880,106	$872,374	$896,816	$927,740	$939,958	$984,089	$1,068,870	$1,066,686	$1,095,245
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$187,687	$191,549	$210,334	$219,547	$241,896	$251,014	$257,901	$266,352	$273,178	$284,967	$294,650	$293,099	$305,840	$306,052	$309,350	$335,275	$351,738	$357,543	$369,224	$364,714
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$31,110,867	$32,661,011	$33,043,006	$34,016,374	$34,675,568	$35,336,447	$37,243,457	$39,210,678	$40,571,253	$42,385,759	$43,910,375
VARIABLE O&M COST	$	JEC Participation	$19,629,906	$20,442,986	$22,357,830	$24,404,331	$26,646,073	$27,704,786	$28,574,037	$29,876,931	$32,316,911	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,605,414	$1,719,148	$1,746,786	$1,905,909	$1,873,423	$2,505,310	$2,630,673	$2,525,043	$2,788,095	$2,834,392	$2,909,264	$3,086,626
VARIABLE O&M COST	$	UML Westar	$3,977,265	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$285,599	$323,313	$349,690	$408,326	$408,733	$405,904	$453,519	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,152	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,400	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$0.24	$0.40	$0.56	$0.72	$0.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$0.24	$0.40	$0.56	$0.72	$0.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	Recips									$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 5 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$4,822	$5,047	$5,671	$8,040	$6,773	$9,177	$9,461	$9,913	$11,394	$10,649	$12,468	$10,069	$12,908	$11,926	$12,090	$12,797	$11,835	$10,983	$17,986	$18,739
FUEL COST	$	Goodman Energy Center	$2,013,083	$2,132,446	$2,683,009	$3,039,274	$3,533,939	$3,761,003	$3,709,285	$3,992,377	$4,223,739	$4,476,065	$4,618,770	$4,868,335	$4,795,208	$4,931,189	$5,040,237	$5,271,104	$5,643,827	$6,272,563	$6,409,203	$6,695,524
FUEL COST	$	Goodman Energy Center Expansion	$739,312	$769,673	$930,931	$1,038,700	$1,216,919	$1,289,556	$1,335,681	$1,409,237	$1,458,806	$1,537,444	$1,636,620	$1,612,845	$1,676,093	$1,672,849	$1,673,487	$1,875,330	$2,015,189	$2,095,471	$2,212,415	$2,218,880
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$8,622,803	$9,330,570	$9,750,955	$10,569,239	$10,318,808	$13,792,956	$14,343,290	$14,222,011	$16,077,996	$16,700,678	$17,522,830	$18,903,523
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$1,982,760	$2,469,233	$2,862,647	$3,554,671	$3,630,631	$3,629,959	$4,152,899	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	17.32	17.33	17.26	17.31	17.19	17.31	17.32	17.29	17.29	17.30	17.28	17.14	17.27	17.31	17.31	17.31	17.14	17.34	17.25	17.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.04	8.04	8.04	8.03	8.01	8.03	8.03	8.04	8.02	8.02	8.02	8.02	8.03	8.04	8.03	8.02	8.01	8.01	8.03	8.03
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.03	8.04	8.04	8.01	8.01	8.01	8.03	8.01	8.02	8.00	8.00	7.98	8.01	7.99	7.99	8.00	8.00	8.00	8.01	7.99
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Recips									8.06	8.05	8.04	8.04	8.05	8.05	8.06	8.06	8.05	8.05	8.05	8.04
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		9.63	9.65	9.63	9.63	9.63	9.63	9.62												
CAPITAL RECOVERY	$	Recips									$21,525,000	$21,147,500	$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	32	24	20	15	11	57	52	49	45	40	34	30
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	111,983	112,861	124,646	128,091	137,031	139,099	134,606	137,360	350,829	363,123	359,298	375,928	363,420	430,792	438,625	420,449	444,851	448,447	446,259	455,713
GENERATION	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	732,075	805,549	857,802	906,780	964,003	969,051	967,028	988,512	948,675	888,450	908,175	893,625	895,875	889,500	883,050	906,375	929,175	935,400	952,275	961,050
MARKET SALES	MWh	MWE Generation	111,983	112,861	124,646	128,091	137,031	139,099	134,606	137,360	350,829	363,123	359,298	375,928	363,420	430,792	438,625	420,449	444,851	448,447	446,259	455,713
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	732,075	805,549	857,802	906,780	964,003	969,051	967,028	988,512	948,675	888,450	908,175	893,625	895,875	889,500	883,050	906,375	929,175	935,400	952,275	961,050
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	133,387	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$4,258,052	$4,445,942	$5,514,594	$6,179,356	$7,124,071	$7,544,197	$7,517,444	$8,017,228	$21,423,645	$22,851,145	$23,829,103	$25,231,685	$24,811,671	$30,393,830	$31,471,595	$31,642,766	$35,105,925	$36,836,895	$38,410,071	$41,001,264
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,427,215	$7,134,310	$7,925,126	$8,744,283	$9,646,547	$9,974,081	$10,306,560	$10,922,193	$11,208,132	$11,613,628	$12,335,754	$12,423,300	$12,918,293	$6,384,474	$6,495,068	$6,929,573	$7,277,637	$7,561,450	$8,027,108	$8,234,973
MARKET SALES	$	Westar	$17,081,895	$20,800,907	$25,114,919	$29,277,614	$34,039,014	$35,539,138	$36,519,354	$39,176,006	$37,189,448	$36,337,239	$39,105,017	$39,072,029	$40,013,139	$40,720,074	$41,194,994	$44,156,806	$47,871,859	$50,127,859	$53,229,892	$55,948,431
MARKET SALES	$/MWh	MWE Generation	$38.02	$39.39	$44.24	$48.24	$51.99	$54.24	$55.85	$58.37	$61.07	$62.93	$66.32	$67.12	$68.27	$70.55	$71.75	$75.26	$78.92	$82.14	$86.07	$89.97
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$18.56	$19.64	$21.81	$24.07	$26.46	$27.45	$28.37	$30.06	$30.75	$31.97	$33.96	$34.20	$35.36	$35.57	$36.18	$38.60	$40.45	$42.12	$44.72	$45.87
MARKET SALES	$/MWh	Westar	$23.33	$25.82	$29.28	$32.29	$35.31	$36.67	$37.76	$39.63	$39.20	$40.90	$43.06	$43.72	$44.66	$45.78	$46.65	$48.72	$51.52	$53.59	$55.90	$58.22
MARKET PURCHASES	MWh	MWE Load	1,643,607	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
MARKET PURCHASES	$/MWh	MWE Load	$19.88	$22.13	$25.01	$27.49	$30.08	$31.42	$32.34	$33.87	$35.05	$36.43	$38.45	$39.04	$39.65	$40.61	$41.17	$43.63	$45.76	$47.87	$50.13	$52.22
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,187,003	$38,884,924	$39,855,316	$40,853,481	$41,874,276	$43,660,002	$44,751,808	$45,869,800	$47,018,996	$48,194,381	$49,399,103	$50,633,853
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$27,885,660	$28,622,808	$30,744,175	$32,935,862	$35,420,655	$36,571,427	$37,509,717	$38,985,747	$42,731,077	$41,505,240	$43,107,084	$43,838,418	$44,907,153	$42,003,771	$43,810,487	$45,736,205	$48,127,356	$49,703,444	$51,697,471	$53,518,761
TOTAL FUEL COSTS	$		$2,757,217	$4,889,926	$6,088,844	$6,948,661	$8,312,302	$8,690,367	$8,684,386	$9,564,426	$14,316,742	$15,354,728	$16,018,813	$17,060,487	$16,803,017	$20,408,920	$21,069,103	$21,381,242	$23,748,847	$25,079,695	$26,162,434	$27,836,667
TOTAL MARKET ENERGY COSTS	$		$32,675,132	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
TOTAL MARKET ENERGY SALES	$		($24,767,162)	($32,381,160)	($38,554,639)	($44,201,252)	($50,809,631)	($53,057,416)	($54,343,357)	($58,115,427)	($69,821,225)	($70,802,012)	($75,269,873)	($76,727,014)	($77,743,103)	($77,498,378)	($79,161,657)	($82,729,144)	($90,255,421)	($94,526,204)	($99,667,071)	($105,184,668)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$21,525,000	$21,147,500	$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$85,512,949	$81,884,216	$83,736,115	$87,395,417	$91,240,383	$94,792,420	$98,105,401	$101,814,059	$115,509,624	$118,580,075	$122,213,145	$125,480,360	$128,342,439	$141,915,717	$144,837,841	$150,756,733	$154,753,980	$160,262,435	$165,618,199	$170,804,722

NPV @ 6.21%: $1,258,005,222 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 5 (CO2) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Recips	0	0	0	0	0	0	0	0	165	165	165	165	165	221	221	221	221	221	221	221
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	156	143	156	156	156	130	169	156	156	130	117	130	182	169
GENERATION	MWh	Goodman Energy Center	88,806	90,098	98,990	101,422	107,198	108,870	111,834	114,152	118,066	121,486	118,522	122,588	119,890	120,764	124,526	123,576	123,348	131,062	127,034	126,084
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,260	39,866	40,419	41,189	42,147	42,930	41,364	42,512	41,661	41,715	43,551	44,753	44,213	44,240	42,309
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	779,775	783,975	769,800	760,350	751,275	742,575	752,250	768,900	772,875	783,075	789,225
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	966,900	826,650	822,675	850,050	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Recips	0	0	0	0	0	0	0	0	243,873	249,995	247,844	265,547	253,966	335,974	343,695	320,752	346,783	342,812	338,400	345,018
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	67,184	76,180	81,120	92,690	87,958	88,972	97,760	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	14%	15%	15%	16%	16%	17%	17%	18%	18%	18%	18%	18%	18%	19%	19%	18%	20%	19%	19%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	15%	15%	16%	16%	17%	17%	17%	18%	18%	17%	18%	18%	18%	18%	19%	19%	19%	18%
CAPACITY FACTOR	%	JEC Extension										59%	60%	59%	58%	57%	57%	57%	58%	59%	60%	60%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	63%	63%	65%											
CAPACITY FACTOR	%	Recips									17%	17%	17%	18%	17%	17%	18%	17%	18%	18%	18%	18%
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	9%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,400	$127,500	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,360	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,000	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,800	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,962,237	$2,011,872	$2,061,507	$2,114,451	$2,167,395	$2,960,452	$3,035,456	$3,110,460	$3,189,876	$3,269,292	$3,350,914	$3,434,742
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	Recips									$11.86	$12.16	$12.46	$12.78	$13.10	$13.42	$13.76	$14.10	$14.46	$14.82	$15.19	$15.57
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,804	$3,631	$4,059	$4,161	$4,265	$3,643	$4,855	$4,593	$4,708	$4,021	$3,710	$4,225	$6,062	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$649,387	$681,509	$738,762	$768,759	$809,856	$847,008	$898,482	$947,721	$947,249	$1,004,379	$1,007,076	$1,039,794	$1,098,403	$1,117,284	$1,143,838	$1,245,545	$1,237,311	$1,258,318
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,507	$234,516	$255,200	$263,104	$288,689	$299,909	$313,470	$328,793	$343,102	$338,907	$357,097	$358,707	$367,956	$393,757	$414,999	$420,181	$430,893	$422,244
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$27,310,301	$28,193,522	$28,463,701	$28,870,490	$29,286,863	$29,715,080	$30,909,691	$32,446,067	$33,520,313	$34,854,668	$36,059,690
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,236,310	$26,648,127	$27,296,357	$28,957,023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,856,033	$1,950,180	$1,980,770	$2,175,631	$2,133,312	$2,892,781	$3,031,679	$2,900,109	$3,215,797	$3,257,988	$3,296,020	$3,443,284
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$347,381	$378,830	$444,069	$431,874	$447,623	$503,464	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.27	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	Recips									$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 5 (CO2) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$14,010	$13,423	$15,229	$15,797	$16,677	$14,059	$18,621	$17,689	$17,933	$15,780	$14,788	$17,512	$25,583	$24,084
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,188,093	$3,594,130	$4,129,667	$4,398,647	$4,654,444	$4,991,985	$5,329,286	$5,689,841	$5,860,536	$6,171,987	$6,136,125	$6,346,378	$6,622,152	$6,950,221	$7,274,781	$8,117,426	$8,238,211	$8,534,848
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,501,485	$1,658,227	$1,760,237	$1,858,685	$1,969,620	$2,115,769	$2,069,918	$2,170,112	$2,177,458	$2,209,710	$2,444,496	$2,638,656	$2,733,571	$2,860,955	$2,852,093
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$11,066,986	$11,752,995	$12,272,280	$13,392,952	$13,052,494	$17,690,868	$18,365,429	$18,147,142	$20,594,651	$21,316,977	$22,038,219	$23,424,600
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,947,857	$3,449,290	$4,295,820	$4,265,774	$4,451,949	$5,119,310	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.23	19.16	19.26	19.25	19.26	19.14	19.16	19.25	19.26	19.21	19.04	19.35	19.28	19.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.92	8.93	8.90	8.92	8.91	8.92	8.90	8.90	8.91	8.91	8.90	8.92	8.91	8.90	8.88	8.90	8.90	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.89	8.90	8.88	8.88	8.86	8.88	8.87	8.87	8.88	8.88	8.88	8.87	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Recips									8.95	8.94	8.92	8.93	8.94	8.94	8.95	8.95	8.94	8.93	8.93	8.93
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.72	10.71	10.70	10.71	10.71	10.69												
CO2 EMISSIONS	lbs	Colby	266,760	237,120	266,760	266,760	237,120	296,400	355,680	326,040	355,680	355,680	355,680	296,400	385,320	355,680	355,680	296,400	266,760	296,400	414,960	385,320
CO2 EMISSIONS	lbs	Goodman Energy Center	95,008,656	96,530,208	105,933,120	108,507,792	114,613,728	116,431,200	119,619,504	122,099,712	126,213,456	129,902,736	126,720,912	131,053,488	128,236,800	129,179,184	133,112,976	132,116,256	131,836,608	140,105,712	135,767,904	134,829,504
CO2 EMISSIONS	lbs	Goodman Energy Center Expansion	35,122,368	34,744,512	36,838,032	37,348,560	39,627,408	39,869,760	42,666,768	43,263,264	44,075,856	45,088,032	45,919,680	44,256,384	45,492,144	44,582,016	44,639,040	46,580,256	47,873,040	47,305,200	47,304,912	45,290,304
CO2 EMISSIONS	lbs	JEC Extension	0	0	0	0	0	0	0	0	0	1,809,593,688	1,817,909,440	1,787,937,656	1,764,722,408	1,742,373,280	1,722,276,600	1,741,853,456	1,780,314,592	1,795,040,872	1,813,058,624	1,832,808,864
CO2 EMISSIONS	lbs	JEC Participation	1,831,423,696	1,860,529,432	2,003,112,672	2,115,896,736	2,251,723,928	2,246,006,488	1,920,646,472	1,904,534,224	1,973,314,720	0	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Recips	0	0	0	0	0	0	0	0	261,334,513	267,894,473	265,589,625	284,560,307	272,149,580	360,029,500	368,303,331	343,718,304	371,612,868	367,357,745	362,629,849	369,721,709
CO2 EMISSIONS	lbs	UML Westar	426,849,429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Westar PPA	0	86,183,633	97,723,700	104,060,733	118,902,730	112,832,519	114,133,280	125,406,527	0	0	0	0	0	0	0	0	0	0	0	0
CO2 COST	$	Colby	$0	$0	$0	$0	$0	$0	$1,778	$1,936	$2,445	$2,779	$3,112	$2,871	$4,094	$4,113	$4,446	$3,798	$3,503	$3,990	$5,725	$5,449
CO2 COST	$	Goodman Energy Center	$0	$0	$0	$0	$0	$4,142	$599,100	$724,967	$867,718	$1,015,561	$1,110,118	$1,271,428	$1,362,515	$1,493,716	$1,664,043	$1,692,978	$1,732,005	$1,886,673	$1,873,278	$1,906,841
CO2 COST	$	Goodman Energy Center Expansion	$0	$0	$0	$0	$0	$1,474	$213,690	$256,875	$303,159	$352,498	$402,263	$429,391	$483,354	$515,509	$558,034	$596,894	$628,928	$637,028	$652,697	$640,523
CO2 COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$14,144,760	$15,927,360	$17,346,213	$18,750,198	$20,150,822	$21,531,617	$22,322,338	$23,389,527	$24,174,216	$25,015,949	$25,920,764
CO2 COST	$	JEC Participation	$0	$0	$0	$0	$0	$132,536	$9,633,620	$11,308,190	$13,576,303	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,797,508	$2,094,089	$2,326,402	$2,760,502	$2,891,591	$4,163,063	$4,604,236	$4,404,647	$4,882,030	$4,946,963	$5,003,445	$5,228,827
CO2 COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$571,604	$744,602	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CAPITAL RECOVERY	$	Recips									$21,525,000	$21,147,500	$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	32	24	20	15	11	57	52	49	45	40	34	30
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	133,492	136,437	144,333	146,260	151,856	154,714	403,284	413,784	409,452	429,629	416,536	498,555	510,092	488,009	515,001	518,217	509,856	513,580
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	938,530	995,295	1,062,665	1,054,858	915,622	920,435	850,050	779,775	783,975	769,800	760,350	751,275	742,575	752,250	768,900	772,875	783,075	789,225
MARKET SALES	MWh	MWE Generation	121,701	122,629	133,492	136,437	144,333	146,260	151,856	154,714	403,284	413,784	409,452	429,629	416,536	498,555	510,092	488,009	515,001	518,217	509,856	513,580
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	938,530	995,295	1,062,665	1,054,858	915,622	920,435	850,050	779,775	783,975	769,800	760,350	751,275	742,575	752,250	768,900	772,875	783,075	789,225
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,471,862	$7,220,406	$8,245,786	$8,724,624	$10,369,709	$11,212,191	$30,878,062	$33,155,187	$34,881,426	$37,567,760	$37,520,922	$46,814,277	$49,257,585	$49,148,205	$54,158,036	$56,539,897	$58,148,510	$61,200,128
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$12,929,898	$13,911,298	$14,489,882	$15,215,874	$16,311,271	$16,660,381	$17,553,793	$8,774,973	$9,039,981	$9,583,409	$10,016,290	$10,362,281	$10,955,075	$11,206,171
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,387,750	$35,375,765	$41,116,344	$42,392,496	$43,804,090	$47,066,821	$43,418,857	$42,207,141	$45,236,030	$45,627,581	$46,037,088	$47,736,141	$48,597,539	$51,269,529	$55,414,961	$57,806,845	$61,060,118	$64,017,218
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.48	$52.92	$57.13	$59.65	$68.29	$72.47	$76.57	$80.13	$85.19	$87.44	$90.08	$93.90	$96.57	$100.71	$105.16	$109.10	$114.05	$119.16
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$35.59	$38.29	$39.75	$41.88	$44.90	$45.86	$48.05	$48.88	$50.36	$53.39	$55.67	$57.72	$61.03	$62.42
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.38	$35.54	$38.69	$40.19	$47.84	$51.14	$51.08	$54.13	$57.70	$59.27	$61.34	$63.54	$65.44	$68.15	$72.07	$74.79	$77.97	$81.11
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,087	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346	$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$40.56	$43.12	$45.29	$47.71	$50.82	$52.33	$53.86	$55.78	$57.26	$60.29	$62.95	$65.57	$68.38	$71.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,840,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,187,003	$38,884,924	$39,855,316	$40,853,481	$41,874,276	$43,660,002	$44,751,808	$45,869,800	$47,018,996	$48,194,381	$49,399,103	$50,633,853
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,970,427	$35,434,652	$38,272,557	$39,176,819	$35,751,096	$36,584,355	$39,770,931	$38,094,672	$39,100,911	$39,699,044	$40,208,237	$38,099,317	$38,820,573	$40,013,775	$42,013,867	$43,316,681	$44,786,730	$46,246,225
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$7,253,282	$8,285,063	$9,859,064	$10,177,214	$10,778,630	$11,884,956	$18,270,187	$19,428,252	$20,265,262	$21,648,915	$21,377,351	$26,232,393	$27,215,225	$27,557,639	$30,522,876	$32,185,486	$33,162,909	$34,836,226
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,087	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346	$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,665,289)	($52,312,055)	($60,080,498)	($62,199,422)	($67,104,297)	($72,190,310)	($88,786,800)	($90,578,201)	($96,428,727)	($99,855,722)	($101,712,383)	($103,325,390)	($106,895,105)	($110,001,204)	($119,589,287)	($124,709,022)	($130,163,703)	($136,423,516)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$21,525,000	$21,147,500	$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CO2 COSTS	$		$0	$0	$0	$0	$0	$138,152	$11,019,793	$13,036,570	$16,547,134	$17,609,686	$19,769,256	$21,810,407	$23,491,752	$28,327,223	$28,382,376	$29,020,654	$30,635,904	$31,648,869	$32,551,095	$33,702,405
TOTAL COSTS	$		$86,495,289	$83,268,555	$84,952,983	$88,637,871	$92,518,122	$96,385,843	$112,305,197	$118,481,516	$134,206,704	$139,521,178	$145,993,484	$151,872,875	$157,307,370	$175,494,148	$181,126,066	$189,225,965	$194,686,158	$202,125,059	$209,308,060	$216,423,109

NPV @ 6.21%: $1,444,260,737 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 5 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Recips	0	0	0	0	0	0	0	0	165	165	165	165	165	221	221	221	221	221	221	221
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	88,806	90,098	98,990	101,422	107,198	109,402	105,488	106,590	110,200	112,936	108,832	114,038	108,794	109,364	111,986	111,036	111,872	118,142	115,938	114,874
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732	39,083	37,895	38,286	37,625	37,382	39,339	39,960	39,582	40,392	38,286
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	966,525	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,900
GENERATION	MWh	JEC Participation	788,625	800,025	862,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Recips	0	0	0	0	0	0	0	0	225,674	229,645	230,637	244,204	232,623	309,281	315,237	294,942	318,767	315,899	313,031	322,076
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	67,184	76,180	81,120	92,690	88,738	85,176	93,652	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	14%	15%	15%	16%	16%	16%	16%	17%	17%	16%	17%	16%	16%	17%	17%	17%	18%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	15%	15%	16%	16%	16%	16%	16%	16%	17%	16%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Extension										74%	75%	74%	74%	74%	73%	75%	76%	77%	78%	78%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	Recips									16%	16%	16%	17%	16%	16%	16%	15%	16%	16%	16%	17%
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	7%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,800	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,962,237	$2,011,872	$2,061,507	$2,114,451	$2,167,395	$2,960,452	$3,035,456	$3,110,460	$3,189,876	$3,269,292	$3,350,914	$3,434,742
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	Recips									$11.86	$12.16	$12.46	$12.78	$13.10	$13.42	$13.76	$14.10	$14.46	$14.82	$15.19	$15.57
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,027	$649,387	$681,569	$738,762	$772,611	$763,906	$790,898	$838,622	$881,031	$869,826	$934,402	$913,870	$941,640	$987,800	$1,003,923	$1,037,351	$1,122,769	$1,129,236	$1,146,442
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152	$312,301	$310,509	$321,602	$323,953	$329,735	$355,680	$370,535	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,851,193	$35,242,535	$35,844,765	$37,023,598	$37,681,622	$38,545,371	$40,310,042	$42,176,545	$43,622,490	$45,350,124	$46,644,922
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,717,566	$1,791,448	$1,843,354	$2,000,866	$1,954,030	$2,662,958	$2,780,540	$2,666,785	$2,956,036	$3,002,260	$3,048,926	$3,214,318
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$347,381	$378,830	$444,069	$435,797	$428,529	$482,308	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	Recips									$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 5 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,188,693	$3,594,130	$4,129,667	$4,420,126	$4,392,516	$4,664,875	$4,975,283	$5,293,854
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$10,242,360	$10,800,557
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,947,857	$3,449,290	$4,295,820	$4,303,591	$4,260,777	$4,906,695	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.92	8.93	8.90	8.92	8.92	8.93	8.90	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	Recips									8.95	8.94
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.72	10.71	10.70	10.71	10.71	10.69		
CAPITAL RECOVERY	$	Recips									$21,525,000	$21,147,500
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	32	24
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	($3,204,658)	($1,283,849)	($1,904,752)	($1,615,276)	($1,164,016)	($872,060)	($537,750)	($162,652)	($2,475,602)	($1,906,554)
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	121,701	122,629	133,492	136,437	144,333	146,981	143,432	144,344	374,330	381,442
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	867,209	938,530	995,295	1,062,665	1,060,063	1,056,876	1,080,952	1,040,100	966,525
MARKET SALES	MWh	MWE Generation	121,701	122,629	133,492	136,437	144,333	146,981	143,432	144,344	374,330	381,442
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	867,209	938,530	995,295	1,062,665	1,060,063	1,056,876	1,080,952	1,040,100	966,525
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,471,862	$7,220,406	$8,245,786	$8,760,316	$8,782,697	$9,268,674	$25,046,755	$26,397,888
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,387,750	$35,375,765	$41,116,344	$42,602,492	$43,728,500	$46,892,950	$44,615,304	$43,267,307
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.48	$52.92	$57.13	$59.60	$61.23	$64.21	$66.91	$69.21
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52
MARKET SALES	$/MWh	Westar	$26.09	$28.75	$32.38	$35.54	$38.69	$40.19	$41.38	$43.38	$42.90	$44.77
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,187,003	$38,884,924
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,970,427	$35,434,652	$38,272,557	$39,328,536	$40,348,606	$41,948,511	$46,025,214	$44,382,807
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$7,253,282	$8,285,063	$9,859,064	$10,244,143	$10,239,066	$11,225,136	$16,960,141	$17,917,810
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,665,289)	($52,312,055)	($60,080,498)	($62,445,110)	($63,962,949)	($68,297,422)	($82,115,552)	($82,569,217)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$21,525,000	$21,147,500
TOTAL MARKET CAPACITY COSTS	$		($3,204,658)	($1,283,849)	($1,904,752)	($1,615,276)	($1,164,016)	($872,060)	($537,750)	($162,652)	($2,475,602)	($1,906,554)
TOTAL COSTS	$		$83,290,631	$81,984,706	$83,048,231	$87,022,595	$91,354,106	$95,348,590	$99,198,588	$103,326,474	$114,363,088	$118,401,326

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$5,381,304	$5,738,810	$5,578,934	$5,752,542	$5,958,814	$6,254,618	$6,607,361	$7,319,784	$7,530,626	$7,781,602
FUEL COST	$	Goodman Energy Center Expansion	$1,926,141	$1,896,600	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,357,334	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Recips	$11,428,861	$12,318,804	$11,963,254	$16,288,446	$16,843,293	$16,691,994	$18,937,160	$19,645,973	$20,393,786	$21,870,469
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.91	8.91	8.92	8.93	8.91	8.91	8.89	8.90	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.88	8.86	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	Recips	8.93	8.93	8.94	8.94	8.95	8.95	8.95	8.94	8.94	8.93
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	Recips	$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
SURPLUS/DEFICIT CAPACITY	MW	MWE	20	15	11	57	52	49	45	40	34	30
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	($1,623,377)	($1,265,382)	($899,854)	($4,921,460)	($4,636,650)	($4,450,642)	($4,197,077)	($3,832,026)	($3,388,611)	($2,989,170)
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	378,708	396,254	379,846	456,400	464,748	445,447	470,716	473,727	469,504	475,392
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,900
MARKET SALES	MWh	MWE Generation	378,708	396,254	379,846	456,400	464,748	445,447	470,716	473,727	469,504	475,392
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,900
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$27,594,614	$29,222,054	$28,559,106	$35,350,322	$36,600,579	$36,813,444	$40,789,568	$42,745,932	$44,409,144	$47,090,995
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$46,181,981	$46,369,917	$47,635,700	$48,430,430	$49,169,698	$52,311,208	$56,325,293	$58,923,990	$62,282,112	$65,051,844
MARKET SALES	$/MWh	MWE Generation	$72.87	$73.75	$75.19	$77.45	$78.75	$82.64	$86.65	$90.23	$94.59	$99.06
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$47.13	$47.83	$48.85	$50.10	$51.05	$53.32	$56.36	$58.59	$61.13	$63.72
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$39,855,316	$40,853,481	$41,874,276	$43,660,002	$44,751,808	$45,869,800	$47,018,996	$48,194,381	$49,399,103	$50,633,853
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$45,904,344	$46,806,604	$48,052,616	$46,130,579	$47,250,508	$49,029,365	$51,333,634	$52,995,505	$54,888,243	$56,450,022
TOTAL FUEL COSTS	$		$18,752,983	$19,966,796	$19,515,094	$24,023,161	$24,798,752	$25,173,327	$27,916,644	$29,428,679	$30,561,240	$32,256,864
TOTAL MARKET ENERGY COSTS	$		$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($87,482,961)	($89,395,674)	($90,548,447)	($90,874,613)	($92,987,023)	($96,824,204)	($105,201,135)	($110,071,536)	($115,610,250)	($121,292,800)
TOTAL CAPITAL RECOVERY	$		$20,766,000	$20,380,500	$19,988,500	$26,625,500	$26,101,500	$25,570,500	$25,032,000	$24,487,000	$23,932,000	$23,370,500
TOTAL MARKET CAPACITY COSTS	$		($1,623,377)	($1,265,382)	($899,854)	($4,921,460)	($4,636,650)	($4,450,642)	($4,197,077)	($3,832,026)	($3,388,611)	($2,989,170)
TOTAL COSTS	$		$122,478,643	$126,318,136	$129,662,850	$139,994,120	$143,353,034	$149,843,602	$154,216,697	$160,451,067	$166,553,031	$172,461,857

NPV @ 6.21%: $1,256,454,121 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 5 (+1% Interest Rate) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,905	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	0	0	0	0	0	0	0	0	0	150
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	Recips	0	0	0	0	0	0	0	0	165	165
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	104	130	130	143	143	130
GENERATION	MWh	Goodman Energy Center	88,806	90,098	98,990	101,422	107,198	109,402	105,488	106,590	110,200	112,936
GENERATION	MWh	Goodman Energy Center Expansion	32,778	32,427	34,385	34,898	37,031	37,449	37,814	37,611	38,313	38,732
GENERATION	MWh	JEC Extension	0	0	0	0	0	0	0	0	0	966,525
GENERATION	MWh	JEC Participation	788,625	800,025	802,350	914,175	969,975	971,325	971,700	987,300	1,040,100	0
GENERATION	MWh	Recips	0	0	0	0	0	0	0	0	225,674	229,645
GENERATION	MWh	UML Westar	200,919	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Westar PPA	0	67,184	76,180	81,120	92,690	88,738	85,176	93,652	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	14%	15%	15%	16%	16%	16%	16%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	15%	15%	16%	16%	16%	16%	16%	16%
CAPACITY FACTOR	%	JEC Extension										74%
CAPACITY FACTOR	%	JEC Participation	60%	61%	60%	70%	74%	74%	74%	75%	79%	
CAPACITY FACTOR	%	Recips									16%	16%
CAPACITY FACTOR	%	UML Westar	15%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	7%	8%		
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%	42%	42%	42%	42%	42%	42%	42%
CAPACITY FACTOR	%	Westar Wind PPA		41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$190,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$34,843,500
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,962,237	$2,011,872
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Extension										$232.29
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	Recips									$11.86	$12.16
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07		
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$2,452	$3,142	$3,220	$3,631	$3,721	$3,467
VARIABLE O&M COST	$	Goodman Energy Center	$554,301	$576,627	$649,387	$681,569	$738,762	$772,611	$763,966	$790,898	$838,622	$881,031
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$204,535	$207,533	$225,567	$234,516	$255,200	$264,473	$273,852	$279,074	$291,588	$302,152
VARIABLE O&M COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,851,193
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,064,690	$24,501,572	$26,817,898	$29,411,699	$30,378,884	$31,326,102	$32,758,614	$35,431,854	$0
VARIABLE O&M COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$1,717,566	$1,791,448
VARIABLE O&M COST	$	UML Westar	$6,411,478	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Westar PPA	$0	$298,297	$347,381	$378,830	$444,069	$435,797	$428,529	$482,308	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Extension										$35.02
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	Recips									$7.61	$7.80
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15		
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,902	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Extension	150	150	150	150	150	150	150	150	150	150
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Recips	165	165	165	221	221	221	221	221	221	221
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	156	117	143	130	143	130	117	104	143	156
GENERATION	MWh	Goodman Energy Center	108,832	114,038	108,794	109,364	111,980	111,036	111,872	118,142	115,938	114,874
GENERATION	MWh	Goodman Energy Center Expansion	39,083	37,895	38,286	37,625	37,382	39,339	39,960	39,582	40,392	38,286
GENERATION	MWh	JEC Extension	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,000
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Recips	230,637	244,204	232,623	309,281	315,237	294,942	318,767	315,899	313,031	322,076
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	16%	17%	16%	16%	17%	17%	17%	18%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	17%	16%	16%	16%	16%	17%	17%	17%	17%	16%
CAPACITY FACTOR	%	JEC Extension	75%	74%	74%	74%	73%	75%	76%	77%	78%	78%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	Recips	16%	17%	16%	16%	16%	15%	16%	16%	16%	17%
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Westar PPA										
CAPACITY FACTOR	%	Smoky Hills Wind PPA	42%	42%	42%							
CAPACITY FACTOR	%	Westar Wind PPA	41%	41%	41%	41%	41%	41%	41%	41%	41%	41%
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Extension	$35,714,999	$36,607,500	$37,522,501	$38,460,000	$39,421,502	$40,407,000	$41,418,000	$42,453,000	$43,514,999	$44,602,501
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Recips	$2,061,507	$2,114,451	$2,167,395	$2,960,452	$3,035,456	$3,110,460	$3,189,876	$3,269,292	$3,350,914	$3,434,742
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Extension	$238.10	$244.05	$250.15	$256.40	$262.81	$269.38	$276.12	$283.02	$290.10	$297.35
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	Recips	$12.46	$12.78	$13.10	$13.42	$13.76	$14.10	$14.46	$14.82	$15.19	$15.57
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Westar PPA										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$4,265	$3,278	$4,108	$3,827	$4,316	$4,021	$3,710	$3,380	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$869,826	$934,402	$913,870	$941,640	$987,800	$1,003,923	$1,037,351	$1,122,769	$1,129,236	$1,146,442
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$312,361	$310,509	$321,602	$323,953	$329,735	$355,680	$370,535	$376,178	$393,418	$382,094
VARIABLE O&M COST	$	JEC Extension	$35,242,535	$35,844,765	$37,023,598	$37,681,622	$38,545,371	$40,310,042	$42,176,545	$43,622,490	$45,350,124	$46,644,922
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Recips	$1,843,354	$2,000,866	$1,954,030	$2,662,958	$2,780,540	$2,666,785	$2,956,036	$3,002,260	$3,048,926	$3,214,318
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Extension	$35.96	$36.98	$37.97	$38.98	$40.02	$41.09	$42.20	$43.37	$44.51	$45.69
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	Recips	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Westar PPA										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23

Midwest Energy Resource Plan Cost Summary

Scenario 5 (+1% Interest Rate) - 130 MW Westar SCGT PPA (2017-2023), 165 MW Wartsila 18V50SG Reciprocating Engines (2024+), 150 MW JEC Extension (2025+), and 55 MW Wartsila 18V50SG Reciprocating Engines (2029+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$8,588	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$12,582	$15,750	$14,694	$16,371	$15,780	$14,788	$13,989	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,426,194	$2,575,307	$3,188,693	$3,594,130	$4,129,667	$4,420,126	$4,392,516	$4,664,875	$4,975,283	$5,293,854	$5,381,304	$5,738,810	$5,578,934	$5,752,542	$5,958,814	$6,254,618	$6,607,361	$7,319,784	$7,530,626	$7,781,602
FUEL COST	$	Goodman Energy Center Expansion	$894,488	$926,178	$1,108,618	$1,232,709	$1,424,989	$1,509,119	$1,574,115	$1,640,144	$1,728,596	$1,810,278	$1,926,141	$1,896,600	$1,957,157	$1,967,479	$1,980,273	$2,210,935	$2,357,334	$2,448,934	$2,616,844	$2,581,984
FUEL COST	$	JEC Extension	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Recips	$0	$0	$0	$0	$0	$0	$0	$0	$10,242,360	$10,800,557	$11,428,861	$12,318,804	$11,963,254	$16,288,446	$16,843,293	$16,691,994	$18,937,160	$19,645,973	$20,393,786	$21,870,469
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,302,053	$2,947,857	$3,449,290	$4,295,820	$4,303,591	$4,260,777	$4,906,695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.07	19.20	19.20	19.16	19.18	19.19	19.26	19.03	19.15	19.19	19.18	19.21	19.04	19.33	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.93	8.93	8.92	8.93	8.90	8.92	8.92	8.93	8.90	8.91	8.91	8.91	8.92	8.93	8.91	8.91	8.89	8.90	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.92	8.93	8.93	8.90	8.89	8.90	8.91	8.90	8.90	8.89	8.88	8.86	8.89	8.88	8.87	8.89	8.88	8.89	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	JEC Extension										11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00											
AVERAGE HEAT RATE	MMBtu/MWh	Recips									8.95	8.94	8.93	8.93	8.94	8.94	8.95	8.95	8.95	8.94	8.94	8.93
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar																				
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.71	10.72	10.71	10.70	10.71	10.71	10.69												
CAPITAL RECOVERY	$	Recips									$22,936,000	$22,553,500	$22,166,500	$21,774,000	$21,374,500	$28,002,500	$27,466,500	$26,923,500	$26,370,000	$25,807,000	$25,234,500	$24,649,500
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	32	24	20	15	11	57	52	49	45	40	34	30
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81	$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA																						
GENERATION	MWh	MWE Generation	121,701	122,629	133,492	136,437	144,333	146,981	143,432	144,344	374,330	381,442	378,708	396,254	379,846	456,400	464,748	445,447	470,716	473,727	469,504	475,392
GENERATION	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	788,625	867,209	938,530	995,295	1,062,665	1,060,063	1,056,876	1,080,952	1,040,100	966,525	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,900
MARKET SALES	MWh	MWE Generation	121,701	122,629	133,492	136,437	144,333	146,981	143,432	144,344	374,330	381,442	378,708	396,254	379,846	456,400	464,748	445,447	470,716	473,727	469,504	475,392
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	788,625	867,209	938,530	995,295	1,062,665	1,060,063	1,056,876	1,080,952	1,040,100	966,525	979,950	969,375	975,075	966,600	963,225	981,000	999,450	1,005,750	1,018,875	1,020,900
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,647	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$5,059,357	$5,283,661	$6,471,862	$7,220,406	$8,245,786	$8,760,316	$8,782,697	$9,268,674	$25,046,755	$26,397,888	$27,594,614	$29,222,054	$28,559,106	$35,350,322	$36,600,579	$36,813,444	$40,789,568	$42,745,932	$44,409,144	$47,090,995
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$20,576,256	$24,928,180	$30,387,750	$35,375,765	$41,116,344	$42,602,492	$43,728,500	$46,892,950	$44,615,304	$43,267,307	$46,181,981	$46,369,917	$47,635,700	$48,430,430	$49,169,698	$52,311,208	$56,325,293	$58,923,990	$62,282,112	$65,051,844
MARKET SALES	$/MWh	MWE Generation	$41.57	$43.09	$48.48	$52.92	$57.13	$59.60	$61.23	$64.21	$66.91	$69.21	$72.87	$73.75	$75.19	$77.45	$78.75	$82.64	$86.65	$90.23	$94.59	$99.06
MARKET SALES	$/MWh	MWE Load																				
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$20.09	$28.75	$32.38	$35.54	$38.69	$40.19	$41.38	$43.38	$42.90	$44.77	$47.13	$47.83	$48.85	$50.10	$51.05	$53.32	$56.36	$58.59	$61.13	$63.72
MARKET PURCHASES	MWh	MWE Load	1,567,347	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,902	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$33,752,194	$45,249,702	$49,368,087	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,250,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,035	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$21.53	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,902	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS																						
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$38,187,003	$38,884,924	$39,855,316	$40,853,481	$41,874,276	$43,660,002	$44,751,808	$45,869,800	$47,018,996	$48,194,381	$49,399,103	$50,633,853
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,897,037	$30,319,931	$32,970,427	$35,434,652	$38,272,557	$39,328,536	$40,348,606	$41,948,511	$46,025,214	$44,382,807	$45,904,344	$46,806,604	$48,052,016	$46,130,579	$47,250,508	$49,029,365	$51,333,634	$52,995,505	$54,888,243	$56,450,022
TOTAL FUEL COSTS	$		$3,327,555	$5,809,944	$7,253,282	$8,285,063	$9,859,064	$10,244,143	$10,239,066	$11,225,136	$16,960,141	$17,917,810	$18,752,983	$19,966,796	$19,515,094	$24,023,161	$24,798,752	$25,173,327	$27,916,644	$29,428,679	$30,561,240	$32,256,864
TOTAL MARKET ENERGY COSTS	$		$33,752,194	$45,249,702	$49,368,087	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,250,883	$80,544,056	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,035	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($29,443,599)	($38,138,893)	($45,665,289)	($52,312,055)	($60,080,498)	($62,445,110)	($63,962,949)	($68,297,422)	($82,115,552)	($82,569,217)	($87,482,961)	($89,395,674)	($90,548,447)	($90,874,613)	($92,987,023)	($96,824,204)	($105,201,135)	($110,071,536)	($115,610,250)	($121,292,800)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$22,936,000	$22,553,500	$22,166,500	$21,774,000	$21,374,500	$28,002,500	$27,466,500	$26,923,500	$26,370,000	$25,807,000	$25,234,500	$24,649,500
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$86,495,289	$83,268,555	$84,952,983	$88,637,871	$92,518,122	$96,220,649	$99,736,337	$103,489,120	$118,249,689	$121,713,880	$125,502,520	$128,977,018	$131,948,703	$146,292,580	$149,354,684	$155,647,243	$159,751,774	$165,603,094	$171,244,143	$176,730,027

NPV @ 6.21%: $1,287,213,250 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 6 - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	1 x 1 CCGT	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	1 x 1 CCGT	0	0	0	0	0	0	0	0	1,273,185	1,290,182	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	130	130	130	143	143	130	156	143	143	130	143	143	143	65	143	156
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364	110,314	111,834	107,502	104,386	104,044	111,074	112,062	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,745	40,473	39,974	40,838	39,245	40,028	39,852	40,649	41,040	40,433	41,472	41,270
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	68,094	75,712	81,120	93,912	89,882	86,476	93,652	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	1 x 1 CCGT									38%	38%	39%	39%	38%	38%	38%	38%	39%	40%	39%	39%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%	17%	17%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	17%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA																				
CAPACITY FACTOR	%	Westar Wind PPA																				
FIXED O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$3,996,598	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	1 x 1 CCGT									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$4,495,227	$4,671,825	$4,802,573	$4,990,935	$4,989,973	$5,168,063	$5,262,291	$5,441,839	$5,710,870	$5,886,607	$5,975,048	$6,051,586
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$3,065	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$4,007	$4,108	$3,827	$4,316	$4,423	$4,535	$2,113	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169	$881,067	$916,351	$903,017	$898,779	$917,752	$1,004,266	$1,039,112	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,849	$315,736	$319,480	$334,612	$329,654	$344,642	$351,524	$367,518	$380,546	$384,258	$403,937	$411,870
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,394,172	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$302,337	$345,247	$378,830	$449,923	$441,414	$435,068	$482,308	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,032	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	1 x 1 CCGT									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$45,065,922	$47,303,693	$50,943,500	$51,563,777	$51,278,671	$53,069,284	$53,300,429	$57,115,682	$61,359,969	$64,757,747	$67,278,011	$69,153,643
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$10,811	$11,307	$11,657	$13,423	$13,902	$13,122	$16,677	$15,478	$15,750	$14,700	$16,371	$17,329	$18,193	$8,634	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181	$5,433,945	$5,606,460	$5,499,261	$5,462,524	$5,508,414	$6,240,420	$6,607,520	$7,009,105	$7,374,072	$7,416,372
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,539,045	$1,603,484	$1,683,344	$1,751,734	$1,896,896	$1,975,147	$2,053,338	$2,009,796	$2,103,130	$2,122,669	$2,291,079	$2,427,362	$2,500,714	$2,694,035	$2,794,051
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,331,432	$2,929,599	$3,449,290	$4,349,280	$4,355,936	$4,322,103	$4,906,695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 6 - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT									6.98	6.97
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.21	19.20	19.20	19.16	19.18	19.19
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.93	8.92	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.70	10.72	10.71	10.70	10.70	10.70	10.69		
CAPITAL RECOVERY	$	1 x 1 CCGT									$44,517,000	$43,737,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	252	94
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,136	149,967
GENERATION	MWh	MWE Load	209,104	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	2,313,285	1,290,182
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,136	149,967
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	2,313,284	1,290,182
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,104	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	1	0
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,031,299	$8,555,635	$8,399,299	$9,067,460	$9,627,633	$10,278,929
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023
MARKET SALES	$	Westar	$20,624,043	$25,276,218	$30,560,369	$35,353,082	$41,270,519	$42,763,074	$44,006,380	$46,697,297	$109,999,984	$68,865,398
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$57.00	$59.32	$60.72	$63.54	$66.34	$68.54
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52
MARKET SALES	$/MWh	Westar	$26.15	$28.98	$32.52	$35.53	$38.84	$40.33	$41.61	$43.37	$47.55	$53.38
MARKET PURCHASES	MWh	MWE Load	1,567,889	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,771,717	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
MARKET PURCHASES	$/MWh	MWE Load	$21.54	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$40,221,364	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,860,881	$30,410,453	$32,987,242	$35,412,927	$38,218,871	$39,284,200	$40,296,465	$41,791,979	$48,776,134	$13,397,713
TOTAL FUEL COSTS	$		$3,235,255	$5,727,368	$7,103,749	$8,214,497	$9,776,005	$10,178,241	$10,072,621	$11,134,553	$51,618,443	$54,326,892
TOTAL MARKET ENERGY COSTS	$		$33,771,717	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($38,320,148)	($45,630,901)	($52,176,382)	($60,020,187)	($62,401,011)	($63,857,431)	($67,900,555)	($132,081,110)	($92,048,349)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$44,517,000	$43,737,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$86,499,687	$83,089,245	$84,854,652	$88,681,253	$92,441,687	$96,154,510	$99,623,270	$103,638,878	$129,308,714	$106,079,811

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT	6.96	6.96	6.97	6.97	6.96	6.98	6.98	6.97	6.98	6.98
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.16	19.15	19.20	19.18	19.17	19.16	19.09	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.88	8.87	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.90	8.90	8.91	8.92	8.92	8.92	8.91	8.91	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	1 x 1 CCGT	$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	90	85	81	71	67	63	60	55	49	44
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	150,444	152,815	146,890	144,544	144,039	151,866	153,245	153,852	155,425	151,436
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
MARKET SALES	MWh	MWE Generation	150,444	152,815	146,890	144,544	144,039	151,866	153,245	153,852	155,425	151,436
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$10,867,786	$11,145,743	$10,980,215	$11,030,016	$11,207,603	$12,498,724	$13,178,220	$13,814,755	$14,589,498	$14,818,785
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$73,806,767	$74,833,077	$74,564,803	$76,856,129	$77,384,801	$82,608,625	$88,902,235	$93,586,320	$96,407,609	$99,110,578
MARKET SALES	$/MWh	MWE Generation	$72.24	$72.94	$74.75	$76.31	$77.81	$82.30	$85.99	$89.79	$93.87	$97.86
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$55.99	$57.08	$58.28	$59.49	$60.30	$63.78	$67.13	$70.15	$72.93	$75.99
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$13,729,988	$13,964,689	$14,062,160	$10,931,891	$11,138,630	$11,506,960	$11,924,520	$12,218,688	$12,454,034	$12,623,601
TOTAL FUEL COSTS	$		$58,369,269	$59,239,053	$58,803,477	$60,649,638	$60,947,882	$65,664,510	$70,413,044	$74,282,199	$77,366,101	$79,387,475
TOTAL MARKET ENERGY COSTS	$		$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($98,380,919)	($99,782,524)	($99,898,659)	($94,980,006)	($95,809,151)	($102,806,900)	($110,166,728)	($115,802,688)	($119,916,100)	($123,079,324)
TOTAL CAPITAL RECOVERY	$		$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$109,247,494	$110,974,624	$112,580,999	$119,233,766	$120,969,859	$125,790,494	$129,759,193	$134,540,283	$140,573,789	$146,159,390

NPV @ 6.21% $1,184,110,941 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 6 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	1 x 1 CCGT	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	1 x 1 CCGT	0	0	0	0	0	0	0	0	1,326,921	1,344,128	1,374,580	1,373,889	1,345,251	1,343,402	1,338,097	1,352,386	1,368,460	1,391,669	1,375,913	1,354,105
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	117	143	143	156	143	156	143	156	156	156	156	156	143	156	156	156	65	195	169
GENERATION	MWh	Goodman Energy Center	97,584	98,040	106,894	109,782	112,442	116,622	110,200	114,038	115,406	118,940	120,916	121,676	117,952	113,430	113,848	120,650	123,500	124,336	122,816	118,826
GENERATION	MWh	Goodman Energy Center Expansion	36,450	37,314	38,394	39,636	41,904	41,918	42,296	42,120	41,607	43,781	43,700	44,334	42,998	43,389	43,025	44,145	45,333	44,591	44,550	44,361
GENERATION	MWh	JEC Participation	925,500	939,900	1,005,525	1,049,850	1,083,300	1,086,150	1,086,150	1,095,150	1,155,825	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	363,391	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	77,662	83,512	91,364	102,154	98,410	93,262	98,956	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	1 x 1 CCGT									39%	40%	41%	41%	40%	40%	40%	40%	40%	41%	41%	40%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	15%	15%	16%	16%	17%	18%	17%	17%	17%	18%	18%	18%	18%	17%	17%	18%	18%	19%	18%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	15%	16%	16%	17%	18%	18%	18%	18%	18%	19%	18%	19%	18%	18%	18%	19%	19%	19%	19%	19%
CAPACITY FACTOR	%	JEC Participation	70%	72%	77%	80%	82%	83%	83%	83%	88%											
CAPACITY FACTOR	%	UML Westar	27%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		7%	7%	8%	9%	9%	8%	9%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA																				
CAPACITY FACTOR	%	Westar Wind PPA																				
FIXED O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$3,996,598	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	1 x 1 CCGT									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$4,684,913	$4,867,111	$5,102,117	$5,236,080	$5,246,480	$5,374,096	$5,487,179	$5,681,693	$5,901,005	$6,140,648	$6,219,128	$6,283,049
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,561	$3,209	$3,289	$3,678	$3,456	$3,864	$3,631	$4,059	$4,161	$4,265	$4,371	$4,482	$4,210	$4,708	$4,825	$4,947	$2,113	$6,495	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$609,082	$627,456	$701,237	$737,748	$774,893	$823,721	$798,190	$846,162	$878,326	$927,862	$966,423	$996,989	$990,797	$976,664	$1,004,223	$1,090,851	$1,145,317	$1,181,684	$1,196,228	$1,185,883
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$227,504	$238,810	$251,869	$266,359	$288,778	$296,069	$306,341	$312,530	$316,629	$341,534	$349,267	$363,260	$361,179	$373,591	$379,506	$399,133	$420,405	$423,785	$433,917	$442,723
VARIABLE O&M COST	$	JEC Participation	$24,816,855	$25,922,442	$28,570,139	$30,798,642	$32,848,004	$33,969,897	$35,015,769	$36,337,077	$39,374,312	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$11,597,637	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$344,819	$380,815	$426,670	$489,411	$483,287	$469,201	$509,623	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	1 x 1 CCGT									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.92																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$56,364,288	$59,133,667	$63,746,832	$64,832,322	$64,700,142	$66,234,679	$66,663,622	$71,552,547	$76,099,759	$81,047,998	$84,060,494	$86,146,669
FUEL COST	$	Colby	$8,248	$8,633	$11,866	$13,065	$15,618	$14,912	$16,812	$16,108	$18,275	$18,957	$20,013	$20,346	$20,623	$19,489	$21,520	$22,780	$23,915	$10,361	$32,886	$29,621
FUEL COST	$	Goodman Energy Center	$3,179,019	$3,346,966	$4,121,629	$4,657,047	$5,180,404	$5,633,540	$5,481,502	$5,946,293	$6,239,170	$6,668,675	$7,146,251	$7,317,009	$7,226,965	$7,118,610	$7,233,651	$8,124,588	$8,733,423	$9,217,938	$9,530,527	$9,610,601
FUEL COST	$	Goodman Energy Center Expansion	$1,193,247	$1,277,675	$1,485,386	$1,683,497	$1,940,069	$2,028,488	$2,111,673	$2,207,113	$2,257,874	$2,461,563	$2,591,045	$2,672,632	$2,637,681	$2,733,944	$2,750,519	$2,981,995	$3,215,298	$3,314,912	$3,466,034	$3,603,374
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$3,196,108	$3,876,916	$4,657,769	$5,676,499	$5,723,023	$5,592,424	$6,219,498	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 6 (+20% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT									8.38	8.36
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.04	23.06	22.99	23.01	23.12	23.02	23.08	22.99	23.11	23.10
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.65	10.67	10.68	10.69	10.64	10.66	10.65	10.64	10.66	10.66
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.70	10.70	10.72	10.70	10.69	10.68	10.69	10.69	10.70	10.69
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		12.86	12.86	12.84	12.83	12.84	12.84	12.83		
CAPITAL RECOVERY	$	1 x 1 CCGT									$44,517,000	$43,737,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	252	94
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	134,151	135,471	145,431	149,561	154,502	158,683	152,652	156,301	157,169	162,877
GENERATION	MWh	MWE Load	372,119	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	925,500	1,017,562	1,089,037	1,141,214	1,185,454	1,184,560	1,179,412	1,194,106	2,482,746	1,344,128
MARKET SALES	MWh	MWE Generation	134,151	135,471	145,431	149,561	154,502	158,683	152,652	156,301	157,169	162,877
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	925,500	1,017,562	1,089,037	1,141,214	1,185,454	1,184,560	1,179,412	1,194,106	2,482,744	1,344,128
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	372,119	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	1	0
MARKET SALES	$	MWE Generation	$6,482,528	$6,821,274	$8,242,086	$9,276,751	$10,364,140	$11,070,072	$10,900,567	$11,687,289	$12,306,562	$13,166,278
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$4,569,609	$9,512,410	$10,566,805	$11,659,049	$12,862,076	$13,298,776	$13,742,113	$14,562,933	$14,944,178	$15,484,778
MARKET SALES	$	Westar	$28,761,850	$34,874,403	$41,500,877	$47,408,026	$53,852,253	$55,854,535	$57,353,570	$60,506,246	$138,822,075	$85,205,000
MARKET SALES	$/MWh	MWE Generation	$48.32	$50.35	$56.67	$62.03	$67.08	$69.76	$71.41	$74.77	$78.30	$80.84
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$24.75	$26.18	$29.09	$32.09	$35.28	$36.61	$37.83	$40.09	$40.99	$42.62
MARKET SALES	$/MWh	Westar	$31.08	$34.27	$38.11	$41.54	$45.43	$47.15	$48.63	$50.67	$55.91	$63.39
MARKET PURCHASES	MWh	MWE Load	1,404,874	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$34,841,376	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148
MARKET PURCHASES	$/MWh	MWE Load	$24.80	$29.51	$33.35	$36.66	$40.10	$41.89	$43.13	$45.16	$46.73	$48.57
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$40,221,364	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$40,831,771	$34,306,596	$37,151,165	$39,551,855	$41,825,140	$43,050,060	$44,146,302	$45,643,010	$53,000,103	$13,694,184
TOTAL FUEL COSTS	$		$4,380,514	$7,829,383	$9,495,797	$11,011,377	$12,812,590	$13,399,962	$13,202,411	$14,389,012	$64,879,608	$68,282,862
TOTAL MARKET ENERGY COSTS	$		$34,841,376	$54,299,656	$59,242,495	$66,217,043	$73,798,881	$78,061,543	$81,562,600	$86,803,877	$91,508,137	$96,653,148
TOTAL MARKET ENERGY SALES	$		($39,813,987)	($51,208,087)	($60,309,767)	($68,343,826)	($77,078,468)	($80,223,382)	($81,996,250)	($86,756,468)	($166,072,815)	($113,856,056)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$44,517,000	$43,737,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$87,201,777	$85,255,419	$88,605,505	$90,485,858	$94,326,083	$98,330,027	$102,057,652	$106,355,813	$128,053,398	$114,633,637

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT	8.36	8.35	8.36	8.37	8.35	8.37	8.37	8.37	8.38	8.37
AVERAGE HEAT RATE	MMBtu/MWh	Colby	23.11	23.08	22.99	23.14	23.11	23.11	23.09	22.90	23.13	23.06
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	10.65	10.64	10.66	10.65	10.64	10.66	10.65	10.65	10.64	10.64
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	10.68	10.67	10.67	10.70	10.71	10.69	10.68	10.68	10.67	10.69
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	1 x 1 CCGT	$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	90	85	81	71	67	63	60	55	49	44
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	164,772	166,166	161,106	156,962	157,029	164,951	168,989	168,992	167,561	163,356
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,374,580	1,373,889	1,345,251	1,343,402	1,338,097	1,352,386	1,368,460	1,391,669	1,375,913	1,354,105
MARKET SALES	MWh	MWE Generation	164,772	166,166	161,106	156,962	157,029	164,951	168,989	168,992	167,561	163,356
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,374,580	1,373,889	1,345,251	1,343,402	1,338,097	1,352,386	1,368,460	1,391,669	1,375,913	1,354,105
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$14,013,010	$14,294,074	$14,163,182	$14,128,418	$14,404,558	$15,996,981	$17,083,368	$17,851,163	$18,562,478	$18,876,588
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$16,447,673	$16,564,437	$17,224,382	$8,512,619	$8,660,082	$9,239,426	$9,703,535	$10,081,922	$10,702,826	$10,979,947
MARKET SALES	$	Westar	$91,419,254	$93,027,842	$92,942,865	$94,991,704	$95,791,866	$102,345,788	$109,355,488	$115,947,513	$119,350,633	$122,383,950
MARKET SALES	$/MWh	MWE Generation	$85.05	$86.02	$87.91	$90.01	$91.73	$96.98	$101.09	$105.63	$110.78	$115.55
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$45.27	$45.60	$47.15	$47.42	$48.24	$51.47	$53.93	$56.16	$59.62	$61.16
MARKET SALES	$/MWh	Westar	$66.51	$67.71	$69.09	$70.71	$71.59	$75.68	$79.91	$83.32	$86.74	$90.38
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
MARKET PURCHASES	$/MWh	MWE Load	$51.27	$52.06	$52.87	$54.15	$54.89	$58.17	$61.01	$63.83	$66.84	$69.63
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$14,054,074	$14,314,384	$14,438,346	$11,245,141	$11,478,362	$11,865,416	$12,261,131	$12,616,658	$12,817,544	$12,974,344
TOTAL FUEL COSTS	$		$73,504,141	$74,842,308	$74,585,410	$76,106,722	$76,669,312	$82,681,910	$88,072,395	$93,591,209	$97,089,940	$99,390,265
TOTAL MARKET ENERGY COSTS	$		$103,567,720	$106,765,699	$110,016,703	$114,420,970	$117,688,515	$126,570,534	$134,776,638	$143,097,926	$152,125,391	$160,839,732
TOTAL MARKET ENERGY SALES	$		($121,879,936)	($123,886,353)	($124,330,429)	($117,632,741)	($118,856,505)	($127,582,195)	($136,142,391)	($143,880,599)	($148,615,936)	($152,240,485)
TOTAL CAPITAL RECOVERY	$		$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$118,408,815	$120,617,633	$122,643,386	$131,421,383	$133,598,041	$139,486,132	$144,242,494	$150,018,213	$157,315,387	$164,158,907

NPV @ 6.21% $1,250,478,473 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 6 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	1 x 1 CCGT	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	1 x 1 CCGT	0	0	0	0	0	0	0	0	1,235,675	1,253,181	1,282,687	1,276,907	1,257,297	1,250,792	1,251,261	1,252,242	1,288,299	1,305,169	1,284,916	1,266,420
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	91	91	91	117	117	117	117	117	130	117	130	130	130	130	117	130	130	65	143	143
GENERATION	MWh	Goodman Energy Center	79,078	79,192	89,148	92,302	97,166	100,168	93,176	98,534	99,712	102,410	103,968	105,032	102,448	99,294	97,926	104,500	106,438	107,996	106,932	104,766
GENERATION	MWh	Goodman Energy Center Expansion	29,633	30,227	31,995	33,615	36,288	36,032	36,059	36,707	36,477	38,246	37,814	38,489	37,382	37,962	37,436	38,327	38,907	38,462	39,002	39,393
GENERATION	MWh	JEC Participation	732,825	746,925	788,700	831,375	880,500	886,650	888,450	898,350	948,675	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	124,349	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	65,234	70,434	74,880	86,372	84,370	81,978	88,062	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	1 x 1 CCGT									37%	37%	38%	38%	37%	37%	37%	37%	38%	39%	38%	38%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	12%	12%	13%	14%	15%	15%	14%	15%	15%	15%	16%	16%	15%	15%	15%	16%	16%	16%	16%	16%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	12%	13%	14%	14%	15%	15%	15%	16%	15%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%
CAPACITY FACTOR	%	JEC Participation	56%	57%	60%	63%	67%	67%	68%	68%	72%											
CAPACITY FACTOR	%	UML Westar	9%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	6%	7%	8%	7%	7%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA																				
CAPACITY FACTOR	%	Westar Wind PPA																				
FIXED O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$3,996,598	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	1 x 1 CCGT									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$4,362,816	$4,537,866	$4,761,167	$4,867,225	$4,903,458	$5,003,638	$5,131,144	$5,261,000	$5,555,404	$5,759,146	$5,807,820	$5,876,190
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$1,944	$1,992	$2,042	$2,691	$2,759	$2,828	$2,898	$2,971	$3,383	$3,120	$3,554	$3,643	$3,735	$3,827	$3,531	$4,021	$4,122	$2,113	$4,703	$4,883
VARIABLE O&M COST	$	Goodman Energy Center	$493,593	$506,829	$584,823	$620,282	$669,635	$707,364	$674,772	$731,122	$758,881	$798,870	$830,902	$860,499	$860,563	$854,937	$863,724	$944,767	$986,908	$1,026,272	$1,041,518	$1,045,565
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$184,959	$193,450	$209,892	$225,897	$250,082	$254,446	$261,127	$272,362	$277,590	$298,341	$302,200	$315,323	$314,005	$326,858	$330,187	$346,503	$360,749	$365,494	$379,875	$393,142
VARIABLE O&M COST	$	JEC Participation	$19,650,006	$20,600,192	$22,408,968	$24,388,933	$26,698,358	$27,730,575	$28,641,699	$29,807,253	$32,316,911	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$3,967,376	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$289,639	$321,179	$349,690	$413,806	$414,350	$412,443	$453,519	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	1 x 1 CCGT									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$39,362,828	$41,358,098	$44,630,243	$45,215,939	$45,332,681	$46,240,146	$46,756,685	$49,709,022	$53,729,379	$56,994,871	$58,869,598	$60,440,298
FUEL COST	$	Colby	$4,822	$5,047	$5,671	$8,040	$8,774	$9,177	$9,461	$9,913	$11,394	$10,649	$12,468	$12,675	$12,908	$13,230	$12,090	$14,191	$14,899	$7,771	$17,986	$18,739
FUEL COST	$	Goodman Energy Center	$1,936,649	$2,030,114	$2,580,582	$2,938,211	$3,361,627	$3,633,141	$3,481,951	$3,860,733	$4,046,443	$4,308,810	$4,613,351	$4,742,178	$4,718,713	$4,675,852	$4,668,683	$5,283,570	$5,650,473	$6,010,199	$6,242,700	$6,361,330
FUEL COST	$	Goodman Energy Center Expansion	$729,421	$777,667	$930,081	$1,071,786	$1,262,307	$1,309,918	$1,353,172	$1,445,605	$1,485,684	$1,614,194	$1,683,088	$1,742,637	$1,724,025	$1,795,514	$1,795,913	$1,943,674	$2,071,884	$2,146,340	$2,281,900	$2,401,884
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,009,202	$2,452,801	$2,862,647	$3,599,714	$3,677,741	$3,685,152	$4,152,899	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 6 (-10% Natural Gas Prices) - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT									6.28	6.27
AVERAGE HEAT RATE	MMBtu/MWh	Colby	17.32	17.33	17.26	17.31	17.32	17.31	17.32	17.29	17.29	17.30
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.00	8.01	8.02	8.02	7.99	8.01	8.00	8.00	8.00	8.00
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.04	8.04	8.05	8.03	8.03	8.03	8.04	8.04	8.03	8.02
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		9.62	9.65	9.63	9.63	9.62	9.63	9.62		
CAPITAL RECOVERY	$	1 x 1 CCGT									$44,517,000	$43,737,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	252	94
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	108,802	109,510	121,234	126,034	133,571	136,317	129,352	135,358	136,319	140,773
GENERATION	MWh	MWE Load	133,077	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	732,825	812,159	859,134	906,255	966,872	971,020	970,428	986,412	2,184,350	1,253,181
MARKET SALES	MWh	MWE Generation	108,802	109,510	121,234	126,034	133,571	136,317	129,352	135,358	136,319	140,773
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	732,825	812,159	859,134	906,255	966,872	971,020	970,428	986,412	2,184,349	1,253,181
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	133,077	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	1	0
MARKET SALES	$	MWE Generation	$4,108,841	$4,309,183	$5,346,408	$6,072,766	$6,929,039	$7,358,987	$7,166,373	$7,820,019	$8,246,665	$8,795,610
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,427,215	$7,134,310	$7,925,126	$8,744,283	$9,646,547	$9,974,081	$10,306,560	$10,922,193	$11,208,132	$11,613,628
MARKET SALES	$	Westar	$17,143,776	$21,159,313	$25,276,148	$29,249,893	$34,255,969	$35,736,161	$36,853,275	$39,070,391	$94,698,336	$60,617,376
MARKET SALES	$/MWh	MWE Generation	$37.76	$39.35	$44.10	$48.18	$51.88	$53.98	$55.40	$57.77	$60.50	$62.48
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$18.56	$19.64	$21.81	$24.07	$26.46	$27.45	$28.37	$30.06	$30.75	$31.97
MARKET SALES	$/MWh	Westar	$23.39	$26.05	$29.42	$32.28	$35.43	$36.80	$37.98	$39.61	$43.35	$48.37
MARKET PURCHASES	MWh	MWE Load	1,643,917	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$32,685,678	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695
MARKET PURCHASES	$/MWh	MWE Load	$19.88	$22.13	$25.01	$27.49	$30.08	$31.42	$32.34	$33.87	$35.05	$36.43
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$40,221,364	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$27,876,070	$28,762,608	$30,770,800	$32,906,641	$35,455,014	$36,583,193	$37,545,876	$38,901,214	$45,461,443	$13,191,713
TOTAL FUEL COSTS	$		$2,670,892	$4,822,029	$5,969,135	$6,880,683	$8,232,422	$8,629,976	$8,529,736	$9,469,149	$44,906,349	$47,291,752
TOTAL MARKET ENERGY COSTS	$		$32,685,678	$40,724,771	$44,431,860	$49,662,739	$55,349,117	$58,546,197	$61,172,066	$65,102,932	$68,631,028	$72,489,695
TOTAL MARKET ENERGY SALES	$		($24,679,832)	($32,602,806)	($38,547,081)	($44,066,941)	($50,831,555)	($53,069,229)	($54,326,208)	($57,812,602)	($114,153,133)	($81,026,614)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$44,517,000	$43,737,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$85,514,911	$81,734,473	$83,649,988	$87,432,530	$91,172,938	$94,731,981	$98,064,059	$101,937,075	$129,584,051	$101,806,046

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT	6.27	6.27	6.27	6.28	6.26	6.28	6.28	6.27	6.28	6.28
AVERAGE HEAT RATE	MMBtu/MWh	Colby	17.28	17.26	17.27	17.28	17.31	17.27	17.26	17.18	17.25	17.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.00	7.99	8.01	8.00	7.99	8.00	8.00	8.00	8.01	7.99
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.02	8.01	8.02	8.03	8.04	8.02	8.02	8.02	8.03	8.02
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	1 x 1 CCGT	$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	90	85	81	71	67	63	60	55	49	44
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	141,912	143,651	139,960	137,386	135,479	142,957	145,475	146,523	146,077	144,302
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,282,687	1,276,907	1,257,297	1,250,792	1,251,261	1,252,242	1,288,299	1,305,169	1,284,916	1,266,420
MARKET SALES	MWh	MWE Generation	141,912	143,651	139,960	137,386	135,479	142,957	145,475	146,523	146,077	144,302
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,282,687	1,276,907	1,257,297	1,250,792	1,251,262	1,252,243	1,288,299	1,305,169	1,284,916	1,266,420
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$9,341,724	$9,548,863	$9,510,248	$9,530,319	$9,608,783	$10,719,132	$11,380,864	$11,960,079	$12,507,718	$12,840,685
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$12,335,754	$12,423,300	$12,918,293	$6,384,474	$6,495,068	$6,929,573	$7,277,637	$7,561,450	$8,027,108	$8,234,973
MARKET SALES	$	Westar	$65,053,188	$66,018,552	$66,191,142	$67,476,542	$68,296,070	$72,466,930	$78,351,427	$82,818,081	$84,922,859	$87,258,357
MARKET SALES	$/MWh	MWE Generation	$65.83	$66.47	$67.95	$69.37	$70.92	$74.98	$78.23	$81.63	$85.62	$88.98
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$33.96	$34.20	$35.36	$35.57	$36.18	$38.60	$40.45	$42.12	$44.72	$45.87
MARKET SALES	$/MWh	Westar	$50.72	$51.70	$52.65	$53.95	$54.58	$57.87	$60.82	$63.45	$66.09	$68.90
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
MARKET PURCHASES	$/MWh	MWE Load	$38.45	$39.04	$39.65	$40.61	$41.17	$43.63	$45.76	$47.87	$50.13	$52.22
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$13,529,826	$13,759,473	$13,917,168	$10,705,841	$10,931,333	$11,245,295	$11,696,700	$12,021,453	$12,195,750	$12,376,698
TOTAL FUEL COSTS	$		$50,939,150	$51,713,428	$51,788,327	$52,724,741	$53,233,370	$56,950,457	$61,466,634	$65,159,182	$67,412,184	$69,222,251
TOTAL MARKET ENERGY COSTS	$		$77,675,806	$80,074,487	$82,512,596	$85,815,903	$88,266,600	$94,928,071	$101,082,202	$107,324,119	$114,094,262	$120,629,609
TOTAL MARKET ENERGY SALES	$		($86,730,666)	($87,990,715)	($88,619,683)	($83,391,335)	($84,309,921)	($90,115,635)	($97,009,927)	($102,339,610)	($105,457,685)	($108,334,014)
TOTAL CAPITAL RECOVERY	$		$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$104,636,931	$106,138,267	$107,531,765	$113,136,441	$114,649,740	$118,958,656	$122,510,330	$126,758,163	$132,142,960	$137,089,594

NPV @ 6.21% $1,148,357,782 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 6 (CO2) - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	1 x 1 CCGT	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	1 x 1 CCGT	0	0	0	0	0	0	0	0	1,312,582	1,339,675	1,370,256	1,369,695	1,355,913	1,354,021	1,357,408	1,359,070	1,374,541	1,397,365	1,386,745	1,358,005
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	130	130	156	143	156	156	156	156	169	156	156	156	156	78	195	169
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,450	105,716	111,872	114,532	118,370	120,916	121,752	119,168	116,014	116,584	123,728	125,020	126,122	124,830	120,954
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	37,922	40,419	41,351	41,324	43,767	43,727	44,496	43,632	44,199	43,970	45,212	45,860	45,252	45,266	45,050
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	965,925	828,450	820,575	850,050	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	68,094	75,712	81,120	93,912	89,102	91,208	97,760	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	1 x 1 CCGT									39%	40%	41%	41%	40%	40%	40%	40%	41%	41%	41%	40%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	16%	17%	17%	18%	18%	18%	18%	17%	18%	19%	19%	19%	19%	18%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	17%	17%	17%	19%	18%	19%	18%	19%	19%	19%	19%	19%	19%	19%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	63%	62%	65%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	9%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA																				
CAPACITY FACTOR	%	Westar Wind PPA																				
FIXED O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$3,996,598	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	1 x 1 CCGT									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$4,634,289	$4,850,975	$5,086,017	$5,220,740	$5,288,062	$5,416,554	$5,566,346	$5,709,767	$5,927,166	$6,165,739	$6,268,089	$6,301,143
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$3,065	$3,142	$3,864	$3,631	$4,059	$4,161	$4,265	$4,371	$4,855	$4,593	$4,708	$4,825	$4,947	$2,535	$6,495	$5,771
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$744,614	$765,562	$830,090	$871,661	$923,416	$966,377	$997,532	$1,001,011	$998,896	$1,028,354	$1,118,658	$1,159,337	$1,198,615	$1,215,844	$1,207,121
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$267,774	$292,697	$306,821	$314,472	$341,429	$349,467	$364,558	$366,509	$380,559	$387,841	$408,768	$425,260	$430,056	$440,886	$449,594
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,205,832	$26,706,123	$27,226,679	$28,957,023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,394,172	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$302,337	$345,247	$378,830	$449,923	$437,491	$458,870	$503,464	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,068	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	1 x 1 CCGT									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.27	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$46,460,782	$49,114,031	$52,962,084	$53,864,749	$54,338,518	$55,625,402	$56,351,170	$59,923,062	$63,701,559	$67,814,802	$70,576,017	$71,989,779
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$10,811	$11,307	$14,010	$13,423	$15,229	$15,797	$16,677	$16,955	$18,621	$17,694	$17,933	$18,983	$19,929	$10,373	$27,405	$24,684
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,250,475	$4,383,474	$4,864,745	$5,159,930	$5,529,616	$5,955,773	$6,101,802	$6,085,747	$6,068,247	$6,171,284	$6,940,778	$7,367,994	$7,792,470	$8,074,959	$8,150,682
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,106,812	$1,266,550	$1,481,309	$1,531,411	$1,682,922	$1,807,147	$1,868,812	$2,050,370	$2,160,429	$2,236,116	$2,230,850	$2,320,618	$2,341,814	$2,544,072	$2,710,716	$2,803,435	$2,935,127	$3,049,445
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,331,432	$2,929,599	$3,449,290	$4,349,280	$4,318,119	$4,557,430	$5,119,310	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 6 (CO2) - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT									6.98	6.97
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.21	19.20	19.23	19.16	19.26	19.25
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.87	8.89	8.88
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.92	8.92	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.70	10.72	10.71	10.70	10.70	10.70	10.69		
CO2 EMISSIONS	lbs	1 x 1 CCGT	0	0	0	0	0	0	0	0	1,094,133,120	1,117,059,584
CO2 EMISSIONS	lbs	Colby	266,760	237,120	266,760	266,760	296,400	296,400	355,680	326,040	355,680	355,680
CO2 EMISSIONS	lbs	Goodman Energy Center	92,352,912	92,325,744	101,854,272	105,571,968	109,538,160	112,806,720	113,113,536	119,685,552	122,513,952	126,573,360
CO2 EMISSIONS	lbs	Goodman Energy Center Expansion	34,651,920	35,067,744	36,735,840	38,268,288	41,050,752	40,573,104	43,248,864	44,254,128	44,218,416	46,820,352
CO2 EMISSIONS	lbs	JEC Participation	1,831,423,720	1,869,711,544	2,006,750,872	2,115,203,760	2,248,951,976	2,243,754,216	1,924,804,360	1,899,683,312	1,973,314,720	0
CO2 EMISSIONS	lbs	UML Westar	425,696,895	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Westar PPA	0	87,350,981	97,123,350	104,060,733	120,470,311	114,300,041	117,001,620	125,406,527	0	0
CO2 COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,529,697
CO2 COST	$	Colby	$0	$0	$0	$0	$0	$0	$0	$1,778	$1,936	$2,445
CO2 COST	$	Goodman Energy Center	$0	$0	$0	$0	$0	$0	$4,142	$566,570	$710,633	$842,672
CO2 COST	$	Goodman Energy Center Expansion	$0	$0	$0	$0	$0	$0	$1,474	$216,601	$262,759	$304,001
CO2 COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$132,536	$9,654,410	$11,279,387	$13,576,303
CO2 COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$585,946	$744,602	$0
CAPITAL RECOVERY	$	1 x 1 CCGT									$44,517,000	$43,737,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	252	94
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	143,502	146,291	153,366	156,012	162,293
GENERATION	MWh	MWE Load	209,104	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,055,027	919,658	918,335	2,162,632	1,339,675
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	143,502	146,291	153,366	156,012	162,293
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,055,027	919,658	918,335	2,162,631	1,339,675
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,104	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	1	0
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,031,299	$8,519,943	$9,915,322	$11,000,584	$11,858,426	$12,893,770
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$12,929,898	$13,911,298	$14,489,882	$15,215,874
MARKET SALES	$	Westar	$20,624,043	$25,276,218	$30,560,369	$35,353,082	$41,270,519	$42,553,078	$44,241,885	$46,904,959	$121,182,946	$83,408,709
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$57.00	$59.37	$67.78	$71.73	$76.01	$79.45
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$35.59	$38.29	$39.75	$41.88
MARKET SALES	$/MWh	Westar	$26.15	$28.98	$32.52	$35.53	$38.84	$40.33	$48.11	$51.08	$56.03	$62.26
MARKET PURCHASES	MWh	MWE Load	1,567,889	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,771,717	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346
MARKET PURCHASES	$/MWh	MWE Load	$21.54	$24.59	$27.79	$30.55	$33.42	$34.91	$40.56	$43.12	$45.29	$47.71
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$40,221,364	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,860,881	$30,410,453	$32,987,242	$35,412,927	$38,218,871	$39,132,483	$35,780,052	$36,504,671	$42,523,367	$13,673,496
TOTAL FUEL COSTS	$		$3,235,255	$5,727,368	$7,103,749	$8,214,497	$9,776,005	$10,111,312	$10,637,835	$11,804,625	$53,504,753	$56,709,814
TOTAL MARKET ENERGY COSTS	$		$33,771,717	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$76,717,385	$82,889,564	$88,693,250	$94,934,346
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($38,326,148)	($45,630,901)	($52,176,382)	($60,020,187)	($62,155,323)	($67,087,105)	($71,816,842)	($147,531,254)	($111,518,353)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$44,517,000	$43,737,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CO2 COSTS	$		$0	$0	$0	$0	$0	$0	$138,152	$11,025,306	$12,999,316	$22,255,119
TOTAL COSTS	$		$86,499,687	$83,089,245	$84,854,652	$88,681,253	$92,441,687	$96,181,551	$101,328,909	$116,683,706	$134,927,797	$125,913,921

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT	6.96	6.96	6.97	6.97	6.95	6.98	6.98	6.97	6.98	6.98
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.24	19.16	19.26	19.26	19.25	19.24	19.11	19.28	19.22
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.87	8.87	8.88	8.88	8.87	8.88	8.88	8.88	8.87	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.90	8.89	8.89	8.91	8.92	8.90	8.90	8.90	8.89	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CO2 EMISSIONS	lbs	1 x 1 CCGT	1,142,094,821	1,142,074,592	1,130,531,120	1,128,769,304	1,131,516,054	1,132,947,438	1,146,423,244	1,165,204,564	1,155,631,166	1,132,046,274
CO2 EMISSIONS	lbs	Colby	355,680	355,680	385,320	355,680	355,680	355,680	355,680	177,840	444,600	385,320
CO2 EMISSIONS	lbs	Goodman Energy Center	129,294,336	130,164,192	127,467,888	124,143,744	124,687,344	132,289,728	133,680,000	134,817,792	133,414,560	129,386,304
CO2 EMISSIONS	lbs	Goodman Energy Center Expansion	46,763,184	47,590,176	46,682,592	47,283,744	47,036,592	48,350,544	49,046,832	48,414,912	48,405,168	48,196,272
CO2 EMISSIONS	lbs	JEC Participation	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	UML Westar	0	0	0	0	0	0	0	0	0	0
CO2 EMISSIONS	lbs	Westar PPA	0	0	0	0	0	0	0	0	0	0
CO2 COST	$	1 x 1 CCGT	$8,738,670	$10,011,765	$11,082,886	$12,011,889	$13,055,061	$14,146,477	$14,519,919	$15,063,657	$15,693,517	$15,945,002
CO2 COST	$	Colby	$2,779	$3,112	$3,446	$4,094	$4,113	$4,446	$4,557	$4,671	$2,394	$6,134
CO2 COST	$	Goodman Energy Center	$989,550	$1,132,635	$1,262,813	$1,354,346	$1,435,494	$1,558,722	$1,695,201	$1,756,214	$1,815,491	$1,840,808
CO2 COST	$	Goodman Energy Center Expansion	$366,031	$409,644	$461,688	$496,003	$546,748	$588,003	$619,576	$644,343	$651,966	$667,878
CO2 COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CO2 COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CAPITAL RECOVERY	$	1 x 1 CCGT	$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	90	85	81	71	67	63	60	55	49	44
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	164,799	166,404	162,969	160,369	160,710	169,096	171,036	171,452	170,291	166,173
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,370,256	1,369,695	1,355,913	1,354,021	1,357,408	1,359,070	1,374,541	1,397,365	1,386,745	1,358,005
MARKET SALES	MWh	MWE Generation	164,799	166,404	162,969	160,369	160,710	169,096	171,036	171,452	170,291	166,173
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,370,256	1,369,696	1,355,913	1,354,021	1,357,408	1,359,070	1,374,541	1,397,365	1,386,745	1,358,005
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$13,893,615	$14,388,347	$14,565,715	$14,810,180	$15,304,529	$16,904,799	$17,795,732	$18,552,423	$19,245,274	$19,519,787
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$16,311,271	$16,660,381	$17,553,793	$8,774,973	$9,039,981	$9,583,469	$10,016,290	$10,362,281	$10,955,075	$11,206,171
MARKET SALES	$	Westar	$90,332,988	$93,235,821	$95,164,128	$98,321,887	$100,999,025	$106,370,749	$113,067,835	$119,334,967	$122,639,948	$124,985,634
MARKET SALES	$/MWh	MWE Generation	$84.31	$86.47	$89.38	$92.35	$95.23	$99.97	$104.05	$108.21	$113.01	$117.47
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$44.90	$45.86	$48.05	$48.88	$50.36	$53.39	$55.67	$57.72	$61.03	$62.42
MARKET SALES	$/MWh	Westar	$65.92	$68.07	$70.18	$72.61	$74.41	$78.27	$82.26	$85.40	$88.44	$92.04
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
MARKET PURCHASES	$/MWh	MWE Load	$50.82	$52.33	$53.86	$55.78	$57.26	$60.29	$62.95	$65.57	$68.38	$71.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$14,038,128	$14,299,986	$14,495,845	$11,317,182	$11,589,996	$11,930,933	$12,306,168	$12,665,373	$12,893,090	$13,020,547
TOTAL FUEL COSTS	$		$61,094,963	$62,219,622	$62,673,736	$64,031,961	$64,882,201	$69,426,895	$73,800,198	$78,421,081	$81,613,508	$83,214,590
TOTAL MARKET ENERGY COSTS	$		$102,665,466	$107,336,250	$112,079,636	$117,875,105	$122,769,690	$131,194,800	$139,051,712	$147,001,665	$155,639,867	$164,057,417
TOTAL MARKET ENERGY SALES	$		($120,537,874)	($124,284,548)	($127,283,636)	($121,907,039)	($125,343,534)	($132,859,017)	($140,879,856)	($148,249,670)	($152,840,297)	($155,711,591)
TOTAL CAPITAL RECOVERY	$		$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL CO2 COSTS	$		$10,097,030	$11,557,156	$12,810,833	$13,866,331	$15,041,415	$16,297,648	$16,839,252	$17,468,886	$18,163,368	$18,459,822
TOTAL COSTS	$		$116,580,530	$119,710,059	$122,709,769	$132,464,832	$135,558,125	$141,941,727	$146,392,195	$151,900,354	$159,367,983	$166,235,835

NPV @ 6.21% $1,261,679,242 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 6 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	1 x 1 CCGT	0	0	0	0	0	0	0	0	385	385	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	1 x 1 CCGT	0	0	0	0	0	0	0	0	1,273,185	1,290,182	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	130	130	130	143	143	130	156	143	143	130	143	143	143	65	143	156
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364	110,314	111,834	107,502	104,386	104,044	111,074	112,062	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,745	40,473	39,974	40,838	39,245	40,028	39,852	40,649	41,040	40,433	41,472	41,270
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	200,376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	68,094	75,712	81,120	93,912	89,882	86,476	93,652	0	0	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	1 x 1 CCGT									38%	38%	39%	39%	38%	38%	38%	38%	39%	40%	39%	39%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%																
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%	17%	17%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%	17%	17%	17%	17%	17%	17%	17%	17%	18%	17%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%											
CAPACITY FACTOR	%	UML Westar	15%																			
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%										
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	8%												
CAPACITY FACTOR	%	Smoky Hills Wind PPA																				
CAPACITY FACTOR	%	Westar Wind PPA																				
FIXED O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$3,996,598	$4,092,948	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	1 x 1 CCGT									$10.37	$10.62	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38																
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62											
FIXED O&M COST	$/kW-yr	UML Westar	$110.38																			
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65										
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07												
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$4,495,227	$4,671,825	$4,892,573	$4,996,935	$4,989,973	$5,168,063	$5,262,291	$5,441,839	$5,710,870	$5,886,607	$5,975,048	$6,051,586
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$3,065	$3,142	$3,220	$3,631	$3,721	$3,467	$4,265	$4,007	$4,108	$3,827	$4,316	$4,423	$4,535	$2,113	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169	$881,667	$916,351	$903,017	$898,779	$917,752	$1,004,266	$1,039,112	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,849	$315,736	$319,480	$334,612	$329,654	$344,642	$351,524	$367,518	$380,546	$384,258	$403,937	$411,870
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$6,394,172	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,600	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$302,337	$345,247	$378,830	$449,923	$441,414	$435,068	$482,308	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,008	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	1 x 1 CCGT									$3.53	$3.62	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City																				
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07											
VARIABLE O&M COST	$/MWh	UML Westar	$31.91																			
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55										
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15												
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$45,065,922	$47,303,693	$50,943,500	$51,563,777	$51,278,671	$53,069,284	$53,300,429	$57,115,082	$61,359,969	$64,757,747	$67,278,011	$69,153,643
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$10,811	$11,307	$11,657	$13,423	$13,902	$13,122	$16,077	$15,478	$15,750	$14,700	$10,371	$17,329	$18,193	$8,634	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181	$5,433,945	$5,606,460	$5,499,261	$5,462,524	$5,508,414	$6,240,420	$6,607,520	$7,009,105	$7,374,072	$7,416,372
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,100,812	$1,266,550	$1,481,309	$1,539,045	$1,603,484	$1,683,344	$1,751,734	$1,896,890	$1,975,147	$2,053,338	$2,009,796	$2,103,130	$2,122,669	$2,291,079	$2,427,362	$2,506,714	$2,694,035	$2,794,651
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,331,432	$2,929,599	$3,449,290	$4,349,280	$4,355,936	$4,322,103	$4,906,695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 6 (Market Capacity Sales) - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT									6.98	6.97
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.21	19.20	19.20	19.16	19.18	19.19
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.93	8.92	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.70	10.72	10.71	10.70	10.70	10.70	10.69		
CAPITAL RECOVERY	$	1 x 1 CCGT									$44,517,000	$43,737,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	252	94
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	($3,204,658)	($1,283,849)	($1,904,752)	($1,615,276)	($1,164,016)	($872,060)	($537,750)	($162,652)	($19,387,007)	($7,419,292)
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,136	149,967
GENERATION	MWh	MWE Load	209,104	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	2,313,285	1,290,182
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,136	149,967
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	2,313,284	1,290,182
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,104	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	1	0
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,031,299	$8,555,635	$8,399,299	$9,067,460	$9,627,633	$10,278,929
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023
MARKET SALES	$	Westar	$20,624,043	$25,276,218	$30,560,369	$35,353,082	$41,270,519	$42,763,074	$44,006,380	$46,697,297	$109,999,984	$68,865,398
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$57.00	$59.32	$60.72	$63.54	$66.34	$68.54
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52
MARKET SALES	$/MWh	Westar	$26.15	$28.98	$32.52	$35.53	$38.84	$40.33	$41.61	$43.37	$47.55	$53.38
MARKET PURCHASES	MWh	MWE Load	1,567,889	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,771,717	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
MARKET PURCHASES	$/MWh	MWE Load	$21.54	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,967,940	$44,041,844	$45,142,589	$46,276,382	$40,221,364	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,860,881	$30,410,453	$32,987,242	$35,412,927	$38,218,871	$39,284,200	$40,296,465	$41,791,979	$48,776,134	$13,397,713
TOTAL FUEL COSTS	$		$3,235,255	$5,727,368	$7,103,749	$8,214,497	$9,776,005	$10,178,241	$10,072,621	$11,134,553	$51,618,443	$54,326,892
TOTAL MARKET ENERGY COSTS	$		$33,771,717	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($38,326,148)	($45,630,901)	($52,176,382)	($60,020,187)	($62,401,011)	($63,857,431)	($67,900,555)	($132,081,110)	($92,048,349)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$44,517,000	$43,737,000
TOTAL MARKET CAPACITY COSTS	$		($3,204,658)	($1,283,849)	($1,904,752)	($1,615,276)	($1,164,016)	($872,060)	($537,750)	($162,652)	($19,387,007)	($7,419,292)
TOTAL COSTS	$		$83,295,029	$81,805,396	$82,949,900	$87,065,977	$91,277,671	$95,282,450	$99,085,521	$103,476,226	$109,921,708	$98,660,520

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT	6.96	6.96	6.97	6.97	6.96	6.98	6.98	6.97	6.98	6.98
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.16	19.15	19.20	19.18	19.17	19.16	19.09	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.88	8.87	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.90	8.90	8.91	8.92	8.92	8.92	8.91	8.91	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	1 x 1 CCGT	$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	90	85	81	71	67	63	60	55	49	44
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	($7,273,933)	($7,057,202)	($6,836,469)	($6,208,929)	($5,956,306)	($5,803,289)	($5,583,540)	($5,253,151)	($4,845,264)	($4,482,239)
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	150,444	152,815	146,890	144,544	144,039	151,866	153,245	153,852	155,425	151,436
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
MARKET SALES	MWh	MWE Generation	150,444	152,815	146,890	144,544	144,039	151,866	153,245	153,852	155,425	151,436
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$10,867,786	$11,145,743	$10,980,215	$11,030,016	$11,207,603	$12,498,724	$13,178,220	$13,814,755	$14,589,498	$14,818,785
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$73,806,767	$74,833,077	$74,564,803	$76,856,129	$77,384,801	$82,608,625	$88,902,235	$93,586,320	$96,407,609	$99,110,578
MARKET SALES	$/MWh	MWE Generation	$72.24	$72.94	$74.75	$76.31	$77.81	$82.30	$85.99	$89.79	$93.87	$97.86
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$55.99	$57.08	$58.28	$59.49	$60.30	$63.78	$67.13	$70.15	$72.93	$75.99
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$13,729,988	$13,964,689	$14,062,160	$10,931,891	$11,138,630	$11,506,960	$11,924,520	$12,218,688	$12,454,034	$12,623,601
TOTAL FUEL COSTS	$		$58,369,269	$59,239,053	$58,803,477	$60,649,638	$60,947,882	$65,664,510	$70,413,044	$74,282,199	$77,366,101	$79,387,475
TOTAL MARKET ENERGY COSTS	$		$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($98,380,919)	($99,782,524)	($99,898,659)	($94,980,006)	($95,809,151)	($102,806,900)	($110,166,728)	($115,802,688)	($119,916,100)	($123,079,324)
TOTAL CAPITAL RECOVERY	$		$42,947,000	$42,149,000	$41,340,000	$40,521,000	$39,691,000	$38,850,000	$37,996,000	$37,130,000	$36,251,000	$35,357,000
TOTAL MARKET CAPACITY COSTS	$		($7,273,933)	($7,057,202)	($6,836,469)	($6,208,929)	($5,956,306)	($5,803,289)	($5,583,540)	($5,253,151)	($4,845,264)	($4,482,239)
TOTAL COSTS	$		$101,973,561	$103,917,422	$105,744,530	$113,024,838	$115,013,553	$119,987,205	$124,175,653	$129,287,132	$135,728,525	$141,677,151

NPV @ 6.21% $1,135,578,583 2016$

Midwest Energy Resource Plan Cost Summary

Scenario 6 - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ENERGY REQUIREMENTS	MWH	MWE	1,776,993	1,849,016	1,784,981	1,814,994	1,849,008	1,872,035	1,899,997	1,930,995	1,966,989	1,990,008
PEAK DEMAND	MW	MWE	381	391	393	398	403	407	411	416	421	425
CAPACITY	MW	1 x 1 CCGT	0	0	0	0	0	0	0	0	385	385
CAPACITY	MW	Bird City	2	2	2	2	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	150	150	150	150	150	150	150	150	150	0
CAPACITY	MW	UML Westar	155	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	3	3	3	3	3	3	3	3	3	0
CAPACITY	MW	Westar PPA	0	130	130	130	130	130	130	130	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	50	50	50	50	50	50	50
CAPACITY	MW	Westar Wind PPA	0	50	50	50	50	50	50	50	50	50
GENERATION	MWh	1 x 1 CCGT	0	0	0	0	0	0	0	0	1,273,185	1,290,182
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	117	104	117	117	130	130	130	143	143	130
GENERATION	MWh	Goodman Energy Center	86,222	86,184	95,152	98,648	102,410	105,982	99,712	104,082	106,248	109,364
GENERATION	MWh	Goodman Energy Center Expansion	32,333	32,724	34,290	35,748	38,367	38,111	38,489	38,475	38,745	40,473
GENERATION	MWh	JEC Participation	788,625	804,000	863,925	913,875	968,775	970,350	971,025	982,950	1,040,100	0
GENERATION	MWh	UML Westar	200,376	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	8,728	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Westar PPA	0	68,094	75,712	81,120	93,912	89,882	86,476	93,652	0	0
GENERATION	MWh	Smoky Hills Wind PPA	184,623	183,779	183,779	183,779	184,623	183,779	183,779	183,779	184,623	183,779
GENERATION	MWh	Westar Wind PPA	0	179,514	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514
CAPACITY FACTOR	%	1 x 1 CCGT									38%	38%
CAPACITY FACTOR	%	Bird City	0%	0%	0%	0%						
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	13%	13%	14%	15%	15%	16%	15%	16%	16%	16%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	14%	14%	14%	15%	16%	16%	16%	16%	16%	17%
CAPACITY FACTOR	%	JEC Participation	60%	61%	66%	70%	74%	74%	74%	75%	79%	
CAPACITY FACTOR	%	UML Westar	15%									
CAPACITY FACTOR	%	WAPA Hydro	34%	34%	34%	34%	34%	34%	34%	34%	34%	4%
CAPACITY FACTOR	%	Westar PPA		6%	7%	7%	8%	8%	8%	8%		
CAPACITY FACTOR	%	Smoky Hills Wind PPA										
CAPACITY FACTOR	%	Westar Wind PPA										
FIXED O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$3,996,598	$4,092,948
FIXED O&M COST	$	Bird City	$121,420	$124,460	$127,560	$130,760	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$199,810	$204,750	$209,820	$215,150	$220,480	$225,940	$231,660	$237,380	$243,360	$249,470
FIXED O&M COST	$	Goodman Energy Center	$1,051,080	$1,077,680	$1,104,280	$1,131,640	$1,160,520	$1,189,400	$1,219,040	$1,249,440	$1,280,600	$1,312,520
FIXED O&M COST	$	Goodman Energy Center Expansion	$373,410	$382,860	$392,310	$402,030	$412,290	$422,550	$433,080	$443,880	$454,950	$466,290
FIXED O&M COST	$	JEC Participation	$27,900,000	$28,597,500	$29,313,000	$30,044,999	$30,796,499	$31,566,000	$32,355,000	$33,164,999	$33,993,001	$0
FIXED O&M COST	$	UML Westar	$17,108,901	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$207,482	$216,920	$218,605	$224,029	$229,050	$235,354	$241,210	$251,582	$252,855	$1,272
FIXED O&M COST	$	Westar PPA	$0	$9,423,701	$9,660,300	$9,900,800	$10,149,101	$10,402,601	$10,662,600	$10,929,100	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	1 x 1 CCGT									$10.37	$10.62
FIXED O&M COST	$/kW-yr	Bird City	$60.71	$62.23	$63.78	$65.38						
FIXED O&M COST	$/kW-yr	Colby	$15.37	$15.75	$16.14	$16.55	$16.96	$17.38	$17.82	$18.26	$18.72	$19.19
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$13.83	$14.18	$14.53	$14.89	$15.27	$15.65	$16.04	$16.44	$16.85	$17.27
FIXED O&M COST	$/kW-yr	JEC Participation	$186.00	$190.65	$195.42	$200.30	$205.31	$210.44	$215.70	$221.10	$226.62	
FIXED O&M COST	$/kW-yr	UML Westar	$110.38									
FIXED O&M COST	$/kW-yr	WAPA Hydro	$71.55	$74.80	$75.38	$77.25	$78.98	$81.16	$83.18	$86.75	$87.19	$5.65
FIXED O&M COST	$/kW-yr	Westar PPA		$72.49	$74.31	$76.16	$78.07	$80.02	$82.02	$84.07		
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FIXED O&M COST	$/kW-yr	Westar Wind PPA		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$4,495,227	$4,671,825
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$2,499	$2,277	$2,625	$2,691	$3,065	$3,142	$3,220	$3,631	$3,721	$3,467
VARIABLE O&M COST	$	Goodman Energy Center	$538,177	$551,578	$624,209	$662,927	$705,773	$748,466	$722,147	$772,288	$808,619	$853,169
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$201,809	$209,434	$224,947	$240,231	$264,408	$269,143	$278,739	$285,485	$294,849	$315,736
VARIABLE O&M COST	$	JEC Participation	$21,146,031	$22,174,320	$24,546,317	$26,809,099	$29,375,327	$30,348,405	$31,304,354	$32,614,281	$35,431,854	$0
VARIABLE O&M COST	$	UML Westar	$6,394,172	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$199,000	$204,503	$209,676	$214,917	$220,291	$225,788	$231,494	$237,148	$243,113	$2,295
VARIABLE O&M COST	$	Westar PPA	$0	$302,337	$345,247	$378,830	$449,923	$441,414	$435,068	$482,308	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,378,593	$3,363,152	$3,363,152	$3,363,153	$3,378,593	$3,363,152	$3,363,153	$3,363,152	$3,378,593	$3,363,153
VARIABLE O&M COST	$	Westar Wind PPA	$0	$3,602,852	$3,671,008	$3,741,078	$3,821,490	$3,884,689	$3,958,290	$4,033,686	$4,120,157	$4,188,069
VARIABLE O&M COST	$/MWh	1 x 1 CCGT									$3.53	$3.62
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$21.36	$21.89	$22.44	$23.00	$23.58	$24.17	$24.77	$25.39	$26.02	$26.67
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$6.24	$6.40	$6.56	$6.72	$6.89	$7.06	$7.24	$7.42	$7.61	$7.80
VARIABLE O&M COST	$/MWh	JEC Participation	$26.81	$27.58	$28.41	$29.34	$30.32	$31.28	$32.24	$33.18	$34.07	
VARIABLE O&M COST	$/MWh	UML Westar	$31.91									
VARIABLE O&M COST	$/MWh	WAPA Hydro	$22.87	$23.43	$24.02	$24.62	$25.24	$25.87	$26.52	$27.17	$27.85	$28.55
VARIABLE O&M COST	$/MWh	Westar PPA		$4.44	$4.56	$4.67	$4.79	$4.91	$5.03	$5.15		
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30	$18.30
VARIABLE O&M COST	$/MWh	Westar Wind PPA		$20.07	$20.45	$20.84	$21.24	$21.64	$22.05	$22.47	$22.90	$23.33
FUEL COST	$/MMBtu	Natural Gas	$3.06	$3.20	$3.61	$3.97	$4.33	$4.53	$4.67	$4.90	$5.07	$5.26
FUEL COST	$/MMBtu	Coal	$1.89	$1.95	$2.01	$2.07	$2.14	$2.21	$2.28	$2.34	$2.41	$2.47
FUEL COST	$	1 x 1 CCGT	$0	$0	$0	$0	$0	$0	$0	$0	$45,065,922	$47,303,693
FUEL COST	$	Colby	$6,874	$6,407	$8,114	$8,933	$10,811	$11,307	$11,657	$13,423	$13,902	$13,122
FUEL COST	$	Goodman Energy Center	$2,344,758	$2,454,359	$3,059,225	$3,489,723	$3,934,605	$4,271,953	$4,135,377	$4,531,091	$4,786,885	$5,113,181
FUEL COST	$	Goodman Energy Center Expansion	$883,623	$935,170	$1,100,812	$1,266,550	$1,481,309	$1,539,045	$1,603,484	$1,683,344	$1,751,734	$1,896,896
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$2,331,432	$2,929,599	$3,449,290	$4,349,280	$4,355,936	$4,322,103	$4,906,695	$0	$0

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
ENERGY REQUIREMENTS	MWH	MWE	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,994
PEAK DEMAND	MW	MWE	429	434	438	442	446	449	453	457	462	467
CAPACITY	MW	1 x 1 CCGT	385	385	385	385	385	385	385	385	385	385
CAPACITY	MW	Bird City	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Colby	13	13	13	13	13	13	13	13	13	13
CAPACITY	MW	Goodman Energy Center	76	76	76	76	76	76	76	76	76	76
CAPACITY	MW	Goodman Energy Center Expansion	27	27	27	27	27	27	27	27	27	27
CAPACITY	MW	JEC Participation	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	UML Westar	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Westar PPA	0	0	0	0	0	0	0	0	0	0
CAPACITY	MW	Smoky Hills Wind PPA	50	50	50	0	0	0	0	0	0	0
CAPACITY	MW	Westar Wind PPA	50	50	50	50	50	50	50	50	50	50
GENERATION	MWh	1 x 1 CCGT	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
GENERATION	MWh	Bird City	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Colby	156	143	143	130	143	143	143	65	143	156
GENERATION	MWh	Goodman Energy Center	110,314	111,834	107,502	104,386	104,044	111,074	112,062	113,354	113,810	110,010
GENERATION	MWh	Goodman Energy Center Expansion	39,974	40,838	39,245	40,028	39,852	40,649	41,040	40,433	41,472	41,270
GENERATION	MWh	JEC Participation	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	UML Westar	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	WAPA Hydro	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Westar PPA	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Smoky Hills Wind PPA	183,779	183,779	185,421	0	0	0	0	0	0	0
GENERATION	MWh	Westar Wind PPA	179,514	179,514	179,920	179,514	179,514	179,514	179,920	179,514	179,514	179,514
CAPACITY FACTOR	%	1 x 1 CCGT	39%	39%	38%	38%	38%	38%	39%	40%	39%	39%
CAPACITY FACTOR	%	Bird City										
CAPACITY FACTOR	%	Colby	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CAPACITY FACTOR	%	Goodman Energy Center	17%	17%	16%	16%	16%	17%	17%	17%	17%	17%
CAPACITY FACTOR	%	Goodman Energy Center Expansion	17%	17%	17%	17%	17%	17%	17%	17%	18%	17%
CAPACITY FACTOR	%	JEC Participation										
CAPACITY FACTOR	%	UML Westar										
CAPACITY FACTOR	%	WAPA Hydro										
CAPACITY FACTOR	%	Westar PPA										
CAPACITY FACTOR	%	Smoky Hills Wind PPA										
CAPACITY FACTOR	%	Westar Wind PPA										
FIXED O&M COST	$	1 x 1 CCGT	$4,197,006	$4,301,064	$4,408,976	$4,520,742	$4,632,508	$4,748,128	$4,867,602	$4,990,930	$5,114,258	$5,241,440
FIXED O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Colby	$255,710	$262,080	$268,580	$275,340	$282,230	$289,250	$296,530	$303,940	$311,480	$319,280
FIXED O&M COST	$	Goodman Energy Center	$1,345,200	$1,379,400	$1,413,600	$1,449,320	$1,485,040	$1,522,280	$1,560,280	$1,599,800	$1,639,320	$1,680,360
FIXED O&M COST	$	Goodman Energy Center Expansion	$477,900	$490,050	$502,200	$514,890	$527,580	$540,810	$554,310	$568,350	$582,390	$596,970
FIXED O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Smoky Hills Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$	Westar Wind PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FIXED O&M COST	$/kW-yr	1 x 1 CCGT	$10.89	$11.16	$11.44	$11.73	$12.02	$12.32	$12.63	$12.95	$13.27	$13.60
FIXED O&M COST	$/kW-yr	Bird City										
FIXED O&M COST	$/kW-yr	Colby	$19.67	$20.16	$20.66	$21.18	$21.71	$22.25	$22.81	$23.38	$23.96	$24.56
FIXED O&M COST	$/kW-yr	Goodman Energy Center	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	Goodman Energy Center Expansion	$17.70	$18.15	$18.60	$19.07	$19.54	$20.03	$20.53	$21.05	$21.57	$22.11
FIXED O&M COST	$/kW-yr	JEC Participation										
FIXED O&M COST	$/kW-yr	UML Westar										
FIXED O&M COST	$/kW-yr	WAPA Hydro										
FIXED O&M COST	$/kW-yr	Westar PPA										
FIXED O&M COST	$/kW-yr	Smoky Hills Wind PPA	$0.00	$0.00	$0.00							
FIXED O&M COST	$/kW-yr	Westar Wind PPA	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
VARIABLE O&M COST	$	1 x 1 CCGT	$4,892,573	$4,996,935	$4,989,973	$5,168,063	$5,262,291	$5,441,839	$5,710,870	$5,886,607	$5,975,048	$6,051,586
VARIABLE O&M COST	$	Bird City	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Colby	$4,265	$4,007	$4,108	$3,827	$4,316	$4,423	$4,535	$2,113	$4,763	$5,327
VARIABLE O&M COST	$	Goodman Energy Center	$881,667	$916,351	$903,017	$898,779	$917,752	$1,004,266	$1,039,112	$1,077,283	$1,108,509	$1,097,900
VARIABLE O&M COST	$	Goodman Energy Center Expansion	$319,480	$334,612	$329,654	$344,642	$351,524	$367,518	$380,546	$384,258	$403,937	$411,870
VARIABLE O&M COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	WAPA Hydro	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Smoky Hills Wind PPA	$3,363,153	$3,363,152	$3,393,195	$0	$0	$0	$0	$0	$0	$0
VARIABLE O&M COST	$	Westar Wind PPA	$4,268,850	$4,349,632	$4,442,213	$4,516,580	$4,602,747	$4,688,914	$4,789,458	$4,868,428	$4,961,775	$5,056,918
VARIABLE O&M COST	$/MWh	1 x 1 CCGT	$3.71	$3.81	$3.90	$4.00	$4.10	$4.20	$4.31	$4.41	$4.52	$4.64
VARIABLE O&M COST	$/MWh	Bird City										
VARIABLE O&M COST	$/MWh	Colby	$27.34	$28.02	$28.73	$29.44	$30.18	$30.93	$31.71	$32.50	$33.31	$34.15
VARIABLE O&M COST	$/MWh	Goodman Energy Center	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	Goodman Energy Center Expansion	$7.99	$8.19	$8.40	$8.61	$8.82	$9.04	$9.27	$9.50	$9.74	$9.98
VARIABLE O&M COST	$/MWh	JEC Participation										
VARIABLE O&M COST	$/MWh	UML Westar										
VARIABLE O&M COST	$/MWh	WAPA Hydro										
VARIABLE O&M COST	$/MWh	Westar PPA										
VARIABLE O&M COST	$/MWh	Smoky Hills Wind PPA	$18.30	$18.30	$18.30							
VARIABLE O&M COST	$/MWh	Westar Wind PPA	$23.78	$24.23	$24.69	$25.16	$25.64	$26.12	$26.62	$27.12	$27.64	$28.17
FUEL COST	$/MMBtu	Natural Gas	$5.55	$5.65	$5.75	$5.89	$5.97	$6.32	$6.64	$6.96	$7.29	$7.60
FUEL COST	$/MMBtu	Coal	$2.54	$2.61	$2.68	$2.75	$2.83	$2.90	$2.98	$3.06	$3.14	$3.23
FUEL COST	$	1 x 1 CCGT	$50,943,500	$51,563,777	$51,278,671	$53,009,284	$53,300,429	$57,115,082	$61,359,969	$64,757,747	$67,278,011	$69,153,643
FUEL COST	$	Colby	$10,677	$15,478	$15,750	$14,700	$16,371	$17,329	$18,193	$8,634	$19,984	$22,809
FUEL COST	$	Goodman Energy Center	$5,433,945	$5,606,460	$5,499,261	$5,462,524	$5,508,414	$6,240,420	$6,607,520	$7,009,105	$7,374,072	$7,416,372
FUEL COST	$	Goodman Energy Center Expansion	$1,975,147	$2,053,338	$2,009,706	$2,103,130	$2,122,609	$2,291,079	$2,427,362	$2,500,714	$2,694,035	$2,794,651
FUEL COST	$	JEC Participation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	UML Westar	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
FUEL COST	$	Westar PPA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Midwest Energy Resource Plan Cost Summary

Scenario 6 - 130 MW Westar SCGT PPA (2017-2023) and 385 MW 1x1 F Class CCGT (2024+)

Data Item	Units	Description	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT									6.98	6.97
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.20	19.25	19.21	19.23	19.21	19.20	19.20	19.16	19.18	19.19
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.89	8.90	8.91	8.91	8.87	8.90	8.88	8.88	8.89	8.89
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.93	8.93	8.94	8.92	8.92	8.91	8.92	8.93	8.92	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA		10.70	10.72	10.71	10.70	10.70	10.70	10.69		
CAPITAL RECOVERY	$	1 x 1 CCGT									$47,673,000	$46,880,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	51	20	29	24	17	12	7	2	252	94
MARKET CAPACITY CHARGE	$/kW-yr		$63.11	$64.68	$66.30	$67.96	$69.66	$71.40	$73.18	$75.01	$76.89	$78.81
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,136	149,967
GENERATION	MWh	MWE Load	209,104	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
GENERATION	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	2,313,285	1,290,182
MARKET SALES	MWh	MWE Generation	118,672	119,012	129,559	134,513	140,907	144,223	138,331	142,700	145,136	149,967
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	184,623	363,293	363,293	363,293	364,542	363,293	363,293	363,293	364,542	363,293
MARKET SALES	MWh	Westar	788,625	872,094	939,637	994,995	1,062,687	1,060,232	1,057,501	1,076,602	2,313,284	1,290,182
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	209,104	8,728	8,729	8,728	8,729	8,728	8,729	8,728	8,728	80
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	1	0
MARKET SALES	$	MWE Generation	$4,898,240	$5,122,878	$6,264,855	$7,107,416	$8,031,299	$8,555,635	$8,399,299	$9,067,460	$9,627,633	$10,278,929
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$3,807,986	$7,927,052	$8,805,677	$9,715,884	$10,718,369	$11,082,302	$11,451,752	$12,135,799	$12,453,493	$12,904,023
MARKET SALES	$	Westar	$20,624,043	$25,276,218	$30,560,369	$35,353,082	$41,270,519	$42,763,074	$44,006,380	$46,697,297	$109,999,984	$68,865,398
MARKET SALES	$/MWh	MWE Generation	$41.28	$43.05	$48.36	$52.84	$57.00	$59.32	$60.72	$63.54	$66.34	$68.54
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$20.63	$21.82	$24.24	$26.74	$29.40	$30.51	$31.52	$33.40	$34.16	$35.52
MARKET SALES	$/MWh	Westar	$26.15	$28.98	$32.52	$35.53	$38.84	$40.33	$41.61	$43.37	$47.55	$53.38
MARKET PURCHASES	MWh	MWE Load	1,567,889	1,840,288	1,776,253	1,806,266	1,840,279	1,863,306	1,891,268	1,922,267	1,958,261	1,989,928
MARKET PURCHASES	$	MWE Load	$33,771,717	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
MARKET PURCHASES	$/MWh	MWE Load	$21.54	$24.59	$27.79	$30.55	$33.42	$34.91	$35.94	$37.63	$38.94	$40.48
ENERGY TO SERVE LOAD	MWh		1,776,993	1,849,016	1,784,982	1,814,994	1,849,008	1,872,035	1,899,996	1,930,995	1,966,989	1,990,009
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$46,962,102	$40,027,871	$41,025,875	$42,049,408	$42,067,940	$44,041,844	$45,142,589	$46,270,382	$40,221,364	$6,122,500
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$31,860,881	$30,410,453	$32,987,242	$35,412,927	$38,218,871	$39,284,200	$40,296,465	$41,791,979	$48,776,134	$13,397,713
TOTAL FUEL COSTS	$		$3,235,255	$5,727,368	$7,103,749	$8,214,497	$9,776,005	$10,178,241	$10,072,621	$11,134,553	$51,618,443	$54,326,892
TOTAL MARKET ENERGY COSTS	$		$33,771,717	$45,249,702	$49,368,687	$55,180,803	$61,499,059	$65,051,236	$67,969,026	$72,336,519	$76,256,883	$80,544,056
TOTAL MARKET ENERGY SALES	$		($29,330,268)	($38,326,148)	($45,630,901)	($52,176,382)	($60,020,187)	($62,401,011)	($63,857,431)	($67,900,555)	($132,081,110)	($92,048,349)
TOTAL CAPITAL RECOVERY	$		$0	$0	$0	$0	$0	$0	$0	$0	$47,673,000	$46,880,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$86,499,687	$83,089,245	$84,854,652	$88,681,253	$92,441,687	$96,154,510	$99,023,270	$103,638,878	$132,464,714	$109,222,811

Data Item	Units	Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AVERAGE HEAT RATE	MMBtu/MWh	1 x 1 CCGT	6.96	6.96	6.97	6.97	6.96	6.98	6.98	6.97	6.98	6.98
AVERAGE HEAT RATE	MMBtu/MWh	Colby	19.26	19.16	19.15	19.20	19.18	19.17	19.16	19.09	19.17	19.24
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center	8.88	8.87	8.90	8.88	8.87	8.89	8.88	8.88	8.89	8.87
AVERAGE HEAT RATE	MMBtu/MWh	Goodman Energy Center Expansion	8.90	8.90	8.91	8.92	8.92	8.92	8.91	8.91	8.91	8.91
AVERAGE HEAT RATE	MMBtu/MWh	JEC Participation										
AVERAGE HEAT RATE	MMBtu/MWh	UML Westar										
AVERAGE HEAT RATE	MMBtu/MWh	Westar PPA										
CAPITAL RECOVERY	$	1 x 1 CCGT	$46,075,000	$45,259,000	$44,430,000	$43,587,000	$42,730,000	$41,858,000	$40,970,000	$40,064,000	$39,142,000	$38,199,000
SURPLUS/DEFICIT CAPACITY	MW	MWE	90	85	81	71	67	63	60	55	49	44
MARKET CAPACITY CHARGE	$/kW-yr		$80.78	$82.80	$84.87	$86.99	$89.17	$91.40	$93.68	$96.02	$98.42	$100.88
MARKET CAPACITY CHARGE	$	MWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SUMMARY BY AREA												
GENERATION	MWh	MWE Generation	150,444	152,815	146,890	144,544	144,039	151,866	153,245	153,852	155,425	151,436
GENERATION	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
GENERATION	MWh	Westar	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
MARKET SALES	MWh	MWE Generation	150,444	152,815	146,890	144,544	144,039	151,866	153,245	153,852	155,425	151,436
MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
MARKET SALES	MWh	Wind	363,293	363,293	365,340	179,514	179,514	179,514	179,920	179,514	179,514	179,514
MARKET SALES	MWh	Westar	1,318,104	1,310,952	1,279,480	1,291,896	1,283,249	1,295,278	1,324,354	1,334,070	1,321,913	1,304,221
GENERATION LESS MARKET SALES	MWh	MWE Generation	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	MWE Load	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Wind	0	0	0	0	0	0	0	0	0	0
GENERATION LESS MARKET SALES	MWh	Westar	0	0	0	0	0	0	0	0	0	0
MARKET SALES	$	MWE Generation	$10,867,786	$11,145,743	$10,980,215	$11,030,016	$11,207,603	$12,498,724	$13,178,220	$13,814,755	$14,589,498	$14,818,785
MARKET SALES	$	MWE Load	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MARKET SALES	$	Wind	$13,706,366	$13,803,704	$14,353,641	$7,093,861	$7,216,746	$7,699,552	$8,086,274	$8,401,613	$8,918,994	$9,149,961
MARKET SALES	$	Westar	$73,806,767	$74,833,077	$74,564,803	$76,856,129	$77,384,801	$82,608,625	$88,902,235	$93,586,320	$96,407,609	$99,110,578
MARKET SALES	$/MWh	MWE Generation	$72.24	$72.94	$74.75	$76.31	$77.81	$82.30	$85.99	$89.79	$93.87	$97.86
MARKET SALES	$/MWh	MWE Load										
MARKET SALES	$/MWh	Wind	$37.73	$38.00	$39.29	$39.52	$40.20	$42.89	$44.94	$46.80	$49.68	$50.97
MARKET SALES	$/MWh	Westar	$55.99	$57.08	$58.28	$59.49	$60.30	$63.78	$67.13	$70.15	$72.93	$75.99
MARKET PURCHASES	MWh	MWE Load	2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
MARKET PURCHASES	$	MWE Load	$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
MARKET PURCHASES	$/MWh	MWE Load	$42.73	$43.38	$44.06	$45.12	$45.74	$48.47	$50.84	$53.19	$55.70	$58.02
ENERGY TO SERVE LOAD	MWh		2,019,996	2,050,991	2,080,975	2,113,044	2,143,980	2,175,962	2,209,069	2,241,976	2,275,943	2,309,993
LESS ENERGY REQUIREMENTS	MWh		0	0	0	0	0	0	0	0	0	0
SUMMARY OF COSTS												
TOTAL FIXED COSTS	$		$6,275,816	$6,432,594	$6,593,356	$6,760,292	$6,927,358	$7,100,468	$7,278,722	$7,463,020	$7,647,448	$7,838,050
TOTAL VARIABLE (EXCL. FUEL) COSTS	$		$13,729,988	$13,904,689	$14,002,160	$10,931,891	$11,138,630	$11,506,980	$11,924,520	$12,218,688	$12,454,034	$12,623,601
TOTAL FUEL COSTS	$		$58,369,269	$59,239,053	$58,803,477	$60,649,638	$60,947,882	$65,664,510	$70,413,044	$74,282,199	$77,366,101	$79,387,475
TOTAL MARKET ENERGY COSTS	$		$86,306,339	$88,971,812	$91,680,665	$95,350,951	$98,074,141	$105,475,456	$112,313,635	$119,249,064	$126,771,307	$134,032,588
TOTAL MARKET ENERGY SALES	$		($98,380,919)	($99,782,524)	($99,898,659)	($94,980,006)	($95,809,151)	($102,806,900)	($110,166,728)	($115,802,688)	($119,916,100)	($123,079,324)
TOTAL CAPITAL RECOVERY	$		$46,075,000	$45,259,000	$44,430,000	$43,587,000	$42,730,000	$41,858,000	$40,970,000	$40,064,000	$39,142,000	$38,199,000
TOTAL MARKET CAPACITY COSTS	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS	$		$112,375,494	$114,084,624	$115,670,999	$122,299,766	$124,008,859	$128,798,494	$132,733,193	$137,474,283	$143,464,789	$149,001,390

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INTEGRATED RESOURCE PLAN (IRP)

Western Area Power Administration's (WAPA) customers must comply with the requirements of the Energy Planning and Management Program (EPAMP (10 CFR Part 905)) to meet the objectives of Section 114 of the Energy Policy Act of 1992 (EPAct). A WAPA customer is any entity that purchases firm capacity with or without energy, from WAPA under a long-term firm power contract. Integrated resource planning allows customers to meet the objectives of Section 114 of EPAct.

Integrated resource planning is a planning process for new energy resources that evaluates the full range of alternatives, including new generating capacity, power purchases, energy conservation and efficiency, renewable energy resources, district heating and cooling applications, and cogeneration, to provide reliable service to electric consumers. An IRP supports utility-developed goals and schedules. An IRP must treat demand and supply resources on a consistent and integrated basis. The plan must take into account necessary features for system operation, such as diversity, reliability, dispatchability, and other risk factors. The plan must take into account the ability to verify energy savings achieved through energy efficiency and the projected durability of such savings measured over time. *(See 10 CFR § 905.11 (a)).*

Who May Use This Form:

Utilities that primarily provide retail electric service that have limited staff, limited resource options, and obtain a significant portion of its energy needs through purchase power contracts are eligible to use this form. Utilities using this form may generate a limited amount of energy if the generating resources are primarily used as back up resources, to support maintenance and outages, or during periods of peak demand.

Completing This Form:

To meet the Integrated Resource Planning reporting requirement, complete this form in electronic format in its entirety. Unaddressed items will be deemed incomplete and the IRP may not be eligible for approval. All of the data fields in this form automatically expand. Additional information may be attached to and submitted with this report. WAPA reserves the right to require supporting back-up materials or data used to develop this report. If there is any conflict between this form and the requirements defined in EPAMP, the requirements in EPAMP shall prevail.

Submit the completed report with a cover letter to:

Attention: Power Marketing Manager
Western Area Power Administration
Rocky Mountain Region
P.O. Box 3700
5555 E. Crossroads Blvd.
Loveland, CO 80539-3003

EPAMP Overview

The Energy Planning and Management Program (EPAMP) is defined in the Code of Federal Regulations in Title 10, Part 905 (10 CFR 905). The purposes of EPAMP are to meet the objectives of the Energy Policy Act of 1992 (EPAct) while supporting integrated resource planning; demand-side management, including energy efficiency, conservation, and load management; and the use of renewable energy.

EPAMP was initially published in the Federal Register at 60 FR 54714 on October 20, 1995, and revised in 65 FR 16795 on March 30, 2000, and 73 FR 35062 on June 20, 2008. 10 CFR § 905.11 defines what must be included in an IRP.

WAPA's Energy Services Web site (https://www.wapa.gov/EnergyServices/Pages/energy-services.aspx) provides extensive information on integrated resource planning and reporting requirements. If you have questions or require assistance in preparing your IPR, contact your WAPA regional Energy Services representative.

IRP Content

INTEGRATED RESOURCE PLAN (IRP)
5-Year Plan

Customer Name:
Midwest Energy Inc.

IRP History: Check one as applicable.	
	This is the submitter's first IRP submittal.
X	This submittal is an update/revision to a previously submitted IRP.

Reporting Dates:	
IRP Due Date:	January 2016
Annual Progress Report Due Date:	

Customer Contact Information: Provide contact information for your organization. The contact person should be able to answer questions concerning the IRP.	
Customer Name:	Midwest Energy Inc.
Address:	1330 Canterbury
City, State, Zip:	Hays KS 67601
Contact Person:	Aaron Rome
Title:	Manager of Trans and Market Ops
Phone Number:	785-625-1431
E-Mail Address:	arome@mwenergy.com
Website:	www.mwenergy.com

Type of Customer: Check one as applicable.	
	Municipal Utility
X	Electric Cooperative
	Federal Entity
	State Entity
	Tribal
	Irrigation District
	Water District
	Other (Specify):

SECTION 1	UTILITY/CUSTOMER OVERVIEW

Customer Profile:
Enter the following data for the most recently completed annual reporting period. Data may be available on form EIA-861, which your submit to the U.S. Energy Information Administration (EIA).

Reporting Period	
Reporting Period Start Date (mm/dd/yyyy)	1/1/2016
Reporting Period End Date (mm/dd/yyyy)	12/31/2016
Energy Sales & Usage	
Energy sales to Ultimate End Customers (MWh)	1467717
Energy sales for Resale (MWh)	128520
Energy Furnished Without Charge (MWh)	
Energy Consumed by Respondent Without Charge (MWh)	3139
Total Energy Losses (MWh entered as positive number)	186303
Total Energy Usage (sum of previous 5 lines in MWh)	1785679
Peak Demand (Reporting Period)	
Highest Hourly Summer (Jun. – Sept.) Peak Demand (MW)	353
Highest Hourly Winter (Dec. – Mar.) Peak Demand (MW)	247
Date of Highest Hourly Peak Demand (mm/dd/yyyy)	08/03/2016
Hour of Highest Hourly Peak Demand (hh AM/PM)	16
Peak Demand (Historical)	
All-Time Highest Hourly System Peak Demand (MW)	393
Date of All-Time Hourly System Peak Demand (mm/dd/yyyy)	06/28/2012
Hour of All-Time Hourly Peak System Demand (hh AM/PM)	16
Number of Customers/Meters (Year End of Reporting Period)	
Number of Residential Customers	30188
Number of Commercial Customers	20047
Number of Industrial Customers	39
Other (Specify):	
Other (Specify):	
Other (Specify):	
Other (Specify):	
Other (Specify):	

Customer Service Overview:

Describe your customer service territory and the services provided. Include geographic area, customer mix, key customer and significant loads, peak demand drivers, competitive situation, and other significant or unique aspects of the customer and/or service territory. Provide a brief summary of the key trends & challenges impacting future resource needs including population changes, customer growth/losses, and industrial developments.

Midwest Energy Inc. ("Midwest") is a customer-owned cooperative corporation serving approximately 50,000 electric and 40,000 natural gas customers located in parts of 41 counties of central and northwest Kansas. Midwest Energy has a typical blend of commercial and residential load but there are a few unique features to the load base of Midwest Energy. Oil pumping, agriculture irrigation pumping, and lately commodity pumping stations located on large interstate pipelines have been additional load types that have aided in recent sales growth. Kansas does not have retail wheeling but rather service territories that remain non-competitive. Midwest Energy is a summer peaking utility on the retail side. The transmission system is also summer peaking and typically coincides with the retail peak as Midwest load is the largest load served by Midwest Transmission. Oil field depletion as well as the Ogallala aquifer depletion are long term concerns for the region as agriculture and oil are the primary economic drivers in the area.

Electricity Utility Staff & Resources:

Summarize the number of full-time equivalent employees by primary functions such as power production, distribution, and administration. Describe any resource planning limitations, including economic, managerial, and/or resource capabilities.

Below are the departments that comprise Midwest Energy's workforce. Since Midwest is both a natural gas and electric distribution utility many of the positions below have duties that encompass both natural gas and electric responsibilities. Midwest Energy has still retained its G&T structure. While a relatively small G&T, Midwest has remained a fully vertically integrated electric coop. This too allows us to capture additional synergies utilizing employee skill sets for multiple sides of the business.

Administrative Services – 6
Customer Service – 29
Information Technology – 10
Finance – 15
Engineering – 12
Energy Supply – 10
Operations - 205

Historical Energy Use:

Enter the peak system demand and total annual energy use for the preceding ten (10) reporting years. For total energy, include retail sales, energy consumed or provided without charge, and system losses.

Reporting Year	Peak Demand (MW)	Total Energy (MWh)
2007	336	1558343
2008	329	1590270
2009	329	1605726
2010	354	1716064
2011	388	1819132
2012	395	1851104
2013	373	1846603
2014	373	1845987
2015	353	1779784
2016	353	1785679

SECTION 2 | FUTURE ENERGY SERVICES PROJECTIONS

Load Forecast:

Provide a load forecast summary for the next ten (10) years; **and** provide a narrative statement describing how the load forecast was developed. Discuss any expected future growth. If applicable, you may attach a load forecast study and briefly summarize the results in this section. *(See 10 CFR § 905.11 (b) (5)).*

Load Forecast:

Reporting Year	Peak Demand (MW)	Total Energy (MWh)
2017	370	1788000
2018	359	1779000
2019	364	1808000
2020	381	1840000
2021	385	1863000
2022	389	1885000
2023	393	1907000
2024	398	1929000
2025	400	1951000
2026	402	1973000

Narrative Statement:

The peak loads projected represent the peak coincident to the Midwest Energy system wide peak. It is therefore important to understand when the Midwest Energy system peaks in order to accurately allocate loads for that particular hour. For example, a system peaking in the afternoon will typically have a larger relative commercial coincident peak value than a system peaking in the evening, due to more commercial activity during business hours. . Midwest Energy has two forms of demand response. The first is through a rider to the retail tariff utilizing predominantly irrigation load at a controllable resource. The second utilizes behind the meter generation owned by wholesale customers served by Midwest Energy. The behind the meter generation is claimed as a capacity resource for the wholesale customer. Behind the meter generation does not aid in peak shaving but it does provide an additional capacity resources for the load responsible entity, in this case Midwest Energy. Midwest Energy provides partial requirements to five wholesale customers. Their load is aggregated with Midwest's load for this report. Total losses are also reflected in the peak load NEL and peak demand numbers.

A historical record was compiled listing the peak hour for each month during 2007-2014 on the Midwest Energy system. The hours listed represent "hour ending" at the designated time. For example, hour 17 represents 4:00 pm - 5:00 pm. Each peak hour was weighted when computing the forecasted peaks to account for uncertain peak times. A class peak projection for July would therefore represent a 75% chance of the system peaking at hour 17, a 12.5% chance of the system peaking at hour 15, and a 12.5% chance of the system peaking at hour 18.

SECTION 3	EXISTING SUPPLY-SIDE RESOURCES

Existing Supply-Side Resource Summary:
Provide a general summary of your existing supply-side resources including conventional resources, renewable generation, and purchase power contracts (including Western Area Power Administration contracts). Describe the general operation of these resources and any issues, challenges, or expected changes to these resources in the next five (5) years. *(See 10 CFR § 905.11 (b) (1)).*

Resources ae discussed at length in the attached Midwest Energy Long Term Resource Plan.

Existing Generation Resources:

List your current supply-side resources, including conventional resources and renewable generation. If you do not own any generating resources, insert N/A in the first row. Insert additional rows as needed.

Resource Description (Identify resources as base load, intermediate, or peaking)	**Fuel Source**	**Rated Capacity (MW)**	**In-Service Date** (Year)	**Estimated Expiration/ Retirement Date** (Year)
Intermediate	NG	103	06/2008	06/2048
Peaking	NG	13	01/1973	06/2030
Peaking	DFO	2	01/1954	09/2019

Existing Purchase Power Resources:

List your current purchase power resources. Define whether the contract provides firm service, non-firm service, all requirements or another type of service. Include Western Area Power Administration resources. If applicable, include a summary of resources that are under a net metering program. Insert additional rows as needed.

Resource Description	**Fuel Source** (If applicable)	**Contracted Demand (MW)**	**Type of Service** (Firm, Non-firm, Requirements, Other)	**Expiration Date** (Year)
JEC Coal	Coal	150	Firm	2024
WR UML	Fleet	155	Firm	2017
Smoky Hill	Wind	50	Firm – Variable	2028
Westar (Wind)	Wind	50	Firm	2037
WAPA	Hydro	3.089	Firm	2054

SECTION 4	EXISTING DEMAND-SIDE RESOURCES

Demand-side programs alter a customer's use pattern and include energy conservation, energy efficiency, load control/management, education, and distribution system upgrades that result in an improved combination of energy services to the customer and the ultimate consumer.

Existing Demand-Side Resources:
List your current demand-side programs, including energy conservation, energy efficiency, load control/management, education, or maintenance plans, or system upgrades. Programs may impact the utility distribution system, municipally owned facilities, and/or end-user energy consumption. Refer to Section 9 of this form for a list of example programs. Insert additional rows as needed.
(See 10 CFR § 905.11 (b) (1)).

Program Description	**Estimated Program Savings (MW and/or MWh if known)** (Include annual impact and impact over the life of the program if known.)
Pump Curtailment	22.3
Energy Audits/How Smart Program	.22 MW 132 MWH
Lighting measures	.32 MW 198 MWH

SECTION 5	FUTURE RESOURCE REQUIREMENTS AND RESOUCE OPTIONS

Balance of Loads and Resources (Future Resource Requirements):

Provide a narrative statement that summarizes the new resources required to provide retail consumers with adequate and reliable electric service during the 5-year resource planning period. Identify any federal or state regulations that may impact your future resource requirements. If you are not experiencing or anticipating load growth and a need for new resources, describe your current procedure to periodically evaluate the possible future need for new resources.

1. Electric Power Industry Review

a. The electric power industry continues to be a target of increased regulations regarding water, coal combustion by-products, and air emissions.

b. Overall, the power industry has experienced continued interest in wind and solar development. This interest is driven by technological advancements, which have lowered costs and increased energy production, as well as subsidies through tax incentives and renewable standards. The development of wind has been particularly robust in the Southwest Power Pool.

c. Specific to MWE's power supply, the most immediate area of need will be fulfilling load requirements that are currently served by the Westar UML PPA when the contract expires at the end of May 2017.

2. Technology Assessment

a. A new resource technology assessment was conducted, evaluating the following new resources:

i. Natural gas-fired combined cycle, simple cycle, and reciprocating engine power plants

ii. Resources were considered in which MWE may have the opportunity to self-develop and build or participate in a larger facility as a minority owner or power off-taker.

3. Economic Analysis

a. Utilizing the information above, BMcD and MWE developed several scenarios to evaluate impacts to MWE's power supply. The scenarios focused on near-term and mid-term requirements driven by the expiration of the UML contract and the expiration of the JEC PPA.

b. The economic analysis indicates that a new power supply resource, such as a natural gas-based peaking or intermediate resource, would be more economical for MWE's power supply portfolio than extending the JEC PPA.

4. Recommendation and Next Steps

a. MWE should continue to monitor regulations that have potential to impact their power supply portfolio regarding water, coal combustion by-products, and air emissions.

b. MWE may consider inquiring with its members about implementation of additional demand and energy reduction programs that may be able to reduce costs associated with power supply. If desired, a more robust cost/benefit evaluation, that includes a thorough investigation of potential participation and a customer survey, would be required.

c. MWE may consider the next steps in regards to replacing the UML contract including negotiations of a mid-term, peaking/intermediate power purchase agreement with Westar or Dogwood.

d. A PPA appears to provide MWE lower cost and greater flexibility in determining long-term Clean Power Plan compliance without the deployment of capital. A mid-term PPA will allow MWE time and flexibility to determine its long-term power supply path.

e. A combined cycle gas turbine appears to provide lower overall power supply costs compared to extending the JEC PPA under similar terms. Therefore, MWE should continue to evaluate potential combined cycle opportunities that may be available. These opportunities may include participation in a combined cycle resource through a PPA, co-ownership, or selfbuild resource.

Identification of Resource Options

Identification and comparison of resource options is an assessment and comparison of existing and future supply-side and demand-side resources available to a customer based upon size, type, resource needs, geographic area, and competitive situation. Resource options evaluated must be identified. The options evaluated should related to the resource situation unique to each WAPA customer as determined by profile data such as service area, geographical characteristics, customer mix, historical loads, projected growth, existing system data, rates, financial information, and load forecast. *(See 10 CFR § 905.11 (b) (1)).*

Considerations that may be used to develop potential resource options include cost, market potential, consumer preferences, environmental impacts, demand or energy impacts, implementation issues, revenue impacts, and commercial availability. *(See 10 CFR § 905.11 (b) (1) (iii)).*

Future Supply-side Options:

List the future supply-side resource options that were considered and evaluated, including, but not limited to conventional generation, renewable generation, and power purchase contracts. Include a brief discussion on the applicability of each option for further consideration or implementation based on your system requirements and capabilities. If new resources are not required during the 5-year resource planning period, please indicate that below. Insert additional rows as needed.
(See 10 CFR § 905.11 (b) (1)).

Supply-Side Option	Applicability for Implementation or Further Consideration
Simple Cycle GT	See IRP Report.
Internal Combustion Reciprocating Engine	
Ownership of Combined Cycle	
Fleet PPA	

Future Demand-side Options:

List the future demand-side resource options that were considered and evaluated. Demand-side programs alter a customer's use pattern and include energy conservation, energy efficiency, load control/management, education, and distribution system upgrades that result in an improved combination of energy services to the customer and the ultimate consumer. Include a brief discussion on the applicability of each option for further consideration or implementation based on your system requirements and capabilities. Insert additional rows as needed. *(See 10 CFR § 905.11 (b) (2)).*

Demand-Side Option	Applicability for Implementation or Further Consideration
How$mart®	The How$mart® program provides free energy efficiency improvements for MWE customers in good standing. The service includes upgrades to insulation, air sealing, new heating and cooling systems, and commercial lighting. All of these upgrades are provided at no upfront cost to the customer. These upgrades are installed by participating contractors and are paid for through a charge on the customer's energy bill, where per the agreement the charge is not to exceed the customer's estimated savings due to the efficiency improvements. By participating in How$mart® the customer can expect to save an average of $10 per month on their MWE bill.
Energy Audit Services	MWE offers a wide array of energy efficiency auditing services to its customers, including but not limited to: blower door testing, home energy ratings, HVAC sizing, and building infrared scanning.
Irrigation Incentive Rates	These rates have been designed to have a higher demand charge during peak hours. This pricing incentivizes farmers to run their irrigation equipment during offpeak hours.
Irrigation Pump Curtailment	In addition to the more general irrigation incentive rates, MWE provides irrigation customers with the option to enter into a Load Control Service Agreement, where the customer will curtail pumping load during certain "curtailment events." Participation in the program results in bill credits from MWE.
	All of the above programs are existing programs that are continually evaluated and promoted if still a viable option.

Resource Options Chosen:

Describe the resource options that were chosen for implementation or further consideration and clearly demonstrate that decisions were based on a reasonable analysis of the options. Resource decisions may strike a balance among applicable evaluation factors such as cost, market potential, customer preferences, environmental impacts, demand or energy impacts, implementation issues or constraints, revenue impacts, and commercial availability. *(See 10 CFR § 905.11 (b) (1) (iv)).*

See evaluation discussion and results in 2016 IRP.

SECTION 6	ENVIRONMENTAL EFFECTS

Environmental Effects:
To the extent practical, WAPA customers must minimize environmental effects of new resource acquisitions and document these efforts. IRPs must include a qualitative analysis of environmental impacts in summary format. Describe the efforts taken to minimize adverse environmental effects of new resource acquisitions. Describe how your planning process accounts for environmental effects. Include a discussion of policies you conform with or adhere to, and resource decisions that have minimized or will minimize environmental impacts by you and/or your wholesale electricity supplier(s). WAPA customers are neither precluded from nor required to include a qualitative analysis of environmental externalities as part of the IRP process. If you choose to include a quantitative analysis, in addition to the summary below, please attach separately. *(See 10 CFR § 905.11 (b) (3)).*

While significant debate continues about the science behind the global warming issues, the utility industry has already seen a significant impact on resource planning. It is quite clear that it will be increasingly difficult to construct new coal-fired generating resources, and that emissions restrictions on existing coal plants will continue to tighten. Though the appetite for so-called cap-and-trade programs appear to have diminished for now, it remains prudent to factor these issues into any resource planning program. The IRP does exactly that, testing a number of different regulation and cost scenarios to develop portfolio recommendations that stand up to a variety of outcomes.

Fuel Type - For now, natural gas seems to be the preferred fuel for new dispatchable generation facilities. This too was factored into the development of the IRP. In fact, as noted above, the newgeneration proposed for further consideration by Midwest Energy is all gas-fired.

CO_2 Emission Liability - An increasing concern regarding global climate change has put specific emphasis on the carbon intensity associated with different power generating resource options. Although coal-fired generation remains one of the most efficient sources of power generation, its potential environmental impacts pose a growing concern to the public and utility planners alike. Moreover, the potential advent of significant costs associated with CO_2 emissions constitutes a major risk for coal plant owners.

Water Supply – Siting of new generation, particularly in the Midwest Energy zone, needs to take into consideration of the lack of a stable long-term water supply. Any generation requiring large water quantities are probably not a favorable solution.

SECTION 7	PUBLIC PARTICIPATION

Public Participation:
Customers must provide ample opportunity for full public participation in preparing and developing an IRP. Describe the public involvement activities, including how information was gathered from the public, how public concerns were identified, how information was shared with the public, and how your organization responded to the public's comments. *(See 10 CFR § 905.11 (b) (4)).*

Midwest Energy is a customer-owned cooperative. That means the company is entirely focused on meeting the needs of its customer-owners, without the distraction of meeting the needs of a separate group of owners not served by the cooperative. The actions taken by Midwest Energy are governed by a member-elected Board of Directors. Their involvement includes review of the annual and long-term business plans, review/approval of the annual budget, updates on progress in the operation of all facets of the business, approval of plans to change rates, etc. This approval process includes the Integrated Resource Plan itself, as well as decisions to execute contracts, build major new facilities, borrow funds, and other strategic decisions. As elected representatives of the customer-owners, their objective is to ensure that the Cooperative acts in the best interests of the customer-owners. Midwest Energy hosts an annual meeting that is open to all customer-owners, this provides an opportunity for customers to raise questions and concerns in an open forum. Current Comments, which is a monthly publication that accompanies a customer owners bill, also keeps customers informed and apprised of any supply and demand side activities impacting Midwest Energy. Any time there is proposed change to rates an open meeting is scheduled and made attendance is open to the public.

In regard to the IRP, federal regulations also require that Midwest Energy post its updates or revisions to its IRP for public review and comments. Historically, Midwest Energy has updated its resource plans at intervals of roughly three years. The most recent update was completed in 2016, and submitted to WAPA for review and publication in 2017.

As a further aid to customer involvement and understanding, various programs are presented during the Annual Meeting of Members of Midwest Energy. In connection with this process, Midwest Energy also published the IRP on its web site, with a reference found on the home page. The first of these programs provided an overview of the energy efficiency programs utilized by Midwest Energy, including the How$mart® program. Interest in this program remains high, as evidenced by the strong participation of customers and national recognition of the program itself. A number of questions about the program were asked and answered during the presentation.

SECTION 8	ACTION PLAN & MEASUREMENT STRATEGIES

Action Plan Summary:
Describe the high-level goals and objectives that are expected to be met by the implementation of this resource plan within the 5-year resource planning period. Include longer term objectives and associated time period(s) if applicable. *(See 10 CFR § 905.11 (b) (2)) and (See 10 CFR § 905.11 (b) (6)).*

The plan of action was built on the outlook for the period 2016 through 2030. Most of the significant recommendations provided in the IRP are intended to be implemented in the 2016-2017 timeframe, except for those related to additions of economic wind energy and solar energy, which extend beyond 2020. The specific Action Plan items recommended in the IRP and their current status are summarized below:

Negotiate PPAs: By the beginning of 2017, finalize negotiations of new PPAs for UML type contracts with the preferred supplier. Due to the attractiveness of owned peaking resources, UML contracts should be negotiated with the shortest lengths possible.

Evaluate Renewable Energy Expansion: Current Production Tax Credits for renewable generation and reduction of PPA costs associated with both Solar and Wind continue to make renewable a viable economic alternative. Exploration of further expanding Midwest's renewable portfolio should be considered in the 2016-2020 timeframe, in particular prior to the expiration or phasing out of the existing PTCs.

GHG Emissions Reductions: Protect Midwest Energy as much as possible against imprudent risk management of carbon and fuel cost exposures. Prudent management language should be included in new contractual arrangements.

Specific Actions:
List specific actions you will take to implement your plan over the 5-year planning horizon.

New Supply-Side Resource Acquisitions:
List new resource options your organization is planning to implement, investigate, or pursue in the next five years. Include conventional generation, renewable resources, net metering programs, and purchase power contracts. Include key milestones such as the issuing an RFP, executing a contract, or completing a study. *(See 10 CFR § 905.11 (b) (2)).*

Proposed New Resource	Begin Date	Est. New Capacity (MW)	Milestones to evaluate progress and/or accomplishments
Fleet PPA	7-2017	115	Board Approval followed by Contract Execution

New Demand-Side Programs & Energy Consumption Improvements:

List energy efficiency, energy conservation, and load management programs your organization is planning to implement or evaluate in the next five years. Include key milestones to evaluate the progress of each program. Insert additional rows as needed. *(See 10 CFR § 905.11 (b) (2)).*

Example programs could include:

- Education programs & communications
- Energy efficient lighting upgrades
- Energy audits
- Weatherization & Insulation
- Window/doors upgrades
- Boiler, furnace or air conditioning retrofits
- Programmable thermostats
- Equipment inspection programs
- Use of infrared heat detection equipment for maintenance
- Tree-trimming/brush clearing programs
- Electric motor replacements
- Upgrading distribution line/substation equipment
- Power factor improvement
- Loan arrangements for energy efficiency upgrades
- Rebate programs for energy efficient equipment
- Key account programs
- Load management programs
- Demand control equipment
- Rate designs
- Smart meters (Time-of-Use Meters)

Proposed Items	Begin Date	Est. kW capacity savings per year	Est. kWh savings per year	Milestones to evaluate progress and/or accomplishments
None at this time				

Measurement Strategies:

Describe your plan to evaluate and measure the actions and options identified in the IRP to determine if the IRP's objectives are being met. The plan must identify and include a baseline from which you will measure the IRP implementation's benefits. *(See 10 CFR § 905.11 (b) (6)).*

A Resource Plan is intended to be a living document. As such, it is imperative that Midwest Energy continually assess its progress in regard to the actions proposed in the IRP, and that it be prepared to modify and adapt the plan as conditions change. The IRP completed in 2016 will not have an indefinite life.

Although not an all-inclusive list, the following issues could change substantially over the next 2-4 years, and thereby impact the validity of the current IRP:

- Prices for natural gas and coal, including transportation;
- Emissions requirements for both coal-fired and gas-fired generating resources, existing and new;
- Inception of new climate control legislation, including cap-and-trade protocols, emissions
- allowance trading, etc.
- Technology developments related to emissions control, unit efficiency or capital cost
- changes;
- Retirement of existing generating units;
- Changes in customer energy use patterns, efficiency/conservation practices, and overall
- load growth;
- Further penetration of demand-side management technologies and customer acceptance;
- Development of additional renewable generating resources on a regional or national
- basis, as well as technology improvements in wind, solar and other so-called green resources;
- Continued appetite for transmission grid expansion;
- General economic factors, including interest rates, access to capital, and customer preferences.

Midwest Energy will use several metrics to assess whether its business practices are consistent with the current IRP. For example, it will obviously continue to measure the energy sales and demand requirements of its customer base, and comparing those requirements to available generating resources. In both the long-term and the near-term this will play a significant role in a determination of the need for additional generation capacity, either owned or purchased.
With respect to energy efficiency programs like How$mart® Midwest Energy will strive to keep the program fresh and viable. Since the program is based on the concept that energy efficiency improvements funded in the program must pay for themselves over time, assessment of those expected changes in energy use is a key metric in assessing and operating the program.
In a similar fashion, Midwest Energy will continue to look for ways to expand the use of load control technologies. In the first year of use in 2010 the eligible participants were limited to electric irrigation customers that met specific criteria. The technology deployed allows for the measurement of load interruption success, and this will continue to be a key metric in annual assessments of the efficacy of the program. These annual assessments will form the basis for expansion of, or changes to, the demand-side management programs.

Upon completion of the 2016 IRP, Midwest Energy will be working directly on the steps enumerated previously related to market condition assessment and generation expansion planning. As each of these steps are executed there will be a need to re-assess whether the Cooperative is still following the guidance provided in the IRP, and indeed whether it should continue to follow those recommendations. This will lead to decisions as to whether to move forward with construction of one or more generating resources, and to a decision as to when the next update of the IRP is required.

Additionally, the Western Area Power Administration requires that entities with hydro allocations file an annual report to update their progress in meeting the recommendations of their respective integrated resource plans. Midwest Energy is no different. That annual update process includes several quantitative assessments related to resource availability, load growth, and energy efficiency/demand response program utilization.

In general, the various Action Items summarized above, and detailed in the IRP documents, are themselves the benchmark for continual review of the progress toward meeting the recommendations provided in the IRP.

SECTION 9	SIGNATURES AND APPROVAL

IRP Approval:
Indicate that all of the IRP requirements have been met by having the responsible official sign below; **and** provide documentation that the IRP has been approved by the appropriate governing body (i.e. provide a copy of the minutes that document an approval resolution). *(See 10 CFR § 905.11 (b) (4)).*

William Dowling (Name – Print or type)	VP Engineering & Energy Supply (Title)
William Dowling (Signature)	2-16-2018 (Date)

Other Information:
(Provide/attach additional information if necessary)

IRP Posting Requirement:
10 CFR § 905.23 of the EPAMP as amended effective July 21, 2008, facilitates public review of customers' approved IRPs by requiring that a customer's IRP be posted on its publicly available Web site or on WAPA's Web site. Please check the method in which you will comply with this requirement within thirty (30) days of receiving notification the IRP has been approved:

	Customer will post the approved IRP on its publicly available website and send the URL to WAPA.
X	Customer would like WAPA to post the approved IRP on WAPA's website.

IRP Updates:
WAPA's customers must submit updated IRPs every five (5) years after WAPA's approval of the initial IRP.

IRP Annual Progress Reports:
WAPA's customers must submit IRP progress reports each year within thirty (30) days of the anniversary date of the approval of the currently applicable IRP. Annual progress reports can be submitted using WAPA's on-line reporting tool, which can be accessed at:
http://www.wapa.gov/FormsAuth/Login.aspx?ReturnUrl=/irpsubmit/irpsubmit.aspx

MINUTES OF THE REGULAR MEETING
OF THE BOARD OF DIRECTORS OF
MIDWEST ENERGY, INC.
March 21, 2016

The regular monthly meeting of the Board of Directors of Midwest Energy, Inc. was held on Monday, March 21, 2016 at 9:00 a.m. on said day at the office of the Corporation, 1330 Canterbury Drive, Hays, Kansas.

Call to Order

The meeting was called to order by Keith Miller, Chair of the Board, and Brenda Hutchison, Recording Secretary, acted as Secretary and kept the minutes thereof.

Directors Present

Keith Miller, Chair, called the roll and noted the following Directors were present:

Louise Berning	Keith Miller	Ed Pratt
John Blackwell	Chuck Moore	Juanita Stecklein
Lon Frahm	Gary Moss	Dale Unruh

Said persons present being all of the Directors of the Corporation. The Secretary also noted Earnie Lehman, President and General Manager, and Don Hoffman, General Counsel, were present.

Chair Miller reported that the meeting was duly called, that a quorum was present, and declared that the meeting was properly organized to transact business.

Long Term Power Supply Update

Bill Dowling, Vice President Engineering and Energy Supply, gave an update on the long term power supply contract negotiations. Aaron Rome, Manager Transmission & Market Operations, reviewed current energy hedges and value of energy hedges. Bill stated the next steps are to negotiate a final decision/recommendation regarding a capacity only contract or capacity and energy.

Adjourn

There being no further business to come before the Board, the meeting adjourned at 12:23 p.m.

Charles B. Moore, Secretary

Keith Miller, Chair of the Board

MIDWEST ENERGY, INC.

Resolution for discussion and adoption at a meeting of the Board of Directors of Midwest Energy, Inc. on June 20, 2016.

WHEREAS, the Board of Directors (the "Board") of Midwest Energy, Inc. (the "Company") has reviewed the proposals received by the Company for the purchase of generation capacity resources; and

WHEREAS, the Board has considered the proposal and recommendations to enter into a five (5) year or longer agreement (the "Contract") for the purchase of 115 MW of generation capacity; and

WHEREAS, the Board has considered all matters it deemed necessary or appropriate to enable it to review, evaluate and reach an informed conclusion as to advisability of the Contract contemplated herein, and has determined that the Contract is advisable to and in the best interests of the Company, and desires to approve the Contract.

NOW, THEREFORE, the Board adopts the following resolutions:

RESOLVED, that the Board hereby approves the final negotiation of the Contract for the purchase of 115 MW of generation capacity from Westar Energy for a minimum term of five (5) years on terms deemed to be favorable and acceptable; and further

RESOLVED, that the Board hereby authorizes and directs Earnest A. Lehman, as President and General Manager of the Company, and William N. Dowling as Vice President Engineering and Energy Supply of the Company to complete the negotiation and execution of the Contract, subject to final legal reviews; and further

RESOLVED, that all actions taken and all agreements, instruments, reports and documents executed, delivered or filed through the date hereof in the name and on behalf of the Company in connection with, and consistent with, any of the foregoing resolutions hereby are approved, ratified and confirmed in all respects.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Corporation this twentieth day of June, 2016.

Charles B. Moore, Secretary