

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:
Western Area Power Administration
Attention: Georganne Myers
P.O. Box 35800
Billings, MT 59107-5800**

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 (EPAAct) 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>) provides extensive information on integrated resource planning and reporting requirements. If you have questions or require assistance in preparing your IRP, contact your WAPA regional Energy Services representative.

IRP Content

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INTEGRATED RESOURCE PLAN (IRP) 5-Year Plan

Customer Name:
City of Wayne, Nebraska

IRP History: Check one as applicable.	
<input checked="" type="checkbox"/>	This is the submitter's first IRP submittal.
<input type="checkbox"/>	This submittal is an update/revision to a previously submitted IRP.

Reporting Dates:	
IRP Due Date:	1/1/2019
Annual Progress Report Due Date:	1/1/2020

Customer Contact Information: Provide contact information for your organization. The contact person should be able to answer questions concerning the IRP.	
Customer Name:	City of Wayne
Address:	306 Pearl Street
City, State, Zip:	Wayne NE 68787
Contact Person:	Wes Blecke
Title:	City Administrator
Phone Number:	402 375-1733
E-Mail Address:	wblecke@cityofwayne.org
Website:	www.cityofwayne.org

Type of Customer: Check one as applicable.	
<input checked="" type="checkbox"/>	Municipal Utility
<input type="checkbox"/>	Electric Cooperative
<input type="checkbox"/>	Federal Entity
<input type="checkbox"/>	State Entity
<input type="checkbox"/>	Tribal
<input type="checkbox"/>	Irrigation District
<input type="checkbox"/>	Water District
<input type="checkbox"/>	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 you submit to the U.S. Energy Information Administration (EIA).

Reporting Period	
Reporting Period Start Date (mm/dd/yyyy)	1/1/2018
Reporting Period End Date (mm/dd/yyyy)	1/1/2023
Energy Sales & Usage	
Energy sales to Ultimate End Customers (MWh)	64,123
Energy sales for Resale (MWh)	0
Energy Furnished Without Charge (MWh)	36
Energy Consumed by Respondent Without Charge (MWh)	762
Total Energy Losses (MWh entered as positive number)	1205
Total Energy Usage (sum of previous 5 lines in MWh)	66,126
Peak Demand (Reporting Period)	
Highest Hourly Summer (Jun. – Sept.) Peak Demand (MW)	14.5 MW
Highest Hourly Winter (Dec. – Mar.) Peak Demand (MW)	11.3 MW
Date of Highest Hourly Peak Demand (mm/dd/yyyy)	07/19/2017
Hour of Highest Hourly Peak Demand (hh AM/PM)	5:00 PM
Peak Demand (Historical)	
All-Time Highest Hourly System Peak Demand (MW)	15.6 MW
Date of All-Time Hourly System Peak Demand (mm/dd/yyyy)	08/03/2005
Hour of All-Time Hourly Peak System Demand (hh AM/PM)	4:45 PM
Number of Customers/Meters (Year End of Reporting Period)	
Number of Residential Customers	2,058
Number of Commercial Customers	504
Number of Industrial Customers	0
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.

The City of Wayne provides electricity to residential, commercial and industrial customers mostly located within city limits, but with a small quantity located outside city limits.

The City of Wayne is located in the center of Northeast Nebraska.

The City's largest electrical customers with significant load include Great Dane Trailers, Wayne State College, grain elevators, regional hospital, care centers, and grocery stores.

The City's peak demand occurs during the summer months. Population trends have been relatively steady over the last few decades, with slight growth. Most electrical service growth and load has occurred in the City's industrial park and residential areas.

The City's mission relating to its electrical department is to keep rates low for its customers, but more importantly is to provide efficient and reliable energy.

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.

The City of Wayne has four (4) Electric Production employees, six (6) Electric Distribution employees and six (6) Administrative employees. All of the administrative employees also have other responsibilities in other department within the City.

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	13.968	66.935
2008	13.109	65.744
2009	12.637	63.441
2010	13.651	67.410
2011	14.408	67.594
2012	14.676	68.317
2013	14.765	68.628
2014	13.675	68.197
2015	13.9	67.920
2016	14.6	68.834
2017	14.25	68.623

SECTION 2	FUTURE ENERGY SERVICES PROJECTIONS
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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)
2018	15.162	73.053
2019	15.390	74.148
2020	15.621	75.261
2021	15.855	76.390
2022	16.093	77.535
2023	16.334	78.698
2024	16.579	79.879
2025	16.828	79.879
2026	17.081	81.078
2027	17.338	82.295
2028	17.598	83.530

Narrative Statement:

Over the past several years, the City’s system has experienced an average growth rate of around 1.0% for the summer peak demand loading levels. This level of growth is a little below average for a community the size of Wayne. However, Wayne recently endured a natural disaster that affected some of the larger customers on the system.

The projections for 2018 to 2028 are based on a 1.5% annual growth rate. Growth rate projections are from a capital improvement study done by DGR Engineering for the City of Wayne. The Study was completed in November 2015.

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)).

Starting January 1, 2019, Wayne will begin filling their electrical power needs from multiple sources. Those sources include Big River Electrical Corporation (BREC), Nebraska Public Power District (NPPD), WAPA, and wind energy from NextEra.

The City has one supplemental electrical customer in Wayne State College (WSC). WSC has its own direct WAPA allocation. The City is including Wayne State College in its Integrated 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)
Unit #1 (Peaking)	Diesel	1.5	1952	N/A
Unit # 2 (Peaking)	Diesel	1	1949	N/A
Unit #3 (Peaking)	Diesel	2.0	1957	N/A
Unit #4 (Peaking)	Diesel	2.0	1960	N/A
Unit # 5 (Peaking)	Diesel	3.5	1966	N/A
Unit #6 (Peaking)	Diesel	5.0	1969	N/A
Unit #7 (Peaking)	Diesel	3.5	1997	N/A
Unit #8 (Peaking)	Diesel	3.5	1997	N/A

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)
BREC	Coal	varies	Firm	2026
NPPD	Coal	10%	Firm	2021

Resource Description	Fuel Source (If applicable)	Contracted Demand (MW)	Type of Service (Firm, Non-firm, Requirements, Other)	Expiration Date (Year)
City WAPA	Hydro	Fixed monthly range 1295 Sep - 1849 Aug	Firm	2050
NextEra	Wind	2.38 MW	Non-firm	2043
Wayne State College WAPA	Hydro	Fixed monthly range 237 KW Jun/Jul - 419 KW Jan/Feb	Firm	2050

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.)
Load control	9.0 MW
Installing LED street lighting	The City is replacing fixtures as needed. When complete the Kwh savings will be 166,081/year.
City Auditorium - LED lighting replacement	1.872 MWh/yr
Rate design	Through a rate consultant, the City is trying to be as equitable as possible with new rates.
Infrared scanning	Exact savings is undetermined at this time – varies from year to year
Tree planting program	Carbon Sequestration MW N/A
Weatherization Program, City Sponsored	\$30,000 allocated annually MW N/A

SECTION 5

FUTURE RESOURCE REQUIREMENTS AND RESOURCE 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.

The City has no need for any new power supply resource additions to meet its electric energy requirements for at least the next 8 years. The BREC contract provides all supplemental energy to meet the City's energy requirements in excess of the amount supplied by WAPA under the Firm Electric Service Contract and PPA with NextEra.

The City has also undergone a feasibility study in order to determine if incremental replacement of its existing generation resources with more modern generation would be cost effective.

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
N.A.	No need because we are in a contract with BREC until 2026.

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
Distribution improvements	The City will use a "Capital Improvement Plan" prepared by DGR Engineering.

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)).

Current power contracts are in place until 2026.

The City will continue to evaluate the potential replacement of its generation units with a completed study by C. H. Guernsey & Company.

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)).

The City's current power supplier is involved in wind generation and also complies with all EPA requirements. The City takes delivery of WAPA power, which is a renewable hydroelectric energy source, reducing the need for fossil fuel generation.

The City will continue to work with its large electric users and the general public to encourage them to conserve energy.

All of the above actions help to minimize the impact on the environment by either reducing emissions, utilizing renewable resources, or reducing energy use.

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)).

The power supply contract with BREC was a result of an open "Request for Proposal" process in 2013. The final recommendation was brought to the City Council, and the contract was approved by the Council in open session in Fall 2013.

A special joint meeting of the Wayne City Council, Northeast Nebraska Public Power District Board and the City of Wakefield City Council was held on August 29, 2017 at the Wayne Fire Hall in Wayne, NE. This meeting gave the opportunity to the public from 3 different political subdivisions a chance to ask questions and learn more about the resources available to generate and provide electric services to the area.

The Wayne City Administrator meets regularly with the Wayne Green Team representatives to have conversation and take input about current and future ways to provide power to the area customers.

This five-year IRP report was reviewed by the Wayne City Administrator and the Wayne City Council and copies are available to the public at the Wayne City Clerk's Office. The Wayne City Council approved the IRP five-year plan for the City of Wayne on December 18, 2018.

The City will continue to have copies available for public review at the Wayne City Clerk's Office.

Additional comments will be accepted throughout the year and will be implemented in the yearly IRP report.

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 City of Wayne is in an 8-year contract (2019-2026) with BREC for all power requirements above the City's WAPA allocation. The City will work with BREC to insure its IRP goals are pursued and met.

The City Electric Department will continue to maintain and update the City's electric distribution system and strive to reduce distribution system energy losses. In addition, it will also promote reliability by expanding its transmission/distribution system to provide loop feed to all customers.

The City of Wayne will continue to promote the efficient use of energy to its customers. The City will also implement energy efficiency at City-owned facilities.

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
Big Rivers Electric Corporation	Jan 2019		8-year contract in place
NextEra	Jan 2019 (to begin using wind power)		25-year contract in place

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
Light updating in City Auditorium	Cont.	3 kW	1872 kWh	Replace with new fixtures
Update street lighting	Cont.	38kW	166,081 kWh	Replace with new fixtures as old fixtures fail
Upgrade distribution system as needed	Cont.	Unknown	Unknown	Upgrade as needed and funds available
Tree trimming	Cont.	Unknown	Unknown	Completed annually as part of maintenance plan

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)).

The City will annually review its peak demand and energy use included in this plan and make adjustments as needed for significant deviations.

Once a year, the IRP will be reviewed to evaluate progress against the plan's goals. The City will submit an annual IRP progress report as required by the Energy Planning and Management Program. The annual progress reports will be available for public review.

The following will be tracked and reported in the subsequent annual updates:

- Feedback and suggestions from customers
- Energy savings from demand side measures
- Progress of the programs and feedback will be presented to the City Council

