

## INTEGRATED RESOURCE PLAN (IRP)

Western Area Power Administration's (Western) 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 Western customer is any entity that purchases firm capacity with or without energy, from Western 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. Western 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 (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.

Western's Energy Services Web site ([www.wapa.gov/es/irp](http://www.wapa.gov/es/irp)) provides extensive information on integrated resource planning and reporting requirements. If you have questions or require assistance in preparing your IPR, contact your Western regional Energy Services representative.

## IRP Content

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# INTEGRATED RESOURCE PLAN (IRP) 5-Year Plan

<b>Customer Contact Information:</b> Provide contact information for your organization. The contact person should be able to answer questions concerning the IRP.	
<b>Customer Name:</b>	<b>Colorado River Commission of Nevada</b>
<b>Address:</b>	<b>555 E. Washington Avenue, Suite 3100,</b>
<b>City, State, Zip:</b>	<b>Las Vegas, NV 89101</b>
<b>Contact Person:</b>	<b>Lisa Ray</b>
<b>Title:</b>	<b>Assistant Hydropower Program Manager</b>
<b>Phone Number:</b>	<b>(702) 486-3506</b>
<b>E-Mail Address:</b>	<b><a href="mailto:lray@crc.nv.gov">lray@crc.nv.gov</a></b>
<b>Website:</b>	<b>N/A</b>

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

**Note:**

The Colorado River Commission of Nevada (Commission) is a State Agency responsible to manage and protect the State of Nevada's Colorado River water and federal hydropower resources. The Commission passes through costs to its retail (end-use) and wholesale (utility) customers.

The Commission is not a typical public utility, a member of a generation and transmission cooperative with power supply, nor is it a member based association. The Commission does not own any power generating plants. The Commission is a member of a joint-action agency, however there is no power supply responsibility, nor any contracts in place to provide power supply at this time. The Commission is statutorily limited to the type and number of customers it may serve.

It has been the practice of the Commission to provide an IRP report based on its retail (end-use) customers data, and that its wholesale (utility) customers provide their own IRP reports directly to Western.

**SECTION 1****PREVIOUS YEAR'S POWER INFORMATION****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).

<b>Reporting Period</b>	
Reporting Period Start Date (mm/dd/yyyy)	01/01/2012
Reporting Period End Date (mm/dd/yyyy)	12/31/2012
<b>Energy Sales &amp; Usage</b>	
Energy sales to Ultimate End Customers (MWh)	1,886,849
Energy sales for Resale (MWh)	2,677,670
Energy Furnished Without Charge (MWh)	0
Energy Consumed by Respondent Without Charge (MWh)	0
Total Energy Losses (MWh entered as positive number)	18,502
Total Energy Usage (sum of previous 5 lines in MWh)	4,583,021
<b>Peak Demand (Reporting Period)</b>	
Highest Hourly Summer Peak Demand (MW)	866
Highest Hourly Winter Peak Demand (MW)	721
Date of Highest Hourly Peak Demand (mm/dd/yyyy) Data is not available.	
Hour of Highest Hourly Peak Demand (hh AM/PM) Data is not available.	
<b>All-Time Peak Demand</b>	
Highest Hourly System Peak Demand (MW) Data is not available.	
Date of Hourly System Peak Demand (mm/dd/yyyy) Data is not available.	
Hour of Hourly Peak System Demand (hh AM/PM) Data is not available.	
<b>Number of Customers/Meters (End Date of Reporting Period)</b>	
Residential Customers	0
Commercial Customers	2 / 17
Industrial Customers	5 / 5
Utility Customers:	5 / 0
Note: There are no CRC owned meters for its utility customers.	

This data was obtained from the Commission's 2012 EIA 861 Annual Report, and includes the Commission's entire customer base both retail (end-use) and wholesale (utility) customers.

**SECTION 2****FUTURE ENERGY SERVICES PROJECTIONS****Load Forecast:**

Provide a load forecast summary for the next five (5) years. Discuss any expected future growth. 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)
2012	299	1,538,897
2013	290	1,457,884
2014	296	1,492,963
2015	297	1,488,353
2016	299	1,496,076

## Narrative Statement:

Load forecast is based on the Commission's retail (end-use) customer data only. Due to economic conditions, some customers expect little to no load growth while others anticipate normal to faster load growth.

**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)).

The Commission's federal resource, under contract, presently provides approximately 60 percent of the required resources to meet its retail (end-use) customer's requirements. Spot market and short term (month to month) purchases of market power are used to obtain the balance of the required resources.

The Commission has contracts with the federal government for power from the Boulder Canyon Project (1987-2017), the Parker-Davis Project (1988-2028) and the Salt Lake City Area City Area Integrated Project 1989-2024).

Current Boulder Canyon Project contracts are set to expire on September 30, 2017. The Hoover Power Allocation Act of 2011 authorizes the Secretary of Energy to offer the Commission new contracts at 95% of its current contract allocations effective October 1, 2017. The Commission plans to offer its existing Boulder Canyon Project customers new contracts at 95% of their current contract allocations effective October 1, 2017.

Also, since the Boulder Canyon Project hydropower generation is based on downstream water orders and lake elevations, available capacity and energy have been consistently decreasing due to the on-going drought in the southwestern part of the United States. Also due to the on-going drought, generation at SLCAIP is also steadily decreasing which is causing increased purchased power to meet contractual requirements. Releases from Lake Powell are at risk for being reduced in future water years and may impact generation and increase power purchases to meet contractual requirements at Parker and Davis dams as well. Should the drought coupled with poor hydrology continue resulting in rising costs of purchased power and decreased hydropower generation, FES contractors may request amendments to its SLCAIP and Parker-Davis contracts to temporarily reduce its contract allocations in proportion to the available generation.

The Commission no longer holds long-term market power supply contracts. The Commission purchases market power on a short term (month to month) basis according to what is needed to meet its industrial customer's loads. The Commission will continue to evaluate its industrial customers' power needs and determine if long-term market power contracts will be needed.

**Existing Generation Resources:** The Commission has no generation resources at this time.

**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 (kW)	Contracted Energy (kWh)	Type of Service	Expiration Date (Year)
Boulder Canyon Project (BCP)	hydro	377,000	1,057,989,000	Non-firm	9/30/2017
Parker-Davis Project (P-DP)	hydro	40,752 56,560	264,023,616	Firm	9/30/2028
Salt Lake City Area City Area Integrated Project (SLCAIP)	hydro	27,414 20,851	88,211,619	Firm	9/30/2024

There are no resources under a net metering program at this time.

**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)).

**Energy Consumption Improvements:**

Current/Completed Items	Begin Date	End Date	kW capacity savings per year	kWh savings per year	\$ savings per year	Cost to implement
Other: Vertical turbine pump rebuild		06/01/12	1,032	400,000		\$150,000.00
Magnesium Recovery Dept. – Air Blower Replacements		12/31/11		1,250,000		Not Provided
Titanium Tetrachloride MMC		12/31/11				
Four Bridge Crane Replacement		11/17/11				
New Plant Air Compressors		12/1/11				
New Blending Facility – Stage 1		12/31/11				
VDP Cooling Tower Replacement		12/31/11				
Chiller Replacement		2/24/11		65,015	\$3,966.00	Not Provided
VSD's in Evap Coolers		2/24/11		195,750	\$20,094.00	Not Provided
Infrared Heat Detection Equipment	Ongoing		10	70,080	\$2,803.00	\$1,000.00
Energy Efficient Lighting	Ongoing		5	35,040	\$1,402.00	\$4,000.00
Electric Motor Replacements			4	28,032	\$1,121.00	\$4,000.00
Electrolytic Cell Refurbishment	Ongoing		Confidential	Confidential	Not Provided	Not Provided

The Commission regularly monitors and evaluates its electrical system and develops and implements maintenance and capital improvement plans to maintain efficiency and reduce costs while operating in a safe and an environmentally sound manner in accordance with federal and state regulations.

The Commission's retail (end-use) and industrial customers regularly monitor and evaluate their facilities and equipment and develop and implement their operations, maintenance and capital improvement plans to improve efficiency and reduce costs while operating in an environmentally sound manner in accordance with federal and state regulations.

## 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.

Due to economic conditions, some customers expect little to no load growth, while the remaining customers anticipate normal to faster load growth. The Commission evaluates its industrial customers estimated loads annually and reviews the estimated annual federal resources available to serve load. The Commission notifies all its customers of available federal hydropower resources during annual meetings and routine notices. Current practice is to make short-term month to month market power purchases to meet its industrial customers' loads after fully utilizing federal hydropower resources.

Also, in regard to future resources, the Commission's Federal hydropower contract from the Boulder Canyon Project will expire on September 30, 2017. According the Hoover Power Allocation Act of 2011, the Secretary of Energy is directed to offer its current FES customers a contract for 95% of its current allocation of contingent capacity and firm energy Post 2017. The Commission is committed to offering its current hydropower customers 95% of its current allocation of contingent capacity and firm energy Post 2017. The Commission does not anticipate a significant impact to its existing customers resulting from the 5% reduction in contracted Hoover capacity and energy at this time.

### **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 Western 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)).

<b>Supply-Side Option</b>	<b>Applicability for Implementation or Further Consideration</b>
Continued Federal Hydropower	<p>Currently, federal hydropower costs are considerably lower than market power costs. The Commission has determined that continued use of its federal hydropower contracts best meet its customers' power needs because it is a clean, renewable, low cost resource.</p> <p>The Commission will continue to pursue renewing its existing federal hydropower resource contracts when those contracts are set to expire.</p>
Continued use of short-term month-to-month market purchases	<p>The Commission will continue to use short-term month-to-month market power purchases to meet the power needs of its industrial customers.</p> <p>In the event there is a surge in the cost of short-term month-to-month market power, in consultation with its industrial customers, the Commission will explore other power resource options.</p>
Self-Generation	<p>The Commission's customers have not approached the Commission to develop green or brown generation at this time.</p> <p>Also, the Commission's retail (end-use) customers periodically receive and evaluate proposals for the development of on-site generation in the form of co-generation plants that produce steam for manufacturing processes, peaking generators to reduce demand peaks, and power generation facilities using renewable resources. Due to costs and other constraints, it is not practical at this time for the retail (end-use) customers to install their own brown or green generation behind the meter.</p>

**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
<p><i>Demand-Side Management</i></p>	<p>The Commission's total electric system (substations, transmission and distribution) that serves the Southern Nevada Water Authority and its industrial customers contains some of the newest equipment in southern Nevada, having been constructed from 1996 to the present. The supervisory control and data acquisition system used to operate the electric system is state-of-the art within the industry and has been showcased at national conventions and trade shows. Because the Commission's electrical system is relatively new, there is nothing to replace or improve upon at this time.</p> <p>The Commission's industrial customers continue to negotiate for consolidation of steam generation within the industrial complex to improve efficiencies, reduce emissions and lower costs. The industrial customers have not yet come to agreement as how to best achieve this in a cost effective method at this time.</p>
<p>Self funding O&amp;M</p>	<p>The Commission's industrial customers continue to fund their share of operation and maintenance costs for the power system serving the industrial complex where they are located. Savings from this operation include power system reliability, greater capacity without the installation of additional facilities and improved efficiency through reduced system losses. Customers also monitor the operation of its power system with the aid of in-plant metering and a SCADA system in order to identify opportunities for power conservation and efficiency improvement. Customers also perform regular infrared surveys of its electrical and steam systems. These surveys are used to identify equipment which may be operating inefficiently and require service. Customers also periodically use third party surveys to identify areas where improvements are available to reduce costs and improve efficiencies.</p>
<p>Ongoing evaluations of equipment and technology</p>	<p>The Commission's retail (end-use) customers continue to keep costs down by maintaining or replacing motors, anodes, transformers, lighting and other manufacturing equipment when such items are no longer cost effective.</p>

**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)).

The Commission continues to work with its industrial customers in evaluating its power needs to meet load annually and monthly.

The Commission regularly meets with the federal government and evaluates operations, maintenance, capital improvements and generation capability of its federal hydropower resources and makes recommendations and/or votes on what items and associated costs will be included in rates to ensure that rates continue to be low cost in accordance with sound business practice.

Based on its industrial customers' needs, hydropower resources are shared amongst the group prior to the Commission assessing how much market power to purchase. The Commission and its industrial customers regularly monitor the electric power costs and heat rates at Mead to optimize the timing of the market power purchases. Based on current market conditions, the Commission's industrial customers may elect to reduce their load requirements or go forward with purchasing supplemental market power.

At this time, the Commission and its industrial customers have determined that its federal hydropower and short-term month-to-month market power resources best meet the industrial customer's needs.

## SECTION 6

## ENVIRONMENTAL EFFECTS

### **Environmental Effects:**

To the extent practical, Western 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). Western 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 Commission purchases market power from a variety of power marketers and is not aware of any environmental impacts pertaining to the generating plant used to produce the capacity and energy purchased, and if any environmental impacts would be greater or less than they would be in the absence of such a purchase by CRC. If and when the Commission obtains an interest in a generating plant, the environmental effects will be considered at that time and will be included in the IRP.

There are no new resource acquisitions at this time.

Although there are no new resource acquisitions at this time, the Commission's industrial customers operate and maintain existing equipment to efficiently process and purify waste water from its operations for reuse. Also, customers operate and maintain equipment efficiently to capture and treat carbon monoxide gas to reduce the presence of carbon monoxide gas in the Las Vegas Valley in accordance with federal and state regulations. This equipment is included in the industrial customer's evaluation of overall energy needs.

Lastly, the Commission's industrial customers have ongoing programs and energy audits to identify and implement improvements to save energy and reduce their environmental footprint.

## 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 Commission is not a typical public utility, but rather a state agency tasked with managing the State of Nevada's allocation of water and federal hydropower. The Commission is statutorily limited to the type and number of customers it may serve. The Commission works cooperatively with its customers and regularly seeks the input of its customers.

The Commission's retail (end-use) customers submit individual reports directly to the Commission. In order to maintain confidentiality of its industrial customers' proprietary information, Commission staff consolidates the data into one IRP report and submits to Western.

The Commission's wholesale (utility) customers prepare and submit their own IRP reports directly to Western, in accordance with federal and state regulations.

The Commission's IRP report and those of its wholesale (utility) customers are provided to Western for posting on its public website.

## 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 Commission will continue to review and evaluate its existing hydropower resources and determine what additional resources are needed to meet its industrial customer load, and in consultation with its industrial customers determine what those resources will be.

The Commission will continue to review and evaluate its annual maintenance and capital improvement plan for its power system to ensure prompt replacement of inefficient equipment with energy efficient and environmentally sound equipment if and when it is needed.

The Commission will review and evaluate its industrial customers five year and annual IRP reports by charting each industrial customer's demand-side and supply-side activities in their respective five year plan against its annual achievements and chart the accomplishments, kW and kWh savings and associated costs.

**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
There are no planned or plans to pursue additional supply side resource acquisitions at this time.			

**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)).

**Energy Consumption Improvements:**

Proposed Items	Begin Date	End Date	Est. kW capacity savings per year	Est. kWh savings per year	Est. \$ savings per year	Cost to Implement
Other: Rebuild of centrifugal pumps	01/01/13	12/31/17	TBD	TBD		\$150,000.00
Other: Vertical turbine pump rebuild	01/01/13	12/31/13	1,000	400,000		\$150,000.00
Chlorinator Improvements	2/1/13	12/31/17	91	800,000		\$1,900,000.00
3,750 KVA Transformer Replacement	2/29/12	12/31/17	25	218,750		\$116,000.00
Magnesium Recovery Dept. Rectifier/Transformer Units	1/1/13	12/31/17	372	3,258,720		\$14,717,000.00
Vacuum Distillation Lids & T-Sections Replacement	1/1/12	12/31/17				\$4,535,010.00
Power Ring Replacement for Ingot Melting Furnaces	1/1/12	12/31/17				\$70,575.00
Meltshop Modernization – Replace Rectifier	1/1/12	12/31/17	46	403,000		\$985,000.00
Primary Melt Furnaces 1&2 Replacement – 2 new melting power supplies & 3000 KVA transformers	1/1/12	12/31/17	92	806,000		\$16,579,000.00

16 Magnesium Recovery Cell Replacement	1/1/12	12/31/17				\$5,000,000.00
Energy Audits	1/1/13	1/1/17	50	350,400	\$15,000.00	\$4,000.00
Infrared Heat Detection Equipment	Ongoing		10	70,080	\$2,803.20	\$1,000.00
Energy Efficient Lighting	Ongoing		5	35,040	\$1,401.60	\$4,000.00
Equipment Inspection Program	Ongoing		200	1,401,600	\$56,064.00	\$50,000.00
Electric Motor Replacement	Ongoing		4	28,032	\$1,121.28	\$4,000.00

**Load Management Techniques:**

Proposed Items	Begin Date	End Date	Est. kW savings per year	Est. kWh savings per year	Est. \$ savings per year	Cost to Implement
Load management devices/systems	Ongoing		100	70,800	\$28,032.00	\$50,000.00
Demand control techniques and equipment						
Smart meters or automated equipment						
Time-of-use meters						
Other:						

**Rate Design Improvements:** The Commission is a "pass-through" agency and does not implement rates.

**Agricultural Improvements:** N/A

**Renewable Energy Activities:** N/A

**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)).

Commission staff regularly communicates with its retail (end-use) customers to obtain and evaluate each customers demand and supply side activities identified in the five year plan and annual plans.

Also, Commission staff monitors IRP reports submitted directly to Western by its wholesale (utility) customers.

**SECTION 9****SIGNATURES AND APPROVAL****IRP Approval:**

To the best of our knowledge, this Integrated Resource Plan meets all the requirements identified by the Western Area Power Administration for such a plan.

This five-year IRP report has been approved for submittal by the Hydropower Program Manager.

**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 Western'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 requests Western to post the approved IRP on Western's website.

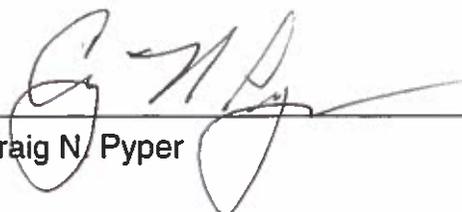
**IRP Updates:**

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

**IRP Annual Progress Reports:**

Western'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 Western's on-line reporting tool, which can be accessed at: [www.wapa.gov/es/irp](http://www.wapa.gov/es/irp)

Approved:



Craig N. Pyper