

VOLUME 1:
EXECUTIVE SUMMARY

**KCP&L GREATER MISSOURI
OPERATIONS COMPANY (GMO)**

INTEGRATED RESOURCE PLAN

CASE NO. EE-2009-0237

4 CSR 240-22.010



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VOLUME 1: EXECUTIVE SUMMARY

SECTION 1: INTRODUCTION

The fundamental objective of the IRP process and the preferred resource plan is to “provide the public with energy services that are safe, reliable and efficient, at just and reasonable rates, in a manner that serves the public interest.” This objective requires that the utility shall:

- Consider Demand-Side Management (DSM) alternatives on an equivalent basis as Supply-Side alternatives
- Use minimization of the present worth of long-run utility costs as the primary selection criterion
- Identify and quantitatively analyze any other considerations which are critical to meeting the fundamental objective

SECTION 2: GMO IRP SUBMITTAL

2.1 IRP REPORT STRUCTURE

Eight (8) separate volumes comprise this IRP filing:

1. Volume 1: Executive Summary
2. Volume 2: Missouri Filing Requirements including an index of Rule compliance
3. Volume 3: Load Analysis and Forecasting
4. Volume 4: Supply-Side Resource Analysis
5. Volume 5: Demand-Side Resource Analysis
6. Volume 6: Integrated Resource Analysis

7. Volume 7: Risk Analysis and Strategy Selection

8. Volume 8: Filing Schedule and Requirements

2.2 WAIVERS

GMO filed an application for waivers concerning certain of the Commission's Electric Utility Resource Planning (IRP) rule requirements on December 4, 2008. The Commission approved the waiver requests in their entirety on March 11, 2009. The application for waivers and the Commission's approval are attached in Appendix 1A.

2.3 IRP DEVELOPMENT

In developing the IRP filing, GMO has endeavored to meet all requirements of Missouri's IRP rules covered under 4 CSR 240-22. GMO's IRP spans the 2009-2029 planning horizon. Data necessary to complete evaluations were derived from recognized industry sources, consultants, publications and other sources as appropriate. Data sources are noted in the text of the report or in the appendices of a volume.

Several distinct tasks are included in the planning process:

- A detailed forecast of future demand and energy requirements
- An assessment of supply-side resource alternatives
- An assessment of demand-side resource alternatives
- Integrated Analysis evaluates the economics of various combinations of demand-side and supply-side alternatives that are developed as alternative resource plans over the planning timeline
- Risk Analysis provides a comparison of the range of economic results for the alternative resource plans due to identified critical uncertain factors

- The selection of a preferred resource plan
- The adoption and executive approval of an implementation plan for executing the preferred resource plan
- Development of contingency plans to address development of further evaluations that may be necessary to mitigate the risk of future uncertainties

2.4 GMO SYSTEM OVERVIEW

GMO is a mid-sized electric utility serving portions of Northwest Missouri including St. Joseph and several counties south and east of the Kansas City, Missouri metropolitan area. A map of the GMO service territory is provided in Figure 1 below:

Figure 1: GMO Service Territory

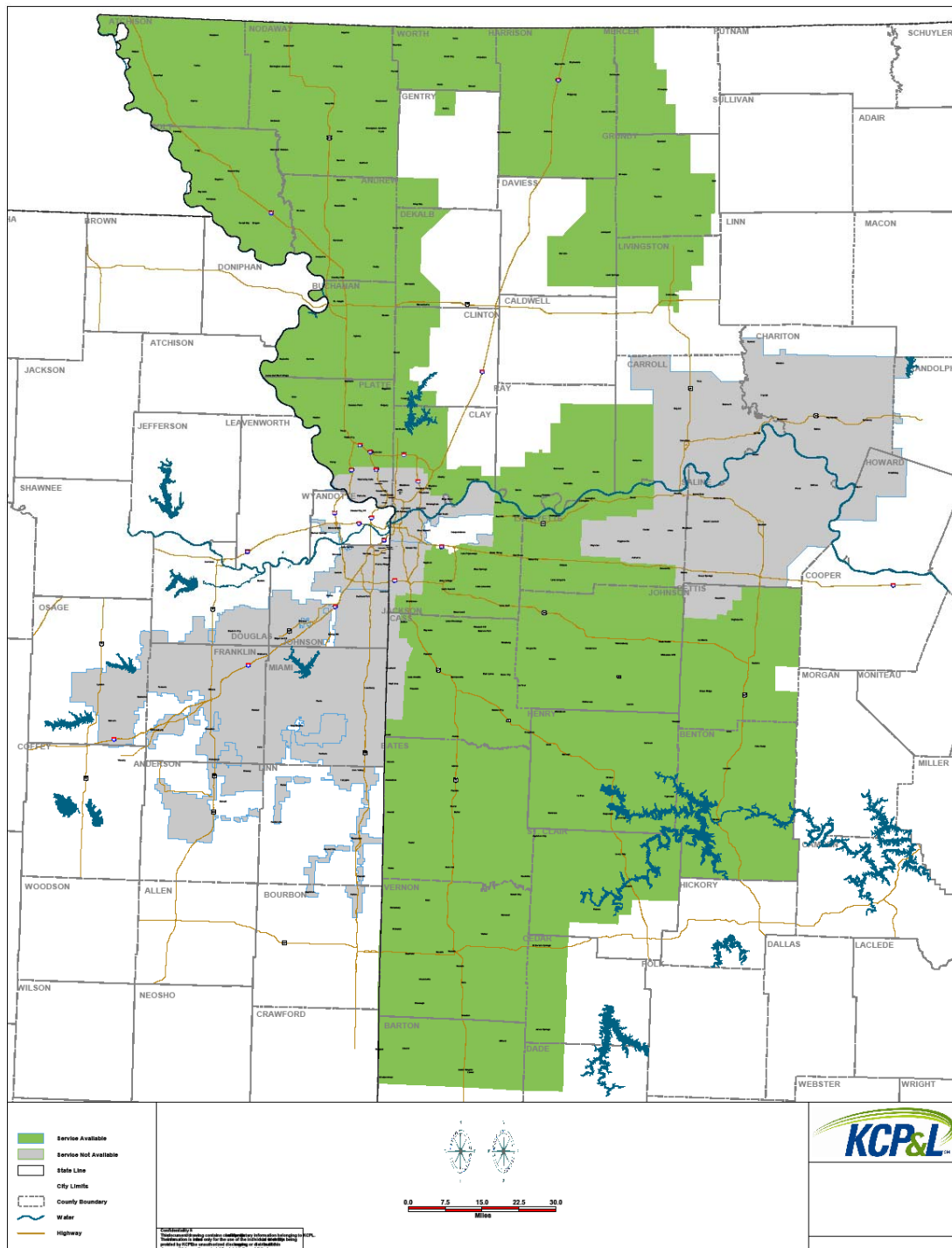


Table 1 provides a snapshot of the number of customers served, estimated retail sales and peak demand.

Table 1: GMO Customers, Peak Demand and Sales

2009 GMO Customers and Sales		
Number of Customers	Projected Peak Demand (MW)	Projected Retail Sales (MWh)
311,000	1,916	8,653,903

GMO owns and operates a diverse generating portfolio and power purchase agreements (PPA) to meet customer energy requirements. Table 2 summarizes GMO's capacity sources:

Table 2: GMO Capacity Resources

2009 Capacity Sources				
Capacity By Fuel Type	Capacity (MW)	% of Total Capacity	Estimated Energy (MWh)	% of Annual Energy
Coal	974	44%	5,961,360	85.90%
Nuclear	75	3%	567,000	8.17%
Oil	64	3%	394	0.01%
Gas	1,060	47%	210,242	3.03%
Wind	60	3%	200,768	2.89%
Total	2,233	100%	6,939,764	100%
Note: Nuclear and Wind are PPA Resources. A portion of Coal is from a PPA Resource.				

2.5 THE ROLE OF SYSTEM PEAKS IN RESOURCE PLANNING

Utilities are required to maintain at least a minimum level of generating capacity based on projected system peak loads in order to provide for overall system reliability. Forecasted peak loads indicate that GMO has adequate capacity until

the year 2014 (mid-peak load growth forecast), 2017 (low-peak load growth forecast) or 2011 (high-peak load growth forecast).

SECTION 3: PREFERRED RESOURCE PLAN SELECTION

3.1 ALTERNATIVE RESOURCE PLAN DEVELOPMENT

Alternative resource plans were developed using a combination of various capacities of supply-side sources, demand-side resources and differing the timing of resource additions. In total, twenty-four alternative resource plans were developed for integrated resource analysis. Table 3 represent an overview of each plan over the 2009 through 2029 planning period.

Table 3: Alternative Resource Plans 1 - 24

	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 6
DSM	All	None	All	None	All	All
Solar Begin: 2011	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C
Wind	400 MW Begin: 2016	400 MW Begin: 2016	600 MW Begin: 2016	500 MW Begin: 2014	300 MW Begin: 2018	400 MW Begin: 2016
Combustion Turbines	308 MW	462 MW	308 MW	462 MW	308 MW	308 MW
Combustion Fluidized Bed (100% Biomass)					50 MW	
Coal w/Carbon Capture and Sequestration						
10% Biomass Utilization in Existing Units						108 MW
Coal Retirement						
	Plan 7	Plan 8	Plan 9	Plan 10	Plan 11	Plan 12
DSM	All	None	All	None	All	All
Solar Begin: 2011	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C
Wind	400 MW Begin: 2016	400 MW Begin: 2016	600 MW Begin: 2016	500 MW Begin: 2014	300 MW Begin: 2018	800 MW Begin: 2016
Combustion Turbines	462 MW	616 MW	462 MW	616 MW	462 MW	308 MW
Combustion Fluidized Bed (100% Biomass)					50 MW	
Coal w/Carbon Capture and Sequestration						
10% Biomass Utilization in Existing Units						
Coal Retirement	108 MW	108 MW	108 MW	108 MW	108 MW	
	Plan 13	Plan 14	Plan 15	Plan 16	Plan 17	Plan 18
DSM	All	All	Existing	1%	All	All
Solar Begin: 2011	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C
Wind	400 MW Begin: 2016	800 MW Begin: 2016	800 MW Begin: 2016	800 MW Begin: 2016	900 MW Begin: 2012	900 MW Begin: 2010
Combustion Turbines	154 MW	308 MW	462 MW	0	308 MW	308 MW
Combustion Fluidized Bed (100% Biomass)						
Coal w/Carbon Capture and Sequestration	150 MW					
10% Biomass Utilization in Existing Units						
Coal Retirement						
	Plan 19	Plan 20	Plan 21	Plan 22	Plan 23	Plan 24
DSM	All	All	All	All	All	All
Solar Begin: 2011	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C	Mo. Prop C
Wind	900 MW Begin: 2010	900 MW Begin: 2010	900 MW Begin: 2010	900 MW Begin: 2012	900 MW Begin: 2012	900 MW Begin: 2012
Combustion Turbines	308 MW	154 MW	154 MW	308 MW	154 MW	154 MW
Combustion Fluidized Bed (100% Biomass)						
Coal w/Carbon Capture and Sequestration		150 MW	150 MW		150 MW	150 MW
10% Biomass Utilization in Existing Units	108 MW		108 MW	108 MW		108 MW
Coal Retirement						

Note: Combustion Turbines Not Needed Until 2022 Unless No DSM or Sibley 1&2 Retired

Each plan is detailed in year-by-year charts in Volume 6, Section 3.

3.2 SELECTION OF PREFERRED RESOURCE PLAN

The selected Preferred Resource Plan (Plan 22) is shown in Table 4 below:

Table 4: Preferred Resource Plan					
Plan 22: Install Prop C Wind and Solar, CT's, Additional 500 MW Wind Above Prop C beginning in 2012, All DSM, and Sibley 1&2 converted to 10% biomass usage					
Date	Install CT's	Install Solar	Install Prop C Wind	Install Other Wind	All DSM
2009	0				5.9
2010	0				31.8
2011	0	1.79			64.1
2012	0	0.03		100	89.4
2013	0	0.02			109.4
2014	0	2.80			122.9
2015	0	0.05			127.3
2016	0	0.11	100	100	131.7
2017	0	0.08		200	134.9
2018	0	5.02	100		138.6
2019	0	0.15			142.0
2020	0	0.20			143.4
2021	0	5.33	100		144.3
2022	0	0.24			144.4
2023	0	0.24	100		144.2
2024	0	0.32		100	143.8
2025	154	0.26			141.1
2026	0	0.32			138.3
2027	0	0.32			135.3
2028	154	0.35			131.2
2029	0	0.25			126.7

The solar installations are estimates of the installed solar capacity required to fulfill the requirements of Missouri's Proposition C (Prop C) Renewable Energy Standard. The four 100 MW wind additions in 2016, 2018, 2021 and 2023 are Prop C requirements. The Preferred Resource Plan also includes additional 500 MW of wind installations above Prop C requirements – 100 MW in 2012, 100 MW in 2016, 200 MW in 2017, and 100 MW in 2024. It should be noted that solar and wind resources could be obtained from purchase power agreements (PPA), purchase of renewable energy credits (REC), or self-builds. This plan also includes 10% biomass co-firing at Sibley 1 and 2 as well as environmental retrofits by 2015 on the coal generating units at Sibley Station and Lake Road 4-6 that would meet or exceed future BACT requirements..

The Preferred Resource Plan was not the lowest cost plan from a Net Present Value of Revenue Requirements (NPVRR) perspective. Plan 16 resulted in the

lowest expected value of NPVRR of all modeled plans. This plan included a hypothetical 1% incremental annual DSM impact based on achieving DSM energy reductions of 1% of annual retail energy every year of the planning horizon. Plan 16 was modeled to provide an indication of the NPVRR impacts of obtaining increased DSM penetrations over and above the maximum currently identified by the company.

While Plan 16 was based on assumptions regarding the cost of achieving this level of DSM penetration, it does provide insight on the company's plan to achieve ever higher amounts of DSM energy and peak reductions. The results show that the company and the ratepayer stand to benefit from the company's continuing efforts to achieve more DSM programs and improved DSM penetration. GMO will continue to take advantage of developing technologies and will expand DSM offerings if cost effective

The plan producing the next lowest expected value of NPVRR was therefore chosen as the Preferred Resource Plan. The Preferred Resource Plan meets the fundamental objective of the resource planning process as required by Rule 22.010(2) to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates in a manner that serves the public interest. The Preferred Resource Plan also meets the requirement to use "minimization of present worth long-run utility cost as the primary selection criteria", while taking into account the premise in Rule 22.010(2)(C). This rule requires consideration of risks and other factors that may constrain or limit the minimization of NPVRR in selection of a Preferred Resource Plan.

3.3 REQUEST FOR ACCOUNTING FOR DEMAND-SIDE MANAGEMENT PROGRAMS

GMO seeks Commission approval of non-traditional rate making associated with expenditures for the proposed DSM programs included in the 2009 IRP Preferred Plan. In order to continue offering DSM programs to customers, GMO proposes the following components for cost recovery:

- 1) GMO proposes to defer the costs of DSM programs in Account 186 and calculate allowance for funds used during construction (AFUDC) monthly.
- 2) GMO proposes to recover lost margins through an annual energy efficiency rider that is intended to reduce regulatory lag and mitigate the earnings erosion that historically has been associated with GMO's DSM initiatives; and,
- 3) GMO proposes a performance mechanism for meeting or exceeding the DSM program energy savings goals based on the net economic benefits of the DSM programs.

This proposal is further explained in Volume 8, Filing Schedule and Requirements. Additionally, a discussion of the rationale and justification for nontraditional treatment of these costs is addressed and an explanation of how the specific proposal meets the need for nontraditional ratemaking treatment. A quantitative comparison of the utility's estimated earnings over the three (3) year implementation period with and without the proposed nontraditional accounting procedures is also provided in Table 1 of Volume 8, Section 2.2.

3.4 CONTINGENCY PLAN

The risk analysis demonstrates that should any critical uncertain factor limit be exceeded, the current Preferred Resource Plan should be reviewed with a number of Alternative Resource Plans. Each critical uncertain factor risk can cause a different Alternative Resource Plan to perform better than the Preferred Resource Plan. The Alternative Resource Plans that should be evaluated along with the Preferred Resource Plan for each significant change in a critical uncertain factor are listed in Table 5 below:

Table 5: Alternative Plans for Each Uncertain Factor

Sensitivity	Plan06	Plan07	Plan21	Plan23	Plan24
High CO2			X		X
High Gas			X	X	X
High Load Growth				X	X
High Construction	X	X			X
High Coal					X
High Interest	X	X			X
Low CO2	X	X			
Low Gas	X	X			
Low Load Growth		X			X
Low Construction		X	X		
Low Coal		X		X	

The primary differences between the Preferred Resource Plan (Plan 22) and the Alternative Plans provided in Table 5 include:

Plan 6 – 500 MW less wind construction

Plan 7 – 500 MW less wind construction, Sibley 1 and 2 retirement

Plan 21 – 150 MW coal with carbon capture added in 2020

Plan 23 - 150 MW coal with carbon capture added in 2020

Plan 24 - 150 MW coal with carbon capture added in 2020