

**KCP&L GREATER MISSOURI
OPERATIONS COMPANY (GMO)
INTEGRATED RESOURCE PLAN
2013 ANNUAL UPDATE**

JUNE, 2013



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Appendix C: KCPL Preliminary IHD and TOU Evaluation Rev Oct 24 2012 HC

Appendix D: 2012 On-Peak Hours HC

Appendix E: Generation and Emissions for Each Alternative Resource Plan

Appendix F: Additional Alternative Resource Plan Results

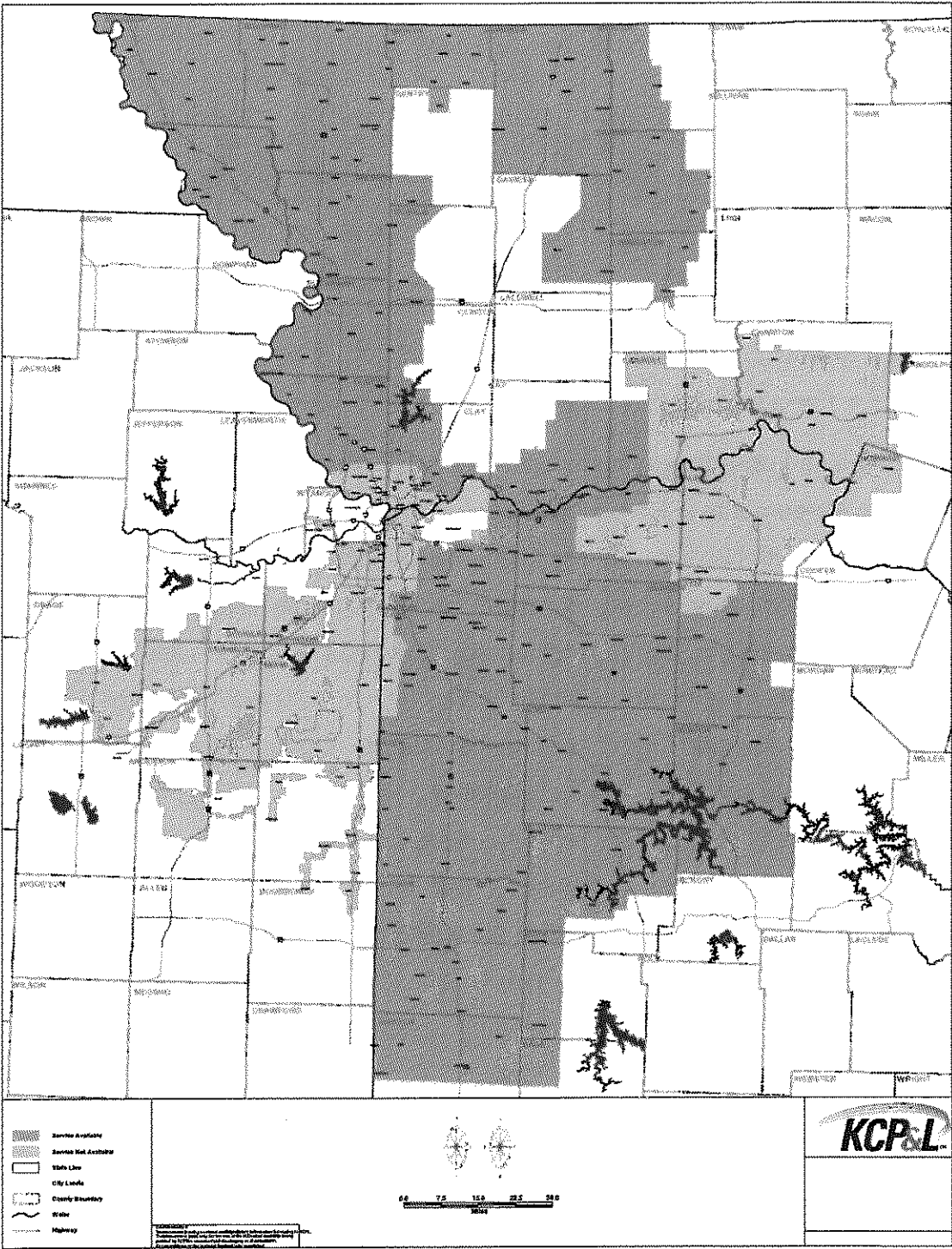
Appendix G: Economic Impact for Each Alternative Resource Plan

SECTION 1: EXECUTIVE SUMMARY

1.1 UTILITY INTRODUCTION

GMO is an integrated, 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. GMO also provides regulated steam service to certain customers in the St. Joseph, Missouri area. A map of the GMO service territory is provided in Figure 1 below:

Figure 1: GMO Service Territory



GMO is significantly impacted by seasonality with approximately one-third of its retail revenues recorded in the third quarter. Table 1 provides a snapshot of the number of customers served, estimated retail sales and peak demand.

Table 1: GMO Customers, NSI and Peak Demand

GMO 2013 Customers, Net System Input, and Peak Demand			
Jurisdiction	Number of Retail Customers	Net System Input (MWh)	Projected Net Peak Demand (MW)
MPS	247,898	6,532,209	1,533
SJLP	65,604	2,310,055	451
Total	313,502	8,842,264	1,984

GMO owns and operates a diverse generating portfolio and has executed Power Purchase Agreements (PPA) to meet customer energy requirements. In 2011, GMO signed a PPA with NextEra Energy for the output of a 98.9 MW wind facility named Ensign, located in Gray County, Kansas. This wind facility began commercial operation in November, 2012. Additionally, GMO has a second wind generation PPA for the Gray County facility which is also owned by NextEra Energy. The Gray County PPA was signed in 2001 and is expected to expire in November, 2016. In addition to the Ensign PPA, GMO completed a landfill gas (LFG) project in St. Joseph, Missouri in 2011. This project collects methane from the St. Joseph city landfill and uses the gas to operate a 1.6 MW internal combustion engine. The LFG facility and the wind PPAs are used to fulfill GMO's Missouri Renewable Energy requirements for the next several years. Table 2, Figure 2, and Figure 3 reflect current GMO's generation assets including all current PPAs in place to serve capacity requirements.

Table 2: GMO Capacity and Energy By Resource Type

Resource Type	Capacity (MW)	% of Total Capacity	Estimated Energy (MWh)	% of Annual Energy
Coal	1,008	42%	5,833,750	85%
Nuclear	75	3%	630,525	9%
Gas	1,074	45%	71,400	1%
Oil	61	3%	0	0%
Wind	159*	7%	319,330	5%
LFG	2	0.1%	11,040	0.2%
Total	2,220	100%	6,866,045	100%

* Nameplate Capacity

Figure 2: GMO Capacity By Resource Type

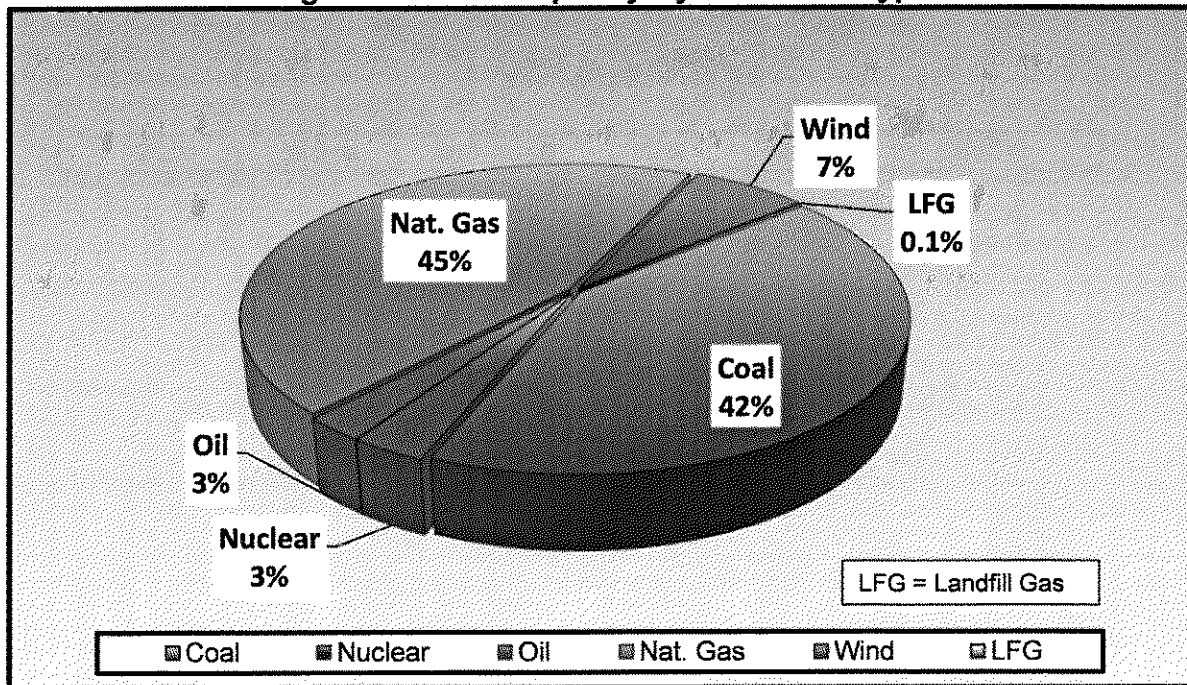
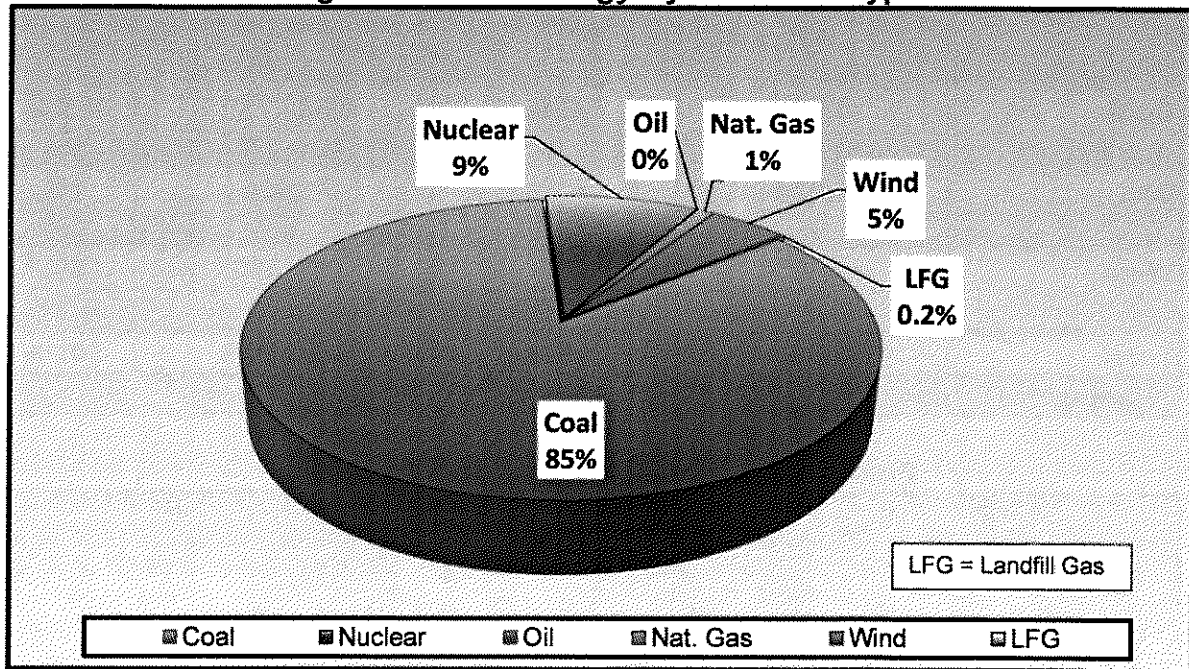


Figure 3: GMO Energy By Resource Type



1.2 CHANGES FROM THE 2012 TRIENNIAL IRP SUBMITTAL

Since the April 2012 filing of the GMO Triennial IRP, several changing conditions have contributed to the Preferred Plan identified in 2012 filing as being obsolete. The changing conditions, or major drivers, that have contributed to GMO's need to develop new Alternative Resource Plans and therefore selection of a new Preferred Plan include:

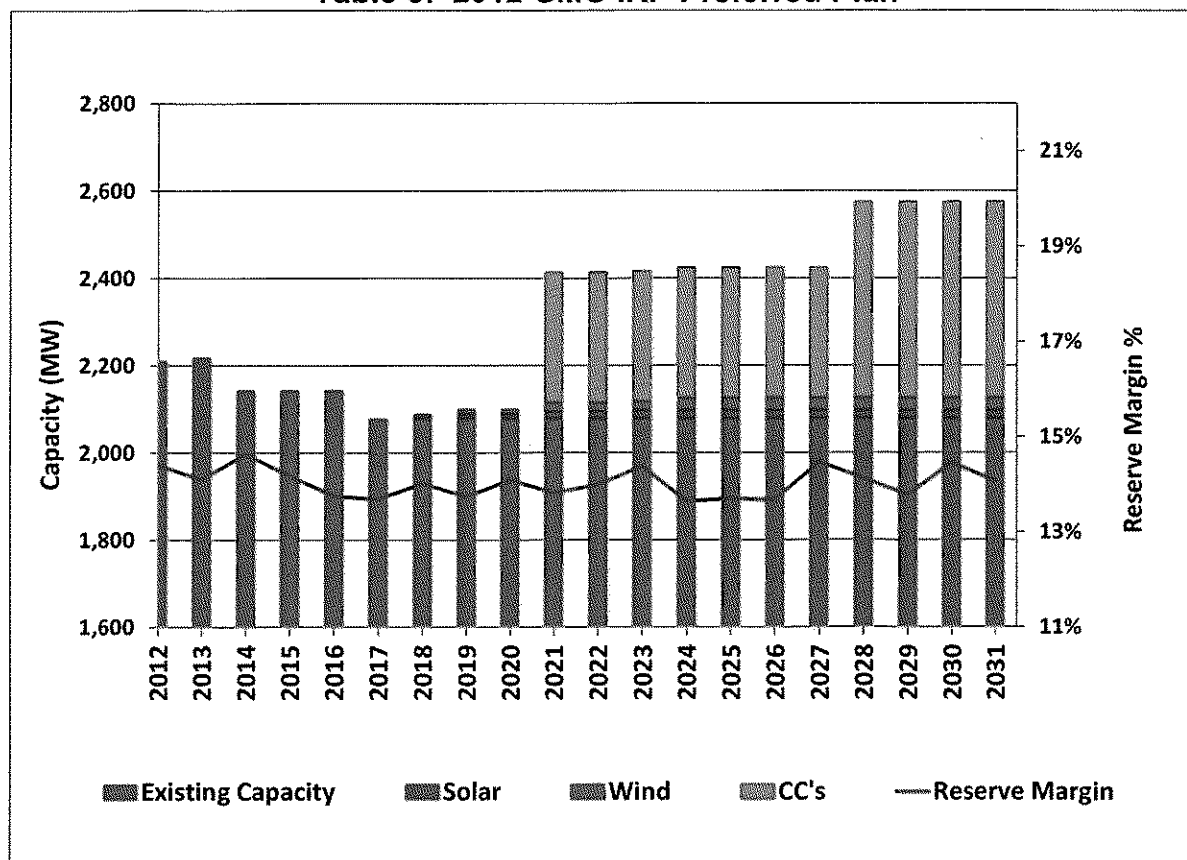
- Proposed and Potential Environmental Regulations
- Load Forecast Projections
- Environmental Retrofit Cost Estimates
- Demand-Side Management Program levels

1.2.1 2012 GMO IRP PREFERRED PLAN

The 2012 GMO IRP resulted in the Preferred Plan for GMO being comprised of the following components for years 2012 – 2023 shown in Figure 4 below. Additionally, in the years 2024 through 2031, there was a 100 MW wind addition in year 2024, and a 150 MW combined cycle addition in year 2028. Also, the Demand-Side Management programs comprised 381 MW of capacity reduction by the year 2031.

The 2012 GMO IRP Preferred for the 20-year planning period is shown in Table 3 below:

Table 3: 2012 GMO IRP Preferred Plan



1.2.2 2013 GMO ANNUAL UPDATE PREFERRED PLAN

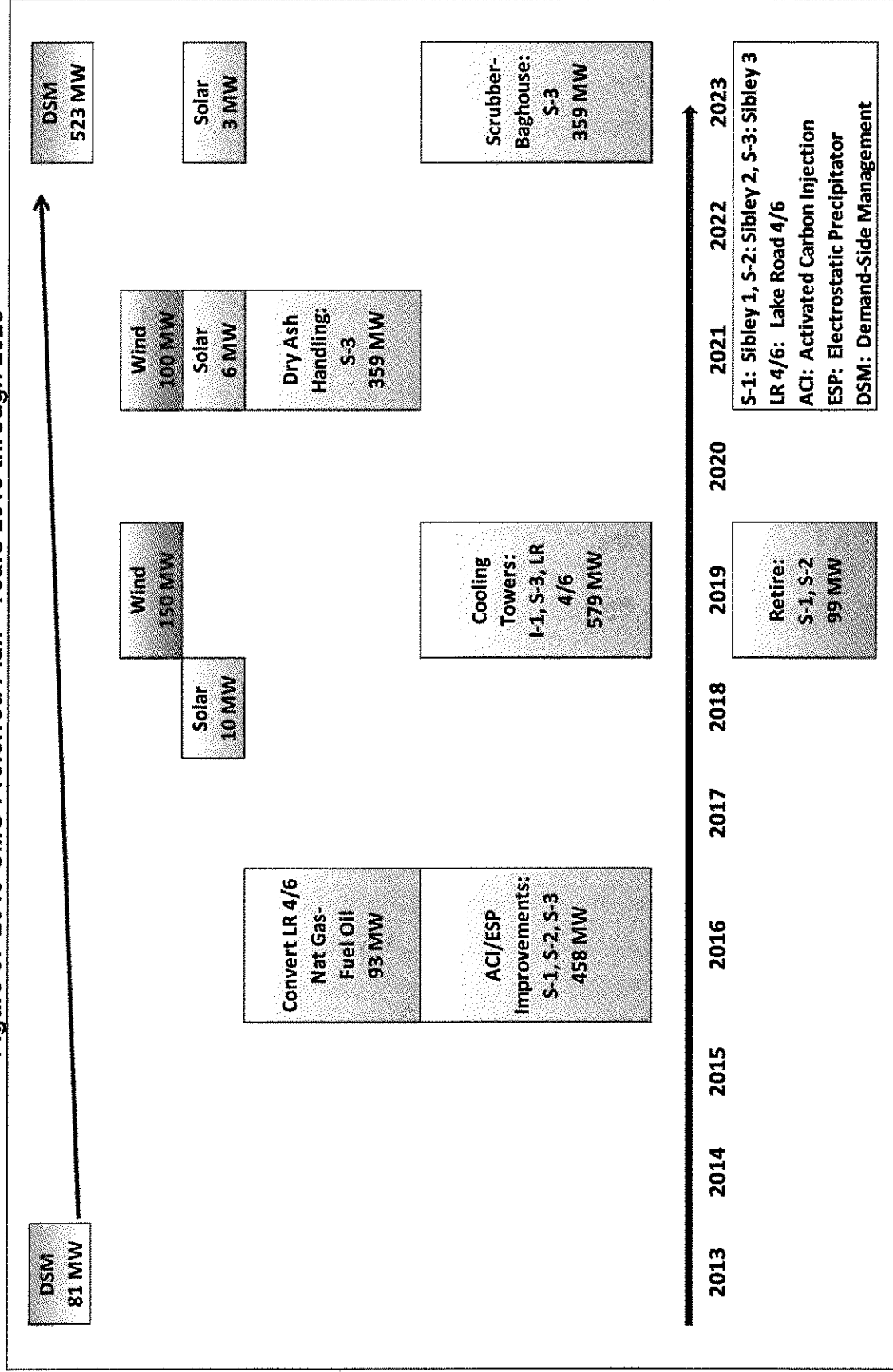
The 2013 Annual Update Preferred Plan for the entire 20-year period is shown in Table 4 below:

Table 4: 2013 GMO Annual Update Preferred Plan

Year	CT's (MW)	Solar (MW)	Wind (MW)	MEDIA DSM (MW)	Retire (MW)	Existing Capacity (MW)
2013	-			81		2,302
2014	-			97		2,147
2015	-			116		2,147
2016	-			165		2,147
2017	-			219		2,147
2018	-	10		275		2,147
2019	-		150	332	99	2,048
2020	-			387		2,048
2021	-	6	100	436		2,048
2022	-			482		2,048
2023	-	3		523		2,048
2024	-			560		2,048
2025	-		100	575		2,048
2026	-			586		2,048
2027	-			597		2,048
2028	-			607		2,048
2029	-			617		2,048
2030	-			624		2,048
2031	193			632		2,048
2032	-			640		2,048
2033	-			647		2,048

The 2013 GMO Annual Update resulted in the Preferred Plan for GMO being comprised of the following components for years 2013 – 2023 shown in Figure 5 below. Additionally, in the years 2024 through 2033, there is a 100 MW wind addition in year 2025, and a 193 MW combustion turbine included in year 2031. Also, the Demand-Side Management programs comprised 647 MW of capacity reduction by the year 2033.

Figure 5: 2013 GMO Preferred Plan - Years 2013 through 2023



Based upon current Missouri RPS rule requirements, the Preferred Plan includes 19 MW of solar additions and 350 MW of wind additions over the twenty-year planning period. It should be noted that solar and wind additions could be obtained from power purchase agreements (PPA), purchasing of renewable energy credits (RECs), or utility ownership. A combustion turbine (CT) resource addition is also included in 2031. DSM for the first 2 years consists of a suite of thirteen Energy Efficiency programs, two Demand Response programs that are based upon the currently approved MEEIA program offerings. DSM for the remaining years consists of 15 EE programs, 3 DR programs and 2 alternative rate programs that are based on Navigant's DSM Potential Study results for realistically achievable potential (RAP) DSM. The potential retirement of Sibley Units 1 and 2 in 2019 is partially attributed to current or proposed environmental regulations including Mercury and Air Toxics Standards Rule, Ozone National Ambient Air Quality Standards (NAAQS), PM NAAQS, SO₂ NAAQS Clean Water Act Section 316(a) and (b), Effluent Guidelines, and Coal Combustion Residuals Rule. These rules will be monitored by GMO prior to the projected retirement year 2019 to determine if any adjustment to this plan is needed.

The Preferred Plan was not the lowest cost plan from a Net Present Value of Revenue Requirement (NPVRR) perspective. Two Alternative Resource Plans had slightly lower NPVRRs than the Preferred Plan. One ARP included retirement of Lake Road 4/6. At this time, GMO prefers to convert Lake Road 4/6 to natural gas/fuel oil as opposed to retirement. This conversion slightly increases the 20-year NPVRR but it reduces the amount of capacity GMO would need to purchase for several years. It would only take a small increase in the assumed cost of capacity to match the NPVRR results of the Lake Road retirement Alternative Resource Plan. The second ARP had a nearly identical NPVRR as the Preferred Plan and was the identical plan with the exception of assuming the resource addition (needed in 2031) to be combined cycle (CC) instead of a combustion turbine (CT). GMO selected the CT plan over the CC plan since the CT plan was lower cost under the mid-case scenario (mid-load, mid-gas, mid-CO₂) and was the lower cost plan under more scenarios than the CC plan.

The Preferred Plan also meets the fundamental planning objectives 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 compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies.

SECTION 2: LOAD ANALYSIS AND LOAD FORECASTING UPDATE

2.1 CHANGES FROM THE 2012 IRP SUBMITTAL

Several inputs to the load forecasting models were updated for this filing.

- The economic forecasts for the KC and SJ metro areas were updated. In the 2012 IRP filing, GMO used forecasts produced by Moody's Analytics in June 2011. In this 2013 Annual Update filing the forecasts were produced in September 2012.
- Billing statistics were updated through August 2012 for this filing. In the 2012 IRP filing, the statistics were current through June 2011. These statistics include the number of customers, kWh sales and dollars per kWh.
- Forecasts of saturations and appliance use are updated annually by the US DOE. In this filing, GMO used the results from DOE's 2012 models. In the 2012 IRP filing, GMO used results from the 2011 models.
- The Company also updated the price elasticities used in the residential and commercial models and the income elasticity used in the residential model. The elasticities were estimated by sector, residential and commercial, and not by Class Cost of Service (CCOS) because rate switching adds too much noise to kWh sales. The data was pooled across GMO and KCP&L jurisdictions to add cross sectional variation. The residential results are shown in the table below. In commercial models, the estimated elasticities were adjusted to increase the R^2 because CCOS models were different than revenue class models used to estimate elasticities. The results for the residential sector are provided in Table 5 below.

Table 5: GPE Residential Elasticities

GPE Residential Elasticities		
Load	Coefficient	t-Stat
Base	-0.36	-4.1
Heating	-0.58	-5.3
Cooling	-0.20	-3.3
Income	0.20	7.0

The load forecast is shown in Table 6 below:

Table 6: GMO Base Annual Forecast

GMO Base Annual 2013-2035 Forecast											
Energy (MWh) Peak (MW)											
Date	GMO		DSM	GMO		Gross Peak		DSM	DVC	Net Peak	
	GMO NSI			Net NSI						Gross LF	Net LF
2002	7,463,662			7,463,662		1,672				1,672	0.5096
2003	7,619,867	2.1%		7,619,867	2.1%	1,715	2.6%			1,715	0.5072
2004	7,875,645	3.4%		7,875,645	3.4%	1,818	6.0%			1,818	0.4945
2005	8,044,671	2.1%		8,044,671	2.1%	1,808	-0.6%			1,808	0.5079
2006	8,264,898	2.7%		8,264,898	2.7%	1,835	1.5%			1,835	0.5142
2007	8,553,402	3.5%		8,553,402	3.5%	1,925	4.9%			1,925	0.5072
2008	8,701,855	1.7%		8,701,855	1.7%	1,946	1.1%			1,946	0.5105
2009	8,646,276	-0.6%		8,646,276	-0.6%	1,880	-3.4%			1,880	0.5250
2010	8,753,989	1.2%		8,753,989	1.2%	1,920	2.1%			1,920	0.5205
2011	8,692,015	-0.7%		8,692,015	-0.7%	1,917	-0.2%			1,917	0.5176
2012	8,609,131	-1.0%		8,609,131	-1.0%	1,949	1.7%			1,949	0.5042
2013	8,789,093	2.1%	(110,337)	8,678,756	0.8%	1,934	-0.7%	(81)	-	1,854	0.5187
2014	8,893,817	1.2%	(123,461)	8,770,356	1.1%	1,956	1.1%	(76)	-	1,880	0.5192
2015	9,030,035	1.5%	(123,464)	8,906,571	1.6%	1,978	1.2%	(76)	-	1,903	0.5211
2016	9,181,290	1.7%	(123,467)	9,057,823	1.7%	2,000	1.1%	(76)	-	1,924	0.5241
2017	9,255,345	0.8%	(123,468)	9,131,877	0.8%	2,013	0.7%	(76)	-	1,937	0.5247
2018	9,352,901	1.1%	(87,230)	9,265,671	1.5%	2,029	0.8%	(76)	-	1,953	0.5261
2019	9,465,615	1.2%	(87,230)	9,378,385	1.2%	2,048	0.9%	(76)	-	1,972	0.5275
2020	9,606,202	1.5%	(87,230)	9,518,972	1.5%	2,068	1.0%	(76)	-	1,992	0.5302
2021	9,714,606	1.1%	(87,230)	9,627,376	1.1%	2,092	1.1%	(76)	-	2,016	0.5301
2022	9,849,617	1.4%	(87,230)	9,762,387	1.4%	2,116	1.2%	(76)	-	2,040	0.5313
2023	9,988,744	1.4%	(87,230)	9,901,514	1.4%	2,141	1.2%	(76)	-	2,065	0.5325
2024	10,156,081	1.7%	(87,230)	10,068,851	1.7%	2,167	1.2%	(76)	-	2,091	0.5350
2025	10,283,803	1.3%	(87,230)	10,196,573	1.3%	2,195	1.3%	(76)	-	2,119	0.5349
2026	10,441,842	1.5%	(87,230)	10,354,612	1.5%	2,223	1.3%	(76)	-	2,147	0.5361
2027	10,611,179	1.6%	(87,230)	10,523,948	1.6%	2,256	1.4%	(76)	-	2,179	0.5370
2028	10,812,903	1.9%	(87,230)	10,725,672	1.9%	2,288	1.4%	(76)	-	2,212	0.5394
2029	10,974,324	1.5%	(87,230)	10,887,093	1.5%	2,323	1.5%	(76)	-	2,247	0.5392
2030	11,171,001	1.8%	(87,230)	11,083,770	1.8%	2,360	1.6%	(76)	-	2,284	0.5404
2031	11,367,242	1.8%	(87,230)	11,280,011	1.8%	2,396	1.5%	(76)	-	2,320	0.5416
2032	11,597,800	2.0%	(87,230)	11,510,570	2.0%	2,434	1.6%	(76)	-	2,358	0.5440
2033	11,780,884	1.6%	(87,230)	11,693,654	1.6%	2,473	1.6%	(76)	-	2,396	0.5439
2034	11,998,408	1.8%	(87,230)	11,911,178	1.9%	2,512	1.6%	(76)	-	2,436	0.5452
2035	12,220,690	1.9%	(87,230)	12,133,460	1.9%	2,554	1.7%	(76)	-	2,478	0.5463

Weather Normalized Historical Data Based on Extreme Normals

2.2 LOAD ANALYSIS AND LOAD FORECASTING: AGREED UPON REMEDIES TO ALLEGED DEFICIENCIES AND CONCERNS

The following section addresses the Alleged Deficiencies and Concerns from the 2012 GMO IRP, Case No. EO-2012-0324. The Resolutions are either verbatim or a shortened version of the agreed-to resolution from the Joint Filing filed in that case.

2.2.1 Staff's Concern A

GMO submitted energy and peak growth rates that are arithmetic averages. GMO should use compound annual growth rates in all future Chapter 22 filings when expressing the rate of growth in its annual energy and demand levels in its load forecasts.

Resolution: GMO will provide additional documentation to answer questions or reference specific workpapers provided that include the information needed.

Comment: This issue has been addressed. GMO provided additional documentation to answer questions that included the information needed.

2.2.2 MDNR's Deficiency 1

Inadequate model specification in load analysis and load forecasting in estimating the effect of weather on electric loads, the functional form of the models was not specified and neither were the goodness of fit measures reported for statistical models.

Resolution: In order to make it easier for those stakeholders¹ who do not have a license for MetrixND, GMO will create a Word document labeled as GMO Model Statistics.docx for the models used to weather normalize sales and copy the goodness of fit statistics, residuals plots before correction for outliers, and residual plots after correction for outliers.

Comment: In the 2013 IRP update, GMO created a Word document for the models used to weather normalize sales and copy the goodness of fit statistics, residuals plots before correction for outliers, and residual plots after correction for outliers. This will

make it easier for those stakeholders who do not have a license for MetrixND. The Word document is supplied in the workpapers for this update filing labeled as GMO Model Statistics.docx.

2.2.3 MDNR'S Deficiency 2

Overly optimistic forecast of household growth. Moody's forecast of economic activity may overestimate the growth in the number of households in the Kansas City metropolitan area.

Resolution: Prior to 2013 Annual Update, GMO will host a discussion of its forecast of household growth at a stakeholders meeting.

Comment: This issue has been addressed. GMO has conducted a discussion of its forecast of household growth with MDNR and its consultant.

2.2.4 MDNR'S Deficiency 3

Improper model specification of the weather normalization regression models. The weather normalization regression models used are not properly specified. No rationale provided for the choice of autoregressive models or the inclusion of specific month dummy variables.

Resolution: Prior to the 2013 Annual Update, GMO will host a discussion of these weather normalization models at a stakeholders meeting.

Comment: This issue has been addressed. GMO has conducted a discussion of these weather normalization models with MDNR and its consultant.

2.2.5 GDS' (MDNR) Deficiency 1

GMO failed to fully describe adjustments made to the historical data used in developing the energy sales forecasting models. GMO failed to fully describe how the historical energy consumption data series for each class were adjusted to reflect existing DSM programs.

Resolution: Prior to the 2013 Annual Update, GMO will host a discussion of this topic at a stakeholders meeting.

Comment: This issue has been addressed. GMO has conducted a discussion of this topic with MDNR and its consultant.

2.2.6 GDS' (MDNR) Concern 1

GMO's assumed forecast bandwidths for population and number of households appear to be too narrow. As a result, the high and low growth case load forecasts also do not reflect a reasonable bandwidth when compared to historical growth.

Resolution: Prior to the 2013 Annual Update, GMO will host a discussion of this topic at a stakeholders meeting.

Comment: This issue has been addressed. GMO has conducted a discussion of this topic at with MDNR and its consultant.

2.2.7 GDS' (MDNR) Concern 2

GMO's use of certain independent variables in the models used to weather normalize energy sales is questionable. Most of the models developed by GMO to weather normalize historical class energy sales include one or more variables that are not statistically significant at a 95% confidence level. GMO fails to report the R-squares and goodness of fit measures for their models.

Resolution: In order to make it easier for those stakeholders who do not have a license for MetrixND, GMO will create a Word document labeled as GMO Model Statistics.docx for the models used to weather normalize sales and copy the goodness of fit statistics, residuals plots before correction for outliers, and residual plots after correction for outliers. This will be completed for the 2013 Annual Update. In addition, GMO will host a discussion of the models at a stakeholders meeting.

Comment: In the 2013 Annual Update, GMO created a Word document for the models used to weather normalize sales and copy the goodness of fit statistics,

residuals plots before correction for outliers, and residual plots after correction for outliers. This will make it easier for those stakeholders who do not have a license for MetrixND.

Comment: The Word document is supplied in the workpapers for 2013 Annual Update labeled as GMO Model Statistics.docx.

SECTION 3: SUPPLY-SIDE RESOURCE ANALYSIS UPDATE

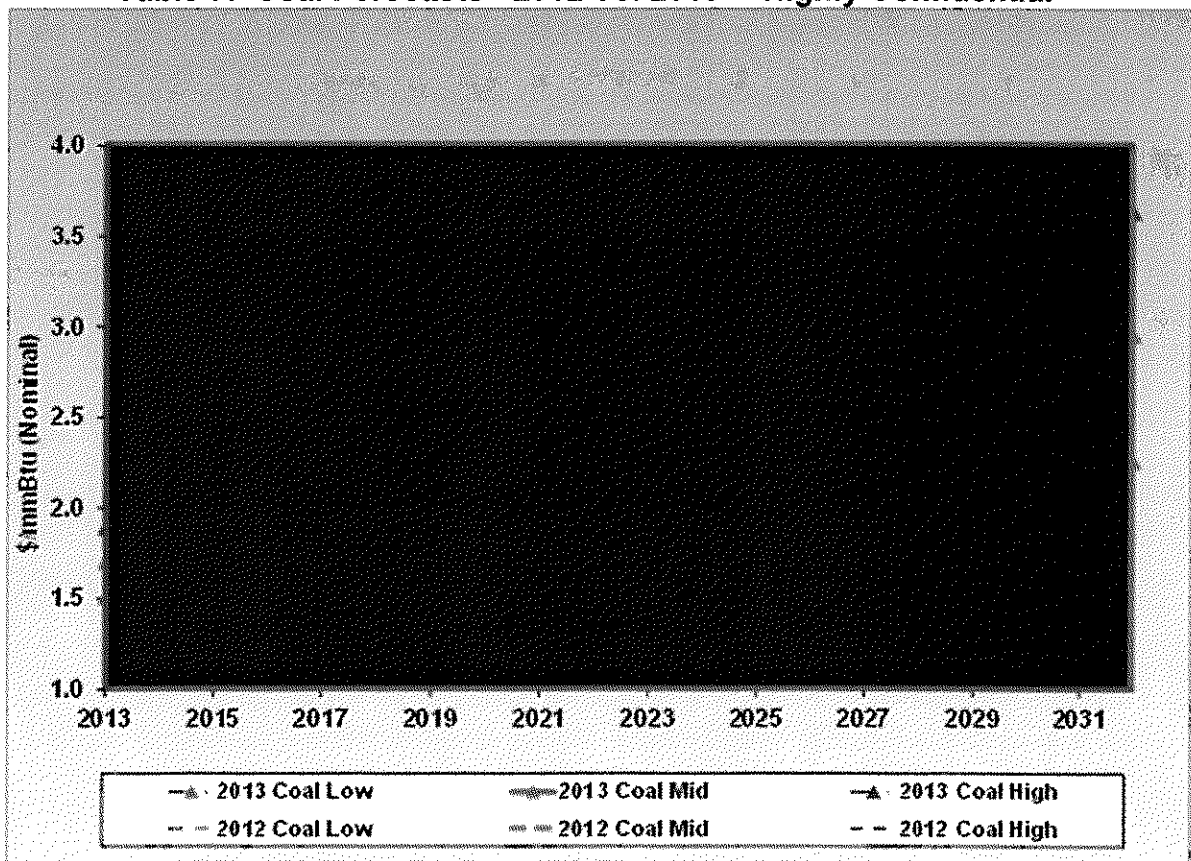
3.1 CHANGES FROM 2012 IRP SUBMISSION

The forecasts for coal, natural gas, fuel oil, SO₂, NO_x, NO_x Seasonal, and CO₂ have been updated for the 2013 Annual Update filing. Note that the methodology used in determining the forecast range has not changed from the 2012 IRP filing.

3.2 FUEL FORECASTS

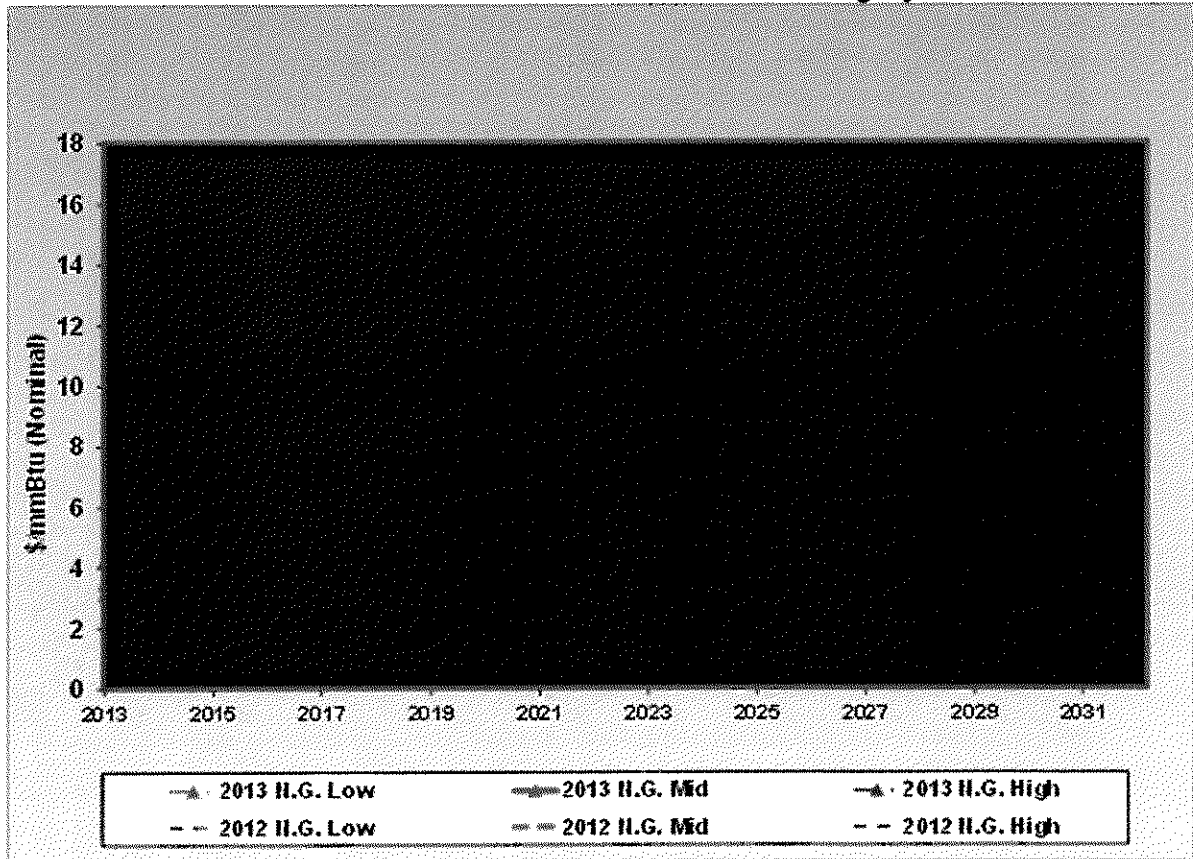
The following tables provide the fuel forecasts that were utilized in the 2012 KCP&L IRP submittal and the fuel forecasts incorporated in the 2013 Annual Update. The various composite forecasts were updated to incorporate updated individual forecasts. For example, the 2012 forecast incorporated Annual Energy Outlook 2012 while the 2013 forecast incorporates Annual Energy Outlook 2013.

Table 7: Coal Forecasts - 2012 Vs. 2013 ** Highly Confidential **



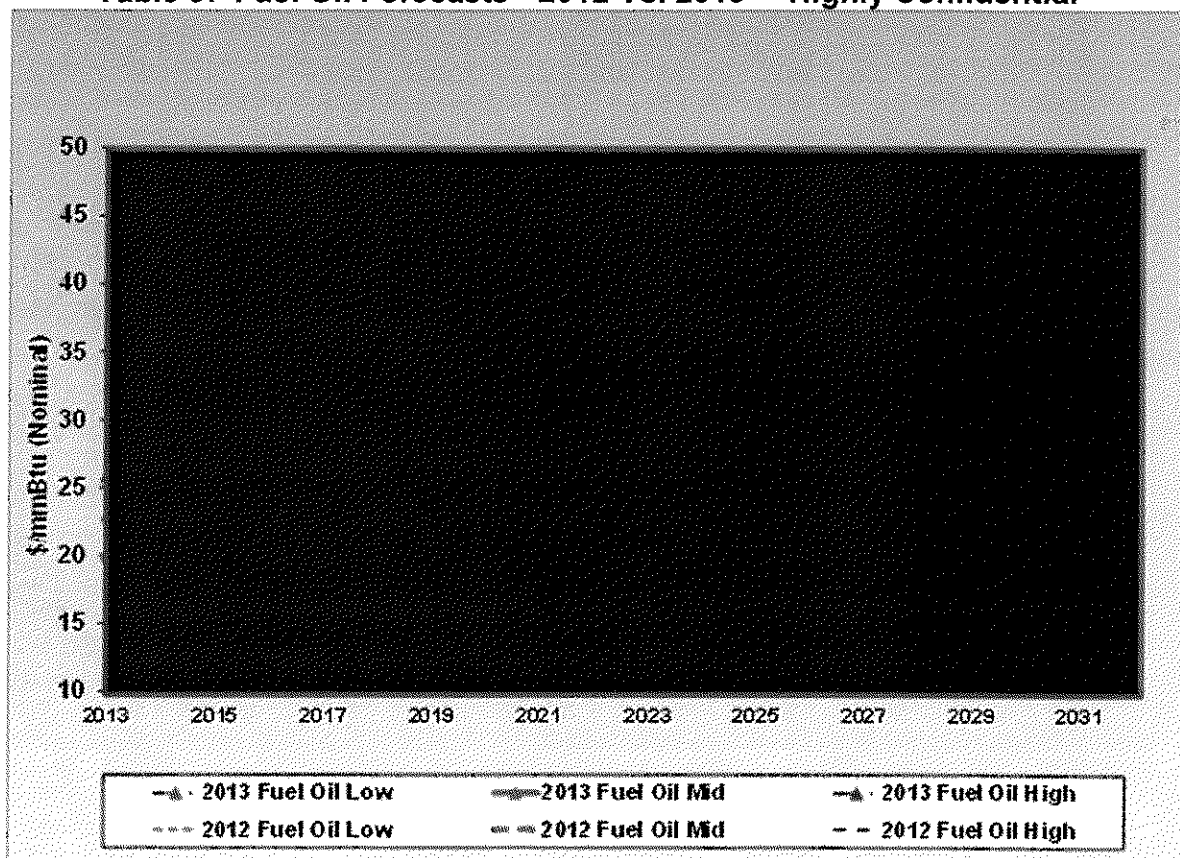
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Table 8: Natural Gas Forecasts - 2012 Vs. 2013 ** Highly Confidential **



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Table 9: Fuel Oil Forecasts - 2012 Vs. 2013 ** Highly Confidential **

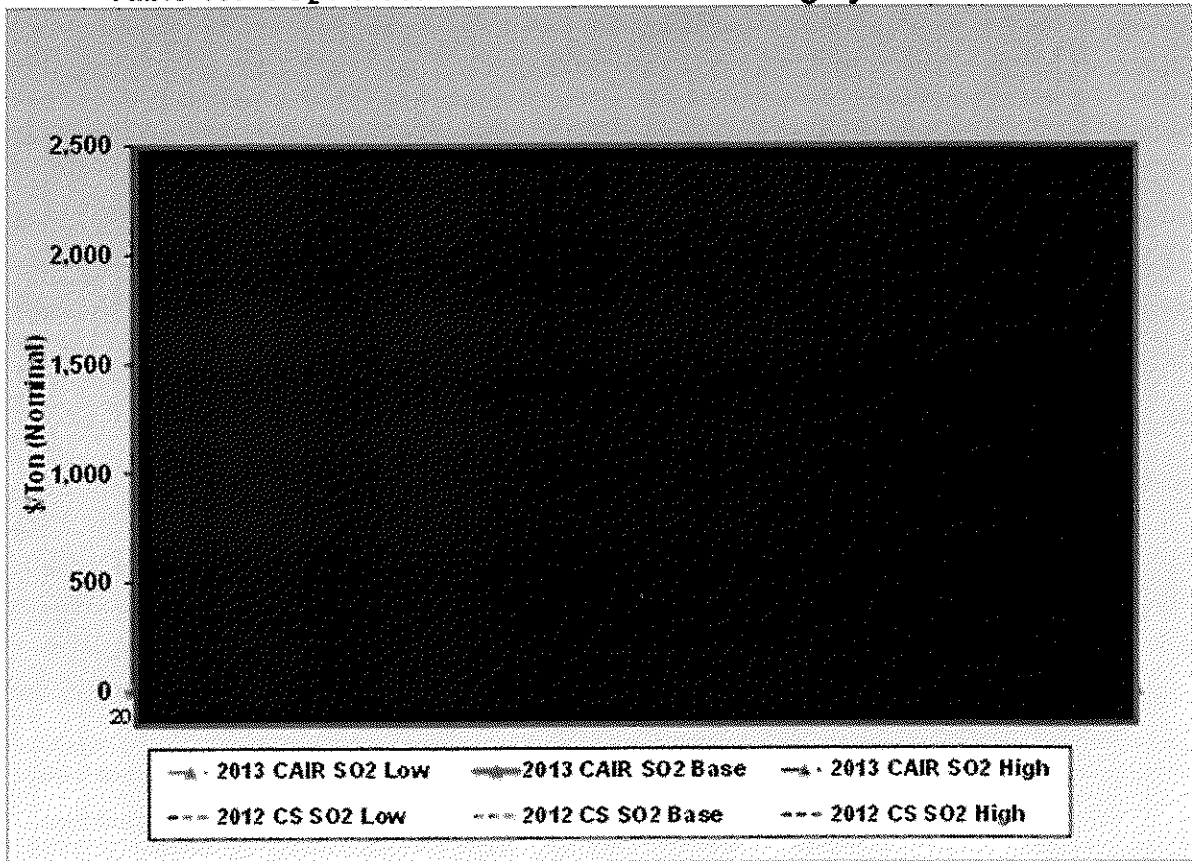


3.2.1 EMISSIONS FORECASTS

The following tables provide the emission forecasts that were utilized in the 2012 GMO IRP submittal and the fuel forecasts incorporated in the 2013 Annual Update. It should be noted that the 2012 SO₂ emissions data is based upon an average of the Cross-States Air Pollution Rule (CSAPR) Group 1 and Group 2 SO₂ forecasts. CSAPR has since been vacated by the U.S. Court of Appeals for the District of Columbia. During the revision period of CSAPR, the court ruled to keep in place the Clean Air Interstate Rule (CAIR).

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Table 10: SO₂ Forecasts - 2012 Vs. 2013 ** Highly Confidential **



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Table 11: NO_x Annual Forecasts - 2012 Vs. 2013 ** Highly Confidential **

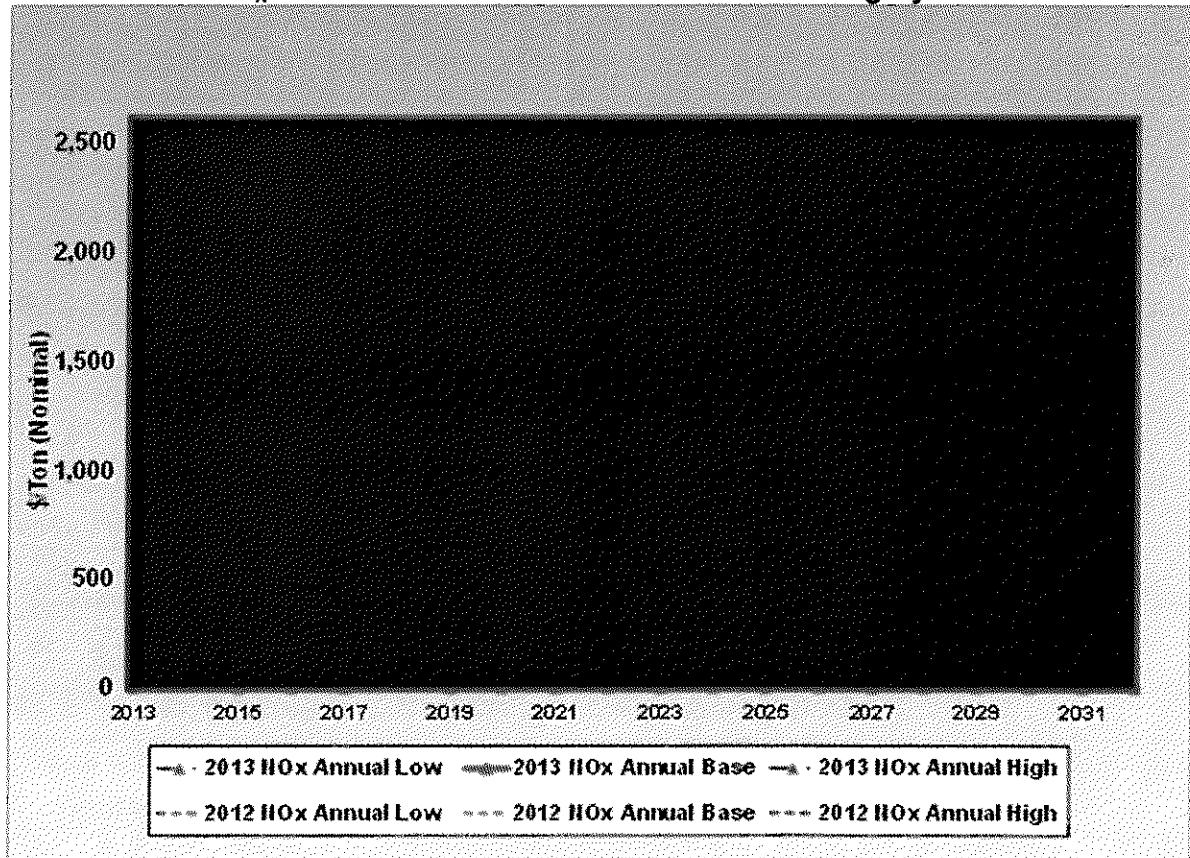
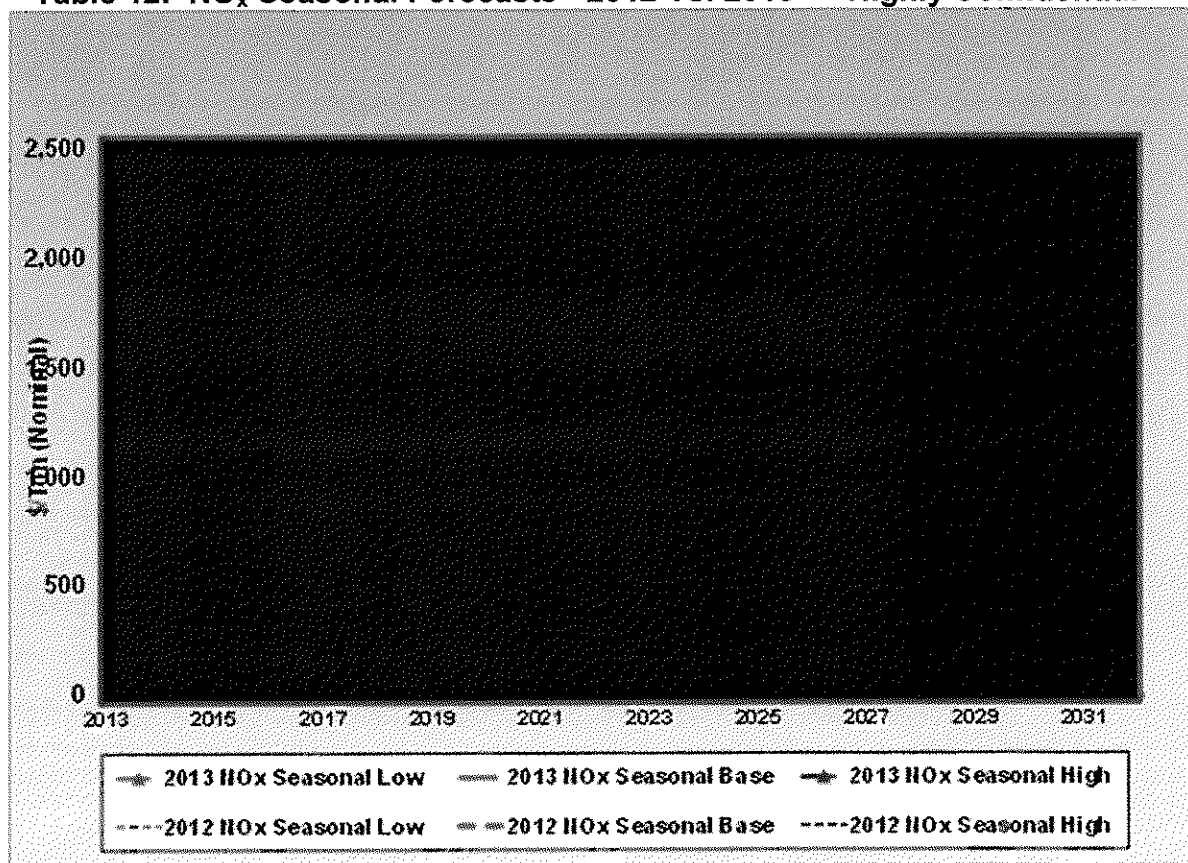
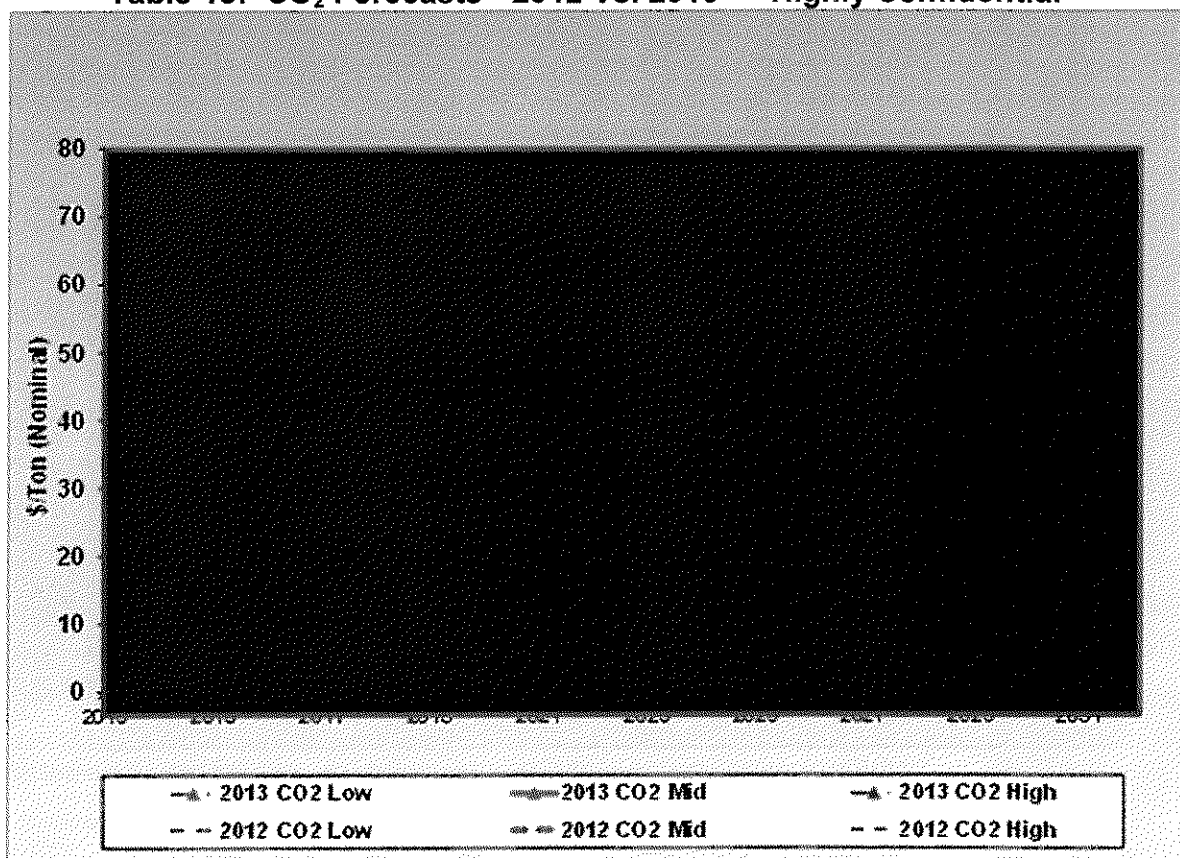


Table 12: NO_x Seasonal Forecasts - 2012 Vs. 2013 ** Highly Confidential **



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Table 13: CO₂ Forecasts - 2012 Vs. 2013 ** Highly Confidential **



The following table indicates the vendors that provided the fuel and emission forecasts reflected in the above charts.

Table 14: Fuel and Emission Forecast Sources

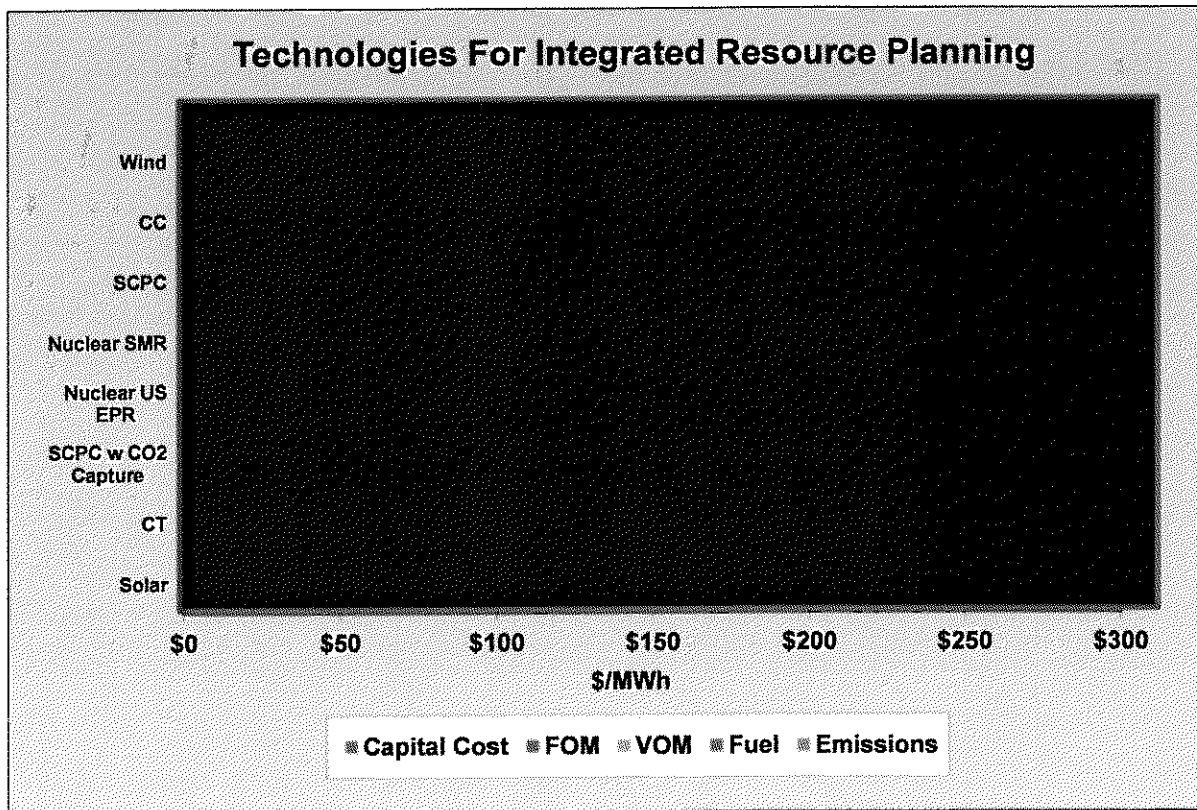
Forecast Source	Coal	Natural Gas	Fuel Oil	Nuclear	SO ₂	NO _x	CO ₂
CERA/Global Insight		x	x		x		x
EIA	x	x	x				
PIRA		x	x		x	x	x
Energy Ventures Analysis	x	x	x		x	x	x
Wood Mac							x
JD Energy	x				x	x	x
Synapse							x
SNL Financial	x						
Hanou Energy Consulting	x						
Global Energy				x			

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3.2.2 SUPPLY-SIDE TECHNOLOGY CANDIDATE RESOURCE OPTIONS

This section provides the updated supply-side technology candidates included in the integrated resource analysis in the 2013 Annual Update submittal. All of the technologies included in the 2012 GMO IRP submittal were also included in the 2013 Annual Update. The cost and operating data for these technologies was updated using the most recent available market sources or the Electric Power Research Institute Technical Assessment Guide (EPRI-TAG®). In addition, small modular nuclear reactors (SMRs) were added as a potential resource alternative to meet future capacity requirements. The combination of potential resource options includes a diverse range of natural gas, coal, nuclear and renewable powered alternatives. The following table compares the all-in cost of the supply side options on a dollar per MWh basis, including the components of capital cost, fixed O&M, variable O&M, fuel, and emissions.

Table 15: Supply Side Technology Options ** Highly Confidential **



3.2.3 LIFE ASSESSMENT & MANAGEMENT PROGRAM

This section provides the updated long-term plant equipment needs utilized in the 2013 GMO IRP submittal. The Life Assessment and Management Program (LAMP) was developed in the late 1980's for the purpose of identifying, evaluating, and recommending improvements and special maintenance requirements necessary for continued reliable operation of KCP&L coal-fired generating units. The program has been expanded to now include the GMO coal-fired generating units.

Current schedules of identified LAMP projects and costs for Lake Road Unit 4/6, and Sibley Units 1, 2, 3 are shown below in Table 16 through Table 22.

Table 16: Lake Road Unit 4/6 LAMP Capital Plan Years 2018 - 2025 (\$000's) **Highly Confidential**

Project Name	2018	2019	2020	2021	2022	2023	2024	2025
LR 4 Economizer								
LR 4 Primary Superheater								
LR 4 Secondary Superheater								
LR 4 Steam Chest								
LR 4 Intercept Valves								
LR 4 Turbine Piping								
LR 4 Stator Windings/ Generator Bushings								
LR 4 Generator Step Up / Auxiliary Transformer								
LR 4 Intermediate Pressure Steam Turbine Casing								
LR 4 Attenuating System								
LR 4 Condenser Tubes								
LR 4 Stacks and Liners								
LR 4 Precipitator Controls								
LR 4 - Burners								
LR 4 - Cyclone Replacement								
LR 4 - Lower Water Walls								
LR 4 - Variable Frequency Drive for Forced Draft Fan								
LR 4 - Variable Frequency Drive for Boiler Feed Pump								
LR 4 - Economizer Casing								
LR 4 - Control System Upgrade								
LRB4 - Casing, Breaching, & Baffle Wall								
LRB4 - Burners								
LRB4 - Water Walls								
LRB4 - Primary Superheater								
LRB4 - Controls Replacement								
LRB4 - Boiler Feed Pump No. 3 (Common)								
LRB4 - Boiler Feed Pump No. 3 Motor (Common)								
LRB4 - Chimney & Liner								
LRB4 - Fire Protection								
LRB4 - Air Heater								
LRB4 - 480V Transformers & Switchgear								
LRB4 - Header & Downcomer								

Table 17: Lake Road Unit 4/6 LAMP Capital Plan Years 2026 - 2032 (\$000's) **Highly Confidential**

Project Name	2026	2027	2028	2029	2030	2031	2032	Plant Total
LR 4 Economizer								
LR 4 Primary Superheater								
LR 4 Secondary Superheater								
LR 4 Steam Chest								
LR 4 Intercept Valves								
LR 4 Turbine Piping								
LR 4 Stator Windings/ Generator Bushings								
LR 4 Generator Step Up / Auxiliary Transformer								
LR 4 Intermediate Pressure Steam Turbine Casing								
LR 4 Attenuating System								
LR 4 Condenser Tubes								
LR 4 Stacks and Liners								
LR 4 Precipitator Controls								
LR 4 - Burners								
LR 4 - Cyclone Replacement								
LR 4 - Lower Water Walls								
LR 4 - Variable Frequency Drive for Forced Draft Fan								
LR 4 - Variable Frequency Drive for Boiler Feed Pump								
LR 4 - Economizer Casing								
LR4 - Control System Upgrade								
LRB4 - Casing, Breeching, & Baffle Wall								
LRB4 - Burners								
LRB4 - Water Walls								
LRB4 - Primary Superheater								
LRB4 - Controls Replacement								
LRB4 - Boiler Feed Pump No. 3 (Common)								
LRB4 - Boiler Feed Pump No. 3 Motor (Common)								
LRB4 - Chimney & Liner								
LRB4 - Fire Protection								
LRB4 - Air Heater								
LRB4 - 480V Transformers & Switchgear								
LRB4 - Header & Downcomer								

Table 18: Sibley Units 1-2 LAMP Capital Plan Years 2018 - 2025 (\$000's) **Highly Confidential**

Project Name	2018	2019	2020	2021	2022	2023	2024	2025
SIB1 - Replace Generator Step Up								
SIB1 - Replace #5 High Pressure Feedwater Heater								
SIB1 - Rewind Generator Stator								
SIB1 - Rewind Generator Rotor								
SIB1 - Replace Air Heater Tubes								
SIB1 - Furnace South Water Wall								
SIB1 - Furnace East Water Wall								
SIB1 - Furnace West Water Wall								
SIB1 - Furnace North Water Wall								
SIB1 - Economizer								
SIB1 - Retube Condenser								
SIB1 - Distributed Control System Replacement								
SIB1 - Cyclone Replacement								
SIB1 - Precipitator Hoppers								
SIB1 - Mud Drum								
SIB2 - Replace Generator Step Up								
SIB2 - Replace #5 High Pressure Feedwater Heater								
SIB2 - Rewind Generator Stator								
SIB2 - Rewind Generator Rotor								
SIB2 - Replace Circulating water lines								
SIB2 - Replace Air Heater Tubes								
SIB2 - Furnace South Water Wall								
SIB2 - Furnace East Water Wall								
SIB1 - Furnace West Water Wall								
SIB1 - Furnace North Water Wall								
SIB2 - Retube Condenser								
SIB2 - Distributed Control System Replacement								
SIB2 - Cyclone Replacement								
SIB2 - Precipitator Hoppers								
SIB2 - Mud Drum								
SIB2 - Lube Oil Coolers								

Table 19: Sibley Units 1-2 LAMP Capital Plan Years 2026 - 2032 (\$000's) **Highly Confidential**

Project Name	2026	2027	2028	2029	2030	2031	2032	Plant Total
SIB1 - Replace Generator Step Up								
SIB1 - Replace #5 High Pressure Feedwater Heater								
SIB1 - Rewind Generator Stator								
SIB1 - Rewind Generator Rotor								
SIB1 - Replace Air Heater Tubes								
SIB1 - Furnace South Water Wall								
SIB1 - Furnace East Water Wall								
SIB1 - Furnace West Water Wall								
SIB1 - Furnace North Water Wall								
SIB1 - Economizer								
SIB1 - Retube Condenser								
SIB1 - Distributed Control System Replacement								
SIB1 - Cyclone Replacement								
SIB1 - Precipitator Hoppers								
SIB1 - Mud Drum								
SIB2 - Replace Generator Step Up								
SIB2 - Replace #5 High Pressure Feedwater Heater								
SIB2 - Rewind Generator Stator								
SIB2 - Rewind Generator Rotor								
SIB1,2 - Replace Circulating water lines								
SIB2 - Replace Air Heater Tubes								
SIB2 - Furnace South Water Wall								
SIB2 - Furnace East Water Wall								
SIB1 - Furnace West Water Wall								
SIB1 - Furnace North Water Wall								
SIB2 - Retube Condenser								
SIB2- Distributed Control System Replacement								
SIB2 - Cyclone Replacement								
SIB2 - Precipitator Hoppers								
SIB2 - Mud Drum								
SIB2 - Lube Oil Coolers								

Table 20: Sibley Unit 3 LAMP Capital Plan Years 2018 - 2025 (\$000's) **Highly Confidential**

Project Name	2018	2019	2020	2021	2022	2023	2024	2025
SIB3 - Air Heater Retube								
SIB3 - Convection Pass Floor Replacement								
SIB3 - Replace Remainder of Furnace Water Walls								
SIB3 - Secondary Superheat Inlet Pendants								
SIB3 - Replace Generator Step Up								
SIB3 - Replace 2 Startup Transformer								
SIB3 - Furnace Convection Pass Floor and Sidewalls Boiler Tubes								
SIB3 - Backpass Walls Boiler Tubes								
SIB3 - Rewind Generator Stator								
SIB3 - Rewind Generator Rotor								
SIB3 - Main Steam Pipe								
SIB3 - Coal Feeders								
SIB3 - Circulating Water Pumps and Motors								
SIB3 - Slag Tank Replacement								
SIB3 - Replace Benchmark								
SIB3 - Replace Sootblowers								
SIB3 - Hot Reheat Piping Replace								
SIB3 - Economizer Boiler Tubes								
SIB3 - Remainder of Re-Heater Boiler Tubes								
SIB3 - Secondary Superheat Intermediate Boiler Tubes								
SIB3 - Primary Superheater Boiler Tubes								
SIB3 - Furnace Roof and Tight Casing Seal								
SIB3 - Furnace Floor								
SIB3 - Condenser Retube								
SIB3 - Replace cyclones								
SIB3 - Replace Selective Catalytic Reduction Catalyst (1 layer)								

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Table 21: Sibley Unit 3 LAMP Capital Plan Years 2026 - 2032 (\$000's) **Highly Confidential**

Project Name	2026	2027	2028	2029	2030	2031	2032	Plant Total
SIB3 - Air Heater Retube								
SIB3 - Convection Pass Floor Replacement								
SIB3 - Replace Remainder of Furnace Water Walls								
SIB3 - Secondary Superheat Inlet Pendants								
SIB3 - Replace Generator Step Up								
SIB3 - Replace 2 Startup Transformer								
SIB3 - Furnace Convection Pass Floor and Sidewalls Boiler Tubes								
SIB3 - Backpass Walls Boiler Tubes								
SIB3 - Rewind Generator Stator								
SIB3 - Rewind Generator Rotor								
SIB3 - Main Steam Pipe								
SIB3 - Coal Feeders								
SIB3 - Circulating Water Pumps and Motors								
SIB3 - Slag Tank Replacement								
SIB3 - Replace Benchboard								
SIB3 - Replace Sootblowers								
SIB3 - Hot Reheat Piping Replace								
SIB3 - Economizer Boiler Tubes								
SIB3 - Remainder of Re-Heater Boiler Tubes								
SIB3 - Secondary Superheat Intermediate Boiler Tubes								
SIB3 - Primary Superheater Boiler Tubes								
SIB3 - Furnace Roof and Tight Casing Seal								
SIB3 - Furnace Floor								
SIB3 - Condenser Retube								
SIB3 - Replace cyclones								
SIB3 - Replace SCR Catalyst (1 layer)								

Table 22: Sibley Station Common LAMP Capital Plan Years 2018 - 2032 (\$000's) **Highly Confidential**

Project Name	2018	2019	2020	2021	2022	2023	2024	2025
SIB STA - Install New Surge Bin for Coal Crushers								
SIB STA - Coal Conveyor Replacement								
SIB STA - Dust Collectors Replacement								
SIB STA - Landfill Expansion (multiple phases)								
SIB STA - Landfill Closure (multiple phases)								
SIB STA - Condensate Polisher Replacement								
SIB STA - Crushed Coal Storage Silos								
Additional Spends								
SIB STA - YEARLY								
Project Name								
SIB STA - Install New Surge Bin for Coal Crushers								
SIB STA - Coal Conveyor Replacement								
SIB STA - Dust Collectors Replacement								
SIB STA - Landfill Expansion (multiple phases)								
SIB STA - Landfill Closure (multiple phases)								
SIB STA - Condensate Polisher Replacement								
SIB STA - Crushed Coal Storage Silos								
Additional Spends								
SIB STA - YEARLY								

3.3 SUPPLY-SIDE RESOURCE ANALYSIS: AGREED UPON REMEDIES TO ALLEGED DEFICIENCIES AND CONCERNS

The following section addresses the Alleged Deficiencies and Concerns from the 2012 GMO IRP, Case No. EO-2012-0324. The Resolutions are either verbatim or a shortened version of the agreed-to resolution from the Joint Filing filed in that case.

3.3.1 Staff's Deficiency 1

GMO did not include the nuclear powered small modular reactor (SMR) as a potential supply-side resource option and did not provide its assessments of the SMR technology. Although GMO evaluated three nuclear technologies, GMO did not include SMR as a potential supply-side resource in its April 9, 2012 filing. GMO should provide its assessment of the SMR technology in its 2013 Annual Update.

Resolution: The Company will provide an assessment of SMR technology in the 2013 Annual Update.

Comment: This issue has been addressed as GMO included SMR as a supply-side option in the 2013 Annual Update filing. See Table 15 above.

3.3.2 MDNR's Deficiency 4

Estimates of natural gas prices were used in the fuel price forecasts are consistently high. The natural gas prices used for this analysis were consistently higher than the base case forecast for natural gas prices published in the United States Department of Energy's Annual Energy Outlook for 2011(AEO2011).

Resolution: GMO will update its natural gas forecast in the 2013 Annual Update filing.

Comment: GMO updated the natural gas forecast for the 2013 Annual Update. See Table 8 above.

3.3.3 MDNR's Concern 2

Compliance with alternative Missouri renewable energy standard. GMO addressed its attempts to comply with the current Missouri Renewable Energy Standard (RES) or Proposition C. However, the IRP does not discuss the compliance with the potentially modified or newly proposed renewable energy standard.

Resolution: GMO will develop at least one Alternative Resource Plan in the 2013 update filing utilizing an aggressive level of renewable resource additions.

Comment: Plan AICGW addressed this resolution, as this Alternative Resource Plan includes more than double the wind resources required by the current Missouri RES.

3.3.4 MDNR's Concern 3

Inadequate exploration of distributed generation ("DG") technologies in screening supply-side resources. GMO inadequately analyzes the role of distributed generation technologies, in particular combined heat and power (CHP), in its screening analysis of potential supply-side resources.

Resolution: GMO will include CHP from the potential study as a supply-side option in the 2013 update filing.

Comment: GMO included CHP in all of the Alternative Resource Plan evaluations in the 2013 Annual Update.

3.3.5 GDS' (MDNR) Deficiency 2

GMO has not considered ultra-low sulfur coal in its IRP ignoring its potential as a practical contingency option and its ability to address environmental compliance requirements.

Resolution: This has been resolved as the forecast used in the April 2012 IRP Filing covers this issue.

3.3.6 GDS' (MDNR) Deficiency 3

GMO did not provide adequate documentation to support the reasonableness of wind resource cost assumptions. By using the same inflation rate for capital and fixed O&M costs and maintaining a constant capacity factor, costs for wind energy are held constant relative to other supply side resources, providing the appearance of higher costs than may be reasonably expected over the next 20 years. The IRP is deficient in its failure to “fairly” analyze and compare costs of wind against other resources.

Resolution: The Company will analyze improving wind capacity factors and lower relative inflation rates before the 2013 Annual Update.

Comment: GMO developed Alternative Resource Plans (ARPs) in the 2013 Annual Update filing that reflected zero inflation (AICGG), and normal inflation rates for the wind capital and O&M costs (AICGW). The wind capacity factors were analyzed and not increased because they are comparable with GMO’s existing wind facilities, and capacity factors provided by developers for new future wind sites have been relatively stable and in the same range as existing facilities. Results indicate that if wind costs do not inflate over time that on an expected value basis, wind could become economic.

3.3.7 GDS' (MDNR) Deficiency 4

GMO did not provide adequate documentation to support the transmission interconnection costs for wind resources. The small sample size and wide range of costs gives rise to a question of whether the sample used to generate the interconnection costs is representative of past or future interconnection costs.

Resolution: The Company will identify a greater number of wind project transmission interconnection costs for inclusion into the 2013 Annual Update.

Comment: In the 2013 Annual Update filing, GMO included wind Interconnection costs updated based on 10 recent SPP (Southwest Power Pool) wind interconnection studies.

3.3.8 GDS' (MDNR) Concern 3

GMO has not considered a broad enough range of potential coal prices in its IRP. A broader range in coal fuel prices should have been used in the development of GMO's preferred or alternative resource plans.

Resolution: This issue has been resolved.

3.3.9 GDS' (MDNR) Concern 4

GMO's assumed coal plant capacity factors are not representative of recent actual operating experience and the impact of these assumed higher capacity factors on wind options has been overlooked. This issue affects the ability of existing supply resources to meet expected demand and limits the potential role of new renewable resources such as wind in the preferred plan.

Resolution: This issue has been resolved.

3.3.10 GDS' (MDNR) Concern 5

GMO did not address the impact of natural disasters, such as the flood at the latan coal plant, in its contingency plans.

Resolution: This issue has been resolved.

3.3.11 Dogwood refers to as "Deficiency 1"

Dogwood asserts that GMO's IRP is deficient because it improperly establishes a bias against the Dogwood plant as a potential supply-side resource by precluding consideration of the possibility of acquiring a minority interest in the plant. This bias artificially drives up the NPVRR of the one alternative plan (ACCG7) that includes Dogwood as a resource because it forces the plan to include an excess of 160 MW of generation capacity as compared to GMO's Preferred Plan and the other top feasible plans.

GMO should have studied alternative plans that included a minority interest in the Dogwood plant to meet its projected capacity needs, instead of solely looking at a

larger interest with excess capacity and greater costs. By failing to do so, GMO does not fairly and adequately evaluate its supply-side resource options as required by the Commission's IRP rules, which expressly require consideration of partial ownership. Reducing GMO's acquisition of Dogwood capacity from 310 MW down to 150 MW would decrease the NPVRR of the Dogwood Plan by roughly \$100 million due to changes in capital cost alone, putting it ahead of both the ACCG1 stand-alone plan and the AICG9 combined-company plan just by correcting for this one deficiency.

Resolution: To address Dogwood's concern, GMO agrees to conduct analysis of at least one alternative resource plan to quantify the effect of minority ownership in the Dogwood facility in the 2013 update filing. The alternative resource plan(s) will be included in the 2013 Annual Update and will have the same net capacity additions as the other plans to which they are compared.

Comment: Plan AEEGF addressed this resolution.

3.3.12 Dogwood refers to as "Deficiency 2"

Dogwood asserts that GMO's IRP is deficient because it improperly assumes that new combined cycle generating capacity can only be acquired in minimum increments of 300 MW either by GMO alone or combination with KCP&L. As with the preceding deficiency, GMO places an artificial constraint at the beginning of the planning process which limits the alternatives that are developed for consideration. There is no basis for GMO's assumption that it could not acquire a partial interest in a plant other than by developing it with KCP&L, at a time when KCP&L has a corresponding capacity need. By assuming that it must add combined cycle capacity in a minimum increment of 300 MW when KCP&L is not projected to be in a position to split development of such a plant, GMO drives up plan cost by unnecessarily including excess capacity. Again, GMO does not fairly and adequately evaluate its supply-side resource options as required by the Commission's IRP rules. In fact, this restriction creates improper affiliate bias by effectively requiring GMO to partner only with KCP&L in plant ownership rather than being open to partnership with other entities. Reducing the 2028 additional combined cycle capacity addition in the Dogwood Plan from 300 MW to 150 MW to match the ACCG9 and AICG9 combined company plan capacity

additions in those same years would also result in a similar roughly \$100 million decrease in the NPVRR of the Dogwood Plan as would the reduction in the acquisition of the Dogwood capacity referenced above.

Resolution: To resolve this issue, GMO agrees to conduct analysis of at least one alternative resource plan to quantify the effect of 310 MW in the Dogwood facility together with the same net capacity additions as the other plans to which they are compared. The alternative resource plan(s) will be included in the 2013 update filing.

Comment: Plan AEEGF addressed this resolution.

3.3.13 Dogwood refers to as “Deficiency 3”

Dogwood asserts that GMO’s IRP is deficient because it artificially drives up the costs of acquiring an interest in the Dogwood plant by applying false assumptions as to the efficiency of the plant. GMO used generic capacity factors and heat rates in its analysis of combined cycle resources, rather than the specific and more efficient characteristics of the Dogwood plant. GMO admits in discovery responses that it used capacity factors of “simulated units” and “one and only heat rate” for all combined cycle resources.

Depending on projections of the cost of natural gas to fuel the Dogwood plant, these faulty assumptions overstate the annual costs of operating the plant by at least \$2-3 million, resulting in NPVRR reductions of a least \$20-\$30 million for the Dogwood Plan. As with the prior deficiencies, these faulty assumptions prevent GMO from complying with the Commission’s rules.

Resolution: To resolve this issue, GMO has received heat rate information from Dogwood, has agreed to provide Dogwood with the capacity factor(s) for the plant that result from the aforesaid model dispatching, and has agreed to consider any comments Dogwood may timely provide on such capacity factor(s) in conjunction with the development of alternative resource plans as described in the resolution of Dogwood Deficiencies 1 and 2.

Comment: GMO incorporated the Dogwood operating information received in the 2013 Annual Update.

3.3.14 Dogwood refers to as “Deficiency 4”

Dogwood asserts that GMO failed to consider retirement of the City of Clarksdale’s Crossroads plant and GMO’s coal-fired units. The impacts of this failure are unknown. In conjunction with correcting the other deficiencies identified by Dogwood above, GMO should also meet the Commission’s directives concerning robust analysis of plant retirements so that the impacts can be identified and studied.

Resolution: To address Dogwood’s concern, GMO will provide at least one alternative resource plan that simulates the impact of a retirement of the Crossroads plant in the 2013 update filing. This will be done using the same analytical method and assumed regulatory treatment applied to all other retirement alternatives in the 2013 update filing, and including the same total net capacity additions as the other plans to which they are compared.

Comment: Plan AHBGA addressed this resolution.

3.3.15 Dogwood unnamed Deficiency (a)

Dogwood states that GMO selected the overall fifth place plan by NPVRR, and top-ranked feasible plan, labeled ACCG9, as the Preferred Plan. That plan is based on combined-company planning with KCP&L. The top GMO-only plans, based on NPVRR, include the plan in which the Dogwood plant is a component, labeled ACCG7. The difference between the Dogwood Plan and the Preferred Plan in terms of NPVRR over 20 years is only \$186 million, which again is only 1.5% of total NPVRR.

Correction of the deficiencies identified in these Comments regarding GMO’s inadequate consideration of the Dogwood plant would certainly elevate the Dogwood Plan to the status of the top feasible stand-alone plan and most likely to preferred status after a full comparable reanalysis of the Dogwood plant is performed on a combined company basis. Because GMO improperly applied a bias against acquiring

a minority interest in the Dogwood plant (Dogwood “Deficiency 1” above) and improperly assumed it could only acquire combined cycle capacity in a minimum increment of 30 MW (Dogwood “Deficiency 2” above), the Dogwood Plan (ACCG7) includes 160 MW in excess capacity as compared to other top feasible plans.

Resolution: GMO will address this issue in the 2013 update filing with resolutions to the remedies mentioned above in response to the Dogwood Deficiencies 1-4.

Comment: GMO addressed this issue in the 2013 Annual Update in responding to Dogwood Deficiencies 1-3.

3.3.16 Dogwood unnamed Deficiency (b)

Dogwood concludes that the Commission should order GMO to correct the identified deficiencies and make a new IRP submittal as soon as possible. GMO’s submittal does not meet the purpose of the Commission’s integrated resource planning rules. GMO imposes arbitrary biases and assumptions regarding the Dogwood plant and thereby artificially excludes this unique resource alternative from consideration. In doing so, GMO fails to use minimization of NPVRR as the primary selection criteria, fails to adequately evaluate full and partially ownership of supply-side resource options, and fails to address concerns raised about its prior IRP submittals. Thus, GMO has violated the Commission’s IRP rules and its prior orders. Further, GMO does not develop a sound plan to protect and serve the public interest.

Resolution: GMO will address this issue in the 2013 update filing with resolutions to the remedies mentioned above in response to the Dogwood Deficiencies 1-4.

Comment: GMO addressed this issue in the 2013 Annual Update in responding to Dogwood Deficiencies 1-4.

SECTION 4: TRANSMISSION AND DISTRIBUTION UPDATE

4.1 CHANGES FROM 2012 IRP SUBMISSION

4.1.1 SMARTGRID DEMONSTRATION PROJECT - 2012 MID-PROJECT TECHNOLOGY PERFORMANCE REPORT (TPR)

As a DOE Smart Grid Demonstration Project requirement, KCP&L (& GMO) produced its first Interim Technology Performance Report (TPR) on December 31, 2012. That document summarized all achievements on the project through that date. Key topics include summaries of the project design, implementation, analysis, and some lessons learned thus far. Due to the voluminous size of this report, it has not been included in the Annual Update, but can be viewed at the following DOE website;

http://www.smartgrid.gov/sites/default/files/KCPL_OE0000221_Interim%20TPR%20120130328.pdf.

A second Interim Technology Performance Report will be produced at the end of 2013. This document will revisit preliminary assessments from the 2012 documentation, but will go into greater detail regarding the incremental implementation activities, operational tests, and initial results from analysis performed as of that date. A final Technology Performance Report will be produced in early 2015 following the conclusion of the project and will synthesize all learning's from the entirety of project.

4.2 TRANSMISSION AND DISTRIBUTION: AGREED UPON REMEDIES TO ALLEGED DEFICIENCIES AND CONCERNS

The following section addresses the Alleged Deficiencies and Concerns from the 2012 GMO IRP, Case No. EO-2012-0324. The Resolutions are either verbatim or a shortened version of the agreed-to resolution from the Joint Filing filed in that case.

4.2.1 Staff's Deficiency 2

GMO did not provide its assessments of the RTO expansion plans as required by Rule 4 CSR 240-22.045(3)(C). These documents are necessary to determine if GMO satisfied the conditions required in Rule 4 CSR 240-22.045(3)(B) which permits the Company to use the RTO transmission expansion plans for its resource planning. GMO should provide its assessments of the RTO expansion plans in its Annual Update.

Resolution: The Company will provide its assessments of the RTO expansion plans in its 2013 Annual Update.

Comment: GMO assessment of RTO expansion plans is an ongoing process that occurs throughout the various regional planning processes conducted by SPP. These assessments include review and approval of plan scope documents, review and approval of plan input assumptions, review of plan study analysis and results with feedback from GMO staff, and review and approval of final plan reports. All transmission projects for the GMO service territory that are identified in SPP Regional Plans are included in GMO's annual Transmission Expansion Plan which performs an assessment of those projects for meeting the requirements of the NERC Reliability Standards. By meeting the performance standards established for transmission planning in the NERC Reliability Standards the assessment ensures that adequate transmission is available in the near term and long term to meet the firm load and transmission service requirements included in the SPP Regional Plan for GMO. This document is attached as Appendix A 2012 KCPL and GMO Transmission Expansion Plan Study.pdf.

4.2.2 Staff's Deficiency 3

GMO did not identify and describe all affiliates as required by Rule 4 CSR 240-2.045(5). GMO should, in future Chapter 22 filings, identify and describe the relationship between itself, KCP&L and Transource. GMO and KCP&L should conduct separate analysis of the RTO expansion plans for each company.

Resolution: GMO will identify and describe the relationship between KCP&L, Transource and GMO in its 2013 Annual Update.

Comment: For the purpose of this response, any Great Plains Energy ("GXP") affiliate is defined as those entities within the direct line of ownership of GXP.

While KCP&L Greater Missouri Operations Company ("GMO") is not a "transmission planning, designing, engineering, building, and/or construction management company," KCP&L identifies GMO in the interest of providing a response to this requirement. KCP&L and GMO are electric utilities wholly owned by Great Plains Energy Incorporated. While GMO has no employees, KCP&L employees perform transmission planning, designing, engineering, building, and construction management for both entities pursuant to the terms of the utilities' joint operation agreement and cost allocation manual. Transactions between KCP&L and GMO, however, are not subject to the Affiliate Transactions Rule found in 4 CSR 240-20.015, pursuant to a variance the Commission granted in Case No. EM-2007-0374.

On April 4, 2012 GXP, the holding company for both KCP&L and GMO, and American Electric Power ("AEP") announced the formation of a company to build and invest in transmission infrastructure. The new company, Transource Energy LLC ("Transource"), will pursue competitive transmission projects in the SPP region, the MISO and PJM regions, and potentially other regions in the future. GXP owns 13.5 percent of Transource through its newly-formed subsidiary, GPE Transmission Holding Company, LLC ("GPETHCO"). AEP owns the other 86.5 percent of Transource through its subsidiary, AEP Transmission Holding Company, LLC ("AEPTHC"). Transource Missouri, LLC is the only current subsidiary of Transource Energy, LLC and has applied to FERC in Docket No. ER12-2554-000 for authority to implement

certain incentive rate treatments for the Iatan-Nashua regional transmission project and the Sibley-Nebraska City regional transmission project pursuant to Section 219 of the Federal Power Act and FERC Order No. 679.

4.2.3 Staff's Concern B

The Filing does not describe and document the analysis performed by the utility to determine whether such affiliate-built transmission is in the interest of the utility's Missouri customers. GMO is affiliated with KCP&L and Transource Energy, LLC ("Transource"). Some of the analysis in Rule 4 CSR 240-22.045 is based on a combination of KCP&L and GMO rather than GMO as an individual company. GMO should provide its analysis of affiliate-built transmission in its April 1, 2013 Annual Update filing.

Resolution: This issue is resolved. The SPP RTO expansion plans included in the 2012 IRP filing provided separate analysis for KCP&L and GMO. GMO is identified as "MIPU" in some of the SPP RTO expansion plans.

SECTION 5: DEMAND-SIDE RESOURCE ANALYSIS UPDATE

5.1 DEMAND-SIDE MANAGEMENT LEVEL UPDATE

The 2013 Annual Update utilized the results of the Navigant Demand-Side Management Potential Study. Five scenarios were created for GMO. The five scenarios were based on the Realistic Achievable Potential (RAP) and The Maximum Achievable Potential (MAP), which were identified in the study. The five scenarios are RAP, MAP, RAP plus 1/3 of the difference between RAP and MAP, RAP plus 2/3 the difference between RAP and MAP, and approximately half-RAP. The draft version of the Navigant DSM Potential Study used in the analysis was available in March of 2013. A finalized version of the Navigant DSM Potential Study will be available after the date of this filing.*

**Note: At the time of the filing of this Annual Update, the Navigant DSM Potential Study was not yet finalized due to changes requested by stakeholders. As such, GMO utilized a draft version of the report that was available as of March 2013.*

5.2 MODIFICATIONS MADE TO THE DSM LEVELS FROM THE POTENTIAL STUDY

The Navigant DSM Potential Study data, that was used for this update, included all C&I customers. GMO received Opt-Out requests from some of the large Commercial and Industrial (C&I) customers that were eligible to do so, that were not reflected in the Study. As of the date of this filing, the customers requesting to Opt-Out of DSM amounted to 18% of GMO's large C&I load, which amounts to 15% of GMO's total C&I load. In order to account for the resulting reduction in potential C&I DSM due to those customers who Opted-Out, the company reduced the DSM levels from C&I customers by 15%.

5.3 MODIFICATIONS MADE TO THE EARLY YEARS OF THE SCENARIOS

GMO has an approved MEEIA filing, which was implemented for a 3 year period beginning in January 2013. To reflect this actual expected level of DSM in the update, GMO replaced the DSM levels from the potential study with the approved

MEEIA levels in all five scenarios for the years 2014 (the first year of the study) and 2015 (the 3rd year of MEEIA). After 2015 the company used the actual incremental values from the potential study for all scenarios.

5.4 DEMAND-SIDE RESOURCE ANALYSIS: AGREED UPON REMEDIES TO ALLEGED DEFICIENCIES AND CONCERNS

The following section addresses the Alleged Deficiencies and Concerns from the 2012 GMO IRP, Case No. EO-2012-0324. The Resolutions are either verbatim or a shortened version of the agreed-to resolution from the Joint Filing filed in that case.

5.4.1 Staff's Deficiency 4

The Company has no current market research study that identifies the maximum achievable potential ("MAP"), technical potential and realistic achievable potential ("RAP") of potential demand-side resource options. The Company should utilize the results of the Navigant Demand-Side Management Potential as input in the preparation of its 2013 Annual Update.

Resolution: The Company will utilize the results of the Navigant Demand-Side-Management Potential Study in its 2013 Annual Update.

Comment: This issue has been addressed as GMO utilized the results of the Navigant DSM Potential Study in the 2013 update filing.

5.4.2 Staff's Deficiency 5

The Company has not provided all information required by Rule 4 CSR 240-22.050. Specifically, the Company has repeatedly referenced the future results of: a) the Navigant Demand-Side Management Potential study, not available until January 15, 2013, in response to satisfying specific requirements of Rule 4 CSR 240-22.050 (1)(A)3, 1(D), 1(E), (2), (3)(G)3, (3)(G)5, (3)(I), (4)(D), 4(E), 4(G) and 6(C); b) the Smart Grid Residential TOU Pilot Tariff that will not be available until after the summer of 2012 in response to satisfying the specific requirements of Rule 4 CSR 240-22.050(4)(D)1 and (4)(D)4. The Company should utilize the results of the Navigant Demand-Side Management Potential study and the Smart Grid Residential TOU Pilot Tariff when performing analyses for its 2013 Annual Update.

Resolution: The Company will utilize the results of the Navigant Demand-Side-Management Potential Study in its 2013 Annual Update and the Smart Grid Residential TOU Pilot Tariff.

Comment: This issue has been addressed as GMO utilized the results of the Navigant DSM Potential Study and has provided the results of the Smart Grid Residential TOU Pilot Tariff in the 2013 Annual Update. These are included in the appendices "Appendix C KCPL Preliminary IHD and TOU Evaluation Rev Oct 24 2012.pdf" and "Appendix D 2012 OnPeak Hours.xls". It should be noted that this TOU study was initiated under KCP&L and utilized in GMO.

5.4.3 Staff's Concern C

GMO is constraining both the Energy Optimizer and MPower programs. GMO has indicated that it is not promoting either the Energy Optimizer or MPower program, and for the MPower program, the Company is not currently accepting and/or processing new program applications. The Company should utilize the results of the Navigant Demand-Side Management Potential study meeting the requirements of Rule 4 CSR 240-22.050(2) and Rule 4 CSR 240-3.164(2) (A), and should use the same as input in the preparation of its 2013 Annual Update.

Resolution: The Company will utilize the results of the Navigant Demand-Side-Management Potential Study in its 2013 Annual Update.

Comment: This issue has been addressed as GMO utilized the results of the Navigant DSM Potential Study in the 2013 Annual Update filing.

5.4.4 Staff's Concern D

The Chapter 22 Total Resource Cost ("TRC") value of 0.63 for the Energy Star New Homes program indicates that this program is not cost effective and differs significantly from the MEEIA TRC value of 1.32. In addition, several other TRC values in this Chapter 22 filing differ from those contained in the Company's MEEIA filing. The Company should carefully review all of the Chapter 22 calculated TRC values,

compare them to the TRC values in the MEEIA filing and resolve all significant discrepancies.

Resolution: The Company will utilize the results of the Navigant Demand-Side-Management Potential Study in its 2013 Annual Update. The Company will carefully review all TRC values for all DSM programs. If any programs are not cost effective and do not meet the requirements of 4 CSR 240-20.094 (3)(B) and (C), they will not be included in the Company's 2013 Annual Update.

Comment: This issue has been addressed. GMO utilized the results of the Navigant DSM Potential Study to review all TRC values for all DSM programs.

5.4.5 MDNR's Deficiency #5

No clear analysis of interactive factors in assessing DSM program cost-effectiveness. Analysis of the interactive effects of efficiency measures was not performed in the estimation of program cost-effectiveness.

Resolution: The Company will utilize the results of the Navigant Demand-Side-Management Potential Study in its 2013 Annual Update. Interactive effects will be included in the assessment of future programs. The program-level-cost-effectiveness will be recalculated after the completion of the potential study.

Comment: This issue has been addressed. In the 2013 Annual Update filing, GMO utilized the results of the Navigant DSM Potential Study to include interactive effects in the assessment of future programs. Also, the program-level-cost-effectiveness was recalculated based on the potential study.

5.4.6 MDNR's Deficiency #6

No identification of DSM portfolios that address "maximum achievable potential" and "realistic achievable potential." GMO has deferred all estimation and analysis of "maximum achievable potential" and "realistic achievable potential" to the completion of its market potential study.

Resolution: The Company will utilize the results of the Navigant Demand-Side-Management Potential Study in its 2013 Annual Update. DSM portfolios that meet the definition of “maximum achievable potential” and “realistic achievable potential” will be included in the 2013 Annual Update.

Comment: This issue has been addressed. GMO utilized the results of the Navigant DSM Potential Study to include DSM portfolios that meet the definition of “maximum achievable potential” and “realistic achievable potential” in the 2013 update filing.

5.4.7 MDNR's Deficiency #7

The requirements for the 1% and 2% DSM portfolio agreed upon in Stipulation to EO-2009-0237 [have] not been met, citing Stipulation and Agreement, File No. EE-2009-0237, Paragraph 28.

Resolution: This issue was resolved, as to the 2012 filing, over the phone in conversations with Adam Bickford, MDNR. DSM Plan F was the S&A level of DSM and was modeled.

5.4.8 MDNR'S Deficiency #8

The Key metrics for the “aggressive” and “very aggressive” DSM portfolios are not provided. Required data on number of participants, incentive payments and administrative costs are not provided for the “aggressive” and “very aggressive” DSM portfolios.

Resolution: The Company will include in the 2013 Annual Update, program metrics as described in 4 CSR 240-22.050(4)(G) for each of its DSM portfolios.

Comment: This issue has been addressed. GMO utilized the results of the Navigant DSM Potential Study to include program metrics for each the DSM portfolios in the 2013 Annual Update filing.

5.4.9 MDNR'S Deficiency #9

Savings estimates for "Aggressive", "Very Aggressive" and "Stipulated" DSM portfolios are simple extrapolations from a common base case.

Resolution: The Company will utilize the results of the Navigant Demand-Side-Management Potential Study in its 2013 Annual Update.

Comment: This issue has been addressed. GMO utilized the results of the Navigant DSM Potential Study in the 2013 Annual Update filing.

SECTION 6: INTEGRATED RESOURCE PLAN AND RISK ANALYSIS UPDATE

6.1 CHANGES FROM 2012 IRP SUBMITTAL

Since the April 2012 filing of the GMO Triennial IRP, several changing conditions have contributed to the Preferred Plan identified in 2012 filing as being obsolete. The changing conditions, or major drivers, that have contributed to GMO's need to develop new Alternative Resource Plans and therefore selection of a new Preferred Plan include:

- Proposed and Potential Environmental Regulations
- Load Forecast Projections
- Environmental Retrofit Cost Estimates
- Demand-Side Management Program levels

6.2 CRITICAL UNCERTAIN FACTORS

The Critical Uncertain Factors for the 2013 Annual Update were same as those in the 2012 IRP filing. The Critical Uncertain Factors identified were incorporated into a decision tree representation of the risks that will impact the performance of the alternative resource plans. A graphical representation of the decision tree risks is provided in Figure 6 below:

Figure 6: Critical Uncertain Factors With Conditional Probabilities

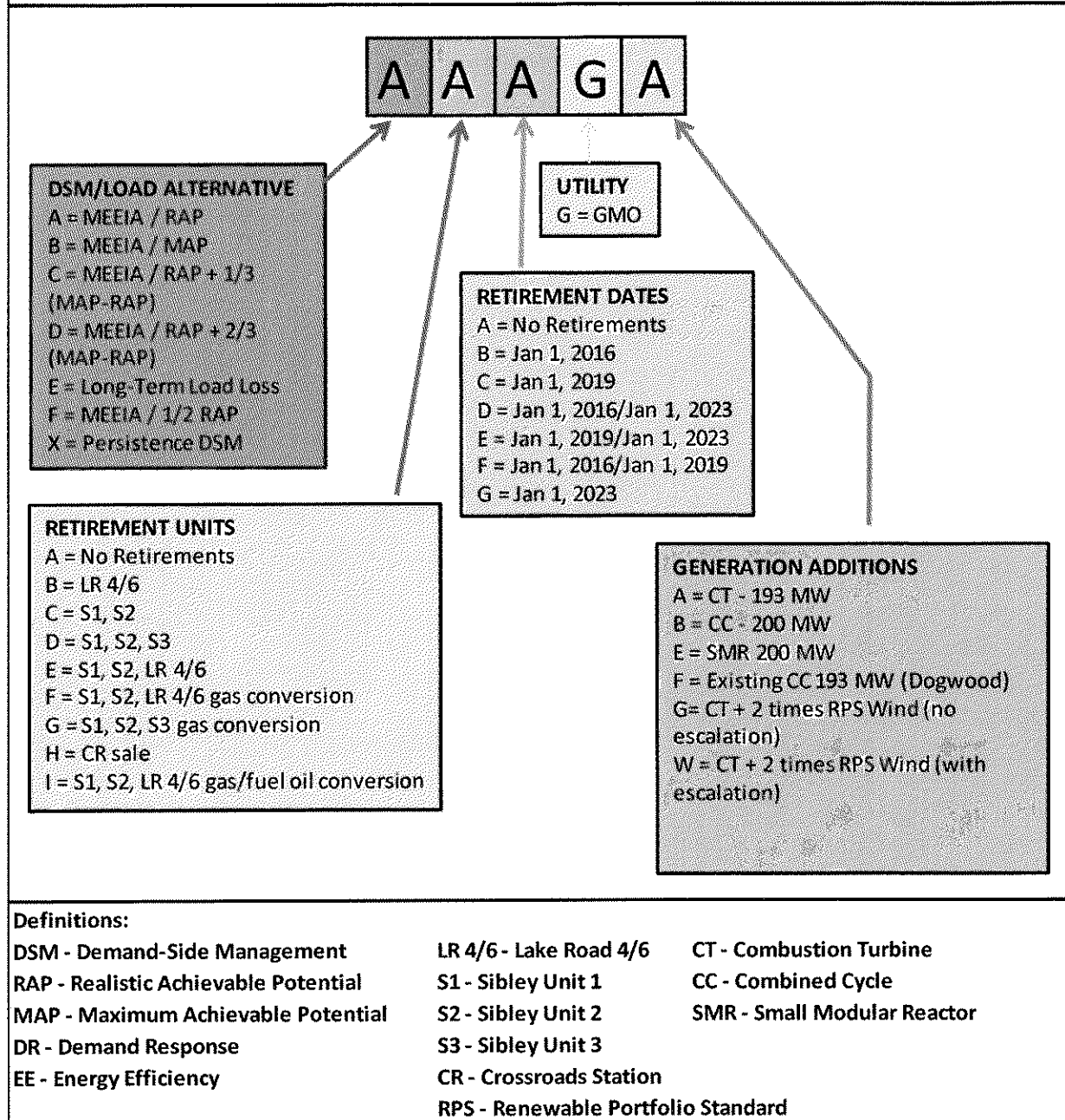
Endpoint	Load Growth	Natural Gas	CO ₂	Endpoint Probability
1	High	High	High	1.6%
2	High	High	Mid	3.1%
3	High	High	Low	1.6%
4	High	Mid	High	3.1%
5	High	Mid	Mid	6.3%
6	High	Mid	Low	3.1%
7	High	Low	High	1.6%
8	High	Low	Mid	3.1%
9	High	Low	Low	1.6%
10	Mid	High	High	3.1%
11	Mid	High	Mid	6.3%
12	Mid	High	Low	3.1%
13	Mid	Mid	High	6.3%
14	Mid	Mid	Mid	12.5%
15	Mid	Mid	Low	6.3%
16	Mid	Low	High	3.1%
17	Mid	Low	Mid	6.3%
18	Mid	Low	Low	3.1%
19	Low	High	High	1.6%
20	Low	High	Mid	3.1%
21	Low	High	Low	1.6%
22	Low	Mid	High	3.1%
23	Low	Mid	Mid	6.3%
24	Low	Mid	Low	3.1%
25	Low	Low	High	1.6%
26	Low	Low	Mid	3.1%
27	Low	Low	Low	1.6%

6.3 ALTERNATIVE RESOURCE PLANS NAMING CONVENTION

Alternative Resource plans were developed using a combination of supply-side resources, demand-side resources, various resource addition timings, as well as

generation retirement options and timings. The plan-naming convention utilized for the Alternative Resource Plans developed is shown in Table 23 below:

Table 23: Alternative Resource Plan Naming Convention
NAMING CONVENTION FOR ALTERNATIVE RESOURCE PLANS
IN THE 2013 GMO Annual Update



Alternative Resource Plans were developed using a combination of various supply-side and demand-side resources. An overview of the Alternative Resource Plans is shown in Table 24 to Table 28 below.

Table 24: Overview of Alternative Resource Plans

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
AAAGA	RAP	No Retirements	n/a	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	n/n
ABBGA	RAP	Lake Road 4/6	2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2031
ACBGA	RAP	Sibley-1 Sibley-2	2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2031
ACCGA	RAP	Sibley-1 Sibley-2	2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2031
ACGGA	RAP	Sibley-1 Sibley-2	2023	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2031

Table 25: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
ADBGA	RAP	Sibley-1 Sibley-2 Sibley-3	2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	579 MW CT in 2016
AEBGA	RAP	Lake Road 4/6 Sibley-1 Sibley-2	2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2016
AEDGA	RAP	Lake Road 4/6 Sibley-1 Sibley-2	2016 2023 2023	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2028
AEEGA	RAP	Lake Road 4/6 Sibley-1 Sibley-2	2019 2023 2023	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2028
AEEGF	RAP	Lake Road 4/6 Sibley-1 Sibley-2	2019 2023 2023	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CC (Dogwood) in 2015

Table 26: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
				Solar:	Wind:	
AFBGA	RAP	Convert to NG: Lake Road 4/6	2016*	2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	2019 - 150 MW 2021- 100 MW 2025 - 100 MW	n/n
		Convert to NG: Lake Road 4/6	2016*	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2031
AFCGA	RAP	Sibley-1 Sibley-2	2019 2019			
		Convert to NG: Sibley-1 Sibley-2 Sibley-3	2016*	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	n/n
AHBGA	RAP	Crossroads	2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	386 MW CT in 2016
AICGA	RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2031
		Sibley-1 Sibley-2	2019 2019			

Table 27: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
AICGB	RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	200 MW CC in 2031
		Sibley-1 Sibley-2	2019 2019			
AICGE	RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	200 MW SMR in 2031
		Sibley-1 Sibley-2	2019 2019			
AICGF	RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CC (Dogwood) in 2015
		Sibley-1 Sibley-2	2019 2019			
AICGW	RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 300 MW 2021- 200 MW 2025 - 200 MW	193 MW CT in 2032
		Sibley-1 Sibley-2	2019 2019			
BEEGA	MAP	Lake Road 4/6	2019	Solar: 2018 - 10 MW	Wind: 2019 - 150 MW	n/n
		Sibley-1 Sibley-2	2023 2023	2021 - 6 MW	2021- 100 MW	

Table 28: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
CICGA	RAP + 1/3(MAP-RAP)	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	n/n
		Sibley-1 Sibley-2	2019 2019			
DICGA	RAP + 2/3(MAP-RAP)	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	n/n
		Sibley-1 Sibley-2	2019 2019			
FICGA	MEEIA / 1/2 RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2022 386 MW CT in 2029 193 MW CT in 2033
		Sibley-1 Sibley-2	2019 2019			
FICGB	MEEIA / 1/2 RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	200 MW CC in 2022 200 MW CC in 2029
		Sibley-1 Sibley-2	2019 2019			
XEEGA	Persistence Only	Lake Road 4/6	2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021- 100 MW 2025 - 100 MW	193 MW CT in 2017 386 MW CT in 2022 193 MW CT in 2028 193 MW CT in 2032
		Sibley-1 Sibley-2	2023 2023			
* Convert to Natural Gas ** Convert to Natural Gas/Fuel Oil						

For each Alternative Resource Plan listed, a capacity balance table has been provided in Appendix B.

6.4 REVENUE REQUIREMENT AND PROBABLE ENVIRONMENTAL COSTS

For each of the Alternative Resource Plans developed, integrated analysis yielded an expected value of the Net Present Value of Revenue Requirement shown in Table 29 below. For each of the Alternative Resource Plans, the Probable Environmental Costs are shown in Table 30 below.

Table 29: Total Revenue Requirement

Rank (L-H)	Plan	NPVRR (\$mm)	Delta
1	AICGB	\$11,703	\$0
2	AICGA	\$11,703	\$1
3	AEDGA	\$11,727	\$25
4	AEEGA	\$11,734	\$32
5	AFCGA	\$11,756	\$54
6	AICGE	\$11,770	\$67
7	ACBGA	\$11,794	\$91
8	ACCGA	\$11,814	\$111
9	AICGW	\$11,831	\$128
10	AEEGF	\$11,839	\$137
11	ACGGA	\$11,852	\$149
12	AEBGA	\$11,854	\$151
13	ABBGA	\$11,864	\$161
14	AICGF	\$11,874	\$171
15	AFBGA	\$11,943	\$240
16	CICGA	\$11,947	\$245
17	FICGB	\$11,964	\$262
18	FICGA	\$11,976	\$273
19	AAAGA	\$11,985	\$283
20	ADBGA	\$12,153	\$450
21	DICGA	\$12,203	\$500
22	AGBGA	\$12,240	\$538
23	BEEGA	\$12,423	\$721
24	XEEGA	\$12,509	\$807
25	AHBGA	\$12,552	\$850

Table 30: Probable Environmental Costs

Plan	PEC NPVRR (\$mm)
AAAGA	677
ABBGA	516
ACBGA	498
ACCGA	506
ACGGA	533
ADBGA	180
AEBGA	341
AEDGA	370
AEEGA	383
AEEGF	386
AFBGA	517
AFCGA	346
AGBGA	182
AHBGA	675
AICGA	346
AICGB	346
AICGE	345
AICGF	356
AICGW	345
BEEGA	380
CICGA	346
DICGA	345
FICGA	348
FICGB	301
XEEGA	389

6.5 PERFORMANCE MEASURES

A summary tabulation of the expected value of all performance measures is provided in Table 31 below. Detailed results behind this summary tabulation are attached in Appendix G.

Table 31: Expected Value of Performance Measures ** Highly Confidential **

Plan	NPVRR	Probable Environmental Costs (\$MM)	DSM Costs (\$MM)	Levelized Annual Rates (\$/kw-hr)	Maximum Rate Increase	Times Interest Earned	Total Debt to Capital	Cap Ex to FFO
AICGB	\$ 11,703	\$ 346.5	\$ 450.6					
AICGA	\$ 11,703	\$ 346.1	\$ 450.6					
AEDGA	\$ 11,727	\$ 370.5	\$ 450.6					
AEEGA	\$ 11,734	\$ 383.0	\$ 450.6					
AFCGA	\$ 11,756	\$ 346.2	\$ 450.6					
AICGE	\$ 11,770	\$ 345.1	\$ 450.6					
ACBGA	\$ 11,794	\$ 498.2	\$ 450.6					
ACCGA	\$ 11,814	\$ 506.3	\$ 450.6					
AICGW	\$ 11,831	\$ 344.5	\$ 450.6					
AEEGF	\$ 11,839	\$ 385.5	\$ 450.6					
ACGGA	\$ 11,852	\$ 533.0	\$ 450.6					
AEBGA	\$ 11,854	\$ 341.0	\$ 450.6					
ABBGA	\$ 11,864	\$ 516.2	\$ 450.6					
AICGF	\$ 11,874	\$ 355.5	\$ 450.6					
AFBGA	\$ 11,943	\$ 516.7	\$ 450.6					
FICGB	\$ 11,964	\$ 301.1	\$ 240.3					
FICGA	\$ 11,976	\$ 348.0	\$ 240.3					
CICGA	\$ 11,984	\$ 345.6	\$ 813.2					
AAAGA	\$ 11,985	\$ 677.1	\$ 450.6					
ADBGA	\$ 12,153	\$ 179.6	\$ 450.6					
AGBGA	\$ 12,240	\$ 181.6	\$ 450.6					
DICGA	\$ 12,263	\$ 345.1	\$ 1,137.2					
BEEGA	\$ 12,507	\$ 379.7	\$ 1,461.2					
XEEGA	\$ 12,509	\$ 389.0	\$ -					
AHBGA	\$ 12,552	\$ 675.5	\$ 450.6					

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6.5.1 CUMULATIVE PROBABILITIES FOR PERFORMANCE MEASURES

Table 32: Cumulative Probability – NPVRR (\$MM)

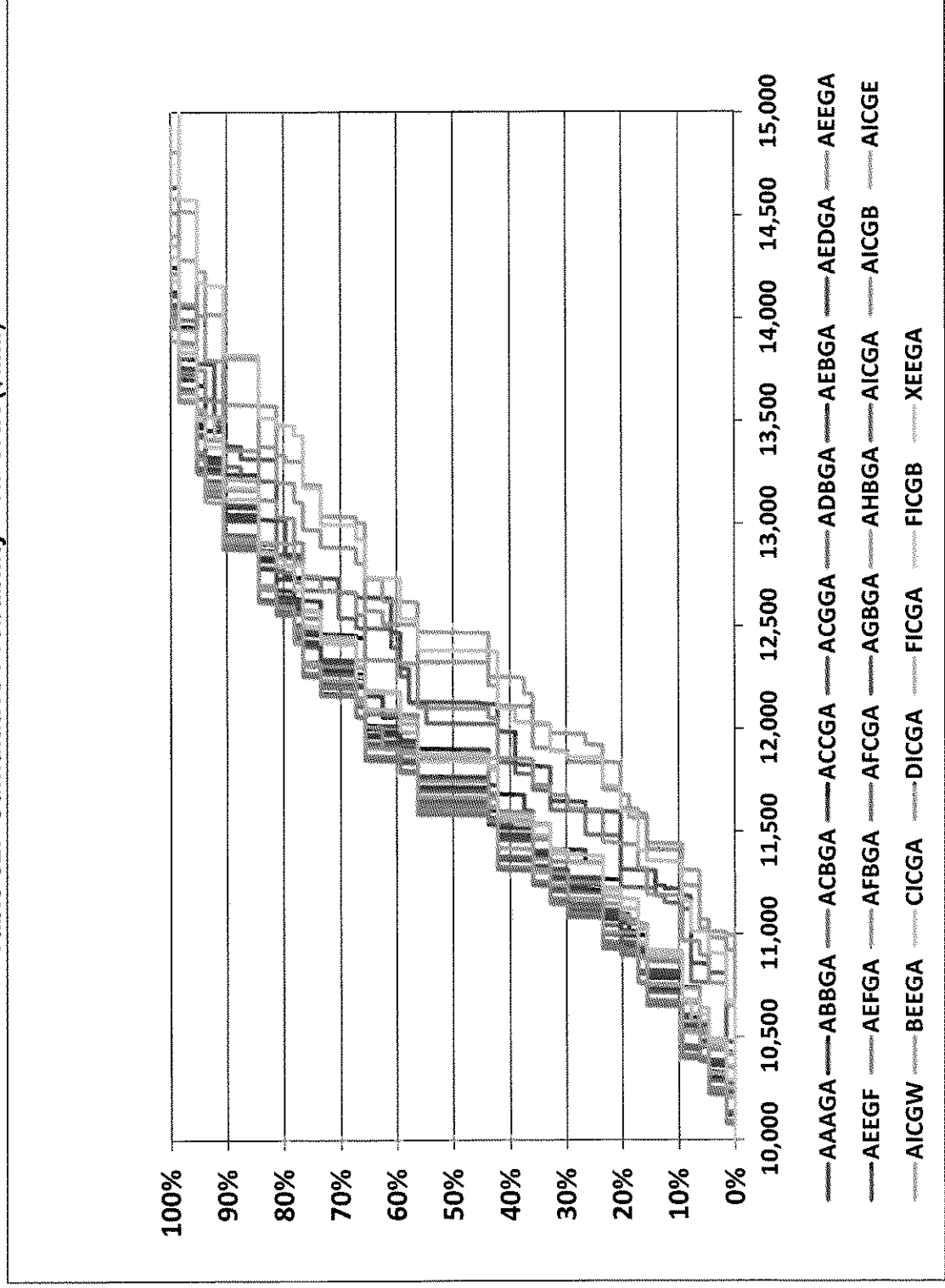


Table 33: Cumulative Probability - Probable Environmental Costs (\$MM)

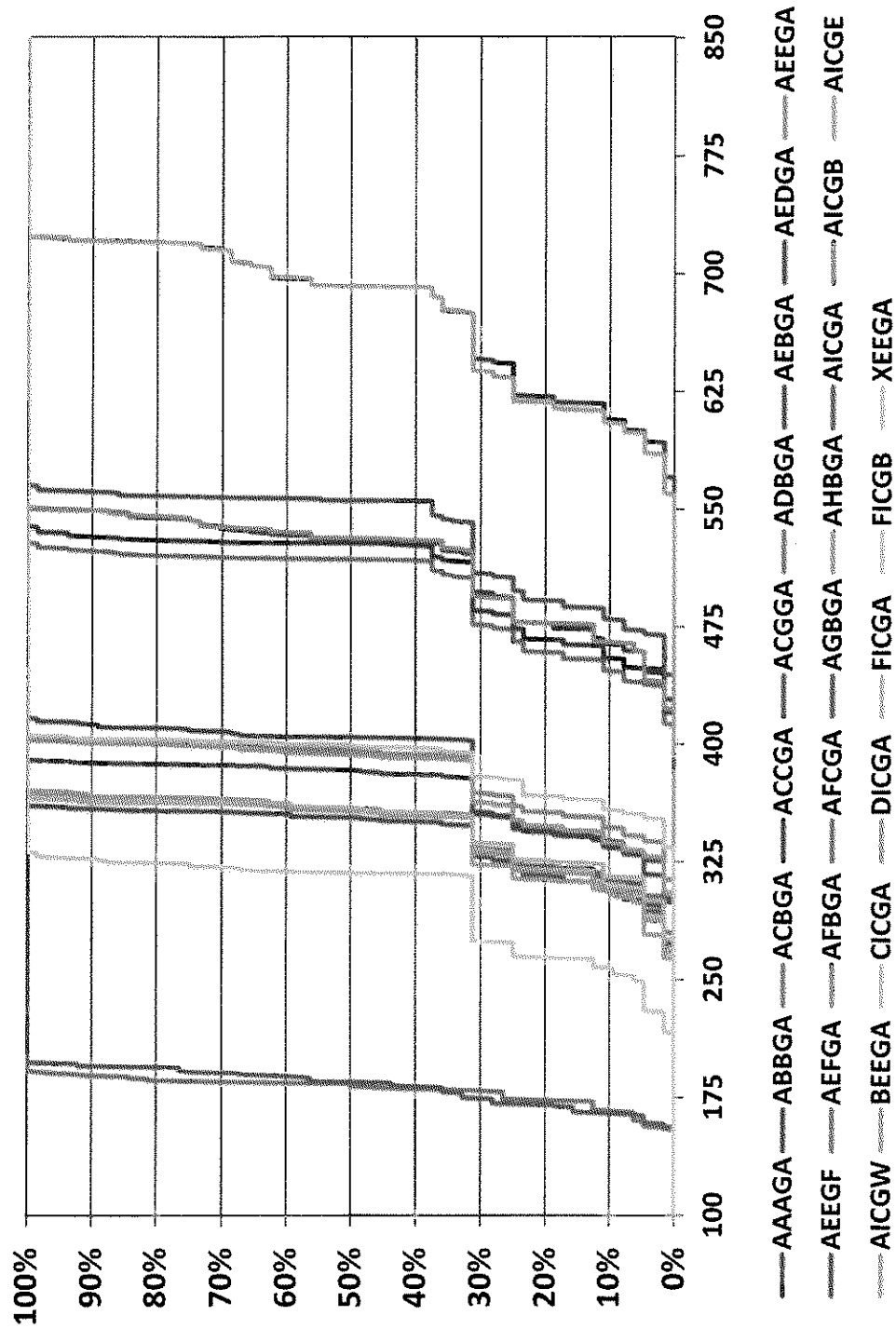


Table 34: Cumulative Probability - Annual Average Rates

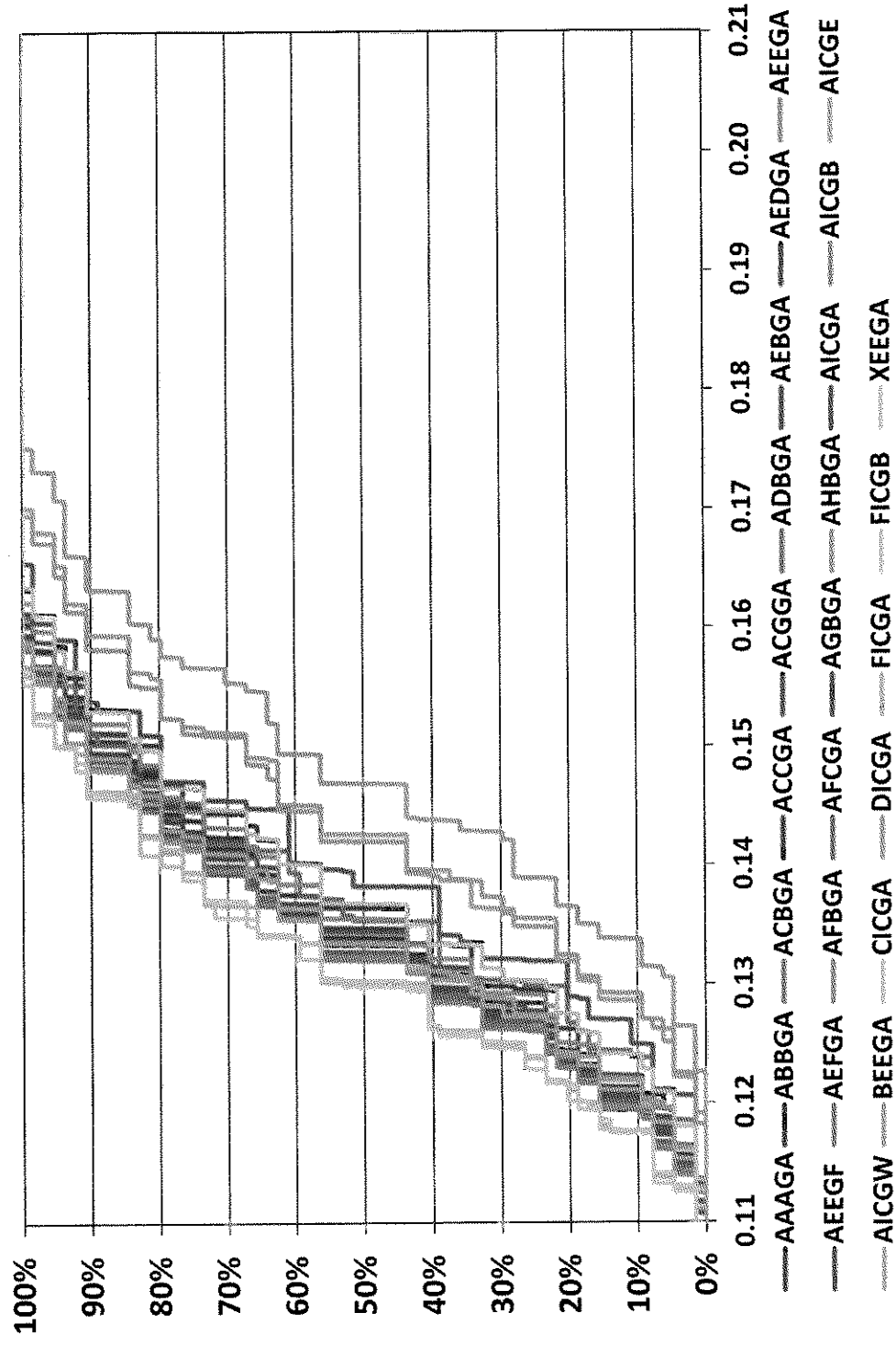
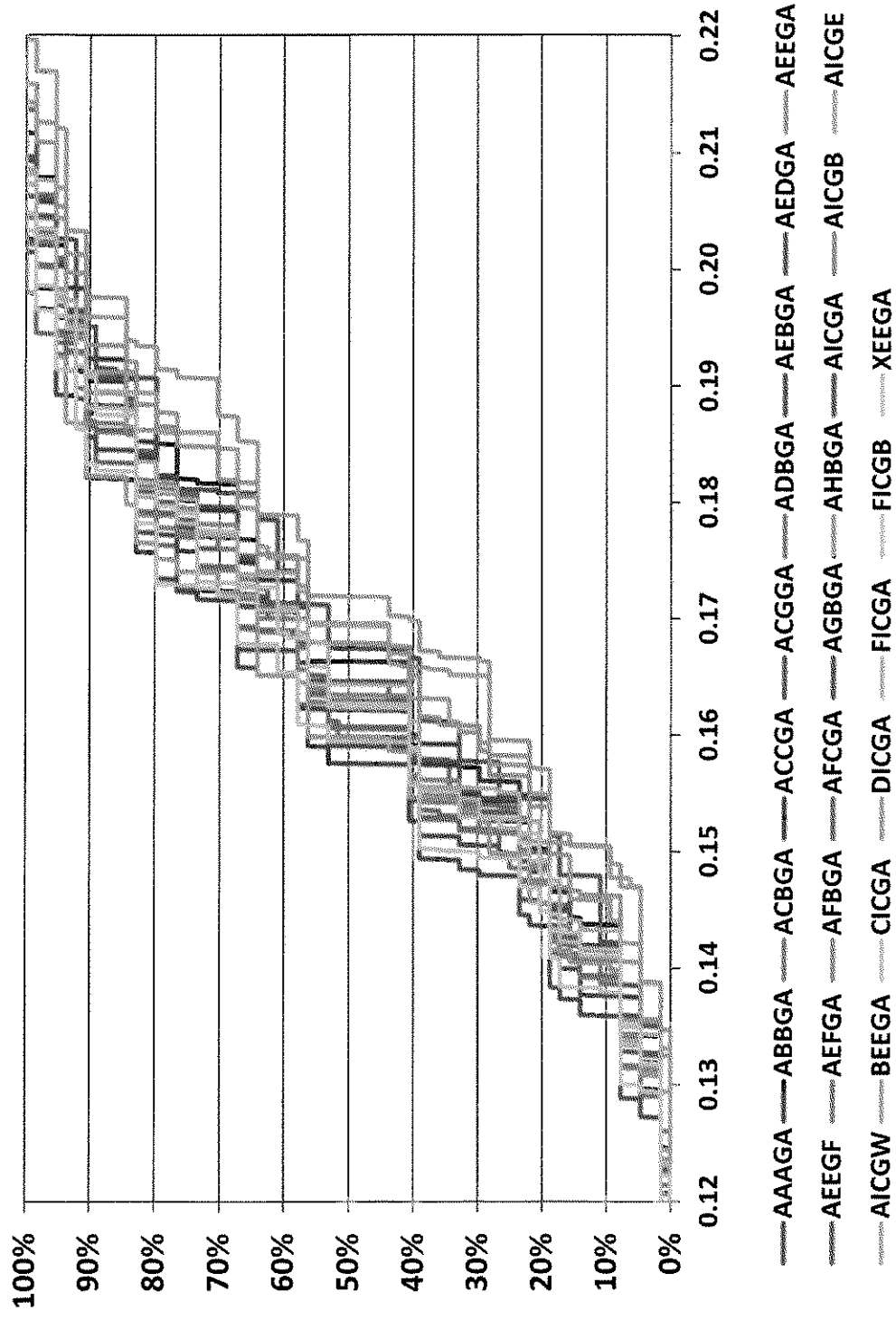


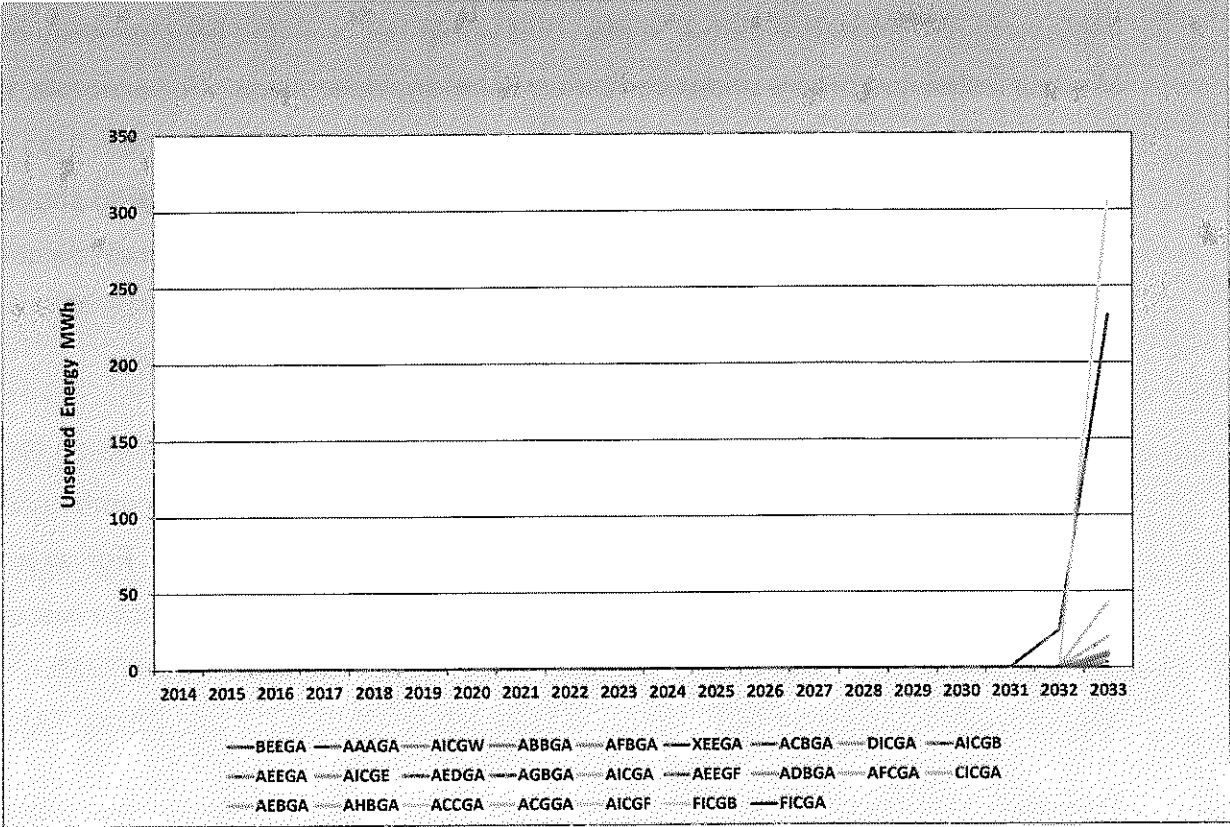
Table 35: Cumulative Probability - Maximum Rate Increase



6.6 UNSERVED ENERGY

The expected value of unserved energy for all plans is provided in Table 36 below:

Table 36: Unserved Energy



6.7 COMBINED KCP&L/GMO RESOURCE PLANS

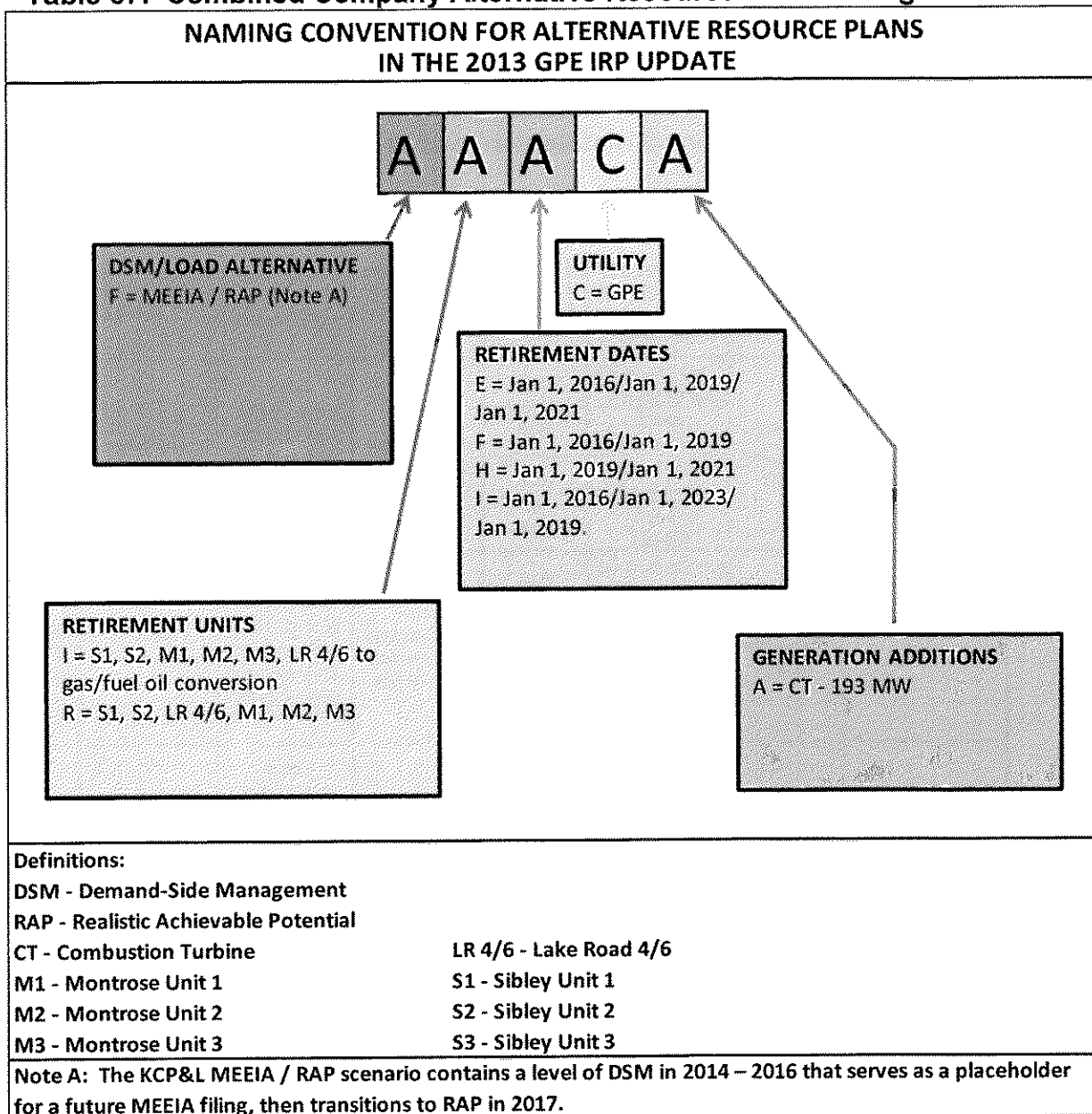
KCP&L/GMO are both held by Great Plains Energy, additional alternative resource plans were developed to determine if the KCP&L and/or GMO stand-alone resource plans should be modified to reflect potential combined company operations. This additional analysis is intended to minimize the risk that either stand-alone utility would implement an alternative resource plan that would not be in the best interests of Missouri retail customers under combined-company operations. For example, KCP&L has more base load resources available for service to its retail customers than does GMO. While the planning results indicate that KCP&L's Montrose station should be retired over the next several years, a combined KCP&L/GMO asset analysis could indicate that it is in the best interests of Missouri retail customers to keep Montrose in service for a longer period of time under a combined company scenario.

The combined company alternative resource plans were generally based on the results of the stand-alone company analysis. In general, they reflect combinations of several of the lowest NPVRR plans on a stand-alone company basis. For example, combined company plan FRECA is the combination of KCP&L alternative resource plan FDHKA (retire Montrose 1 in 2016 and Montrose 2&3 in 2021) and GMO alternative resource plan AEFGA (retire Lake Road 4/6 in 2016 and Sibley 1&2 in

The NPVRR for each combined company alternative resource plan was determined under the same 27 scenarios analyzed for the stand alone companies. For example, electricity market prices, natural gas prices, CO2 allowance prices, etc. were unchanged from the stand-alone company scenarios.

The plan-naming convention utilized for the combined company Alternative Resource Plans developed is shown in Table 37 below.

Table 37: Combined Company Alternative Resource Plan Naming Convention



Alternative Resource Plans were developed using a combination of various capacities of supply-side resources and demand-side resources. In total, five combined company Alternative Resource Plans were developed for the integrated resource analysis for this 2013 Annual Update. An overview of the Alternative Resource Plans is shown Table 38 below.

Table 38: Overview of Combined Company Resource Plans

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions			Generation Addition (if needed)
FIECA	MEEBA/RAP (KCP&L), RAP (GMO)	Convert to NG-FO: Lake Road 4/6	2016	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 50 MW 2019 - 150 MW 2020 - 150 MW 2021 - 100 MW 2024 - 200 MW 2025 - 100 MW	Hydro*: 2014 - 56 MW	193 MW CT in 2027 193 MW CT in 2030 193 MW CT in 2032
		Retire: Montrose-1	2015				
		Montrose-2 Montrose-3	2021				
		Sibley-1 Sibley-2	2019				
FIFCA	MEEBA/RAP (KCP&L), RAP (GMO)	Convert to NG-FO: Lake Road 4/6	2016	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 50 MW 2019 - 150 MW 2020 - 150 MW 2021 - 100 MW 2024 - 200 MW 2025 - 100 MW	Hydro*: 2014 - 56 MW	193 MW CT in 2016 193 MW CT in 2030 193 MW CT in 2032
		Retire: Montrose-1 Montrose-2 Montrose-3	2016				
		Sibley-1 Sibley-2	2019				
FIHCA	MEEBA/RAP (KCP&L), RAP (GMO)	Convert to NG-FO: Lake Road 4/6	2016	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 50 MW 2019 - 150 MW 2020 - 150 MW 2021 - 100 MW 2024 - 200 MW 2025 - 100 MW	Hydro*: 2014 - 56 MW	193 MW CT in 2027 193 MW CT in 2030 193 MW CT in 2032
		Retire: Montrose-1 Sibley-1 Sibley-2	2019				
		Montrose-2 Montrose-3	2021				
FIICA	MEEBA/RAP (KCP&L), RAP (GMO)	Convert to NG-FO: Lake Road 4/6	2016	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 50 MW 2019 - 150 MW 2020 - 150 MW 2021 - 100 MW 2024 - 200 MW 2025 - 100 MW	Hydro*: 2014 - 56 MW	193 MW CT in 2027 193 MW CT in 2030 193 MW CT in 2032
		Retire: Montrose-1 Sibley-1 Sibley-2	2019				
		Montrose-2 Montrose-3	2023				
FRECA	MEEBA/RAP (KCP&L), RAP (GMO)	Lake Road 4/6 Montrose-1	2016	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 50 MW 2019 - 150 MW 2020 - 150 MW 2021 - 100 MW 2024 - 200 MW 2025 - 100 MW	Hydro*: 2014 - 56 MW	193 MW CT in 2026 193 MW CT in 2029 193 MW CT in 2031
		Montrose-2 Montrose-3	2021				
		Sibley-1 Sibley-2	2019				
* The 56 MW hydro facility is currently allocated 100% to KCP&L's Kansas jurisdiction for state Renewable Energy Standard compliance purposes							

Note: MEEIA/RAP for KCP&L contains a level of DSM in 2014-2016 that serves as a placeholder for a future MEEIA filing, then transitions to RAP.

Results for each of the combined company Alternative Resource Plans are shown in Table 39 below. . For each of the Alternative Resource Plans, the Probable Environmental Costs are shown in Table 40 below.

Table 39: Combined-Company Alternative Resource Plans NPVRR Results

Rank (L-H)	Plan	NPVRR (\$mm)	Delta
1	FRECA	\$32,500	\$0
2	FIECA	\$32,513	\$13
3	FIHCA	\$32,516	\$16
4	FIICA	\$32,564	\$64
5	FIFCA	\$32,676	\$176

Table 40: Combined-Company Probable Environmental Cost

Plan	PEC NPVRR (\$mm)
FRECA	\$1,581
FIECA	\$1,591
FIHCA	\$1,602
FIICA	\$1,610
FIFCA	\$1,581

In general, the plan rankings are consistent with the stand-alone company plan results. As such, there was no need to adjust the KCP&L or GMO stand-alone Preferred Plans to accommodate future potential combined operations.

A summary tabulation of the expected value of all performance measures is provided in Table 41 below. Detailed results behind this summary tabulation are attached in Appendix G.

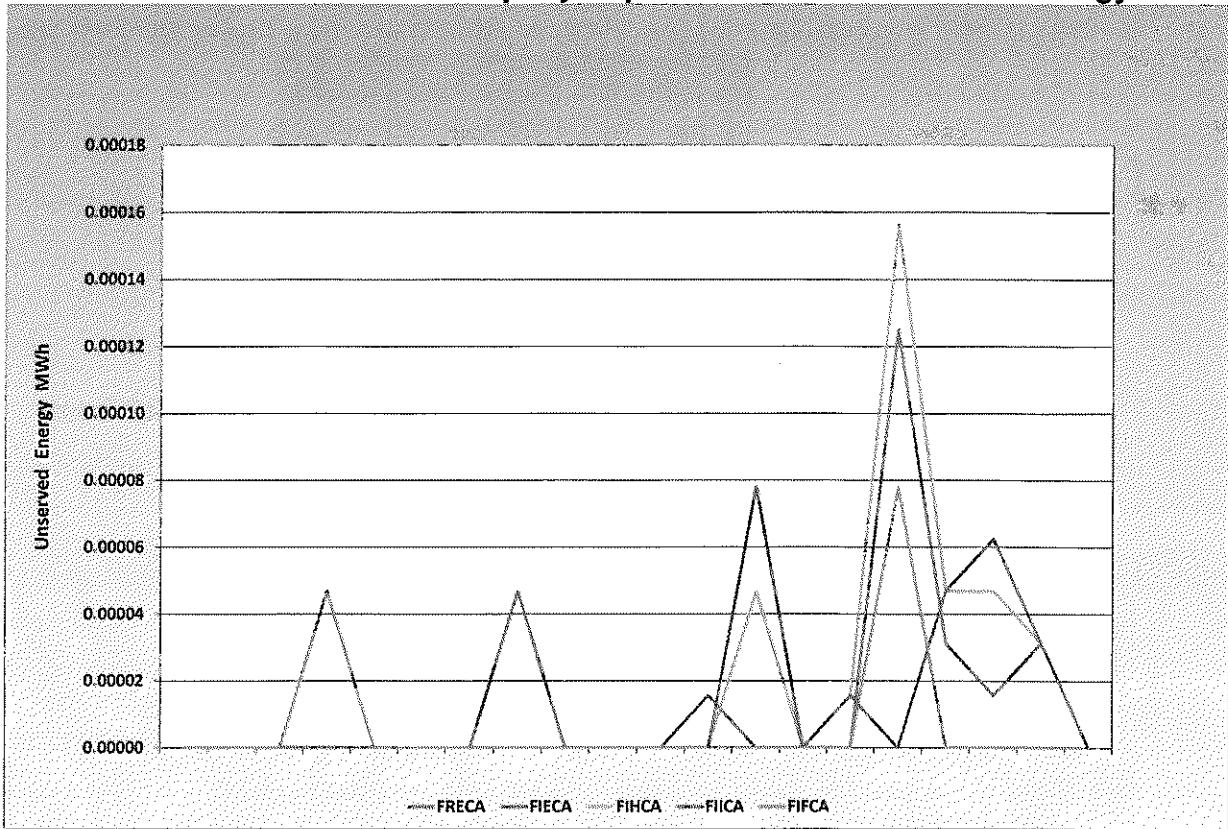
Table 41: Combined-Company Expected Value of Performance Measures **
Highly Confidential **

Plan	NPVRR	Probable Environmental Costs (\$MM)	DSM Costs (\$MM)	Levelized Annual Rates (\$/kw-hr)	Maximum Rate Increase	Times Interest Earned	Total Debt to Capital	Cap Ex to FFO
FRECA	\$ 32,500	\$ 1,580.8	\$ 444.9					
FIECA	\$ 32,513	\$ 1,590.7	\$ 444.9					
FIHCA	\$ 32,516	\$ 1,602.3	\$ 444.9					
FIICA	\$ 32,564	\$ 1,610.3	\$ 444.9					
FIFCA	\$ 32,676	\$ 1,581.4	\$ 444.9					

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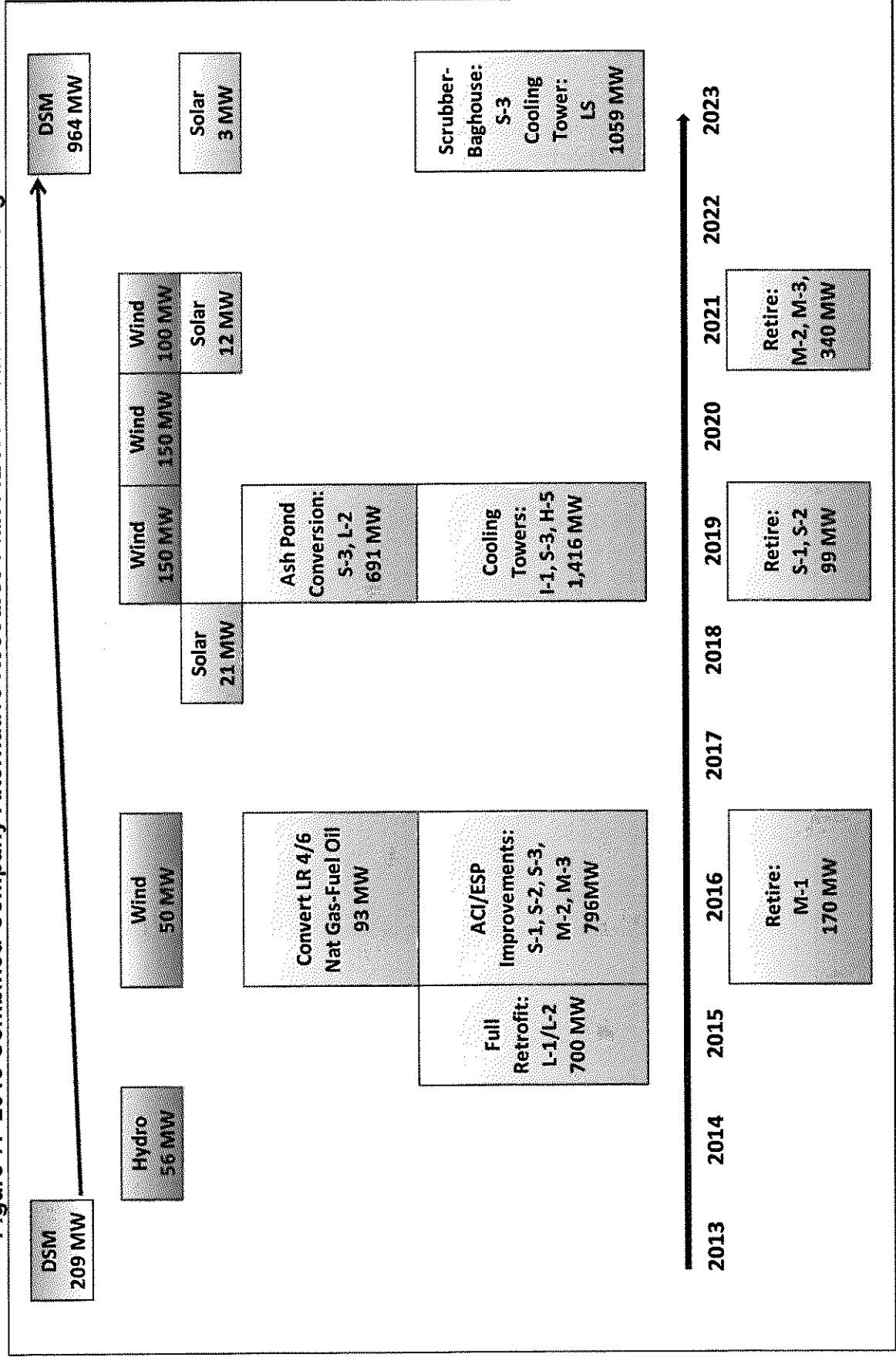
The expected value of unserved energy for all Combined-Company Alternative Resource Plans is provided in Table 42 below:

Table 42: Combined-Company Expected Value of Unserved Energy



The Combined-Company Alternative Resource Plan that reflects the combination of the KCP&L Preferred Plan, FDHKA and GMO's Preferred Plan, AICGA is Alternative Resource Plan FIECA. This plan is comprised of the following components for years 2013 – 2023 and shown in Figure 7 below. The combined-company additions shown are equivalent to the stand-alone KCP&L and GMO Alternative Resource Plans, FDHKA and AICGA, respectively.

Figure 7: 2013 Combined-Company Alternative Resource Plan FIECA - Years 2013 through 2023



6.8 COMBINED-COMPANY ECONOMIC IMPACT

The economic impact by year of the Combined-Company Alternative Resource Plan FIECA is represented in Table 43 below. The economic impact of all plans can be found in Appendix G.

**Table 43: Combined-Company Alternative Resource Plan FIECA
Economic Impact ** Highly Confidential ****

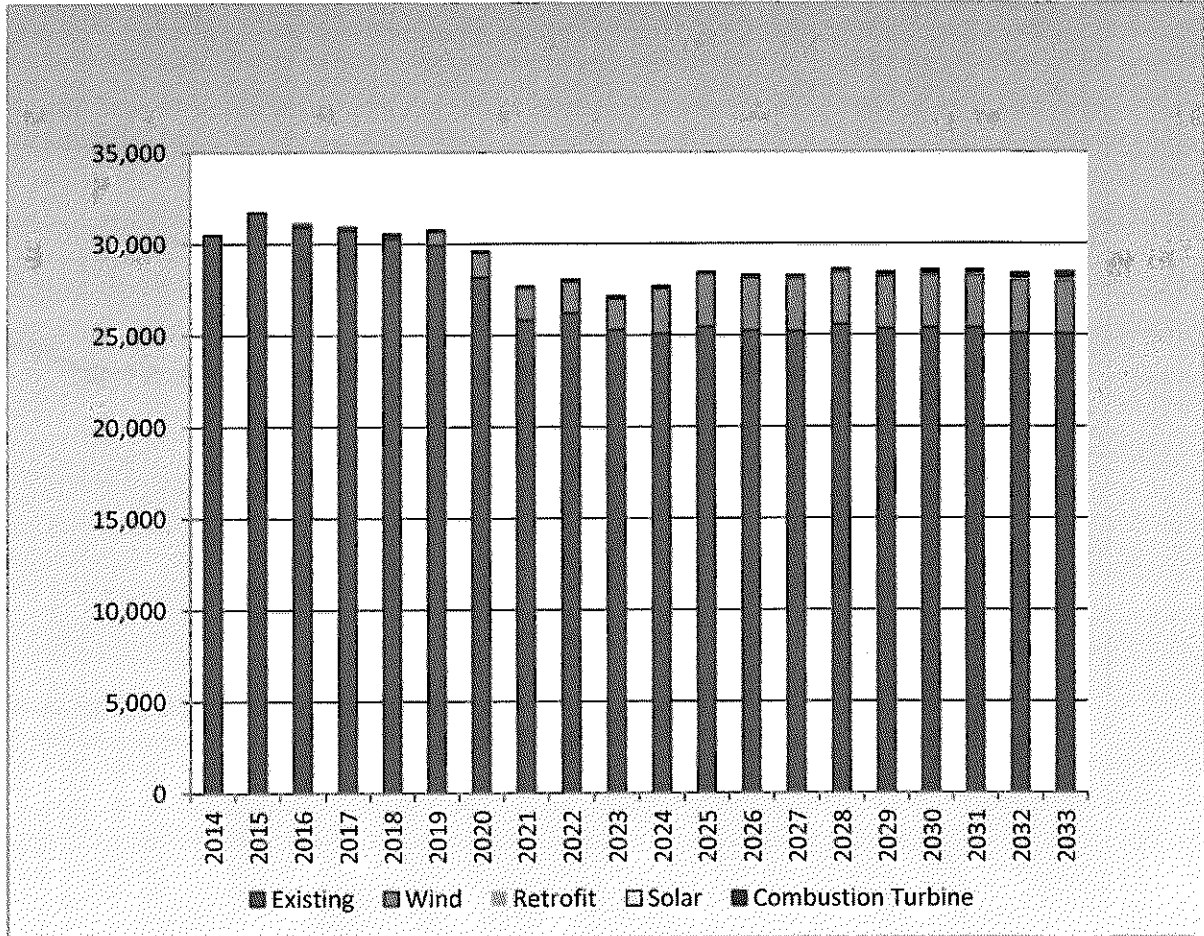
Year	Revenue Require ment (\$MM)	Levelized Annual Rates (\$/kw-hr)	Rate Increase	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						
2026						
2027						
2028						
2029						
2030						
2031						
2032						
2033						

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6.9 COMBINED-COMPANY ANNUAL GENERATION

The annual generation of the Combined-Company Alternative Resource Plan FIECA is represented in Table 44 below. The annual generation of all Combined-Company plans can be found in Appendix E.

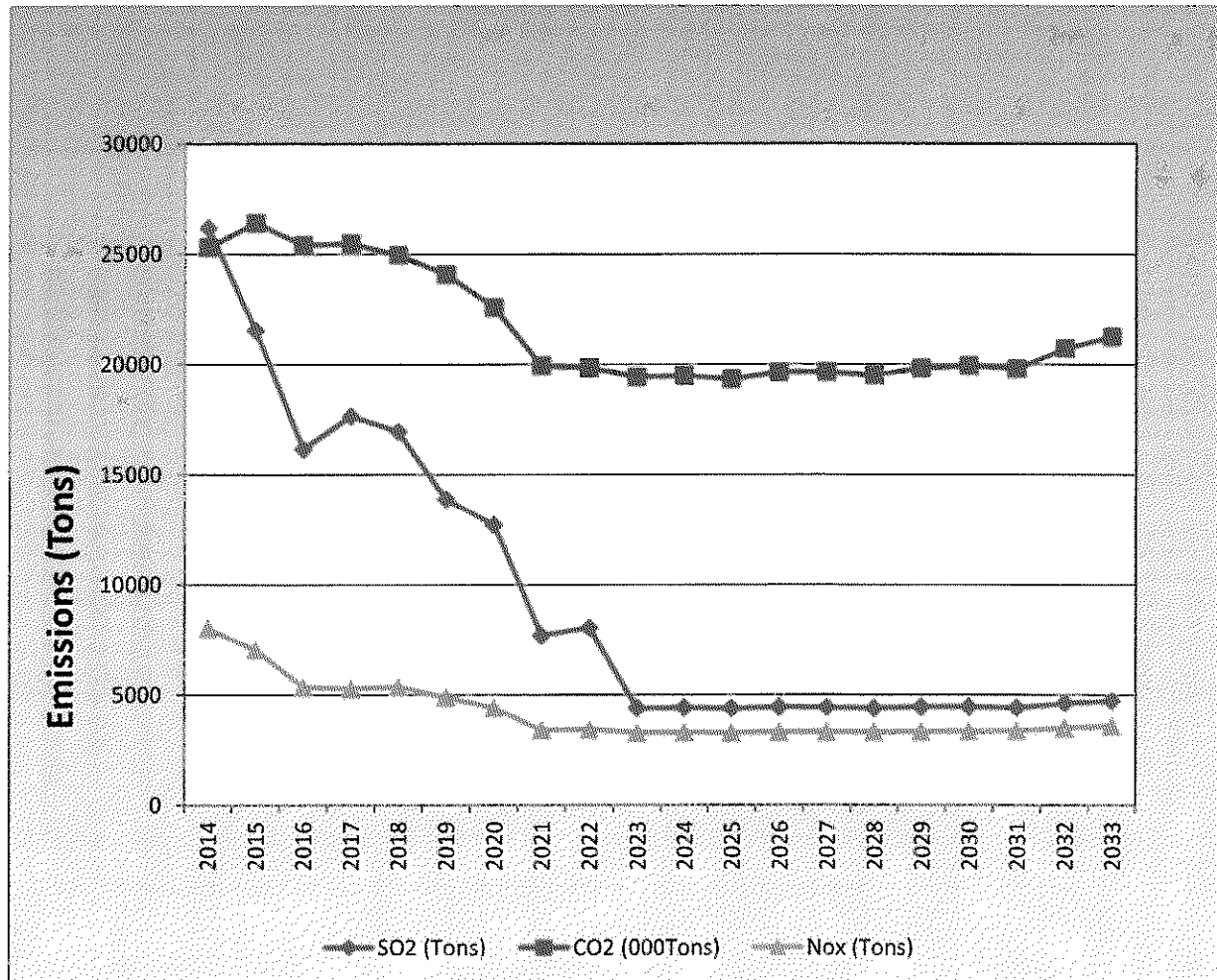
**Table 44: Combined-Company Alternative Resource Plan FIECA
Annual Generation**



6.10 COMBINED-COMPANY ANNUAL EMISSIONS

The annual emissions of the Combined-Company Alternative Resource Plan FIECA are represented in Table 45 below. The annual emissions of all Combined-Company plans can be found in Appendix E.

**Table 45: Combined-Company Alternative Resource Plan FIECA
Annual Emissions**



6.11 REQUIREMENTS FOR JOINT PLANNING

KCP&L has researched what agreements and/or contracts must be in place to analyze joint company plans and makes the following findings.

The IRP rules (4 CSR 240-22.080(1)) require that each electric utility selling over 1 million megawatt hours in Missouri must make a triennial compliance filing. The Company will be making separate IRP update filings for each Company that will reference joint planning information in certain sections of the IRP update filing. KCP&L, pursuant to the Joint Operating Agreement, will continue to operate and plan for GMO as a separate control area.

GMO and KCP&L believe this element of planning—planning that includes a joint company view—is an important element of resource planning for both companies.

GMO respectfully requests Commission acknowledgement of this element of its planning process, under 4 CSR 22.080(17).

As defined in 4 CSR 240-22.020 (1), Acknowledgement means that the commission finds the preferred resource plan, resource acquisition strategy, or the **specified element** of the resource acquisition strategy to be reasonable at a specific date, typically the date of the filing the utility's Chapter 22 compliance filing or the date the acknowledgment is given. (emphasis added)

At the time of this filing, GMO and KCP&L share the unique status of being Missouri investor owned utilities held by one holding company, Great Plains Energy. The Chapter 22 rules governing resource planning in Missouri are silent as to how planning should be conducted given this unique relationship.

Consequently, GMO and KCP&L are requesting that the **specified element**—planning that includes a joint company view—consistent with GMO's and KCP&L's business planning processes, is reasonable.

6.12 INTEGRATED RESOURCE PLAN AND RISK ANALYSIS: AGREED UPON REMEDIES TO ALLEGED DEFICIENCIES AND CONCERNS

The following section addresses the Alleged Deficiencies and Concerns from the 2012 GMO IRP, Case No. EO-2012-0324. The Resolutions are either verbatim or a shortened version of the agreed-to resolution from the Joint Filing filed in that case.

6.12.1 Staff's Deficiency 6

GMO has failed to design alternative resource plans to satisfy at least the objectives and priorities identified in 4 CSR 240-22.060(1) over the entire 20-year planning horizon required by Chapter 22. In particular, candidate resource plans with DSM A demand-side resources do not satisfy the objective and priorities identified in 4 CSR 240-22.060(1) over the entire 20-year planning horizon and are not consistent with the state energy policy in MEEIA of achieving all cost-effective demand-side savings.

Resolution: To resolve this deficiency, the Company will use the results of the DSM Potential Study as primary data when developing demand-side resources for alternative resource plans to meet the requirements of the rule. It is understood that the DSM Potential Study will provide DSM programs' impacts and costs for the RAP, MAP, and economic potential levels for both energy savings and demand savings. The Company will include the following in separate alternative resource plans that satisfy the objective and priorities identified in 4 CSR 240-22.060(1) over the entire 20-year planning horizon and are consistent with the state energy policy in MEEIA of achieving all cost-effective demand-side savings: (1) MAP, (2) RAP, (3) approximately the RAP plus one-third of the difference between RAP and MAP, and (4) approximately the RAP plus two-thirds of the difference between RAP and MAP.

Comment: This issue has been addressed. In the 2013 Annual Update, GMO utilized the results of the Navigant DSM Potential Study as primary data when developing demand-side resource alternatives.

6.12.2 Staff's Concern E

All capacity balance sheets filed to comply with Rule 4 CSR 240-22.060(4)(B)9 include solar resources at 100% of name plate capacity, while it is Staff's understanding that SPP policies require that solar capacity credit be 10% of name plate capacity. GMO should document the SPP policy for solar capacity credits in its 2013 Annual Update. GMO should follow the then-current SPP policy for solar capacity credits when developing capacity balance sheets when required for all future Chapter 22 filings.

Resolution: The Company will document the appropriate amount of accredited capacity solar resources that should be assigned for use in its capacity balance sheets for the 2013 Annual Update.

Comment: GMO documented and utilized the appropriate amount of accredited capacity solar resources in its capacity balance sheets for the 2013 Annual Update.

6.12.3 Staff's Concern F

GMO continues to rely unnecessarily upon additional short term purchased power agreements ("PPAs") in its 20-year electric utility resource planning instead of planning to put steel-in-the-ground. This overreliance on additional PPAs – with their inherently uncertain availability and prices – places an unnecessary risk on GMO's ratepayers, since GMO has a Commission approved fuel and purchased power adjustment clause.

Resolution: The Company will only include short term PPAs in its 20-year candidate resource plans' capacity balance sheets at a maximum amount of ten percent (10%) of its required capacity annually. The longest time period over which GMO will plan on relying on short term PPAs to meet its capacity requirements will be three (3) years. During this time period the Company should be constructing new generation or entering into contracts for long-term firm base, intermediate or peaking capacity to satisfy all its required capacity annually.

Comment: Given the level of DSM included in GMO's Preferred Resource Plan, the maximum amount of purchased capacity GMO would rely on in any given year is 125 MW. This represents between 5-6% of GMO's capacity.

6.12.1 MDNR's Deficiency 10

Documentation of the screening of critical uncertain factors is inadequate. Quantitative details describing the screening and selection process should be provided in either Volume 6 or in the workpapers.

Resolution: This issue is resolved. GMO provided the workpaper associated with critical uncertain factor documentation in file "CapEx Results (2012KCPL IRP).XLS" as part of the April 2012 filing.

6.12.2 MDNR'S Deficiency 11

The number of "subject matter experts" consulted by GMO is inadequate to establish subjective probabilities necessary to assess critical uncertain factor(s).

Resolution: MDNR and the Company have resolved this deficiency.

6.12.3 MDNR'S Deficiency 12

No "aggressive renewable energy resource plan." An alternative resource plan that utilizes only renewable energy resources has not been included in GMO's suite of plans.

Resolution: This issue is resolved (per the Joint Filing).

6.12.4 MDNR'S Deficiency 13

Performance measures specified in 4 CSR 240-22.060(2) for the Combined Company Plans are not provided.

Resolution: The Company will provide a more full discussion and document the results and performance measures of all alternative resource plans in the 2013 Annual Update.

Comment: GMO documented the performance measures of all alternative resource plans in the 2013 Annual Update.

6.12.5 GDS' (MDNR) Deficiency 5

GMO has not clearly shown in the IRP how the allocation of resources from the Combined-Company to each separate Company is determined.

Resolution: This deficiency has been resolved.

SECTION 7: RESOURCE ACQUISITION STRATEGY

7.1 CORPORATE APPROVAL AND STATEMENT OF COMMITMENT

**KCP&L GREATER MISSOURI OPERATIONS COMPANY
INTEGRATED RESOURCE PLAN-2013 ANNUAL UPDATE
CORPORATE APPROVAL & STATEMENT OF COMMITMENT FOR
RESOURCE ACQUISITION STRATEGY**

In accordance with Missouri Public Service Commission rules found in 4 CSR 240-22 and 4 CSR 240-22-080 (3), KCP&L Greater Missouri Operations Company ("GMO") now officially adopts for implementation the resource acquisition strategy contained in this Annual Update filing.

With the objective of providing the public with energy services that are safe, reliable, and efficient at just and reasonable rates, GMO is committed to the full implementation of the Resource Acquisition Strategy contained herein.



Kevin Noblet

Vice President - Generation



Terry D. Bassham

President and Chief Operating Officer

7.2 2013 GMO ANNUAL UPDATE PREFERRED PLAN

The Preferred Plan, AICGA, that has been selected for GMO is shown in Table 46 below.

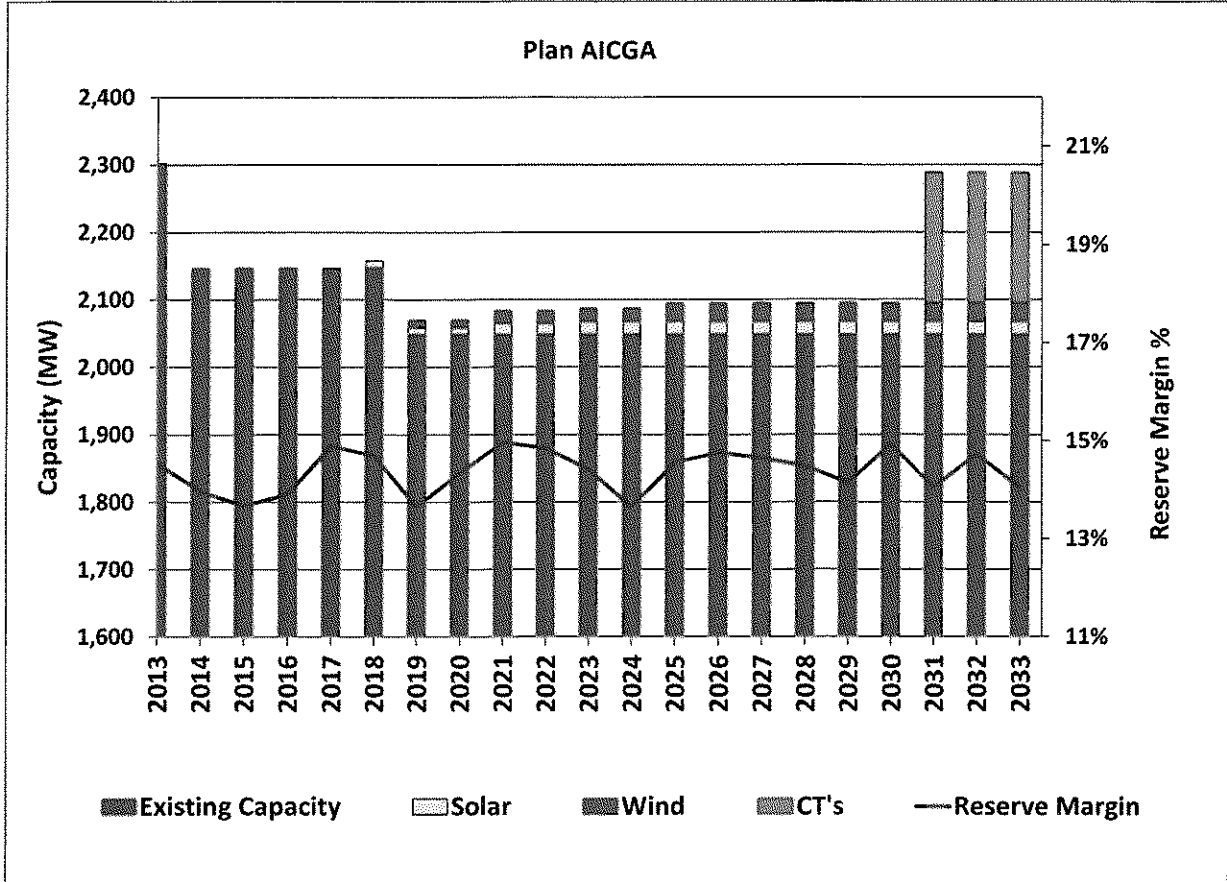
Table 46: GMO Preferred Plan

Year	CT's (MW)	Solar (MW)	Wind (MW)	MEEIA DSM (MW)	Retire (MW)	Existing Capacity (MW)
2013	-			81		2,302
2014	-			97		2,147
2015	-			116		2,147
2016	-			165		2,147
2017	-			219		2,147
2018	-	10		275		2,147
2019	-		150	332	99	2,048
2020	-			387		2,048
2021	-	6	100	436		2,048
2022	-			482		2,048
2023	-	3		523		2,048
2024	-			560		2,048
2025	-		100	575		2,048
2026	-			586		2,048
2027	-			597		2,048
2028	-			607		2,048
2029	-			617		2,048
2030	-			624		2,048
2031	193			632		2,048
2032	-			640		2,048
2033	-			647		2,048

7.2.1 PREFERRED PLAN COMPOSITION

The capacity composition by supply-side resource and Reserve Margin for the Preferred Resource Plan is provided in Table 47 below:

Table 47: Preferred Plan Capacity Composition



Based upon current Missouri RPS rule requirements, the Preferred Plan includes 19 MW of solar additions and 350 MW of wind additions over the twenty-year planning period. It should be noted that Missouri RPS-required solar and wind additions could be obtained from power purchase agreements (PPA), purchasing of renewable energy credits (RECs), or utility ownership. A combustion turbine (CT) resource addition is also included in 2031. DSM for the first 2 years consists of a suite of thirteen Energy Efficiency programs, two Demand Response programs that are based upon the currently approved MEEIA offerings. DSM for the remaining years consists of 15 EE programs, 3 DR programs and 2 alternative rate programs that are based on Navigant's DSM Potential Study results for realistically achievable potential (RAP)

DSM. The potential retirement of Sibley Units 1 and 2 in 2019 is partially attributed to current or proposed environmental regulations including Mercury and Air Toxics Standards Rule, Ozone National Ambient Air Quality Standards (NAAQS), PM NAAQS, SO₂ NAAQS Clean Water Act Section 316(a) and (b), Effluent Guidelines, and Coal Combustion Residuals Rule. These rules will be monitored by GMO prior to the projected retirement year 2019 to determine if changes to the Preferred Plan are warranted.

7.2.2 PREFERRED PLAN ECONOMIC IMPACT

The economic impact by year of the selected preferred plan is represented in Table 48 below. The economic impact of all plans can be found in Appendix G.

Table 48: Preferred Plan Economic Impact ** Highly Confidential **

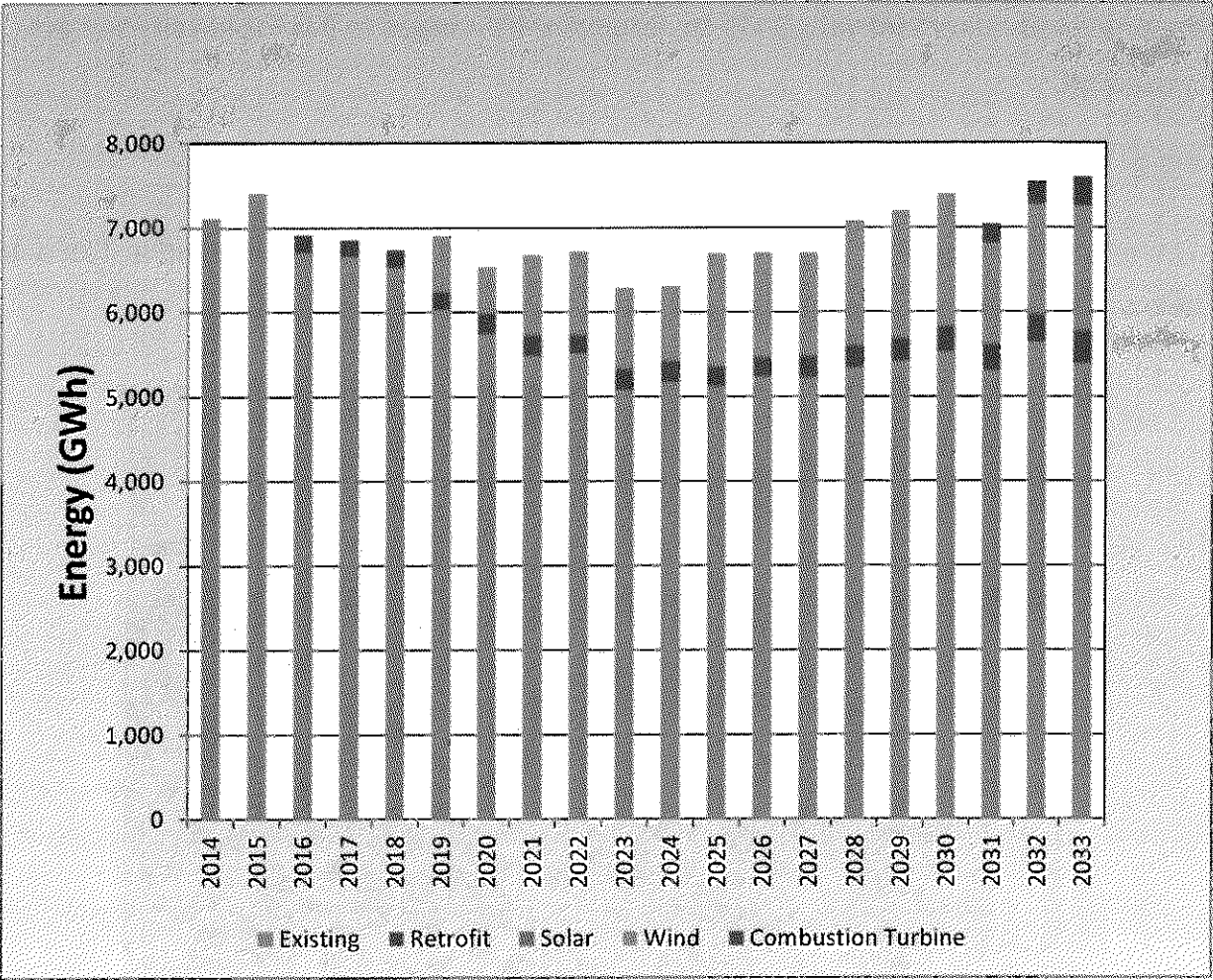
Year	Revenue Require ment (\$MM)	Levelized Annual Rates (\$/kw-hr)	Rate Increase	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						
2026						
2027						
2028						
2029						
2030						
2031						
2032						
2033						

HC

7.2.3 PREFERRED PLAN ANNUAL GENERATION

Annual generation for the preferred plan is shown in Table 49 below. The annual generation for all plans is included in Appendix E.

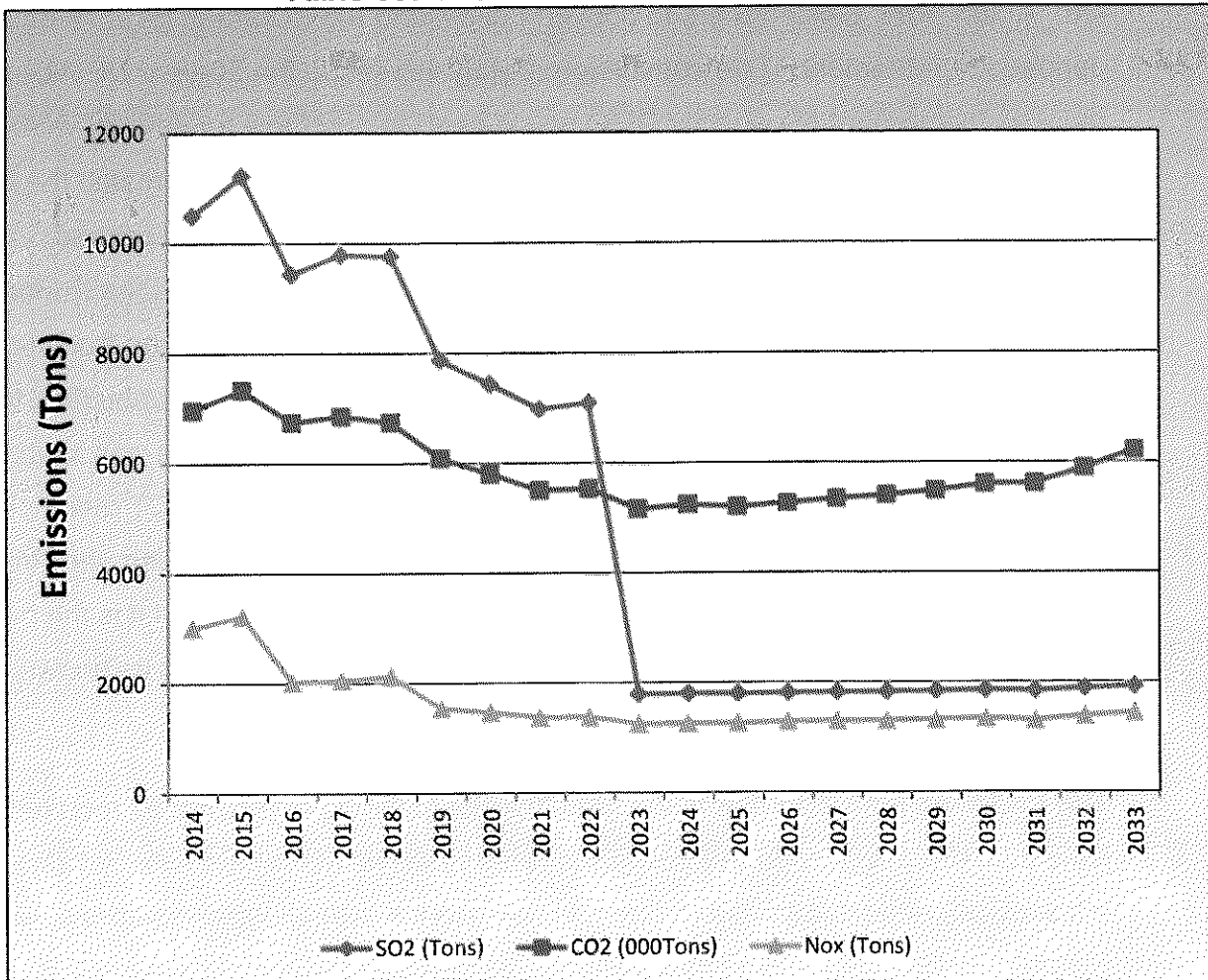
Table 49: Preferred Plan Annual Generation



7.2.4 PREFERRED PLAN ANNUAL EMISSIONS

Annual emissions for the Preferred Plan are shown in Table 50 below. The annual generation for all plans is included in Appendix E.

Table 50: Preferred Plan Annual Emissions



7.2.5 PREFERRED PLAN DISCUSSION

The Preferred Plan was not the lowest cost plan from a Net Present Value of Revenue Requirement (NPVRR) perspective. Two Alternative Resource Plans had slightly lower NPVRRs than the Preferred Plan. One ARP included retirement of Lake Road 4/6. At this time, GMO prefers to convert Lake Road 4/6 to natural gas/fuel oil as opposed to retirement. This conversion slightly increases the 20-year NPVRR but it reduces the amount of capacity GMO would need to purchase for several years. It would only take a small increase in the assumed cost of capacity to match the NPVRR results of the Lake Road retirement Alternative Resource Plan. The second Alternative Resource Plan, AICGB, had a nearly identical NPVRR as the Preferred Plan and was the same plan as AICGA with the exception of assuming the resource addition (needed in 2031) to be combined cycle (CC) instead of a combustion turbine (CT). GMO selected the CT plan over the CC plan since the CT plan was lower cost under the mid-case scenario (mid-load, mid-gas, mid-CO₂) and the CT resource addition could be converted to CC should the economics change. Also, the Preferred Plan AICGA has a higher cumulative probability (.5) versus (.31) and it is the overall top plan in 41% (11/27) versus 33% (9/27) of the endpoint scenarios as shown in Table 54 below.

The Preferred Plan also meets the fundamental planning objectives 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 compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies.

7.3 CRITICAL UNCERTAIN FACTORS

The integrated analysis performed for the Annual Update utilized the same critical uncertain factors as the Triennial filing. The critical uncertain factors are load, natural gas prices and CO₂ prices. Assumptions regarding the values and ranges of these inputs are covered in the relevant sections that discuss load, gas and CO₂ prices. Table 51 below represents the three Critical Uncertain Factors and the 27 endpoint scenarios that were developed from them.

Table 51: Critical Uncertain Factor Tree

Endpoint	Load Growth	Natural Gas	CO ₂	Endpoint Probability
1	High	High	High	1.6%
2	High	High	Mid	3.1%
3	High	High	Low	1.6%
4	High	Mid	High	3.1%
5	High	Mid	Mid	6.3%
6	High	Mid	Low	3.1%
7	High	Low	High	1.6%
8	High	Low	Mid	3.1%
9	High	Low	Low	1.6%
10	Mid	High	High	3.1%
11	Mid	High	Mid	6.3%
12	Mid	High	Low	3.1%
13	Mid	Mid	High	6.3%
14	Mid	Mid	Mid	12.5%
15	Mid	Mid	Low	6.3%
16	Mid	Low	High	3.1%
17	Mid	Low	Mid	6.3%
18	Mid	Low	Low	3.1%
19	Low	High	High	1.6%
20	Low	High	Mid	3.1%
21	Low	High	Low	1.6%
22	Low	Mid	High	3.1%
23	Low	Mid	Mid	6.3%
24	Low	Mid	Low	3.1%
25	Low	Low	High	1.6%
26	Low	Low	Mid	3.1%
27	Low	Low	Low	1.6%

The company performed an analysis to address the impact of the critical uncertain factors on Preferred Plan selection. This analysis ranks how plans perform relative to

the representation of the twenty-seven endpoint tree. The results of the analysis are represented in the following tables.

7.3.1 CRITICAL UNCERTAIN FACTOR: HIGH LOAD GROWTH

HIGH LOAD GROWTH																	
HIGH CO2			MID CO2			LOW CO2			HIGH CO2			MID CO2			LOW CO2		
Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN
ACGW	13,898	ACGB	12,560	ACBGA	11,528	ACGB	13,592	ACGB	12,166	ACGB	11,149	ACGB	13,242	ACGB	11,785	ACBGA	10,763
ACGB	13,960	AEEGA	12,567	ACCGA	11,534	ACGW	13,602	ACGA	12,169	ACGA	11,153	ACGA	13,261	ACGA	11,791	ACBGA	10,764
ACGA	13,971	AEDGA	12,570	ACBGA	11,543	ACGA	13,605	AEEGA	12,196	AEDGA	11,164	ACGE	13,313	AEDGA	11,833	AEDGA	10,803
ACGE	13,977	ACGA	12,570	AEEGA	11,544	ACGE	13,635	AEEGA	12,202	AEEGA	11,168	AFCGA	13,314	AFCGA	11,844	AEEGA	10,814
AEDGA	13,992	ACGW	12,586	AEDGA	11,549	AEDGA	13,644	AFCGA	12,222	ACBGA	11,197	ACGW	13,319	AEEGA	11,846	AFCGA	10,816
AEEGA	13,998	ACBGA	12,592	ACGB	11,553	AFCGA	13,658	ACGE	12,231	AFCGA	11,206	ACGF	13,320	ACGE	11,878	ACGE	10,876
AFCGA	14,024	ACGE	12,599	ACGA	11,562	AEEGA	13,658	ACBGA	12,263	ACCGA	11,211	AEEGF	13,321	ACBGA	11,927	ACBGA	10,881
ACBGA	14,046	ACCGA	12,601	AAAGA	11,598	AEEGF	13,700	ACCGA	12,282	ACGE	11,235	AEDGA	13,327	AEEGF	11,937	ACCGA	10,907
ACCGA	14,067	AFCGA	12,623	ABBGA	11,599	ACGF	13,727	ACGW	12,301	ACCGA	11,238	AEEGA	13,346	AEBGA	11,944	AEBGA	10,923
AEEGF	14,069	ACCGA	12,625	ACGE	11,612	ACBGA	13,728	AEEGF	12,310	ABBGA	11,269	FICGB	13,418	ACCGA	11,955	ABBGA	10,948
ACCGA	14,109	AEEGF	12,645	AFCGA	11,615	AEBGA	13,751	ACCGA	12,322	AEEGF	11,274	AEBGA	13,424	ACGF	11,958	FICGA	10,959
ACGF	14,111	ABBGA	12,675	AEEGF	11,617	ACCGA	13,755	AEBGA	12,325	AEBGA	11,315	ACBGA	13,438	FICGB	11,983	AEEGF	10,951
AEBGA	14,112	ACGF	12,712	ACGW	11,635	ABBGA	13,803	ABBGA	12,335	ACGF	11,346	ACCGA	13,469	ABBGA	11,995	ACCGA	10,951
ABBGA	14,127	AEBGA	12,725	AFCGA	11,685	ACCGA	13,804	ACGF	12,343	AAAGA	11,344	ACBGA	13,471	ACCGA	12,004	FICGB	10,960
FICGA	14,181	AAAGA	12,736	ACGF	11,706	FICGA	13,830	ACGA	12,411	AFCGA	11,348	ABBGA	13,484	ACGW	12,010	ACGF	10,968
AFCGA	14,216	AFCGA	12,762	AEBGA	11,724	FICGB	13,863	AFCGA	12,417	ACGW	11,362	ADBGA	13,500	FICGA	12,021	AFCGA	11,022
AAAGA	14,245	FICGA	12,793	FICGA	11,797	AFCGA	13,880	FICGB	12,429	FICGB	11,379	FICGA	13,500	ACGA	12,048	ACGA	11,033
FICGB	14,299	FICGB	12,858	FICGB	11,818	FICGA	13,941	FICGA	12,449	FICGA	11,396	ACCGA	13,521	AFCGA	12,069	ACGW	11,088
FICGA	14,353	FICGA	12,904	FICGA	11,861	AAAGA	13,958	AAAGA	12,459	ACGA	11,405	AFCGA	13,540	ACBGA	12,120	AAAGA	11,092
DICGA	14,401	DICGA	13,029	DICGA	12,046	ADBGA	13,995	DICGA	12,585	DICGA	11,673	FICGA	13,556	ADBGA	12,124	ADBGA	11,182
ADBGA	14,510	BEEGA	13,196	AEBGA	12,167	ACBGA	14,053	ADBGA	12,672	ADBGA	11,729	AAAGA	13,674	AAAGA	12,159	ACBGA	11,183
BEEGA	14,581	ADBGA	13,276	BEEGA	12,209	DICGA	14,066	ACBGA	12,735	ACBGA	11,820	DICGA	13,750	DICGA	12,318	DICGA	11,319
ACBGA	14,635	AHBGA	13,301	XEEGA	12,380	BEEGA	14,285	BEEGA	12,892	XEEGA	11,881	BEEGA	14,013	XEEGA	12,533	XEEGA	11,404
AHBGA	14,808	ACBGA	13,378	ADBGA	12,394	AHBGA	14,519	AEEGA	12,994	BEEGA	11,886	XEEGA	14,174	BEEGA	12,572	BEEGA	11,584
XEEGA	15,014	XEEGA	13,479	ACBGA	12,445	XEEGA	14,575	AHBGA	13,031	AHBGA	11,920	AHBGA	14,228	AHBGA	12,728	AHBGA	11,672

LOW GAS																	
HIGH CO2			MID CO2			LOW CO2			HIGH CO2			MID CO2			LOW CO2		
Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN	Endpoint	NPVRR	PLAN
ACGB	13,242	ACGB	11,785	ACBGA	10,763	ACGB	13,242	ACGB	11,785	ACBGA	10,763	ACGB	13,242	ACGB	11,785	ACBGA	10,763
ACGA	13,261	ACGA	11,791	ACBGA	10,764	ACGA	13,261	ACGA	11,791	ACBGA	10,764	ACGA	13,261	ACGA	11,791	ACBGA	10,764
ACGE	13,313	AEDGA	11,833	AEDGA	10,803	ACGE	13,313	AEDGA	11,833	AEDGA	10,803	ACGE	13,313	AEDGA	11,833	AEDGA	10,803
AFCGA	13,314	AFCGA	11,844	AEEGA	10,814	AFCGA	13,314	AFCGA	11,844	AEEGA	10,814	AFCGA	13,314	AFCGA	11,844	AEEGA	10,814
ACGW	13,319	AEEGA	11,846	AFCGA	10,816	ACGW	13,319	AEEGA	11,846	AFCGA	10,816	ACGW	13,319	AEEGA	11,846	AFCGA	10,816
ACGF	13,320	ACGE	11,878	ACGE	10,876	ACGF	13,320	ACGE	11,878	ACGE	10,876	ACGF	13,320	ACGE	11,878	ACGE	10,876
AEEGF	13,321	ACBGA	11,927	ACBGA	10,881	AEEGF	13,321	ACBGA	11,927	ACBGA	10,881	AEEGF	13,321	ACBGA	11,927	ACBGA	10,881
AEDGA	13,327	AEEGF	11,937	ACCGA	10,907	AEDGA	13,327	AEEGF	11,937	ACCGA	10,907	AEDGA	13,327	AEEGF	11,937	ACCGA	10,907
AEEGA	13,346	AEBGA	11,944	AEBGA	10,923	AEEGA	13,346	AEBGA	11,944	AEBGA	10,923	AEEGA	13,346	AEBGA	11,944	AEBGA	10,923
FICGB	13,418	ACCGA	11,955	ABBGA	10,948	FICGB	13,418	ACCGA	11,955	ABBGA	10,948	FICGB	13,418	ACCGA	11,955	ABBGA	10,948
AEBGA	13,424	ACGF	11,958	FICGA	10,959	AEBGA	13,424	ACGF	11,958	FICGA	10,959	AEBGA	13,424	ACGF	11,958	FICGA	10,959
ACBGA	13,438	FICGB	11,983	AEEGF	10,951	ACBGA	13,438	FICGB	11,983	AEEGF	10,951	ACBGA	13,438	FICGB	11,983	AEEGF	10,951
ACCGA	13,469	ABBGA	11,995	ACCGA	10,951	ACCGA	13,469	ABBGA	11,995	ACCGA	10,951	ACCGA	13,469	ABBGA	11,995	ACCGA	10,951
ACBGA	13,471	ACCGA	12,004	FICGB	10,960	ACBGA	13,471	ACCGA	12,004	FICGB	10,960	ACBGA	13,471	ACCGA	12,004	FICGB	10,960
ABBGA	13,484	ACGW	12,010	ACGF	10,968	ABBGA	13,484	ACGW	12,010	ACGF	10,968	ABBGA	13,484	ACGW	12,010	ACGF	10,968
ADBGA	13,500	FICGA	12,021	AFCGA	11,022	ADBGA	13,500	FICGA	12,021	AFCGA	11,022	ADBGA	13,500	FICGA	12,021	AFCGA	11,022
ACGA	13,500	ACGA	12,048	ACGA	11,033	ACGA	13,500	ACGA	12,048	ACGA	11,033	ACGA	13,500	ACGA	12,048	ACGA	11,033
ACCGA	13,521	AFCGA	12,069	ACGW	11,088	ACCGA	13,521	AFCGA	12,069	ACGW	11,088	ACCGA	13,521	AFCGA	12,069	ACGW	11,088
AFCGA	13,540	ACBGA	12,120	AAAGA	11,092	AFCGA	13,540	ACBGA	12,120	AAAGA	11,092	AFCGA	13,540	ACBGA	12,120	AAAGA	11,092
FICGA	13,556	ADBGA	12,124	ADBGA	11,182	FICGA	13,556	ADBGA	12,124	ADBGA	11,182	FICGA	13,556	ADBGA	12,124	ADBGA	11,182
AAAGA	13,674	AAAGA	12,159	ACBGA	11,183	AAAGA	13,674	AAAGA	12,159	ACBGA	11,183	AAAGA	13,674	AAAGA	12,159	ACBGA	11,183
DICGA	13,750	DICGA	12,318	DICGA	11,319	DICGA	13,750	DICGA	12,318	DICGA	11,319	DICGA	13,750	DICGA	12,318	DICGA	11,319
BEEGA	14,013	XEEGA	12,533	XEEGA	11,404	BEEGA	14,013	XEEGA	12,533	XEEGA	11,404	BEEGA	14,013	XEEGA	12,533	XEEGA	11,404
XEEGA	14,174	BEEGA	12,572	BEEGA	11,584	XEEGA	14,174	BEEGA	12,572	BEEGA	11,584	XEEGA	14,174	BEEGA	12,572	BEEGA	11,584
AHBGA	14,228	AHBGA	12,728	AHBGA	11,672	AHBGA	14,228	AHBGA	12,728	AHBGA	11,672	AHBGA	14,228	AHBGA	12,728	AHBGA	11,672

7.3.2 CRITICAL UNCERTAIN FACTOR: LOW LOAD GROWTH

LOW LOAD GROWTH											
HIGH CO2			MID CO2			LOW CO2			HIGH CO2		
Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR
HIGH GAS											
AICGW	12,415	ACGA	11,248	ACBGA	10,380	AICGW	12,267	AICGA	11,091	ACGA	10,229
AICGA	12,454	AEEGA	11,251	AEEGA	10,383	AICGB	12,269	AICGB	11,099	AICGB	10,234
AICGB	12,461	AICGB	11,252	ACCGA	10,386	AICGW	12,300	AEDGA	11,119	AEDGA	10,242
AEDGA	12,481	AEDGA	11,254	AEDGA	10,388	AEDGA	12,303	AEEGA	11,125	AEEGA	10,246
AICGE	12,483	ACGW	11,294	AICGA	10,395	ACGE	12,315	AEEGA	11,144	AFCGA	10,282
AEEGA	12,487	ACBGA	11,295	ACCGA	10,395	AEEGA	12,317	AICGE	11,167	ACBGA	10,284
AFCGA	12,507	AICGE	11,295	AICGB	10,396	AFCGA	12,320	ACBGA	11,202	ACCGA	10,289
ACBGA	12,558	AFCGA	11,301	AFCGA	10,448	ACBGA	12,396	ACCGA	11,221	AICGE	10,322
ACCGA	12,580	ACCGA	11,305	ABBGA	10,449	AEBGA	12,406	AEBGA	11,242	ACCGA	10,326
AEBGA	12,596	ACCGA	11,329	AICGE	10,459	AEEGF	12,413	AICGW	11,248	ABBGA	10,357
AEEGF	12,616	AEEGF	11,369	AAAGA	10,460	ACCGA	12,425	ACCGA	11,263	AEEGF	10,374
ACCGA	12,624	ABBGA	11,380	AEEGF	10,480	AICGF	12,436	ABBGA	11,270	AEBGA	10,385
ABBGA	12,631	AEBGA	11,403	AICGW	10,508	ABBGA	12,459	AEEGF	11,272	AICGF	10,417
AICGF	12,642	AICGF	11,423	AEBGA	10,527	ACGGGA	12,473	ACCGF	11,295	AEBGA	10,433
CICGA	12,674	AAAGA	11,456	AEBGA	10,595	CICGA	12,500	CICGA	11,340	AAAGA	10,442
AEBGA	12,710	AEBGA	11,459	AICGF	10,559	AEBGA	12,539	FICGA	11,345	FICGA	10,450
AAAGA	12,768	CICGA	11,479	CICGA	10,637	ADBGA	12,539	AEBGA	11,347	ACGW	10,452
FICGA	12,806	FICGA	11,557	FICGA	10,670	FICGB	12,567	FICGB	11,381	FICGB	10,471
FICGB	12,830	FICGB	11,570	FICGB	10,671	FICGA	12,578	AAAGA	11,407	CICGA	10,487
ADBGA	12,845	DICGA	11,724	DICGA	10,892	AAAGA	12,622	ADBGA	11,476	ADBGA	10,756
DICGA	12,907	ADBGA	11,830	AHBGA	11,924	ACBGA	12,662	ACBGA	11,595	DICGA	10,759
ACBGA	13,020	BEEGA	11,903	BEEGA	11,065	DICGA	12,743	DICGA	11,603	ACBGA	10,852
BEEGA	13,103	ACBGA	11,981	ADBGA	11,118	BEEGA	12,965	BEEGA	11,831	XEEGA	10,904
AHBGA	13,332	AHBGA	12,019	XEEGA	11,157	XEEGA	13,175	XEEGA	11,855	BEEGA	10,979
XEEGA	13,428	XEEGA	12,098	ACBGA	11,233	AHBGA	13,186	AHBGA	11,974	AHBGA	11,009
MID GAS											
HIGH CO2			MID CO2			LOW CO2			HIGH CO2		
Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR
LOW GAS											
AICGB	12,052	AICGA	10,906	AICGA	10,081	AICGB	12,052	AICGA	10,906	AICGA	10,081
AICGA	12,059	AICGB	10,910	AICGB	10,088	AICGA	12,059	AICGB	10,910	AICGB	10,088
AEDGA	12,109	AEDGA	10,942	AEDGA	10,120	AEDGA	12,109	AEDGA	10,942	AEDGA	10,120
AFCGA	12,112	AEEGA	10,955	AEEGA	10,131	AFCGA	12,112	AEEGA	10,955	AEEGA	10,131
AICGE	12,125	AFCGA	10,959	AFCGA	10,134	AICGE	12,125	AFCGA	10,959	AFCGA	10,134
AEEGA	12,129	AICGE	11,004	AICGE	10,201	AEEGA	12,129	AICGE	11,004	AICGE	10,201
AEEGF	12,147	ACBGA	11,038	ACBGA	10,204	AEEGF	12,147	ACBGA	11,038	ACBGA	10,204
AICGW	12,147	AEBGA	11,046	AEBGA	10,230	AICGW	12,147	AEBGA	11,046	AEBGA	10,230
AICGF	12,156	ACCGA	11,066	ACCGA	10,230	AICGF	12,156	ACCGA	11,066	ACCGA	10,230
AEBGA	12,203	AEEGF	11,080	FICGA	10,247	AEBGA	12,203	AEEGF	11,080	FICGA	10,247
ACBGA	12,213	ABBGA	11,097	ABBGA	10,272	ACBGA	12,213	ABBGA	11,097	ABBGA	10,272
ACCGA	12,246	AICGF	11,098	ACCGA	10,276	ACCGA	12,246	AICGF	11,098	ACCGA	10,276
FICGB	12,251	ACCGA	11,115	AEEGF	10,286	FICGB	12,251	ACCGA	11,115	AEEGF	10,286
ADBGA	12,253	FICGA	11,116	FICGB	10,287	ADBGA	12,253	FICGA	11,116	FICGB	10,287
ABBGA	12,265	FICGB	11,121	AICGF	10,298	ABBGA	12,265	FICGB	11,121	AICGF	10,298
AGBGA	12,295	AICGW	11,145	AFBGA	10,347	AGBGA	12,295	AICGW	11,145	AFBGA	10,347
ACCGA	12,296	ADBGA	11,147	CICGA	10,357	ACCGA	12,296	ADBGA	11,147	CICGA	10,357
CICGA	12,301	CICGA	11,169	ADBGA	10,410	CICGA	12,301	CICGA	11,169	ADBGA	10,410
AFBGA	12,335	AFBGA	11,178	ACGW	10,415	AFBGA	12,335	AFBGA	11,178	ACGW	10,415
FICGA	12,335	ACBGA	11,218	AAAGA	10,422	FICGA	12,335	ACBGA	11,218	AAAGA	10,422
AAAGA	12,444	AAAGA	11,263	ACBGA	10,474	AAAGA	12,444	AAAGA	11,263	ACBGA	10,474
DICGA	12,554	DICGA	11,442	DICGA	10,647	DICGA	12,554	DICGA	11,442	DICGA	10,647
BEEGA	12,805	XEEGA	11,594	XEEGA	10,672	BEEGA	12,805	XEEGA	11,594	XEEGA	10,672
XEEGA	12,925	BEEGA	11,606	BEEGA	10,917	XEEGA	12,925	BEEGA	11,606	BEEGA	10,917
AHBGA	13,001	AHBGA	11,830	AHBGA	10,991	AHBGA	13,001	AHBGA	11,830	AHBGA	10,991

7.3.3 CRITICAL UNCERTAIN FACTOR: HIGH NATURAL GAS PRICES

HIGH NATURAL GAS PRICES											
HIGH CO2			MID CO2			LOW CO2			HIGH CO2		
Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR
AICGW	13,868	AICGB	12,560	ACBGA	11,528	AICGW	13,102	AEEGA	11,959	ACBGA	10,817
AICGB	13,960	AEEGA	12,567	ACCGA	11,534	AICGB	13,155	AICGB	11,961	AEEGA	10,822
AICGA	13,971	AEDGA	12,570	ACCGA	11,543	AICGA	13,156	AEDGA	11,961	ACCGA	10,823
AICGE	13,977	AICGA	12,570	AEEGA	11,544	AEDGA	13,174	AICGA	11,962	AEDGA	10,827
AEDGA	13,992	ACGW	12,586	AEDGA	11,549	AICGE	13,177	ACBGA	11,968	ACCGA	10,832
AEEGA	13,998	ACBGA	12,592	AICGB	11,553	AEEGA	13,181	ACGW	11,900	AICGB	10,838
AFCGA	14,024	ACGE	12,599	ACGA	11,562	AFCGA	13,209	ACGE	11,904	ACCGA	10,840
ACBGA	14,046	ACCGA	12,601	AAAGA	11,598	ACBGA	13,245	ACCGA	11,908	ABBGA	10,857
ACCGA	14,067	AFCGA	12,623	ABBGA	11,599	ACCGA	13,267	AFCGA	11,915	AFCGA	10,893
AEEGF	14,069	ACCGA	12,625	AICGE	11,612	AEBGA	13,292	ACCGA	11,932	AAAGA	10,895
ACCGA	14,109	AEEGF	12,645	AFCGA	11,615	AEEGF	13,293	AEEGF	11,965	AICGE	11,901
AICGF	14,111	ABBGA	12,675	AEEGF	11,617	ACCGA	13,310	ABBGA	11,982	AEEGF	11,913
AEBGA	14,112	ACGF	12,712	ACGW	11,665	ABBGA	13,321	AEBGA	12,014	ACGW	11,948
ABBGA	14,127	AEBGA	12,725	AEBGA	11,685	AICGF	13,325	AICGF	12,025	AEBGA	11,970
CICGA	14,181	AAAGA	12,736	ACGF	11,706	CICGA	13,372	AAAGA	12,054	AICGF	11,997
AEBGA	14,216	AEBGA	12,762	AEBGA	11,724	AEBGA	13,408	AEBGA	12,068	AEBGA	11,998
AAAGA	14,245	CICGA	12,793	CICGA	11,797	AAAGA	13,452	CICGA	12,092	CICGA	11,181
FICGB	14,299	FICGB	12,858	FICGB	11,818	FICGB	13,515	FICGB	12,173	FICGB	11,210
FICGA	14,353	FICGA	12,904	FICGA	11,861	FICGA	13,521	FICGA	12,181	FICGA	11,223
DICGA	14,401	DICGA	13,029	DICGA	12,046	DICGA	13,597	DICGA	12,331	DICGA	11,433
ADBGA	14,510	BEEGA	13,196	AHBGA	12,167	ADBGA	13,806	ADBGA	12,480	AHBGA	11,581
BEEGA	14,581	ADBGA	13,276	BEEGA	12,209	AGBGA	13,776	BEEGA	12,509	BEEGA	11,606
AGBGA	14,635	AHBGA	13,301	XEEGA	12,380	BEEGA	13,791	AHBGA	12,630	ADBGA	11,699
AHBGA	14,808	AGBGA	13,378	ADBGA	12,394	AHBGA	14,018	AGBGA	12,636	XEEGA	11,719
XEEGA	15,014	XEEGA	13,479	AGBGA	12,485	XEEGA	14,156	XEEGA	12,732	AGBGA	11,810

HIGH NATURAL GAS PRICES											
HIGH CO2			MID CO2			LOW CO2			HIGH CO2		
Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR
AICGW	12,415	AICGA	11,248	ACBGA	10,380	AICGW	12,415	AICGA	11,248	ACBGA	10,380
AICGB	12,454	AEEGA	11,251	AEEGA	10,383	AICGB	12,454	AEEGA	11,251	AEEGA	10,383
AICGB	12,461	AICGB	11,252	ACCGA	10,386	AICGB	12,461	AICGB	11,252	ACCGA	10,386
AEDGA	12,481	AEDGA	11,254	AEDGA	10,388	AEDGA	12,481	AEDGA	11,254	AEDGA	10,388
ACGE	12,483	ACGW	11,294	AICGA	10,395	ACGE	12,483	ACGW	11,294	AICGA	10,395
AEEGA	12,487	ACBGA	11,295	ACCGA	10,395	AEEGA	12,487	ACBGA	11,295	ACCGA	10,395
AFCGA	12,507	ACGE	11,295	AICGB	10,396	AFCGA	12,507	ACGE	11,295	AICGB	10,396
ACBGA	12,558	AFCGA	11,301	AFCGA	10,448	ACBGA	12,558	AFCGA	11,301	AFCGA	10,448
ACCGA	12,580	ACCGA	11,305	ABBGA	10,449	ACCGA	12,580	ACCGA	11,305	ABBGA	10,449
AEBGA	12,596	ACCGA	11,329	AICGE	10,459	AEBGA	12,596	ACCGA	11,329	AICGE	10,459
AEEGF	12,616	AEEGF	11,369	AAAGA	10,460	AEEGF	12,616	AEEGF	11,369	AAAGA	10,460
ACCGA	12,624	ABBGA	11,380	AEEGF	10,480	ACCGA	12,624	ABBGA	11,380	AEEGF	10,480
ABBGA	12,631	AEBGA	11,403	ACGW	10,508	ABBGA	12,631	AEBGA	11,403	ACGW	10,508
AICGF	12,642	AICGF	11,423	AEBGA	10,527	AICGF	12,642	AICGF	11,423	AEBGA	10,527
CICGA	12,674	AAAGA	11,456	AEBGA	10,555	CICGA	12,674	AAAGA	11,456	AEBGA	10,555
AEBGA	12,710	AEBGA	11,459	AICGF	10,559	AEBGA	12,710	AEBGA	11,459	AICGF	10,559
AAAGA	12,768	CICGA	11,479	CICGA	10,637	AAAGA	12,768	CICGA	11,479	CICGA	10,637
FICGA	12,806	FICGA	11,557	FICGA	10,670	FICGA	12,806	FICGA	11,557	FICGA	10,670
FICGB	12,830	FICGB	11,570	FICGB	10,671	FICGB	12,830	FICGB	11,570	FICGB	10,671
ADBGA	12,845	DICGA	11,724	DICGA	10,892	ADBGA	12,845	DICGA	11,724	DICGA	10,892
DICGA	12,907	ADBGA	11,830	AHBGA	11,924	DICGA	12,907	ADBGA	11,830	AHBGA	11,924
AGBGA	13,020	BEEGA	11,903	BEEGA	11,965	AGBGA	13,020	BEEGA	11,903	BEEGA	11,965
BEEGA	13,103	AGBGA	11,981	ADBGA	11,118	BEEGA	13,103	AGBGA	11,981	ADBGA	11,118
AHBGA	13,332	AHBGA	12,019	XEEGA	11,157	AHBGA	13,332	AHBGA	12,019	XEEGA	11,157
XEEGA	13,428	XEEGA	12,098	AGBGA	11,233	XEEGA	13,428	XEEGA	12,098	AGBGA	11,233

7.3.4 CRITICAL UNCERTAIN FACTOR: LOW NATURAL GAS PRICES

LOW NATURAL GAS PRICES																	
HIGH CO2			MID CO2			LOW CO2			HIGH CO2			MID CO2			LOW CO2		
Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR	Endpoint	PLAN	NPVRR
HIGH LOAD																	
AICGB	13,242	AICGB	11,785	ACGA	10,763	AICGB	12,610	AICGA	11,319	ACGA	10,401	AICGB	12,052	ACGA	10,906	ACGA	10,081
AICGA	13,261	AICGA	11,791	AICGB	10,764	AICGA	12,623	AICGB	11,320	AICGB	10,406	AICGA	12,059	AICGB	10,910	AICGB	10,088
ACGE	13,313	AEDGA	11,833	AEDGA	10,803	AFCGA	12,676	AEDGA	11,356	AEDGA	10,438	AFCGA	12,109	AEDGA	10,942	AEDGA	10,131
AFCGA	13,314	AFCGA	11,844	AEEGA	10,814	AEDGA	12,680	AEEGA	11,369	AEEGA	10,450	AFCGA	12,112	AEEGA	10,955	AEEGA	10,131
AICGW	13,319	AEEGA	11,846	AFCGA	10,816	AICGE	12,682	AFCGA	11,372	AFCGA	10,454	AICGE	12,125	AFCGA	10,959	AFCGA	10,134
AICGF	13,320	AICGE	11,878	AICGE	10,876	AEEGF	12,687	AICGE	11,414	AICGE	10,520	AEEGA	12,129	AICGE	11,004	AICGE	10,201
AEEGF	13,321	ACBGA	11,927	ACBGA	10,881	ACGW	12,698	ACBGA	11,451	ACBGA	10,521	AEEGF	12,147	ACBGA	11,038	ACBGA	10,204
AEDGA	13,327	AEEGF	11,937	ACCGA	10,907	AEEGA	12,699	AEBGA	11,462	ACCGA	10,547	AICGW	12,147	AEBGA	11,046	AEBGA	10,230
AEEGA	13,346	AEBGA	11,944	AEBGA	10,923	AICGF	12,703	ACCGA	11,479	AEBGA	10,552	AICGF	12,156	ACCGA	11,066	ACCGA	10,230
FICGB	13,418	ACCGA	11,955	ABBGA	10,948	AEBGA	12,776	AEEGF	11,482	FICGA	10,575	AEBGA	12,203	AEEGF	11,080	FICGA	10,247
AEBGA	13,424	ACGF	11,958	FICGA	10,960	ACBGA	12,785	AICGF	11,503	ABBGA	10,588	ACBGA	12,213	ABBGA	11,097	ABBGA	10,272
ACBGA	13,438	FICGB	11,983	AEEGF	10,951	FICGB	12,800	ABBGA	11,514	ACCGA	10,592	ACCGA	12,246	AICGF	11,098	ACCGA	10,276
ACCGA	13,469	ABBGA	11,995	ACBGA	10,951	ACCGA	12,817	FICGB	11,527	AEEGF	10,600	FICGB	12,251	ACCGA	11,115	AEEGF	10,286
AGEGA	13,471	ACCGA	12,004	FICGB	10,960	ABBGA	12,834	ACCGA	11,528	FICGB	10,605	ADBGA	12,253	FICGA	11,116	FICGB	10,287
ABBGA	13,484	ACGW	12,010	ACGF	10,968	ADBGA	12,835	FICGA	11,537	ACGF	10,615	ABBGA	12,265	FICGB	11,121	AICGF	10,298
ADBGA	13,500	FICGA	12,021	AFBGA	11,022	AGBGA	12,846	AICGW	11,551	AFBGA	10,685	AGBGA	12,295	AICGW	11,145	AFBGA	10,347
CICGA	13,500	CICGA	12,048	CICGA	11,033	CICGA	12,863	CICGA	11,580	CICGA	10,676	ACGGA	12,296	ADBGA	11,147	CICGA	10,357
ACGGA	13,521	AFBGA	12,069	AICGW	11,088	ACGGA	12,868	AFBGA	11,594	AICGW	10,733	CICGA	12,301	CICGA	11,169	ADBGA	10,410
AFBGA	13,540	AGBGA	12,120	AAAGA	11,092	AFBGA	12,898	ADBGA	11,595	AAAGA	10,737	AFBGA	12,335	AFBGA	11,178	AICGW	10,415
FICGA	13,556	ADBGA	12,124	ADBGA	11,182	FICGA	12,908	AGBGA	11,640	ADBGA	10,764	FICGA	12,335	AGBGA	11,218	AAAGA	10,422
AAAGA	13,674	AAAGA	12,159	AGBGA	11,183	AAAGA	13,017	AAAGA	11,678	AGBGA	10,800	AAAGA	12,344	AAAGA	11,263	AGBGA	10,474
DICGA	13,750	DICGA	12,318	DICGA	11,319	DICGA	13,115	DICGA	11,852	DICGA	10,963	DICGA	12,554	DICGA	11,442	DICGA	10,647
BEEGA	14,013	XEEGA	12,533	XEEGA	11,404	BEEGA	13,373	XEEGA	12,029	XEEGA	11,010	BEEGA	12,805	XEEGA	11,594	XEEGA	10,672
XEEGA	14,174	BEEGA	12,572	BEEGA	11,584	XEEGA	13,512	BEEGA	12,106	BEEGA	11,234	XEEGA	12,825	BEEGA	11,696	BEEGA	10,917
AHBGA	14,228	AHBGA	12,728	AHBGA	11,672	AHBGA	13,574	AHBGA	12,245	AHBGA	11,309	AHBGA	13,001	AHBGA	11,830	AHBGA	10,991
MID LOAD																	
AICGB	12,062	ACGA	10,906	AICGA	10,081	AICGB	12,062	ACGA	10,906	AICGA	10,081	AICGB	12,052	ACGA	10,906	ACGA	10,081
AICGA	12,059	AICGB	10,910	AICGB	10,088	AICGA	12,059	AICGB	10,910	AICGB	10,088	AICGA	12,059	AICGB	10,910	AICGB	10,088
AEDGA	12,109	AEDGA	10,942	AEDGA	10,120	AEDGA	12,109	AEDGA	10,942	AEDGA	10,120	AEDGA	12,109	AEDGA	10,942	AEDGA	10,120
AFCGA	12,112	AEEGA	10,955	AEEGA	10,131	AFCGA	12,112	AEEGA	10,955	AEEGA	10,131	AFCGA	12,112	AEEGA	10,955	AEEGA	10,131
AICGE	12,125	AFCGA	10,959	AFCGA	10,134	AICGE	12,125	AFCGA	10,959	AFCGA	10,134	AICGE	12,125	AFCGA	10,959	AFCGA	10,134
AEEGA	12,129	AICGE	11,004	AICGE	10,201	AEEGA	12,129	AICGE	11,004	AICGE	10,201	AEEGA	12,129	AICGE	11,004	AICGE	10,201
AEEGF	12,147	ACBGA	11,038	ACBGA	10,204	AEEGF	12,147	ACBGA	11,038	ACBGA	10,204	AEEGF	12,147	ACBGA	11,038	ACBGA	10,204
AICGW	12,147	AEBGA	11,046	AEBGA	10,230	AICGW	12,147	AEBGA	11,046	AEBGA	10,230	AICGW	12,147	AEBGA	11,046	AEBGA	10,230
AICGF	12,156	ACCGA	11,066	ACCGA	10,230	AICGF	12,156	ACCGA	11,066	ACCGA	10,230	AICGF	12,156	ACCGA	11,066	ACCGA	10,230
AEBGA	12,203	AEEGF	11,080	FICGA	10,247	AEBGA	12,203	AEEGF	11,080	FICGA	10,247	AEBGA	12,203	AEEGF	11,080	FICGA	10,247
ACBGA	12,213	ABBGA	11,097	ABBGA	10,272	ACBGA	12,213	ABBGA	11,097	ABBGA	10,272	ACBGA	12,213	ABBGA	11,097	ABBGA	10,272
ACCGA	12,246	AICGF	11,098	ACCGA	10,276	ACCGA	12,246	AICGF	11,098	ACCGA	10,276	ACCGA	12,246	AICGF	11,098	ACCGA	10,276
FICGB	12,251	ACCGA	11,115	AEEGF	10,286	FICGB	12,251	ACCGA	11,115	AEEGF	10,286	FICGB	12,251	ACCGA	11,115	AEEGF	10,286
ADBGA	12,253	FICGA	11,116	FICGB	10,287	ADBGA	12,253	FICGA	11,116	FICGB	10,287	ADBGA	12,253	FICGA	11,116	FICGB	10,287
ABBGA	12,265	FICGB	11,121	AICGF	10,298	ABBGA	12,265	FICGB	11,121	AICGF	10,298	ABBGA	12,265	FICGB	11,121	AICGF	10,298
AGBGA	12,295	ACGW	11,145	AFBGA	10,347	AGBGA	12,295	ACGW	11,145	AFBGA	10,347	AGBGA	12,295	ACGW	11,145	AFBGA	10,347
ACGGA	12,296	ADBGA	11,147	CICGA	10,357	ACGGA	12,296	ADBGA	11,147	CICGA	10,357	ACGGA	12,296	ADBGA	11,147	CICGA	10,357
CICGA	12,301	CICGA	11,169	ADBGA	10,410	CICGA	12,301	CICGA	11,169	ADBGA	10,410	CICGA	12,301	CICGA	11,169	ADBGA	10,410
AFBGA	12,335	AFBGA	11,178	AICGW	10,415	AFBGA	12,335	AFBGA	11,178	AICGW	10,415	AFBGA	12,335	AFBGA	11,178	AICGW	10,415
FICGA	12,335	AGBGA	11,218	AAAGA	10,422	FICGA	12,335	AGBGA	11,218	AAAGA	10,422	FICGA	12,335	AGBGA	11,218	AAAGA	10,422
AAAGA	12,344	AAAGA	11,263	ACBGA	10,474	AAAGA	12,344	AAAGA	11,263	ACBGA	10,474	AAAGA	12,344	AAAGA	11,263	ACBGA	10,474
DICGA	12,554	DICGA	11,442	DICGA	10,647	DICGA	12,554	DICGA	11,442	DICGA	10,647	DICGA	12,554	DICGA	11,442	DICGA	10,647
BEEGA	12,805	XEEGA	11,594	XEEGA	10,672	BEEGA	12,805	XEEGA	11,594	XEEGA	10,672	BEEGA	12,805	XEEGA	11,594	XEEGA	10,672
XEEGA	12,825	BEEGA	11,696	BEEGA	10,917	XEEGA	12,825	BEEGA	11,696	BEEGA	10,917	XEEGA	12,825	BEEGA	11,696	BEEGA	10,917
AHBGA	13,001	AHBGA	11,830	AHBGA	10,991	AHBGA	13,001	AHBGA	11,830	AHBGA	10,991	AHBGA	13,001	AHBGA	11,830	AHBGA	10,991
LOW LOAD																	

7.3.5 CRITICAL UNCERTAIN FACTOR: HIGH CO₂ PRICES

HIGH CO ₂ CREDIT PRICES															
HIGH GAS				MID GAS				LOW GAS				HIGH GAS			
Endpoint	NPVRR	PLAN	NPVRR	Endpoint	NPVRR	PLAN	NPVRR	Endpoint	NPVRR	PLAN	NPVRR	Endpoint	NPVRR	PLAN	NPVRR
HIGH LOAD															
ACGW	13,888	ACGB	13,592	ACGB	13,644	ACGW	13,319	ACGE	13,992	AEDGA	13,635	AFCGA	13,314	AEDGA	13,314
ACGB	13,960	ACGW	13,602	ACGA	13,658	ACGF	13,320	AEEGA	13,998	AFCGA	13,658	AEEGF	13,321	ACBGA	13,327
ACGA	13,971	ACGA	13,605	ACGE	13,313	ACGE	13,313	ACBGA	14,024	AEEGA	13,658	AEEGF	13,321	ACCGA	13,346
ACGE	13,977	ACGE	13,635	AFCGA	13,314	AFCGA	13,314	ACBGA	14,046	AEEGF	13,700	AEDGA	13,327	AEEGF	13,346
AEDGA	13,992	AEDGA	13,644	ACGW	13,319	ACGW	13,319	ACCGA	14,067	ACGF	13,727	AEEGA	13,346	ACCGA	13,418
AEEGA	13,998	AFCGA	13,658	ACGF	13,320	ACGF	13,320	AEEGA	14,069	ACBGA	13,728	FICGB	13,418	ACCGA	13,424
AFCGA	14,024	AEEGA	13,658	AEEGF	13,321	AEEGF	13,321	ACBGA	14,109	AEEGA	13,751	AEBGA	13,424	ACCGA	13,438
ACBGA	14,046	AEEGF	13,700	AEDGA	13,327	AEDGA	13,327	ACCGA	14,111	ACCGA	13,755	ACBGA	13,438	ACCGA	13,469
ACCGA	14,067	ACGF	13,727	AEEGA	13,346	AEEGA	13,346	AEEGA	14,112	ACBGA	13,803	ACCGA	13,469	ACCGA	13,471
AEEGF	14,069	ACBGA	13,728	FICGB	13,418	FICGB	13,418	AEEGA	14,127	ACCGA	13,804	ACBGA	13,471	ACCGA	13,484
ACCGA	14,109	AEEGA	13,751	AEBGA	13,424	AEBGA	13,424	ACCGA	14,181	ACCGA	13,830	ABBGA	13,484	ACCGA	13,500
ACGF	14,111	ACCGA	13,755	ACBGA	13,438	ACBGA	13,438	ACCGA	14,216	FICGB	13,863	ADBGA	13,500	ACCGA	13,500
AEBGA	14,112	ACBGA	13,803	ACCGA	13,469	ACCGA	13,469	ACCGA	14,245	AFBGA	13,880	CICGA	13,500	ACCGA	13,521
ABBGA	14,127	ACCGA	13,804	ACBGA	13,471	ACBGA	13,471	ACCGA	14,289	FICGA	13,941	ACCGA	13,521	ACCGA	13,540
CICGA	14,181	CICGA	13,830	ABBGA	13,484	ABBGA	13,484	ACCGA	14,353	AAAGA	13,958	AFBGA	13,540	ACCGA	13,556
AFBGA	14,216	FICGB	13,863	ADBGA	13,500	ADBGA	13,500	ACCGA	14,401	ADBGA	13,995	FICGA	13,556	ACCGA	13,574
AAAGA	14,245	AFBGA	13,880	CICGA	13,500	CICGA	13,500	ACCGA	14,510	ADBGA	14,053	AAAGA	13,574	ACCGA	13,586
FICGB	14,289	FICGA	13,941	ACCGA	13,521	ACCGA	13,521	ACCGA	14,581	DICGA	14,066	DICGA	13,750	ACCGA	13,750
FICGA	14,353	AAAGA	13,958	AFBGA	13,540	AFBGA	13,540	ACCGA	14,635	BEEGA	14,285	BEEGA	14,013	ACCGA	14,013
DICGA	14,401	ADBGA	13,995	FICGA	13,556	FICGA	13,556	ACCGA	14,808	AFBGA	14,519	XEEGA	14,174	ACCGA	14,174
ADBGA	14,510	ADBGA	14,053	AAAGA	13,574	AAAGA	13,574	ACCGA	15,014	XEEGA	14,575	AHBGA	14,228	ACCGA	14,228
BEEGA	14,581	DICGA	14,066	DICGA	13,750	DICGA	13,750	ACCGA						ACCGA	
ACBGA	14,635	BEEGA	14,285	BEEGA	14,013	BEEGA	14,013	ACCGA						ACCGA	
AHBGA	14,808	AFBGA	14,519	XEEGA	14,174	XEEGA	14,174	ACCGA						ACCGA	
XEEGA	15,014	XEEGA	14,575	AHBGA	14,228	AHBGA	14,228	ACCGA						ACCGA	
MID LOAD															
ACGW	13,102	ACGB	12,885	ACGB	12,885	ACGB	12,885	ACGB	13,155	ACGA	12,888	ACGA	12,823	ACGB	12,810
ACGB	13,155	ACGA	12,888	ACGA	12,888	ACGA	12,888	ACGA	13,156	ACGW	12,909	AFCGA	12,876	ACGB	12,810
ACGA	13,174	AEDGA	12,922	AEDGA	12,922	AEDGA	12,922	AEDGA	13,174	AEDGA	12,922	AEDGA	12,880	ACGB	12,810
ACGE	13,177	ACGE	12,930	ACGE	12,930	ACGE	12,930	ACGE	13,177	ACGE	12,930	ACGE	12,882	ACGB	12,810
AEEGA	13,181	AEEGA	12,936	AEEGF	12,907	AEEGF	12,907	AEEGA	13,181	AEEGA	12,936	AEEGF	12,882	ACGB	12,810
AFCGA	13,209	AFCGA	12,941	ACGW	12,898	ACGW	12,898	AFCGA	13,209	AFCGA	12,941	ACGW	12,898	ACGB	12,810
ACBGA	13,245	ACBGA	13,012	AEEGA	12,899	AEEGA	12,899	ACBGA	13,245	ACBGA	13,012	AEEGA	12,899	ACGB	12,810
ACCGA	13,267	AEEGF	13,014	ACGF	12,703	ACGF	12,703	ACCGA	13,267	AEEGF	13,014	ACGF	12,703	ACGB	12,810
AEBGA	13,292	AEBGA	13,027	AEBGA	12,776	AEBGA	12,776	AEBGA	13,292	AEBGA	13,027	AEBGA	12,776	ACGB	12,810
AEEGF	13,293	ACGF	13,040	ACBGA	12,785	ACBGA	12,785	AEEGF	13,293	ACGF	13,040	ACBGA	12,785	ACGB	12,810
ACCGA	13,310	ACCGA	13,041	FICGB	12,800	FICGB	12,800	ACCGA	13,310	ACCGA	13,041	FICGB	12,800	ACGB	12,810
ABBGA	13,321	ABBGA	13,080	ACCGA	12,817	ACCGA	12,817	ABBGA	13,321	ABBGA	13,080	ACCGA	12,817	ACGB	12,810
ACCGA	13,325	ACCGA	13,089	ABBGA	12,834	ABBGA	12,834	ACCGA	13,325	ACCGA	13,089	ABBGA	12,834	ACGB	12,810
CICGA	13,372	CICGA	13,117	ADBGA	12,835	ADBGA	12,835	CICGA	13,372	CICGA	13,117	ADBGA	12,835	ACGB	12,810
AFBGA	13,408	AFBGA	13,161	ACBGA	12,846	ACBGA	12,846	AFBGA	13,408	AFBGA	13,161	ACBGA	12,846	ACGB	12,810
AAAGA	13,452	FICGB	13,174	CICGA	12,863	CICGA	12,863	AAAGA	13,452	FICGB	13,174	CICGA	12,863	ACGB	12,810
FICGB	13,515	ADBGA	13,209	ACCGA	12,868	ACCGA	12,868	FICGB	13,515	ADBGA	13,209	ACCGA	12,868	ACGB	12,810
FICGA	13,521	FICGA	13,210	AFBGA	12,898	AFBGA	12,898	FICGA	13,521	FICGA	13,210	AFBGA	12,898	ACGB	12,810
DICGA	13,597	AAAGA	13,240	FICGA	13,008	FICGA	13,008	DICGA	13,597	AAAGA	13,240	FICGA	13,008	ACGB	12,810
ADBGA	13,606	ACBGA	13,314	AAAGA	13,017	AAAGA	13,017	ADBGA	13,606	ACBGA	13,314	AAAGA	13,017	ACGB	12,810
ACBGA	13,776	DICGA	13,356	DICGA	13,115	DICGA	13,115	ACBGA	13,776	DICGA	13,356	DICGA	13,115	ACGB	12,810
BEEGA	13,791	BEEGA	13,379	BEEGA	13,373	BEEGA	13,373	BEEGA	13,791	BEEGA	13,379	BEEGA	13,373	ACGB	12,810
AHBGA	14,018	AHBGA	13,804	XEEGA	13,512	XEEGA	13,512	AHBGA	14,018	AHBGA	13,804	XEEGA	13,512	ACGB	12,810
XEEGA	14,156	XEEGA	13,823	AHBGA	13,574	AHBGA	13,574	XEEGA	14,156	XEEGA	13,823	AHBGA	13,574	ACGB	12,810
LOW LOAD															
ACGW	12,415	ACGA	12,267	ACGB	12,267	ACGB	12,267	ACGW	12,415	ACGA	12,267	ACGB	12,267	ACGB	12,267
ACGA	12,454	ACGB	12,269	ACGA	12,269	ACGA	12,269	ACGA	12,454	ACGB	12,269	ACGA	12,269	ACGB	12,267
ACGB	12,461	ACGW	12,300	AEDGA	12,109	AEDGA	12,109	ACGB	12,461	ACGW	12,300	AEDGA	12,109	ACGB	12,267
AEDGA	12,481	AEDGA	12,303	AFCGA	12,112	AFCGA	12,112	AEDGA	12,481	AEDGA	12,303	AFCGA	12,112	ACGB	12,267
ACGE	12,483	ACGE	12,315	ACGE	12,125	ACGE	12,125	ACGE	12,483	ACGE	12,315	ACGE	12,125	ACGB	12,267
AEEGA	12,487	AEEGA	12,317	AEEGA	12,129	AEEGA	12,129	AEEGA	12,487	AEEGA	12,317	AEEGA	12,129	ACGB	12,267
AFCGA	12,507	AFCGA	12,320	AEEGF	12,147	AEEGF	12,147	AFCGA	12,507	AFCGA	12,320	AEEGF	12,147	ACGB	12,267
ACBGA	12,558	ACBGA	12,396	ACGW	12,147	ACGW	12,147	ACBGA	12,558	ACBGA	12,396	ACGW	12,147	ACGB	12,267
ACCGA	12,580	AEBGA	12,406	ACGF	12,156	ACGF	12,156	ACCGA	12,580	AEBGA	12,406	ACGF	12,156	ACGB	12,267
AEBGA	12,596	AEEGF	12,413	AEBGA	12,203	AEBGA	12,203	AEBGA	12,596	AEEGF	12,413	AEBGA	12,203	ACGB	12,267
AEEGF	12,616	ACCGA	12,425	ACBGA	12,213	ACBGA	12,213	AEEGF	12,616	ACCGA	12,425	ACBGA	12,213	ACGB	12,267
ACCGA	12,624	ACGF	12,436	ACCGA	12,246	ACCGA	12,246	ACCGA	12,624	ACGF	12,436	ACCGA	12,246	ACGB	12,267
ABBGA	12,631	ABBGA	12,459	FICGB	12,251	FICGB	12,251	ABBGA	12,631	ABBGA	12,459	FICGB	12,251	ACGB	12,267
ACCGA	12,642	ACCGA	12,473	ADBGA	12,253	ADBGA	12,253	ACCGA	12,642	ACCGA	12,473	ADBGA	12,253	ACGB	12,267
CICGA	12,674	CICGA	12,500	ABBGA	12,265	ABBGA	12,265	CICGA	12,674	CICGA	12,500	ABBGA	12,265	ACGB	12,267
AFBGA	12,710	AFBGA	12,539	ACBGA	12,295	ACBGA	12,295	AFBGA	12,710	AFBGA	12,539	ACBGA	12,295	ACGB	12,267
AAAGA	12,768	ADBGA	12,539	ACCGA	12,296	ACCGA	12,296	AAAGA	12,768	ADBGA	12,539	ACCGA	12,296	ACGB	12,267
FICGA	12,806	FICGB	12,567	CICGA	12,301	CICGA	12,301	FICGA	12,806	FICGB	12,567	CICGA	12,301	ACGB	12,267
FICGB	12,830	FICGA	12,578	AFBGA	12,335	AFBGA	12,335	FICGB	12,830	FICGA	12,578	AFBGA	12,335	ACGB	12,267
ADBGA	12,845	AAAGA	12,632	FICGA	12,335	FICGA	12,335	ADBGA	12,845	AAAGA	12,632	FICGA	12,335	ACGB	12,267
DICGA	12,907	ACBGA	12,662	AAAGA	12,444	AAAGA	12,444	DICGA	12,907	ACBGA	12,662	AAAGA	12,444	ACGB	12,267
ACBGA	13,020	DICGA	12,743	DICGA	12,554	DICGA	12,554	ACBGA	13,020	DICGA	12,743	DICGA	12,554	ACGB	12,267
BEEGA	13,103	BEEGA	12,965	BEEGA	12,805	BEEGA	12,805	BEEGA	13,103	BEEGA	12,965	BEEGA	12,805	ACGB	12,267
AHBGA	13,332	XEEGA	13,175	XEEGA	12,925	XEEGA	12,925	AHBGA	13,332	XEEGA	13,175	XEEGA	12,925	ACGB	12,267
XEEGA	13,428	AHBGA	13,186	AHBGA	13,001	AHBGA	13,001	XEEGA	13,428	AHBGA	13,186	AHBGA	13,001	ACGB	12,267

7.3.6 CRITICAL UNCERTAIN FACTOR: LOW CO₂ PRICES

HIGH CO ₂ CREDIT PRICES											
HIGH GAS			MID GAS			LOW GAS			HIGH GAS		
Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR	Endpoint PLAN	NPVRR	NPVRR
HIGH LOAD											
ACBGA	11,528	ACBGA	11,149	ACBGA	10,763	ACBGA	10,917	ACBGA	10,861	ACBGA	10,401
ACCGA	11,534	ACCGA	11,153	ACCGA	10,764	ACCGA	10,922	ACCGA	10,863	ACCGA	10,406
ACGGGA	11,543	ACGGGA	11,164	ACGGGA	10,803	ACGGGA	10,923	ACGGGA	10,871	ACGGGA	10,438
AEEGA	11,544	AEEGA	11,168	AEEGA	10,814	AEEGA	10,927	AEEGA	10,876	AEEGA	10,480
AEDGA	11,549	AEDGA	11,197	AEDGA	10,816	AEDGA	10,932	AEDGA	10,711	AEDGA	10,454
AICGB	11,553	AICGB	11,206	AICGB	10,876	AICGB	10,938	AICGB	10,714	AICGB	10,520
AICGA	11,552	AICGA	11,211	AICGA	10,881	AICGA	10,940	AICGA	10,727	AICGA	10,521
AAAGA	11,538	AAAGA	11,235	AAAGA	10,907	AAAGA	10,987	AAAGA	10,782	AAAGA	10,547
ABBGA	11,599	ABBGA	11,238	ABBGA	10,923	ABBGA	10,983	ABBGA	10,783	ABBGA	10,552
AICGE	11,612	AICGE	11,269	AICGE	10,948	AICGE	10,995	AICGE	10,784	AICGE	10,575
AFCGA	11,615	AFCGA	11,274	AFCGA	10,950	AFCGA	11,001	AFCGA	10,797	AFCGA	10,588
AEEGF	11,617	AEEGF	11,315	AEEGF	10,951	AEEGF	11,073	AEEGF	10,817	AEEGF	10,592
AICGW	11,655	AICGW	11,328	AICGW	10,951	AICGW	11,048	AICGW	10,844	AICGW	10,610
AFBGA	11,685	AFBGA	11,344	AFBGA	10,960	AFBGA	11,070	AFBGA	10,863	AFBGA	10,605
AICGF	11,706	AICGF	11,348	AICGF	10,968	AICGF	11,097	AICGF	10,867	AICGF	10,615
AEBGA	11,724	AEBGA	11,362	AEBGA	11,022	AEBGA	11,098	AEBGA	10,881	AEBGA	10,665
CICGA	11,797	CICGA	11,379	CICGA	11,033	CICGA	11,181	CICGA	10,890	CICGA	10,678
FICGB	11,818	FICGB	11,396	FICGB	11,088	FICGB	11,210	FICGB	10,899	FICGB	10,733
FICGA	11,861	FICGA	11,405	FICGA	11,092	FICGA	11,223	FICGA	10,919	FICGA	10,737
DICGA	12,046	DICGA	11,673	DICGA	11,182	DICGA	11,433	DICGA	11,188	DICGA	10,764
AHBGA	12,167	AHBGA	11,779	AHBGA	11,183	AHBGA	11,561	AHBGA	11,224	AHBGA	10,809
BEEGA	12,209	BEEGA	11,820	BEEGA	11,319	BEEGA	11,608	BEEGA	11,307	BEEGA	10,963
XEEGA	12,380	XEEGA	11,881	XEEGA	11,404	XEEGA	11,898	XEEGA	11,364	XEEGA	11,010
ADBGA	12,394	ADBGA	11,886	ADBGA	11,584	ADBGA	11,719	ADBGA	11,408	ADBGA	11,234
AGBGA	12,465	AGBGA	11,920	AGBGA	11,672	AGBGA	11,810	AGBGA	11,437	AGBGA	11,309
MID LOAD											
LOW LOAD											
ACBGA	10,380	ACBGA	10,228	ACBGA	10,081	ACBGA	10,380	ACBGA	10,228	ACBGA	10,081
AEEGA	10,383	AEEGA	10,234	AEEGA	10,088	AEEGA	10,386	AEEGA	10,234	AEEGA	10,088
ACGGGA	10,386	ACGGGA	10,242	ACGGGA	10,120	ACGGGA	10,388	ACGGGA	10,242	ACGGGA	10,120
AEDGA	10,388	AEDGA	10,246	AEDGA	10,131	AEDGA	10,395	AEDGA	10,246	AEDGA	10,131
AICGB	10,395	AICGB	10,282	AICGB	10,134	AICGB	10,395	AICGB	10,282	AICGB	10,134
AICGA	10,395	AICGA	10,284	AICGA	10,201	AICGA	10,395	AICGA	10,284	AICGA	10,201
AAAGA	10,396	AAAGA	10,299	AAAGA	10,204	AAAGA	10,396	AAAGA	10,299	AAAGA	10,204
ABBGA	10,448	ABBGA	10,322	ABBGA	10,230	ABBGA	10,448	ABBGA	10,322	ABBGA	10,230
AICGE	10,449	AICGE	10,326	AICGE	10,230	AICGE	10,449	AICGE	10,326	AICGE	10,230
AFBGA	10,459	AFBGA	10,357	AFBGA	10,247	AFBGA	10,459	AFBGA	10,357	AFBGA	10,247
AAAGA	10,460	AAAGA	10,374	AAAGA	10,272	AAAGA	10,460	AAAGA	10,374	AAAGA	10,272
AEEGF	10,460	AEEGF	10,385	AEEGF	10,276	AEEGF	10,460	AEEGF	10,385	AEEGF	10,276
AICGW	10,508	AICGW	10,417	AICGW	10,286	AICGW	10,508	AICGW	10,417	AICGW	10,286
AFBGA	10,527	AFBGA	10,433	AFBGA	10,287	AFBGA	10,527	AFBGA	10,433	AFBGA	10,287
AEBGA	10,555	AEBGA	10,442	AEBGA	10,298	AEBGA	10,555	AEBGA	10,442	AEBGA	10,298
AICGF	10,559	AICGF	10,450	AICGF	10,347	AICGF	10,559	AICGF	10,450	AICGF	10,347
CICGA	10,637	CICGA	10,452	CICGA	10,357	CICGA	10,637	CICGA	10,452	CICGA	10,357
FICGB	10,670	FICGB	10,471	FICGB	10,410	FICGB	10,670	FICGB	10,471	FICGB	10,410
FICGA	10,671	FICGA	10,487	FICGA	10,415	FICGA	10,671	FICGA	10,487	FICGA	10,415
DICGA	10,892	DICGA	10,756	DICGA	10,422	DICGA	10,892	DICGA	10,756	DICGA	10,422
AHBGA	11,034	AHBGA	10,759	AHBGA	10,474	AHBGA	11,034	AHBGA	10,759	AHBGA	10,474
BEEGA	11,065	BEEGA	10,852	BEEGA	10,647	BEEGA	11,065	BEEGA	10,852	BEEGA	10,647
ADBGA	11,118	ADBGA	10,904	ADBGA	10,672	ADBGA	11,118	ADBGA	10,904	ADBGA	10,672
XEEGA	11,167	XEEGA	10,979	XEEGA	10,917	XEEGA	11,167	XEEGA	10,979	XEEGA	10,917
AGBGA	11,233	AGBGA	11,009	AGBGA	10,991	AGBGA	11,233	AGBGA	11,009	AGBGA	10,991

7.3.7 CRITICAL UNCERTAIN FACTORS – SUMMARY AND EVALUATION

This summary table, Table 52, provides the expected value for NPVRR across the twenty-seven endpoint tree by plan and the value for NPVRR for the mid-load, mid-gas and mid-CO₂ scenario, Endpoint 14.

Table 52: Alternative Resource Plan NPVRRs

Expected Value PLAN	EV NPVRR	Delta	Endpoint PLAN	14 NPVRR	Delta
AICGB	11,703	-	AICGA	11,592	-
AICGA	11,703	1	AICGB	11,595	3
AEDGA	11,727	25	AEDGA	11,616	24
AEEGA	11,734	32	AEEGA	11,622	30
AFCGA	11,756	54	AFCGA	11,645	53
AICGE	11,770	67	AICGE	11,663	71
ACBGA	11,794	91	ACBGA	11,694	102
ACCGA	11,814	111	ACCGA	11,713	121
AICGW	11,831	128	AICGW	11,741	149
AEEGF	11,839	137	AEBGA	11,741	149
ACGGA	11,852	149	ACGGA	11,754	162
AEBGA	11,854	151	AEEGF	11,757	165
ABBGA	11,864	161	ABBGA	11,763	172
AICGF	11,874	171	AICGF	11,784	193
AFBGA	11,943	240	CICGA	11,839	247
CICGA	11,947	245	AFBGA	11,846	254
FICGB	11,964	262	FICGA	11,856	264
FICGA	11,976	273	FICGB	11,872	280
AAAGA	11,985	283	AAAGA	11,897	305
ADBGA	12,153	450	ADBGA	12,022	431
DICGA	12,203	500	DICGA	12,096	504
AGBGA	12,240	538	AGBGA	12,129	537
BEEGA	12,423	721	BEEGA	12,323	732
XEEGA	12,509	807	XEEGA	12,378	787
AHBGA	12,552	850	AHBGA	12,466	874

Table 53 below provides the Alternative Resource Plan that had the lowest NPVRR for each endpoint scenario.

Table 53: Endpoint/Lowest NPVRR Alternative Resource Plan

EP	Plan	NPVRR	Conditional Probability
1	AICGW	13,888	2%
2	AICGB	12,560	3%
3	ACBGA	11,528	2%
4	AICGB	13,592	3%
5	AICGB	12,165	6%
6	AICGB	11,149	3%
7	AICGB	13,242	2%
8	AICGB	11,785	3%
9	AICGA	10,763	2%
10	AICGW	13,102	3%
11	AEEGA	11,859	6%
12	ACBGA	10,917	3%
13	AICGB	12,885	6%
14	AICGA	11,592	13%
15	AICGA	10,661	6%
16	AICGB	12,610	3%
17	AICGA	11,319	6%
18	AICGA	10,401	3%
19	AICGW	12,415	2%
20	AICGA	11,248	3%
21	ACBGA	10,380	2%
22	AICGA	12,267	3%
23	AICGA	11,091	6%
24	AICGA	10,229	3%
25	AICGB	12,052	2%
26	AICGA	10,906	3%
27	AICGA	10,081	2%

The sum of the conditional probabilities and the count of the number of times an Alternative Resource Plan is the low cost scenario endpoint is as follows:

Table 54: Conditional Probabilities of Lowest NPVRR Plans

Plan	Conditional Probability	Count
ACBGA	6%	3
AICGB	31%	9
AICGW	6%	3
AICGA	50%	11
AEEGA	6%	1
Total	100%	27

7.3.8 ADDITIONAL UNCERTAIN FACTOR

The primary other uncertain factor that could materially impact the Preferred Plan is changes to the assumptions surrounding proposed and projected environmental regulations.

The Preferred Plan calls for Sibley 1 and 2 to be retired in 2019. This is primarily driven by the projected need to add cooling towers by 2019 for Clean Water Act Section 316(a) and/or Section 316(b) and the projected need to convert the plant's wet ash handling systems to dry systems in the 2021 timeframe to meet future effluent guideline and/or coal combustion residual rules. Based on current assumptions regarding compliance requirements and costs, it would not be economic to invest in cooling towers for a 2019 compliance start date to then retire the unit in 2021 due to the need to convert to a dry ash handling system.

Given that the rules projected to require these investments are not final, there is a potential that these projected requirements and compliance dates could change. If the projected compliance dates were to be delayed, the Sibley 1 & 2 retirements would likely be delayed as well.

7.4 BETTER INFORMATION

The Company calculated the value of better information for each of the critical uncertain factors. For each uncertainty, the preferred plan NPVRR for the specific uncertainty scenarios (or endpoints) was compared to the better plan under each extreme uncertainty condition. The comparison was made on an expected value basis assuming that only those three particular scenarios (high value uncertainty, mid value and low value uncertainty) would occur. Baye's Theorem was applied to the endpoint probabilities to develop conditional probabilities for the calculation scenarios. The difference between the expected value of the preferred plan and the expected value of the better information results is the expected value of better information.

These values represent the maximum amount the company should be willing to spend to study each of these uncertainties. It must be noted that should a Preferred Plan out-perform all alternatives across the range of a critical risk, the calculation for better information will yield a value of zero.

The results for these calculations are shown in Tables Table 55, Table 56, and Table 57 below.

Table 55: Better information - Load Growth

Load						
Preferred Plan	Endpoint	Plan	NPVRR	EP Prob	Cond. Prob	Expected Value
High Load		5 AICGA	12,169	6.25%	25.00%	11,611
Mid		14 AICGA	11,592	12.50%	50.00%	
Low Load		23 AICGA	11,091	6.25%	25.00%	
Better Information	Endpoint	Plan	NPVRR	EP Prob	Cond. Prob	Expected Value
High Load		5 AICGB	12,165	6.25%	25.00%	11,610
Mid		14 AICGA	11,592	12.50%	50.00%	
Low Load		23 AICGA	11,091	6.25%	25.00%	
Expected Value of Better Information			1.16 Million			

Table 56: Better information - Natural Gas

Natural Gas						
Preferred Plan	Endpoint	Plan	NPVRR	EP Prob	Cond. Prob	Expected Value
High Natural Gas		11 AICGA	11,862	6.25%	25.00%	11,591
Mid		14 AICGA	11,592	12.50%	50.00%	
Low Natural Gas		17 AICGA	11,319	6.25%	25.00%	
Better Information	Endpoint	Plan	NPVRR	EP Prob	Cond. Prob	Expected Value
High Natural Gas		11 AEEGA	11,859	6.25%	25.00%	11,590
Mid		14 AICGA	11,592	12.50%	50.00%	
Low Natural Gas		17 AICGA	11,319	6.25%	25.00%	
Expected Value of Better Information			0.75 Million			

Table 57: Better information - CO₂

CO ₂						
Preferred Plan	Endpoint	Plan	NPVRR	EP Prob	Cond. Prob	Expected Value
High CO ₂		13 AICGA	12,888	6.25%	25.00%	11,683
Mid		14 AICGA	11,592	12.50%	50.00%	
Low CO ₂		15 AICGA	10,661	6.25%	25.00%	
Better Information	Endpoint	Plan	NPVRR	EP Prob	Cond. Prob	Expected Value
High CO ₂		13 AICGB	12,885	6.25%	25.00%	11,682
Mid		14 AICGA	11,592	12.50%	50.00%	
Low CO ₂		15 AICGA	10,661	6.25%	25.00%	
Expected Value of Better Information			0.76 Million			

7.5 CONTINGENCY RESOURCE PLANS

GMO has identified contingency plans should the critical uncertain factors exceed the limits specified. These contingency plans are provided in Table 58 below:

Table 58: Contingency Resource Plans

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
AICGB	RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021 - 100 MW 2025 - 100 MW	200 MW CC in 2031
		Sibley-1 Sibley-2	2019 2019			
AICGW	RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 300 MW 2021 - 200 MW 2025 - 200 MW	193 MW CT in 2032
		Sibley-1 Sibley-2	2019 2019			
ACBGA	RAP	Sibley-1 Sibley-2	2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 150 MW 2021 - 100 MW 2025 - 100 MW	193 MW CT in 2031
** Convert to Natural Gas/Fuel Oil						

These contingency plans were identified through an evaluation of the relative cost performance of each alternative resource plan under different combinations of the critical uncertain factors. The combinations of critical uncertain factors under which these contingency plans are projected to be lower cost than the Preferred Plan are as follows:

High CO₂, Low and Mid Gas Price Scenarios: AICGB (Combined Cycle build instead of Combustion Turbine build in Preferred Plan)

High Gas, Low and Mid CO₂ Price Scenarios: ACBGA (retain Lake Road 4/6 as coal resource, retire Sibley 1 and 2 in 2016).

High Gas, High CO₂ Price Scenario: AICGW (more than double the current Renewable Energy Standard required wind)

The Company will update and review the critical uncertainties, Preferred Plan and contingency plans as part of the 2014 IRP Update to be filed in March 2014.

7.6 IMPLEMENTATION PLAN

The Implementation Plan consists of a schedule for environmental retrofits, and a Demand-Side Management schedule

7.6.1 ENVIRONMENTAL RETROFITS

Based on the 2013 Annual Update Preferred Plan for GMO, environmental retrofits are anticipated to be required for Sibley Station and Lake Road 4/6 Units. While the Preferred Plan calls for Sibley 1 and 2 to be retired in 2019, minor retrofits are needed by 2016 for MATS compliance. A draft schedule of the major milestones for the retrofit projects are provided in Table 59 below:

Table 59: GMO Environmental Retrofit Schedule

Retrofit Project	Milestone Description	Date Range
Sibley 1, 2, and 3 ACI	Studies/Specification/Bid/Award	09/2014 - 06/2015
Sibley 1, 2, and 3 ACI	Engineering/Procurement/Construction	07/2015 - 12/2015
Sibley 1, 2, and 3 ACI	Checkout/Startup/Tuning/Testing	01/2016 - 02/2016
Sibley 1, 2, and 3 ESP Improvements	Studies/Specification/Bid/Award	01/2015 - 06/2015
Sibley 1, 2, and 3 ESP Improvements	Engineering/Procurement/Construction	07/2015 - 12/2015
Sibley 1, 2, and 3 ESP Improvements	Checkout/Startup/Tuning/Testing	01/2016 - 02/2016
LR 4/6 Fuel Oil Supply	Studies/Specification/Bid/Award	01/2015 - 06/2015
LR 4/6 Fuel Oil Supply	Engineering/Procurement/Construction	07/2015 - 12/2015
LR 4/6 Fuel Oil Supply	Checkout/Startup/Tuning/Testing	01/2016 - 02/2016
ACI : Activated Carbon Injection ESP: Electrostatic Precipitator		

7.6.2 DEMAND-SIDE MANAGEMENT SCHEDULE

The current schedule for ongoing and planned DSM programs is shown in Table 60 below:

Table 60: DSM Program Schedule

Program Name	Program Type	New or Existing?	Segment	Tariff Filed	EM&V plan submitted	MEEIA DSM program approved	RFPs for new vendor selection issued	Vendor selected and contract awarded	Program Implemented	Annual Report	Evaluations Begun	EM&V Completed and report available
Low-Income Weatherization Program	Energy Efficiency	Existing	Residential	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Energy Star® New Homes Program	Energy Efficiency	Existing	Residential	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Cool Homes Program	Energy Efficiency	Existing	Residential	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Home Performance with Energy Star® Program	Energy Efficiency	Existing	Residential	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Commercial and Industrial Rebate Program	Energy Efficiency	Existing	C&I	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
MPower Rider	Demand Response	Existing	C&I	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Energy Optimizer Program	Demand Response	Existing	Residential	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Building Operator Certification Program	Educational	Existing	C&I	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Home Energy Analyzer Program	Educational	Existing	Residential	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Business Energy Analyzer Program	Educational	Existing	C&I	Jan-13	Dec-11	Jan-13	N/A	N/A	MEEIA approval 1 month after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Appliance Turn-In Program	Energy Efficiency	New	Residential	Jan-13	Dec-11	Jan-13	1 month after MEEIA approval	3 months after MEEIA approval	MEEIA approval 6 months after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Commercial and Industrial Prescriptive Rebate Program	Energy Efficiency	New	C&I	Jan-13	Dec-11	Jan-13	1 month after MEEIA approval	4 months after MEEIA approval	MEEIA approval 6 months after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Multi-Family Rebate Program	Energy Efficiency	New	Residential	Jan-13	Dec-11	Jan-13	1 month after MEEIA approval	9 months after MEEIA approval	MEEIA approval 6 months after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Residential Energy Reports Program	Energy Efficiency	New	Residential	Jan-13	Dec-11	Jan-13	1 month after MEEIA approval	7 months after MEEIA approval	MEEIA approval 6 months after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after
Residential Lighting and Appliance Program	Energy Efficiency	New	Residential	Jan-13	Dec-11	Jan-13	1 month after MEEIA approval	7 months after MEEIA approval	MEEIA approval 6 months after	MEEIA approval 12 months after	MEEIA approval 24 months after	MEEIA approval 36 months after

7.7 RESOURCE ACQUISITION STRATEGY: AGREED UPON REMEDIES TO ALLEGED DEFICIENCIES AND CONCERNS

The following section addresses the Alleged Deficiencies and Concerns from the 2012 GMO IRP, Case No. EO-2012-0324. The Resolutions are either verbatim or a shortened version of the agreed-to resolution from the Joint Filing filed in that case.

7.7.1 Staff's Deficiency 8

The filing requirements of Rule 4 CSR 240-22.070(2) or Rule 4 CSR 240-22.070(3) were not described and documented for the any of the twenty-one (21) GMO candidate resource plans.

Resolution: The Company agrees that the filing requirements and results per these rules for KCP&L will be provided in the 2013 Annual Update.

Comment: The filing requirements of Rule 4 CSR 240- 22.070(2) and Rule 4 CSR 240-22.070(3) results are provided in are provided in Sections 6.8, 7.3 and 7.4 above.

7.7.2 MDNR'S CONCERN 4

GMO did not select the lowest-cost plan as its Preferred Plan. A more complete estimation of achievable savings is necessary to justify the selection of a higher-cost Alternative Resource Plan.

Resolution: The Company will use the results of the DSM Potential Study to meet the requirements of Rule 4 CSR 240-22.060 in the 2013 Annual Update. It is understood that the DSM Potential Study will provide DSM impacts and costs, such as MAP, RAP, and economic potential, etc. The Company will include the following in separate alternative resource plans that satisfy the objective and priorities identified in 4 CSR 240-22.060(1) over the entire 20-year planning horizon and are consistent with the state energy policy in MEEIA of achieving all cost-effective demand-side savings: (1) MAP, (2) RAP, (3) approximately the RAP plus one-third of the difference between RAP and MAP, and (4) approximately RAP plus two-thirds of the difference between RAP and MAP.

Comment: This issue has been addressed. GMO utilized the results of the Navigant DSM Potential Study which provided DSM impacts and costs used for the DSM Portfolios in the 2013 Annual Update.

7.7.3 MDNR's Deficiency 14

Questionable methodology for allocating combined plans. There does not appear to be any underlying methodology for allocating the resources in the combined company plans. Rather, the combined plans appear to be constructed from previously identified company-specific resources. The Company should provide a complete description of its approach to constructing combined plans and its allocation procedures.

Resolution: MDNR and the Company have resolved this deficiency.

7.7.4 MDNR'S Deficiency 15

Missing Analysis of Critical Uncertain Factors for GMO Preferred Plan. GMO did not analyze the impacts of critical uncertain factors on its Preferred Plan. Given that the Company has not provided a methodology for allocating the resources in the combined plan to each individual utility, it is not possible to allocate the impacts of the critical uncertain factors.

Resolution: This issue is resolved. The Company and MDNR agree that the Company did comply with 4 CSR 240-22.070(2) and 4 CSR 240-22.070(4). Documentation is in Volume 7.

7.7.5 MDNR's Concern 5

Federal renewable/clean energy standard as a critical uncertain factor. A potential federal renewable energy standard (RES) or clean energy standard (CES) will have significant impacts on renewable electricity generation and/or acquisition as well as associated costs.

Resolution: This issue is resolved.

SECTION 8: SPECIAL CONTEMPORARY ISSUES

From the Commission Order, EO-2013-0107, the following Special Contemporary Resource Planning Issues are addressed as follows:

8.1 AGGREGATORS OF RETAIL CUSTOMERS

Investigate and document the impacts on the Company's Preferred Resource Plan and contingency plans of aggressive regulations by the FERC, regional transmission organizations ("RTOs") or Missouri statutes or regulations to allow aggregators of retail customers ("ARCs") to operate and market demand response services in Missouri.

Comment: On January 6, 2010, the Missouri Public Service Commission ("MPSC") issued an order in Case No. EW-2010-0187 for the purpose of investigating the coordination of state and federal regulatory policies concerning demand-side programs. This investigation docket has proceeded through a series of information-gathering processes, including several workshops. All of Missouri's investor-owned electric utilities, as well as a number of other interested parties, have participated in this process. Issues in this docket have included the question of whether the MPSC should permit the participation of retail customers in wholesale demand response programs operated by a RTO, and if so, under what rules and pricing terms. GMO has submitted written comments in this docket and participated actively in the workshops, expressing its views regarding potential ARC activity in Missouri and the appropriate structure for such activity if permitted. GMO's comments touched on numerous elements including the method of retail billing for demand response load, the establishment of economically efficient pricing mechanisms, the impact of ARC participation on the utilities' internal demand response programs, and the potential for costs to shift among customer groups as a result of retail participation in wholesale markets. Before ARCs can operate in the MPSC's jurisdiction, these issues must be resolved. In addition to state regulatory activity, several dockets at FERC are dealing with demand response questions both in rulemaking and in compliance filings made by RTOs such as Southwest Power Pool and the Midwest Independent Transmission System Operator. Given the numerous unresolved questions at both the state and

federal levels, it will be speculative for GMO to posit the conditions, framework, and pricing necessary for an IRP analysis of the impact of ARC activity in Missouri. Therefore, the company proposes that this potential risk be analyzed in a similar manner as the Federal Energy Efficiency Standard risk was conducted in the GMO Updated IRP Filing On July 1, 2011. The Company will incorporate findings from the workshops being conducted in Case No. EW-2010-0187 to develop a method of analysis as the workshop and IRP filing schedules permit.

8.2 AGGRESSIVE RENEWABLE ENERGY STANDARD

Investigate and document the impacts on the Company's Preferred Resource Plan and contingency plans of a new much more aggressive renewable energy standard (e.g., at least double the current standard for Missouri) with no rate cap.

Comment: GMO has included an Alternative Resource Plan AICGZ in the 2013 Annual Update that consists of replacing capacity with only renewable capacity. See Appendix F for this plan's results.

8.3 VERY AGGRESSIVE ENERGY EFFICIENCY RESOURCE STANDARD

Investigate and document the impacts on the Company's Preferred Resource Plan and contingency plans of a very aggressive energy efficiency resource standard (e.g., annual energy savings of 1.5% each year for 20 years and annual demand savings of 1.0% each year for 20 years from electric utility demand-side programs) with no rate cap in Missouri.

Comment: This issue was addressed by GMO evaluating Alternative Resource Plan BEEGA that included the Maximum Achievable Potential (MAP) results from the Navigant DSM Potential Study.

8.4 LOSS OF SIGNIFICANT LOAD

Investigate and document the impacts on the Company's Preferred Resource Plan and contingency plans of a loss of significant load for the short term and potentially for

the long term that may be the result of: 1) a prolonged double-dip recession, and/or 2) the largest customer or a group of customers no longer taking service from Company.

Comment: This issue was addressed by GMO evaluating Alternative Resource Plans EICGA and EEEGA. See Appendix F for evaluation results of these plans.

8.5 AGGRESSIVE ENVIRONMENTAL REGULATIONS

Investigate and document the impacts of aggressive environmental regulations on Company's Preferred Resource Plan and contingency plans.

Table 61: Potential Environmental Regulations

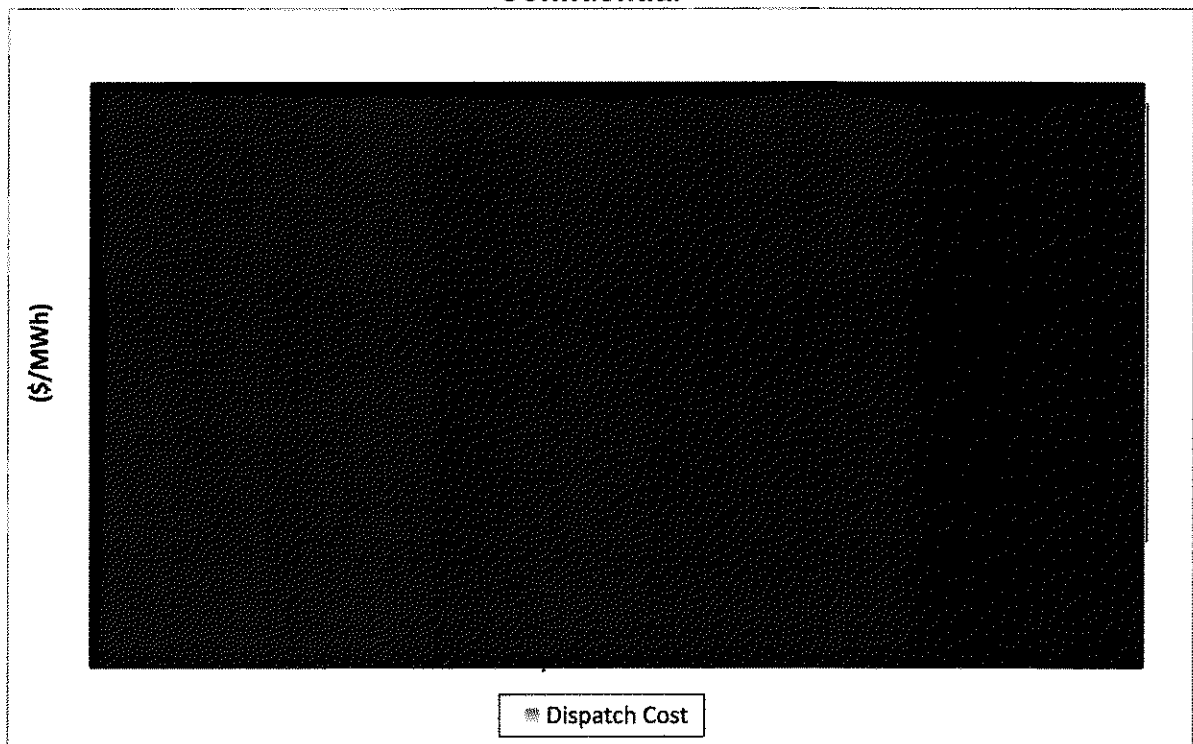
Environmental Driver	Emittant	Compliance Year (Expected)	Status	Retrofit
Mercury and Air Toxics Standards (MATS)	Mercury, PM, HCl	April, 2015	Petitions for judicial review have been filed.	AQ, ESP Improvements, Low Chlorine Coal
Ozone National Ambient Air Quality Standards (O ₃ NAAQS)	NO _x	(2019)	Under revision by EPA, final rule July, 2014	SNCR (LR 4/6) LNB/OFA (M-1)
PM National Ambient Air Quality Standards (PM NAAQS)	PM, SO ₂ , NO _x	(2023)	Final Rule issued - KC area attainment/nonattainment currently undetermined	SCR (on all units)
SO ₂ National Ambient Air Quality Standards (SO ₂ NAAQS)	SO ₂	(2023)	Final Rule issued - KC area attainment/nonattainment currently undetermined	Scrubber/BH (on all units)
Clean Water Act 316(b) (Fish Impingement and Entrapment)	-	(2018)	Under revision by EPA, final rule June, 2013	Fish Friendly Screens
Clean Water Act 316(b) (Fish Impingement and Entrapment)	-	(2019)	Under revision by EPA, final rule June, 2013	Cooling Towers (river units)
Clean Water Act 316(a) (Thermal Discharge)	-	(2019)	KCP&L in discussion with MDNR/EPA	Cooling Towers (lake units)
Effluent Guidelines	Wastewater Constituents	(2019)	Final Rule May, 2014	Cease Wet Sluicing
Coal Combustion Residual (CCR)	Ash/Water	(2019)	Final Rule 1Q, 2014	Cease Wet Sluicing/Increased Dust Controls

8.6 RANKING OF EXISTING COAL GENERATION

Analyze, rank, and document existing coal plant fleet as retirement candidates that includes documentation indicating the date the plant was put in service, the original design life in years and the results of any subsequent life extension studies or modifications to extend the design life, the cost in \$/kw to produce energy, and any analysis, studies, inspections, calculations used to justify the continued operation of the plant beyond its original design life.

Comment: The results of the evaluation for the 2013 IRP Update support the justification for planned coal plant retirements and the continued operations for those plants not identified for retirement. Ranking of GMO's coal fleet with respect to existing dispatch cost is shown in Table 62 below.

Table 62: Ranking of Coal Plants in Order of Dispatch Cost **Highly Confidential**



The results of the 2013 Annual Update show that Sibley Units 1 and 2 would be the first units to be retired, followed by Lake Road 4/6. After these units, Sibley Unit 3 would be the next retirement unit. It should be noted that integrated analysis of various retirement scenarios did not include latan Units 1 or 2. However, ranking

the latan units by efficiency show latan Unit 2 to be the most efficient, followed by latan Unit 1.

The commercial operation date for the GMO coal units is shown in Table 63 below:

Table 63: Coal Unit Commercial Operation Dates

GMO PLANT	Commercial Start Date
Sibley Station Unit 1	June - 1960
Sibley Station Unit 2	May - 1962
Lake Road 4/6	August - 1966
Sibley Station Unit 3	June - 1969
latan 1	May - 1980
latan 2	August - 2010

There is no official design life for the generation units, but economic analyses on a life-cycle basis was performed on some of the units from the time the unit was designed inferring a minimum operating life. These minimum operating life assumptions are provided in Table 64 below:

Table 64: Coal Unit Minimum Operating Life

GMO PLANT	Minimum Design Life (years)
Sibley Station Unit 1	30
Sibley Station Unit 2	30
Lake Road 4/6	30
Sibley Station Unit 3	30
latan 1	30
latan 2	40

The Life Assessment and Management Program (LAMP) for these generating units can be reviewed in Section 3.2.3 above.

8.7 DISTRIBUTED GENERATION, DSM PROGRAMS, AND COMBINED HEAT AND POWER PROJECTS

Analyze and document the impacts of opportunities to implement distributed generation, DSM programs, and combined heat and power (CHP) projects in collaboration with municipal water treatment plants and other local waste or agricultural/industrial processes with on-site electrical and thermal load requirements, especially in targeted areas where there may be transmission or distribution line constraints. In particular, develop a model or business case to identify the most cost effective CHP projects and a strategy to increase the deployment of identified cost effective CHP projects.

Comment: This issue was addressed by GMO incorporating the results of the Navigant DSM Potential Study in the 2013 Annual Update. The potential for combined heat and power was identified and included in the update. Also included in ALL scenarios is a projection of Residential Solar PV installations. GMO also partnered with the city of St. Joseph to build a methane gas gathering system and construct and operate a power generation facility at the city's 90-acre landfill. As part of a memorandum of understanding, the City of St. Joseph provides the operations of the methane gas collection system. KCP&L has underwritten the cost of the plant, which converts the captured methane gas provided by the City of St. Joseph into electricity. A video presentation can be viewed at http://www.youtube.com/watch?v=Xe_j-BVSpNU&list=PLluIYyRP4t9jb8qh-b09zBqiYzTka4Pkt&index=3

8.8 ENERGY EFFICIENCY IN THE AGRICULTURAL SECTOR

Analyze and document analysis of DSM programs targeted to achieve energy efficiency savings in the agricultural sector.

Comment: The agricultural sector was analyzed as part of the Navigant DSM Potential Study. The sector was found to be less than one half of one percent of GMO's retail load. Therefore, agriculture is included as part of the sector "C&I Other".

8.9 CUSTOMER INFORMATION/BEHAVIOR MODIFICATION PROGRAM OPTIONS

Analyze and document alternative customer information/behavior modification program options utilizing either in-house or outside industry experts or a combination of both to increase customer awareness and encourage more efficient use of energy.

Comment: This issue was addressed by GMO utilizing the results of the Navigant DSM Potential Study in the 2013 Annual Update. The behavioral modification programs identified were included in the update.

8.10 POTENTIAL CHANGES IN ENVIRONMENTAL AND/OR RENEWABLE ENERGY STANDARDS

Analyze potential or proposed changes in state and/or federal environmental and/or renewable energy standards and report how those changes would affect company's plans for compliance with those standards.

Comment: See Section 8.5 for a description of the proposed and projected environmental regulations that have been considered in the Alternative Resource Plans analyzed for the 2013 Annual Update.

8.11 COST OF ENERGY COMPARISON

Analyze the levelized cost of energy needed to comply with the current Renewable Energy Standards law compared to the cost of energy resulting from a portfolio comprised solely of existing resources with no additional renewable resources.

Comment: Given that the current Renewable Energy Standards (RES) law includes a 1% retail rate impact limit and GMO expects to hit that limit starting in 2013, the additional revenue needed to meet the RES requirements is expected to be on average 1% greater than would have occurred without the RES. The 1% limit is based on a projected 10-year rolling average revenue requirement of a non-RES compliant resource plan.

8.12 FUEL SOURCE SUBSIDIES

Disclose and discuss the amount and impact of every state or federal subsidy the Company expects to receive with regard to any or all fuel sources it intends to use during the IRP study period.

Comment: The Company does not expect to receive any state or federal subsidy for any fuel (biofuel, coal, natural gas, oil, or uranium) it expects to consume during the IRP study period.

8.13 SMALL MODULAR REACTOR ANALYSIS

Analyze and document nuclear powered small modular reactor (SMR) as a potential supply-side resource option.

Comment: The small modular nuclear reactors (SMRs) are included in this annual update filing as a supply-side resource option. Based on market information from EPRI TAG©, SMRs are generally classified as nuclear reactors of 700 MW or smaller, but often focus on reactors 335 MW or less. With SMRs still being in the research and development stages, cost data is limited and is primarily based upon large-scale nuclear plants with adjusted scaling factors to account for economy of scale. Lacking the benefits of economy of scale, the specific capital costs of SMRs are generally higher than large-scale nuclear plants. However, SMRs have the advantage of a shorter estimated construction period of about 3-4 years and an ability to allow for multiple units to be built in increments over several years. These features result in lower interest accumulation during construction and less capital-at-risk, which can result in SMRs being cost competitive with larger-scale nuclear plants. Overnight cost estimates for multi-unit SMR plants range from \$4,610/kW to \$7,292/kW. SMRs also have the advantage of being a carbon-free energy alternative. For the 2013 Annual Update filing, SMRs have been included with an overnight capital cost of \$5,255/kW, based upon the lower end of the capital cost estimate range.

8.14 RECALIBRATE LOAD FORECAST

In its annual update, GMO should recalibrate its forecast of the number of households to reflect the existing economic situation. The analysis should describe and document any changes in the components of the load forecast made to account for changes in the economic situation.

Comment:

- The economic forecasts for the KC and SJ metro areas were updated. In the 2012 IRP filing, GMO used forecasts produced by Moody's Analytics in June 2011. In this filing the forecasts were produced in September 2012.
- Billing statistics were updated through August 2012 for this filing. In the 2012 IRP filing, the statistics were current through June 2011. These statistics include the number of customers, kWh sales and dollars per kWh.
- Both the sales and customer models were recalibrated using updated billing statistics and economic data.

8.15 MARKET STATUS OF DISTRIBUTIVE TECHNOLOGIES

In its annual update, GMO should provide a more detailed analysis of the market status of a number of distribution technologies as well as their potential impacts. GMO should also explore more opportunities with customer-side CHP.

Comment: This issue was be addressed by GMO incorporating the results of the Navigant DSM Potential Study in the 2013 Annual Update. The potential for combined heat and power was identified and included in the update. Also included in all scenarios is a projection of Residential Solar PV installations. GMO also partnered with the city of St. Joseph to build a methane gas gathering system and construct and operate a power generation facility at the city's 90-acre landfill. As part of a memorandum of understanding, the City of St. Joseph provides the operations of the methane gas collection system. GMO has underwritten the cost of the plant, which converts the captured methane gas provided by the City of St. Joseph into electricity. A video presentation can be viewed at

8.16 COMBINED COMPANY IRP PLANNING

GMO should describe and document the legal and administrative steps necessary to allow for IRP planning on a combined company basis.

Comment: The IRP rules (4 CSR 240-22.080(1)) require that each electric utility selling over 1 million megawatt hours in Missouri must make a triennial compliance filing. The Company will be making separate IRP update filings for each Company that will reference joint planning information in certain sections of the IRP update filing. KCP&L, pursuant to the Joint Operating Agreement, will continue to operate and plan for GMO as a separate control area.

8.17 COMBINED COMPANY IRP PLAN DEVELOPMENT

In its annual update, GMO should describe and document its approach to constructing combined plans and its allocation procedures. If the Company uses a combined planning approach in the future, the combined plan should include an articulated methodology for sharing demand side, supply side and renewable resources between companies.

Comment: Refer to Section 6.7 for a description of the approach to developing combined-company plans. Since the Preferred Plans for each utility are based on stand-alone company plans, no allocation of resources between companies is needed.

8.18 ALLEGED DEFICIENCIES FROM FILE NO. EO-2012-0041

Address deficiencies raised by MDNR in the analysis of Special Contemporary Issues B, C, H, I, J, K and L from File No. EO-2012-0041.

(Note: the Case Number listed is the Special Contemporary case for the utility Kansas City Power & Light. GMO will assume this Special Contemporary Issue was supposed to be referring to Case EO-2012-0042.)

Comment: All of these alleged deficiencies were addressed in Section 8.23 above.

8.19 NATURAL GAS PRICE OUTLOOK

The prospects for continued stability of natural gas prices, especially in light of unconventional gas supplies.

Comment: Unconventional natural gas production is expected to continue to grow through about 2025 and decline thereafter. Recent low natural gas prices have led to resurgence in natural gas demand. Environmental regulations, limited nuclear capacity additions, and uncertainty of renewable resources are also expected to increase demand for natural gas. The net result is the current pricing paradigm for natural gas may not be sustainable for the long-term.

8.20 EXISTING, PENDING, OR POTENTIAL ENVIRONMENTAL STANDARDS WITH RESPECT TO CAPITAL AND OPERATING COSTS

Analyzing and documenting the future capital and operating costs faced by each GMO coal-fired generating unit in order to comply with all existing, pending, or potential environmental standards, including:

- Clean Air Act New Source Review provisions
- 1-hour Sulfur Dioxide National Ambient Air Quality Standard
- Cross State Air Pollution Rule in the event the Rule is reinstated
- Clean Air Interstate Rule
- Mercury and Air Toxics Standard
- Clean Water Act 316(b) Cooling Water Intake Standards
- Clean Water Act Steam Electric Effluent Limitation Guidelines
- Clean Air Act Section 111 Greenhouse Gas New Source
- Performance Standards
- Clean Air Act Regional Haze requirements
- Coal Combustion Waste rules.

Comment:

Clean Air Act New Source Review provisions: The Company has no plans to modify an existing unit or construct a new unit that would be significantly impacted by these provisions.

1-hour Sulfur Dioxide National Ambient Air Quality Standard: See Table 65, Table 66, and Table 67 below.
2013 Annual Update

Cross State Air Pollution Rule in the event the Rule is reinstated: The Company was ready to comply with this rule when it was stayed through generation planning and allowance trading. In addition, the compliance dates have now past and new compliance dates are unknown. It is anticipated control additions or generation planning associated with compliance with other rules (MATS, SO₂ NAAQS, etc.) will also assist in compliance if the CSAPR is reinstated.

Clean Air Interstate Rule: The Company complies with this rule by utilizing existing SO₂ allowances.

Mercury and Air Toxics Standard: See Table 65, Table 66, and Table 67 below.

Clean Water Act 316(b) Cooling Water Intake Standards: See Table 65, Table 66, and Table 67 below.

Clean Water Act Steam Electric Effluent Limitation Guidelines: See Table 65, Table 66, and Table 67 below.

Clean Air Act Section 111 Greenhouse Gas New Source: No final rule for GHG NSPS standards for new or existing has been finalized. The new source GHG NSPS was proposed but never finalized. The proposal does not provide sufficient clarity to model the impacts of the rule.

Performance Standards: See Table 65, Table 66, and Table 67 below.

Clean Air Act Regional Haze requirements: See Table 65, Table 66, and Table 67 below.

Coal Combustion Waste rules: See Table 65, Table 66, and Table 67 below.

Table 65: Retrofit Capital Cost Estimates **Highly Confidential **

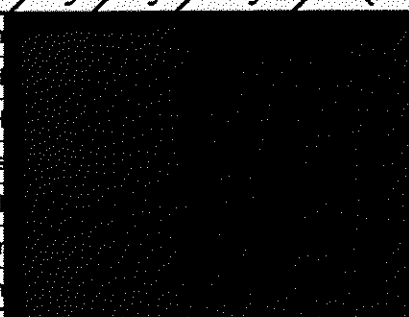

Potential Environmental Rule/Technology (2012 \$ x Millions)	Sibley 1	Sibley 2	Sibley 3	Iatan 1 ¹
MATS/Activated Carbon Injection				
MATS/ESP Rebuild				
PM and SO ₂ NAAQS/Scrubber/BH				
CWA 316(b)/Fish-Friendly Screens				
CCR/Landfill				
CWA 316(a)/Cooling Tower				
CCR/Wet-to-Dry Ash Conversion				
Notes NA = Not Applicable ✓ Equipment Installed R = Retired before Rule is promulgated MATS = Mercury and Air Toxics Standard NAAQS = National Ambient Air Quality Standards CCR = Coal Combustion Residual Rules CWA = Clean Water Act ¹ GMO's Share				

Table 66: Retrofit Fixed O&M Estimates **Highly Confidential **

Potential Environmental Rule/Technology (\$/kW - 2012 \$)	Sibley 1	Sibley 2	Sibley 3	Iatan 1
MATS/Activated Carbon Injection				
MATS/ESP Rebuild				
PM and SO ₂ NAAQS/Scrubber/BH				
CWA 316(b)/Fish-Friendly Screens				
CCR/Landfill				
CWA 316(a)/Cooling Tower				
CCR/Wet-to-Dry Bottom Ash Conversion				
Notes NA = Not Applicable ✓ Equipment Installed R=Retired before Rule is promulgated MATS = Mercury and Air Toxics Standard NAAQS = National Ambient Air Quality Standards CCR = Coal Combustion Residual Rules CWA = Clean Water Act				

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Table 67: Retrofit Variable O&M Estimates **Highly Confidential **

Potential Environmental Rule/Technology (\$/MWh - 2012 \$)	Sibley 1	Sibley 2	Sibley 3	Iatan 1
MATS/Activated Carbon Injection				
MATS/ESP Rebuild				
PM and SO ₂ NAAQS/Scrubber/BH				
CWA 316(b)/Fish-Friendly Screens				
CCR/Landfill				
CWA 316(a)/Cooling Tower				
CCR/Wet-to-Dry Bottom Ash Conversion				
Notes NA = Not Applicable ✓ Equipment Installed R=Retired before Rule is promulgated MATS = Mercury and Air Toxics Standard NAAQS = National Ambient Air Quality Standards CCR = Coal Combustion Residual Rules CWA = Clean Water Act				

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8.21 ANALYSIS OF DSM

Analyzing and documenting the technical, maximum achievable, and realistic achievable energy and demand savings from demand side management, and incorporating each level of savings into GMO resource planning process.

Comment: This issue was addressed by GMO incorporating the results of the Navigant DSM Potential Study in the 2013 Annual Update

8.22 ACHIEVABLE COMBINED HEAT AND POWER

Analyzing and documenting the levels of achievable combined heat and power (CHP) and incorporating such achievable CHP into GMO's evaluation of demand side management.

Comment: This issue was addressed by GMO incorporating the results of the Navigant DSM Potential Study in the 2013 Annual Update. The potential for combined heat and power was identified and included in all Alternative Resource Plans.

8.23 SPECIAL CONTEMPORARY ISSUES: AGREED UPON REMEDIES TO ALLEGED DEFICIENCIES AND CONCERNS

The following section addresses the Alleged Deficiencies and Concerns from the 2012 GMO IRP, Case No. EO-2012-0324. The Resolutions are either verbatim or a shortened version of the agreed-to resolution from the Joint Filing filed in that case.

8.23.1 STAFF'S DEFICIENCY 10

The Filing failed to comply with the Commission's special contemporary issue "h" by not analyzing and documenting aggressive DSM portfolios without constraints and by not including analysis and documentation of demand-side investment mechanisms to implement each DSM portfolio.

Resolution: The Company will include an analysis and description of demand-side investment mechanism necessary to implement the DSM portfolios referenced in the resolution to item 40 (Staff deficiency 6) of this Joint Filing.

Comment: In the 2013 Annual Update, aggressive DSM portfolios were evaluated. The Maximum Achievable Potential level of DSM from the DSM Potential Study was evaluated with the development of Alternative Resource Plan BEEGA. The demand side investment mechanism for all DSM portfolios would follow the same frame work as the KCP&L GMO MEEIA filing, Case No.: EO-2012-2009. This would include cost recovery, a shared benefit and a performance incentive.

8.23.2 MDNR's Deficiency 18

Special Contemporary Issue B: Energy savings requirements for Special Contemporary Issue B have not been met, citing Special Contemporary Issue B File No. EO-2012-0042.

Resolution: The Company will include an alternative resource plan in the 2013 Annual Update that consists of only renewable resource additions to meet future capacity requirements.

Comment: GMO has included an Alternative Resource Plan AICGZ in the 2013 Annual Update that consists of replacing capacity with only renewable capacity. See Appendix F for this plan's results.

8.23.3 MDNR's Concern 6

Special Contemporary Issue H: Response to Special Contemporary Issue H does not address the "demand-side investment mechanisms necessary to implement" an aggressive DSM portfolio. The response to Special Contemporary Issue H does not analyze or document the demand-side investment mechanisms necessary to implement an aggressive DSM portfolio, citing Special Contemporary Issue H File No. EO-2012-0042.

Resolution: The Company will utilize the results of the Navigant Demand-Side-Management Potential Study in its 2013 Annual Update. With this update, the Company will include an analysis and description of demand-side investment mechanisms to implement a DSM portfolio.

Comment: In the 2013 Annual Update, aggressive DSM portfolios were evaluated. The Maximum Achievable Potential level of DSM from the DSM Potential Study was evaluated with the development of Alternative Resource Plan BEEGA. The demand side investment mechanism for all DSM portfolios would follow the same frame work as the KCP&L GMO MEEIA filing, Case No.: EO-2012-2009. This would include cost recovery, a shared benefit and a performance incentive.

8.23.4 MDNR's Deficiency 19

Special Contemporary Issues I and J: GMO has not analyzed distributed generation, DSM programs, and combined heat and power projects in collaboration with municipalities and in the agricultural sector, citing Special Contemporary Issues I and J, File No. EO-2012-0042.

Resolution: The Company will incorporate the results of the Navigant DSM Market Potential Study in its 2013 Annual Update.

Comment: This issue was be addressed by GMO incorporating the results of the Navigant DSM Potential Study in the 2013 Annual Update. The potential for combined heat and power was identified and included in the update. Also included in ALL scenarios is a projection of Residential Solar PV installations. GMO partnered with the city of St. Joseph to build a methane gas gathering system and construct and operate a power generation facility at the city's 90-acre landfill. As part of a memorandum of understanding, the City of St. Joseph provides the operations of the methane gas collection system. KCP&L has underwritten the cost of the plant, which converts the captured methane gas provided by the City of St. Joseph into electricity. A video presentation can be viewed at http://www.youtube.com/watch?v=Xe_j-BVSpNU&list=PLluIYyRP4t9jb8qh-b09zBqiYzTka4Pkt&index=3

8.23.5 MDNR's Deficiency 20

Special Contemporary Issue L: The Environmental Impact of Plan ACCG6 has not been analyzed; the requirements of Special Contemporary Issue L have not been met, citing Special Contemporary Issue L, File No. EO-2012-0042.

Resolution: This issue is resolved.

8.24 UNRESOLVED DEFICIENCIES AND CONCERNS

The following section addresses the Unresolved Deficiencies and Concerns listed in the Joint Filing from the 2012 GMO IRP, Case No. EO-2012-0324.

8.24.1 STAFF'S DEFICIENCY 7

The only requirements of Rule 4 CSR 240-22.060 Integrated Resource Plan and Risk Analysis that are satisfied and described and documented for each of the Filing's fourteen (14) combined/joint candidate resource plans are for integrated resource analysis and the calculation of PVRR for each plan.

Comment: The combined company resource plans were developed to determine if either of the stand-alone company Preferred Plans should be adjusted to take into account the reserves held by KCP&L and GMO. The combined-company plans analyzed in the 2013 Annual Update and the NPVRR are documented in Section 6.7. Results of the Combined-Company Plan FIECA performance measures are provided in Section 6.8 through 6.10 as well.

8.24.2 STAFF'S DEFICIENCY 9

The only requirements of Rule 4 CSR 240-22.070 Resource Acquisition Strategy Selection that were satisfied and described and documented for each of the fourteen (14) combined/joint candidate resource plans are: 1) analysis and specification of ranges for critical uncertain factors, and 2) the expected value of better information related to the critical uncertain factors (CO₂, load forecast and natural gas prices).

Response: The combined company resource plans were developed to determine if either of the stand-alone company Preferred Plans should be adjusted to take into account the resources held by KCP&L and GMO. The results indicate that no adjustments were needed to either stand-alone company plan. The combined-company plans analyzed and the NPVRR results are documented in Section 6.7. Combined-Company Plan FIECA performance measures are provided in Sections 6.8 through 6.10 as well.

8.24.3 MDNR'S DEFICIENCY 17

GMO requests acknowledgement of the combined company methodology rather than a Preferred Plan or resource acquisition strategy. In making its acknowledgement request, GMO is asking the Commission to acknowledge its use of combined company planning approach in this plan and in the allocation methods used to create a GMO-specific Preferred Plan from its combined planning effort.

Comment: The 2013 Annual Update contains stand-alone plans for each utility. However, GMO and KCP&L did perform analyses based on a combined-company view as described in Section 6.7 above. GMO and KCP&L continue to request acknowledgement of this element of their planning process. That specific request for acknowledgement can be found in Section 6.11 above.

8.24.4 MDNR'S CONCERN 1

GMO did not request waivers to address omissions in its DSM analysis or to address the use of a combined company planning process.

Comment: The 2013 Annual Update includes extensive DSM analysis and as such no waiver for the DSM analysis is required. Since the Company's analysis of combined company resource plans is not in conflict with the IRP requirements, the Company does not believe that a waiver is required.

8.24.5 OPC'S DEFICIENCY 1

GMO failed to request a variance from, or waiver of, the requirement in 4 CSR 240-22.080 (1) for utilities to make separate utility specific triennial compliance filing and GMO has instead chosen to "perform its resource planning on a joint company basis" with KCP&L. Even though no such waiver was requested GMO makes a request on page 25 of Volume 8 for "Commission acknowledgement that it is reasonable for KCP&L and GMO to perform resource planning on a joint company basis." GMO has not requested the variance or waiver from Chapter 22 rules that would be necessary for the Commission to make the requested acknowledgement. Furthermore, in addition to not requesting such a variance 12 months prior to its triennial filing date as required by 4 CSR 240-22.080(13), the Company has not

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shown good cause for such a waiver or variance. GMO's attempt to show financial benefits from performing resource planning on a joint company basis is premised upon the assumption that neither GMO nor KCP&L would make investments in a new gas-fired combined cycle plant unless the combined capacity need of GMO and KCP&L would be sufficient to allow GMO and KCP&L combined to have majority ownership of the plant. GMO has not presented any type of financial or risk analysis to support this planning assumption.

Comment: GMO has performed its resource planning on a stand-alone company basis. The Company does not believe that the additional analysis completed on a combined company basis required a waiver from the Commission.

8.24.6 OPC'S DEFICIENCY 2

Public Counsel recommends that the Commission find, pursuant to 4 CSR 240-22.080 (16)(A) that the electric utility's filing pursuant to this rule does NOT demonstrate compliance with the requirements of Chapter 22, and that the utility's resource acquisition strategy either does not meet the requirements stated in 4CSR 240-22. GMO's request that the Commission find that its Preferred Resource Plan is reasonable should be denied because the utility's Preferred Resource Plan is premised upon the lawfulness and reasonableness of KCP&L and GMO performing resource planning on a joint company basis. As shown in deficiency number one above, GMO did not request the variance or waiver from Chapter 22 rules that would be necessary for the Commission to make the requested reasonableness finding regarding the Preferred Plan resulting from joint planning that has not been authorized by the Commission. In addition, the performance of resource planning on a joint company basis that was done for this triennial filing: (1) failed to show any substantial financial benefits of joint filing that are not premised upon the assumption that neither GMO nor KCP&L would make investments in a new gas-fired combined cycle plant unless the combined capacity need of GMO and KCP&L would be sufficient to allow GMO and KCP&L combined to have majority ownership of the plant 4 and (2) did not comply with all the requirements of Chapter 22 such as the requirement in 4 CSR 240-22.080 (2)(C)3 for special contemporary issues to be addressed.

Comment: GMO has performed its resource planning on a stand-alone company basis. The Company does not believe that the additional analysis completed on a combined company basis required a waiver from the Commission. Combined cycle additions were not based on majority ownership in the 2013 Annual Update.

8.24.7 OPC'S DEFICIENCY 3

Failure to provide required statement of commitment in the letter of transmittal. The letter of transmittal provided by Roger Steiner does not contain the required commitment to the approved preferred resource plan and resource acquisition strategy and does not appear to be signed by an officer of the utility having the authority to bind and commit the utility to the resource acquisition strategy.

Comment: The 2013 Annual Update Transmittal Letter contains a reference to the Corporate Approval statement.

8.24.8 STAFF'S CONCERN G

KCP&L and GMO do not have the proper operating agreements and/or contracts in place to correctly analyze joint company planning. In the absence of proper operating agreements and/or contracts, joint company planning must be performed in the context of a plan to merge KCP&L and GMO, and no such plan to merge the two companies exists at this time.

Comment: GMO has researched what agreements and/or contracts must be in place to analyze joint company plans and has included a discussion of the issue in Section 6.11.

8.24.9 MDNR'S DEFICIENCY 16

Inadequate analysis of combined plan. KCP&L and GMO conducted a combined planning exercise that estimated 14 combined company plans, selected a combined preferred plan, identified contingency plans, and allocated the preferred plan back to each individual company. In completing the combined analysis, the Company neglected to meet the analysis and filing requirements described in the Chapter 22 rules.

Comment: In the 2013 Annual Update, the KCP&L and GMO Preferred Plans are based on a stand-alone analysis performed per the IRP requirements.

