KCP&L GREATER MISSOURI OPERATIONS COMPANY (GMO)

INTEGRATED RESOURCE PLAN

2014 ANNUAL UPDATE

MARCH, 2014

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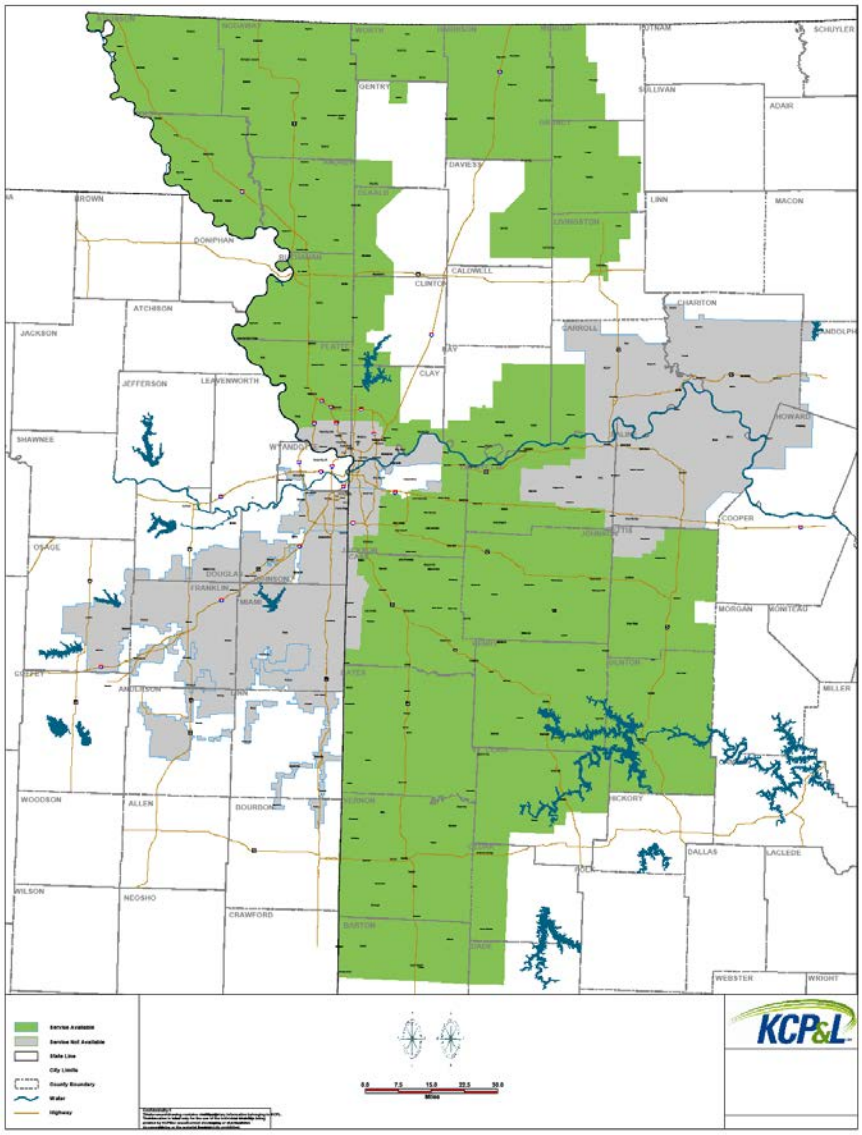
SECTION 1: EXECUTIVE SUMMARY

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 for 2014.

Table 1: GMO Customers, NSI and Peak Demand

Jurisdiction	Number of Retail Customers	Net System Input (MWh)	Projected Net Peak Demand (MW)
MPS	252,764	6,439,646	1,460
SJLP	66,205	2,234,385	437
Total	318,969	8,674,031	1,897

GMO owns and operates a diverse generating portfolio and has Power Purchase Agreements (PPA) in place to meet customer energy requirements. The most recent resource addition was from GMO's issuance of a Request for Proposals ("RFP") in July, 2013 to evaluate wind resource offerings. The wind facility GMO ultimately obtained was a PPA for a 200 MW facility located in the State of Missouri. The PPA was executed on November 13, 2013 and has an expected Commercial Operating Date ("COD") of on or before December 31, 2015. Aside from the solar requirements, this PPA fulfills GMO's Missouri Renewable Energy requirements until beyond the twenty-year planning period. Table 2, Figure 2, and Figure 3 reflect GMO's generation assets including wind PPAs currently in place.

Table 2: GMO Capacity and Energy By Resource Type

Resource Type	Capacity (MW)	% of Total Capacity	Estimated Energy (MWh)	% of Annual Energy
Coal	1,018	41%	6,082,460	82%
Oil	61	3%	0	0%
Nat. Gas	1,044	42%	159,570	2%
Wind*	359	14%	1,134,629	15%
LFG	2	0.1%	11,034	0.1%
Total	2,483	100%	7,387,693	100%
* Nameplate Capacity				

Figure 2: GMO Capacity By Resource Type

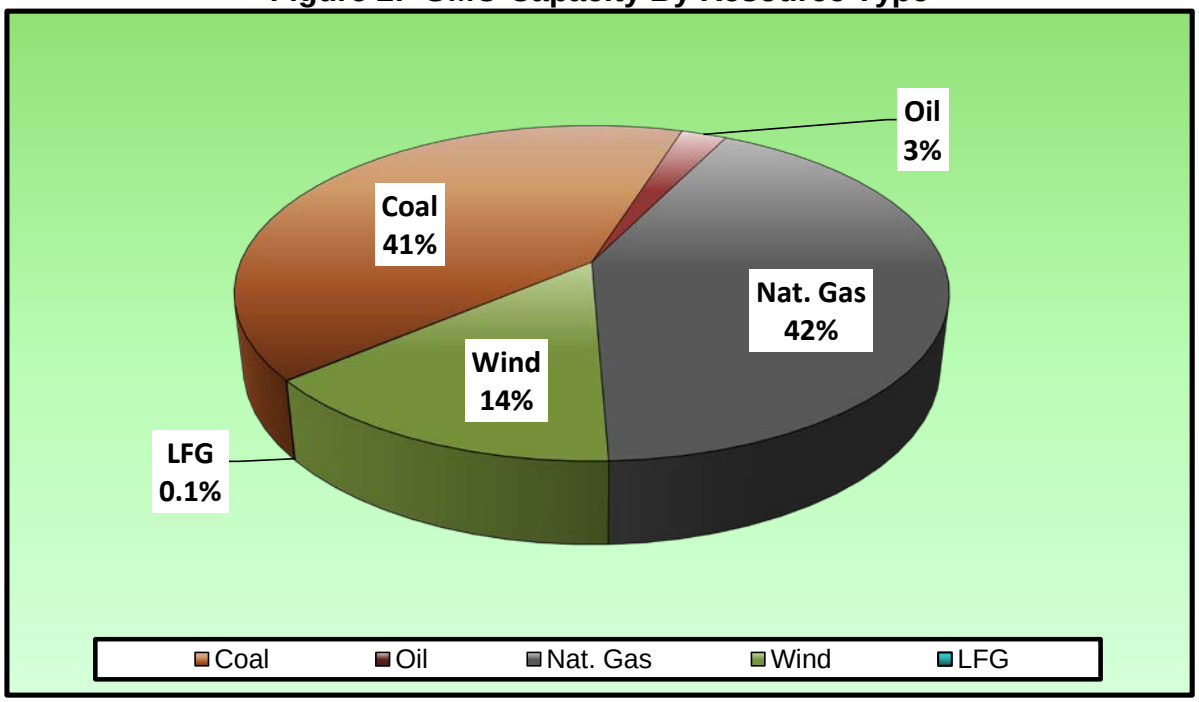
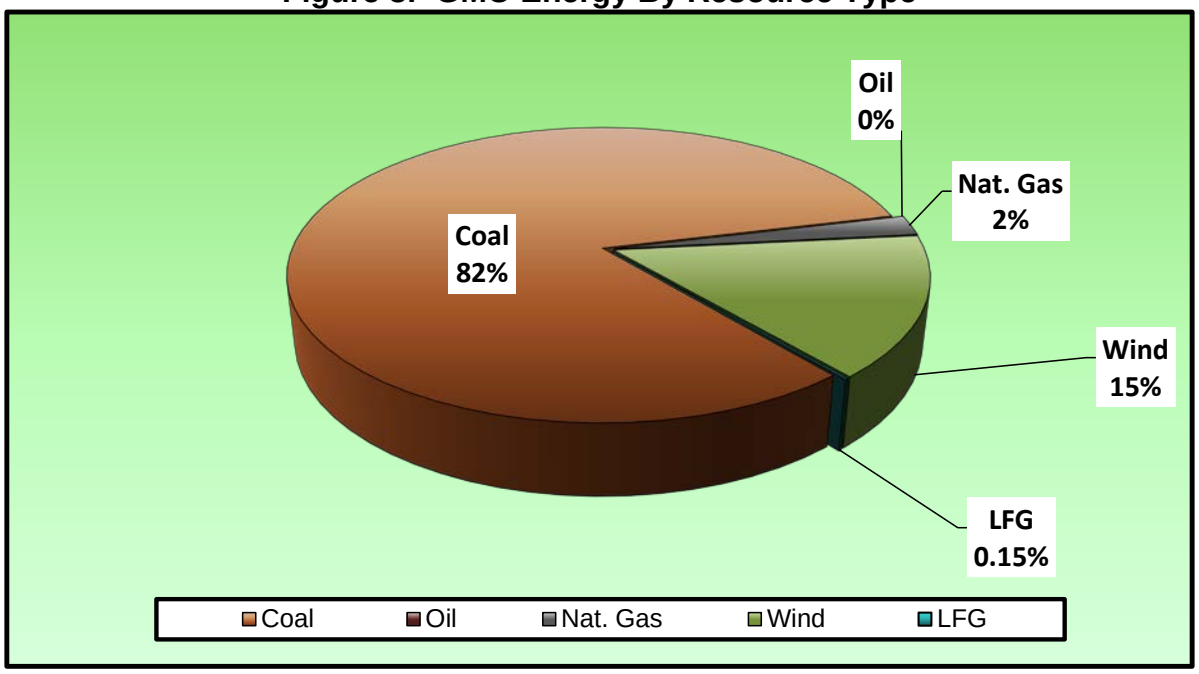


Figure 3: GMO Energy By Resource Type



1.2 CHANGES FROM THE REVISED 2013 ANNUAL UPDATE

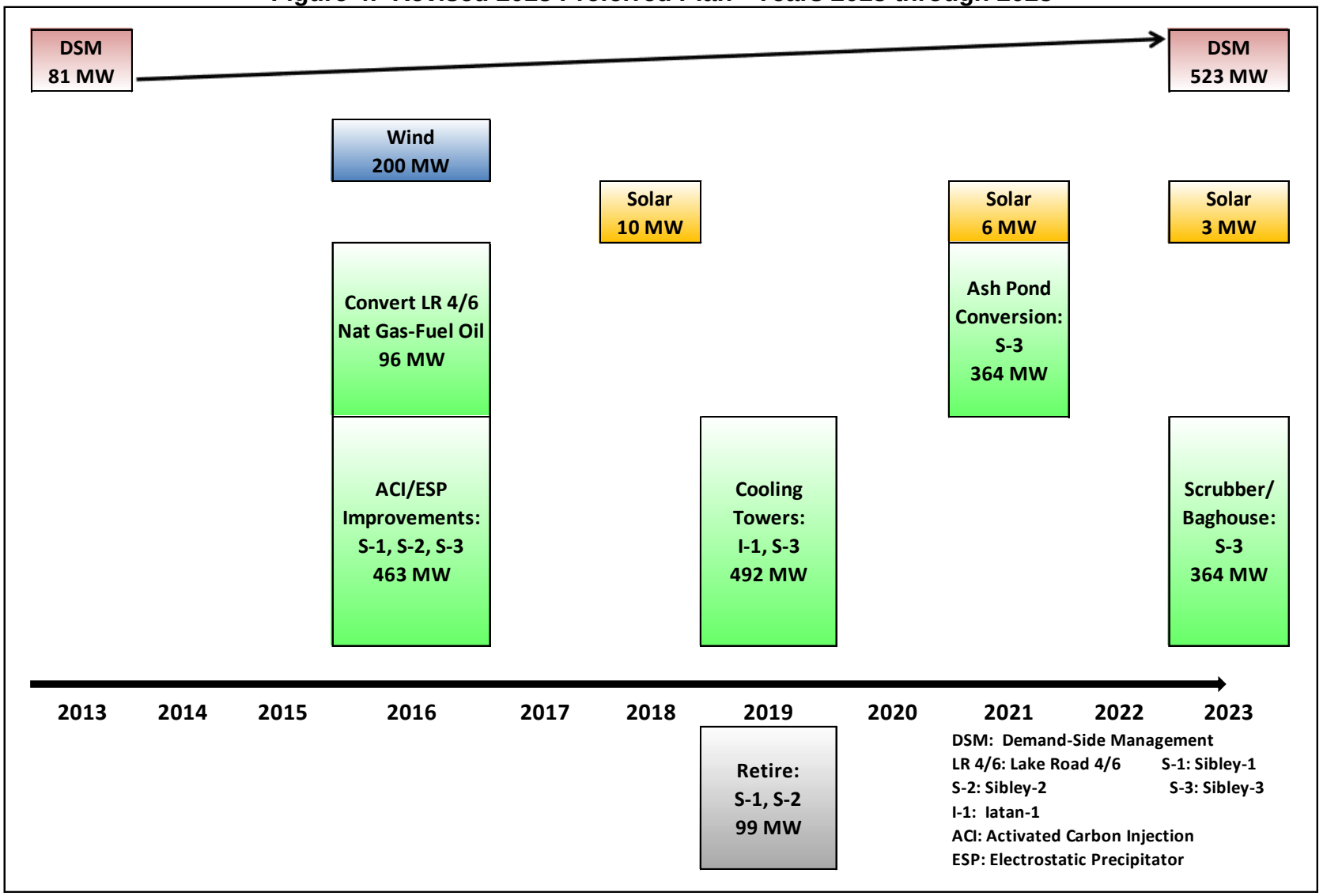
Since the filing of the Revised 2013 Annual Update, changing conditions have contributed to the Preferred Plan identified in the Revised 2013 Annual Update as being obsolete. The changing conditions, or major drivers, that have contributed to GMO's need to develop new Alternative Resource Plans and therefore selection of a new Preferred Plan include:

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

1.3 REVISED 2013 IRP PREFERRED PLAN

The Revised 2013 Annual Update resulted in the Preferred Plan for GMO being comprised of the following components for years 2013 – 2023 shown in Figure 4 below. Additionally, there was a 193 MW combustion turbine addition in year 2031. Also, the Demand-Side Management programs comprised 632 MW of capacity reduction by the year 2031.

Figure 4: Revised 2013 Preferred Plan - Years 2013 through 2023



The Revised 2013 Annual Update Preferred Plan for the 20-year planning period is shown in Table 3 below:

Table 3: Revised 2013 Annual Update Preferred Plan

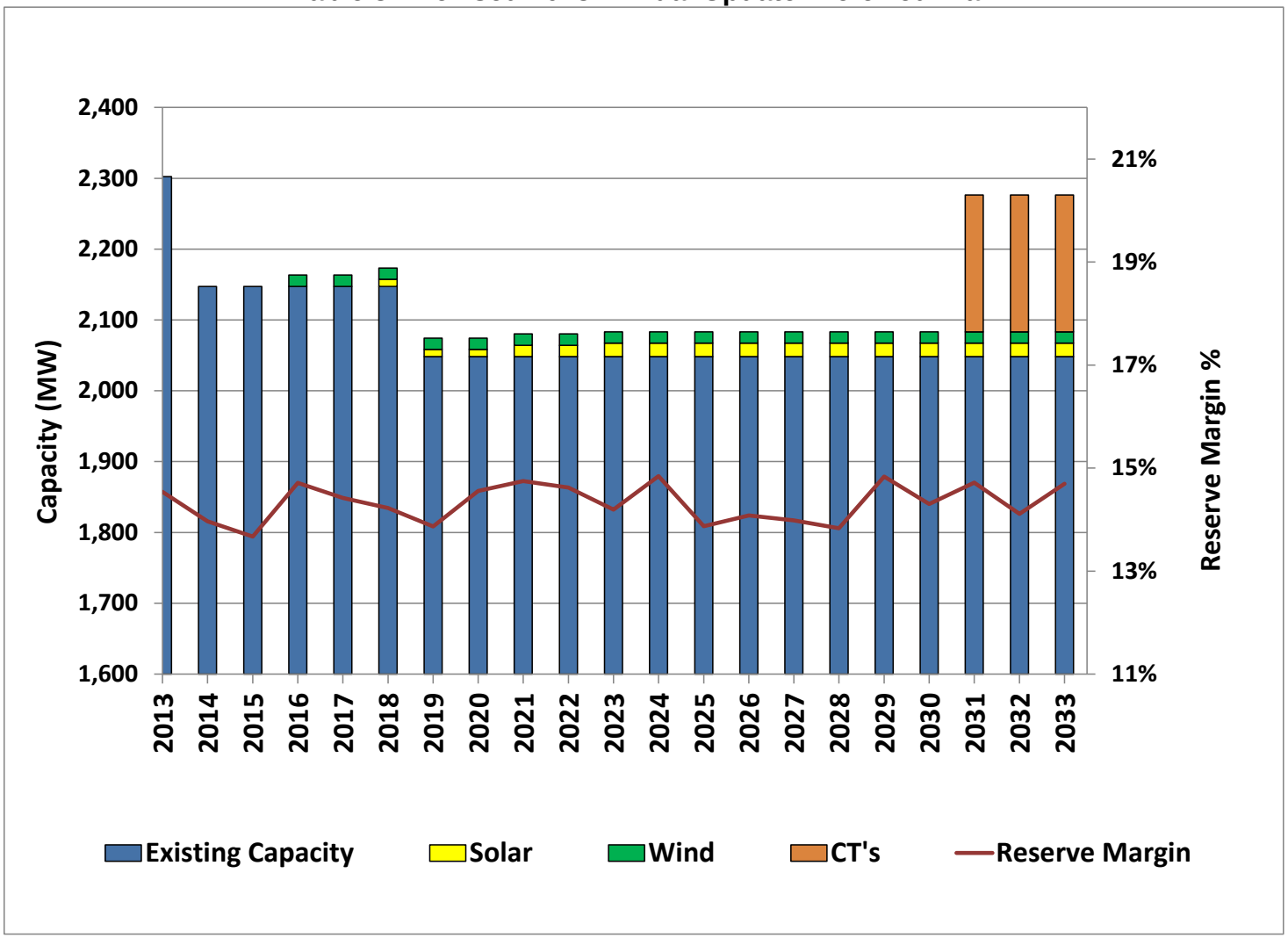


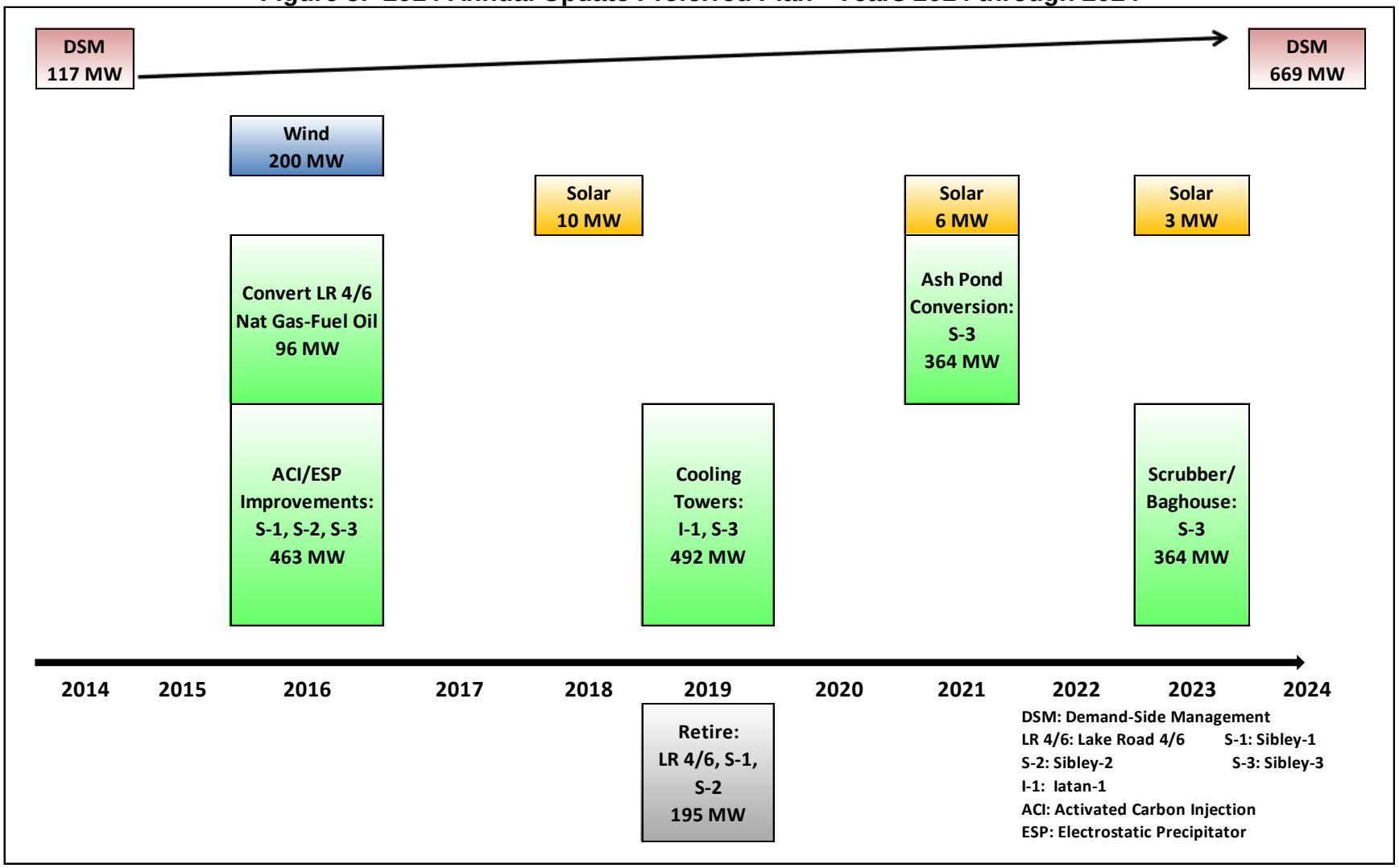
Table 4: Revised 2013 Annual Update Preferred Plan

Year	CT's (MW)	Solar (MW)	Wind (MW)	MEEIA/RAP DSM (MW)	Convert to NG (MW)	Existing Capacity (MW)
2013	-			81		2,302
2014	-			97		2,147
2015	-			116		2,147
2016	-		200	165		2,147
2017	-			219		2,147
2018	-	10		275		2,147
2019	-			332	99	2,048
2020	-			387		2,048
2021	-	6		436		2,048
2022	-			482		2,048
2023	-	3		523		2,048
2024	-			560		2,048
2025	-			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

1.4 2014 ANNUAL UPDATE PREFERRED PLAN

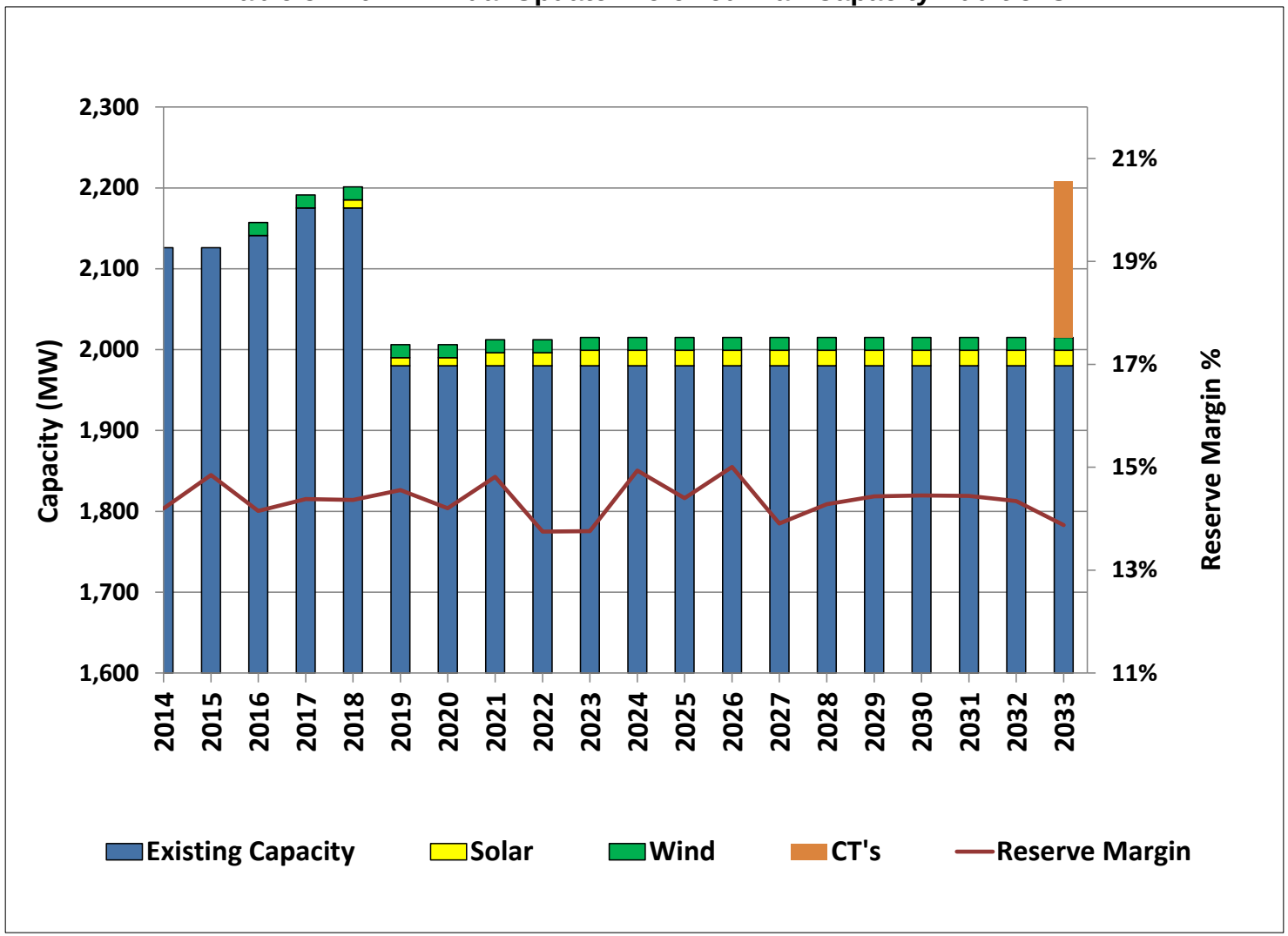
The 2014 GMO Annual Update resulted in the Preferred Plan for GMO being comprised of the following components for years 2014 – 2024 shown in Figure 5 below. Additionally, in the years 2024 through 2033, there is a 193 MW combustion turbine included in year 2033. Also, the Demand-Side Management programs comprised 785 MW of capacity reduction by the year 2033.

Figure 5: 2014 Annual Update Preferred Plan - Years 2014 through 2024



Existing and new capacity additions for the 2014 Annual Update Preferred Plan are shown in Table 5 below:

Table 5: 2014 Annual Update Preferred Plan Capacity Additions



The 2014 Annual Update Preferred Plan for the 20-year planning period is shown in Table 6 below:

Table 6: 2014 Annual Update Preferred Plan

Year	CT's (MW)	Solar (MW)	Wind (MW)	DSM (MW)	Retire (MW)	Existing Capacity (MW)
2014	-			117		2,126
2015	-			131		2,126
2016	-		200	224		2,141
2017	-			280		2,175
2018	-	10		342		2,175
2019	-			406	195	1,980
2020	-			467		1,980
2021	-	6		523		1,980
2022	-			576		1,980
2023	-	3		625		1,980
2024	-			669		1,980
2025	-			688		1,980
2026	-			705		1,980
2027	-			720		1,980
2028	-			734		1,980
2029	-			746		1,980
2030	-			757		1,980
2031	-			766		1,980
2032	-			776		1,980
2033	193			785		1,980

Based upon current Missouri RPS rule requirements, the Preferred Plan includes 19 MW of solar additions. It is currently anticipated that no additional wind additions are required over the twenty-year planning period to meet RPS with the wind resource addition of the 200 MW wind PPA executed in November, 2013. It should be noted that renewable resource additions could be obtained from power purchase agreements (PPA), purchasing of renewable energy credits (RECs), or utility ownership. It is anticipated that a large portion of the solar requirement will be met with solar RECs obtained from GMO retail customers that have received rebates for solar facility additions. A combustion turbine (CT) resource addition is also included in 2033.

1.4.1 DEMAND-SIDE MANAGEMENT UPDATE

The 2014 Annual Update utilized the results of the final version of Navigant Demand-Side Management Potential Study published in August, 2013. DSM alternatives were based on the Realistic Achievable Potential (RAP) and the Maximum Achievable Potential (MAP), which were identified in the Potential Study. Five DSM alternatives were utilized in Integrated Analysis - MEEIA/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 MEEIA/RAP DSM alternative is further outlined in Section 5: of this report.

1.4.2 SUPPLY-SIDE UPDATE

The potential retirement of Lake Road 4/6, and the Sibley Units 1 and 2 in 2019 is partially attributed to current or proposed environmental regulations including Mercury and Air Toxics Standards Rule (MATS), Ozone National Ambient Air Quality Standards (NAAQS), PM NAAQS, SO_2 NAAQS Clean Water Act Section 316(a) and (b), Effluent Guidelines, and Coal Combustion Product 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. One Alternative Resource Plan (ARP) had a slightly lower NPVRRs than the Preferred Plan. This ARP included retirement of Lake Road 4/6 in 2016 and Sibley Units 1 and 2 in 2019. Given GMO's net capacity position, GMO prefers to operate Lake Road 4/6 on natural gas/fuel oil for the years 2016 through 2018, retiring the unit in 2019. This conversion slightly increases the 20-year NPVRR but it reduces the amount of capacity GMO would need to purchase for several years.

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 REVISED 2013 ANNUAL UPDATE

- The economic forecasts for the KC and SJ metro areas were updated. In the Revised 2013 Annual Update, GMO used forecasts produced by Moody's Analytics in September, 2012. In this 2014 Annual Update filing the forecasts were produced in June 2013.

- Billing statistics were updated through June 2013 for this filing. In the Revised 2013 Annual Update, the statistics were current through August 2012. 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 2013 models. In the Revised 2013 Annual Update, GMO used results from the 2012 models.

- The appliance saturation survey was updated at the end of 2012/2013. The updated saturations are used to calibrate the DOE appliance saturation data. A total of 5,000 surveys were mailed (50% MPS and 50% SJLP) resulting in a 30% response rate. In the Revised 2013 Annual Update, the survey was last updated in 2010

- Class models were changed to residential, small commercial (small general service commercial), big commercial (large general service commercial and large power commercial), and industrial (small general service industrial and large general service industrial, and large power industrial). In the 2013 Annual Update, the class models were: residential, small general service, large general service, and large power for both commercial and industrial classes.

- The Company also updated the price elasticities used in the commercial and industrial models and the elasticity used in the residential model. The elasticities were adjusted to reflect the new class structures. The estimated

elasticities were adjusted to increase the R^2 because the new models were different than previous models used to estimate elasticities.

The load forecast is shown in Table 7 below:

Table 7: GMO Base Annual Forecast ** Highly Confidential **

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SECTION 3: SUPPLY-SIDE RESOURCE ANALYSIS UPDATE

3.1 CHANGES FROM REVISED 2013 ANNUAL UPDATE

The forecasts for coal, natural gas, fuel oil, SO_2, NO_x, NO_x Seasonal, and CO_2 have been updated for the 2014 Annual Update filing. Note that the methodology used in determining the forecast range has not changed from the Revised 2013 Annual Update.

3.1.1 FUEL FORECASTS

The following tables provide the fuel forecasts that were utilized in the Revised 2013 Annual Update submittal and the fuel forecasts incorporated in the 2014 Annual Update. The various composite forecasts were updated to incorporate updated individual forecasts. For example, the 2013 forecast incorporated Annual Energy Outlook 2013 while the 2014 forecast incorporates Annual Energy Outlook 2014.

Table 8: Coal Forecasts - 2013 Vs. 2014 ** Highly Confidential **

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**Table 9: Natural Gas Forecasts - 2013 Vs. 2014 ** Highly Confidential **

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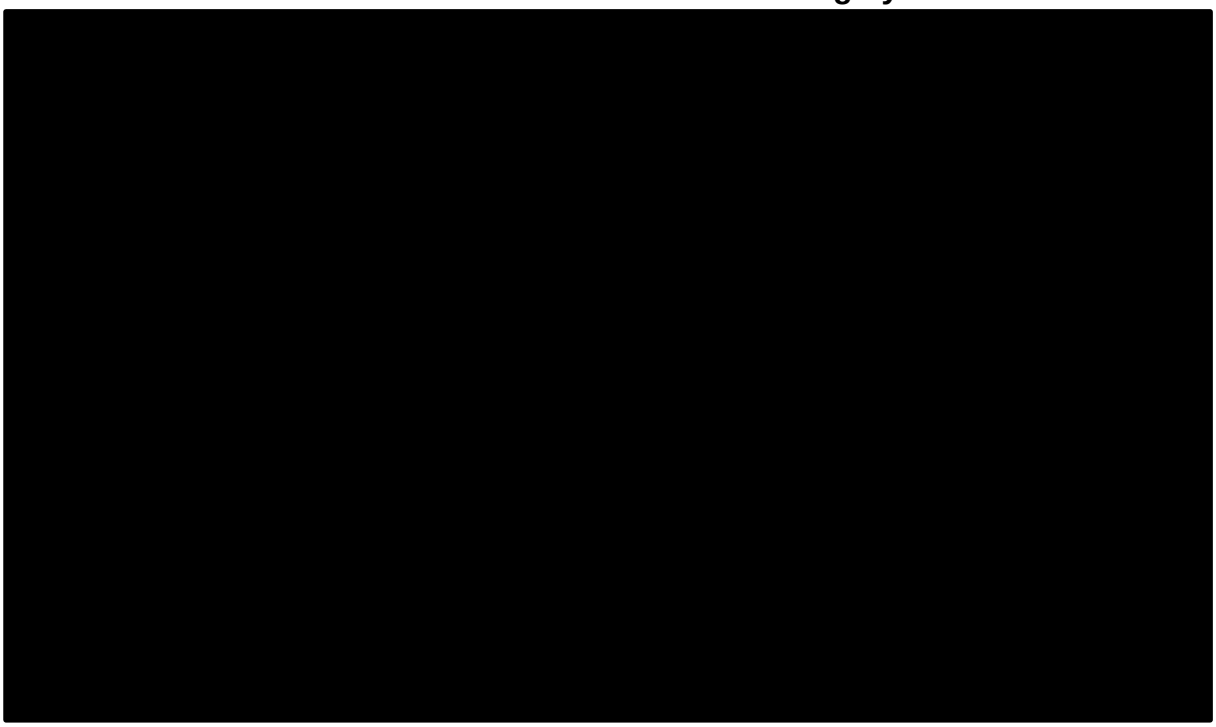
Table 10: Fuel Oil Forecasts - 2013 Vs. 2014 ** Highly Confidential **



3.1.2 EMISSIONS FORECASTS

The following tables provide the emission forecasts that were utilized in the Revised 2013 Annual Update and the fuel forecasts incorporated in the 2014 Annual Update. It should be noted that the 2013 SO_2 emissions data is based upon an average of the Cross-States Air Pollution Rule (CSAPR) Group 1 and Group 2 SO_2 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 11: SO_2 Forecasts - 2013 Vs. 2014 ** Highly Confidential **

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Table 12: NO_x Annual Forecasts - 2013 Vs. 2014 ** Highly Confidential **

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Table 13: NO_x Seasonal Forecasts - 2013 Vs. 2014 ** Highly Confidential **

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Table 14: CO_2 Forecasts - 2013 Vs. 2014 ** Highly Confidential **

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

Table 15: Fuel and Emission Forecast Sources

Forecast Source	Coal	Natural Gas	Fuel Oil	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
JD Energy	x			x	x	x
Synapse						x
SNL Financial	x					
Hanou Energy Consulting	x					

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3.1.3 SUPPLY-SIDE TECHNOLOGY CANDIDATE RESOURCE OPTIONS

This section provides the updated supply-side technology candidates included in the integrated resource analysis in the 2014 Annual Update. All of the technologies included in the Revised 2013 Annual Update were also included in the 2014 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®). 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 16: Supply Side Technology Options ** Highly Confidential **

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3.1.4 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 17 through Table 22.

Table 17: Lake Road Unit 4/6 LAMP Capital Plan Years 2019 - 2033 ($000's) **Highly Confidential**

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Table 18: Sibley Units 1-2 LAMP Capital Plan Years 2019 - 2026 ($000's) **Highly Confidential**

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Table 19: Sibley Units 1-2 LAMP Capital Plan Years 2027 - 2033 ($000's) **Highly Confidential**

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Table 20: Sibley Unit 3 LAMP Capital Plan Years 2019 - 2026 ($000's) **Highly Confidential**

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Table 21: Sibley Unit 3 LAMP Capital Plan Years 2027 - 2033 ($000's) **Highly Confidential**

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Table 22: Sibley Station Common LAMP Capital Plan Years 2019 - 2033 ($000's) **Highly Confidential**

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SECTION 4: TRANSMISSION AND DISTRIBUTION UPDATE

4.1 SMARTGRID DEMONSTRATION PROJECT-2013 MID-PROJECT TECHNOLOGY PERFORMANCE REPORT (TPR)

As a DOE Smart Grid Demonstration Project requirement, KCP&L 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 downloaded from the following DOE website; https://www.smartgrid.gov/recovery_act/program_impacts/regional_demonstration_technology_performance_reports

A second Interim Technology Performance Report was produced on December 31, 2013 and submitted to the Department of Energy. This document revisited preliminary assessments from the 2012 documentation by providing greater detail regarding incremental implementation activities and corresponding system and integration testing. Furthermore, it presented the operational demonstration and testing plans for remaining project activities. Due to the voluminous size of this report, it has not been included in the Annual Update, but will be available for download from the DOE website previously mentioned

A third Interim Technology Performance Report will be produced at the end of 2014. This document will extend the 2013 interim report by providing greater detail regarding the results of the operational demonstrations conducted and summarize the corresponding benefits analysis performed using the DOE SmartGrid and Energy Storage Computational Tools. These findings will be augmented with a discussion of technology gaps, operational issues, and best practices identified throughout the project report. The report will conclude with a summary of the build and impact metrics reported to the DOE.

A project Final Technical 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 RTO EXPANSION PLANNING

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 2013 TPL Compliance Assessment HC.pdf.

SECTION 5: DEMAND-SIDE RESOURCE ANALYSIS UPDATE

5.1 DEMAND-SIDE MANAGEMENT LEVEL UPDATE

The 2014 Annual Update utilized the results of the final version of Navigant Demand-Side Management Potential Study published in August, 2013. DSM alternatives were based on the Realistic Achievable Potential (RAP) and the Maximum Achievable Potential (MAP), which were identified in the Potential Study. Five DSM alternatives were utilized in Integrated Analysis - MEEIA/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.

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.

A listing of the DSM programs including the 2013-2015 budget expenditures are provided in Table 23 below:

Table 23: DSM Programs and Budgets ** Highly Confidential **

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5.4 DEMAND-SIDE MANAGEMENT: ADDRESSING 2013 ANNUAL UPDATE ISSUES

5.4.1 NATURAL RESOURCES DEFENSE COUNCIL (NRDC)

Responses to submittal by Kimiko Narita on behalf of NRDC, August 21, 2013:

Page 3, Item 1: "The Update relies on flawed preliminary potential study results":

Response: The latest version available of the Navigant Potential Study was utilized for the 2013 Annual Update filing. A final version of the Navigant Potential study was published in August 2013 and the data was used as the basis of the 2014 Annual Update.

Page 6, Item 2: "Neither the Navigant draft potential study nor the IRP analysis fully considers the impacts of energy efficiency technologies that are reasonably expected to be available during the planning horizon relevant to the IRP. The cumulative potential for efficiency inexplicably begins to dry up in year eleven of the program."

Response: As part of the potential study analysis, Navigant developed a comprehensive measure list of conventional and emerging technologies as the first step in the measure characterization process described in Section 8.1 below. The initial measure list was identified through a review of a) previous DSM potential studies conducted for the state of Missouri and other Missouri utilities, b) other Navigant potential, evaluation and program design work, and c) existing GMO program descriptions and custom applications. Navigant then modified the measure list – both adding and deleting measures - to incorporate feedback from GMO and Missouri stakeholders. Overall, 500 total measures were considered across the sectors and end-uses listed below, with 300 characterized for the final model. The final list of measures, including detailed measure characterization results, can be found in Navigant's Potential Study, Appendix A which has been submitted as a workpaper to the Annual Update filing. For example, emerging technologies such as LEDs show market penetration later in the forecast horizon as their costs and performance come down an estimated learning curve, thereby improving their competitiveness with other measures such as CFLs.

Page 7, Item 3: “The Update relies on analysis that contains patent inconsistencies and errors”.

Response: The 2014 Annual Update utilized the results of the final version of Navigant Demand-Side Management Potential Study published in August, 2013. DSM alternatives were based on the Realistic Achievable Potential (RAP) and the Maximum Achievable Potential (MAP), which were identified in the Potential Study. Five DSM alternatives were utilized in Integrated Analysis - MEEIA/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.

Page 9, Item 4: “The Update fails to adequately model a reasonable range of DSM scenarios.”

Response: GMO contends that modeling six DSM options in the 2013 Annual Update was a sufficient range of DSM levels.

Page 11, Item 5: “Neither the draft potential study nor the IRP analysis considers the impacts of rate design on energy use”.

Response: The impact of rate design was considered as part of the demand response analysis in the Navigant potential study. Navigant conservatively assumes there are no significant energy savings from the Companies’ Demand Response or dynamic pricing rate plans in any scenario. Navigant conducted the analysis for this study using its Demand Response Simulator (DRSim™) model. This model is designed to identify the critical component variables of peak demand impact, avoided cost estimates, program administration and evaluation costs, one-time startup costs, any incentive costs, and the appropriate population of potential participants. Navigant mirrored the model’s approach after the methodology that the Federal Energy Regulatory Commission (FERC) used in its National Assessment of Demand Response Potential (NADR), with a number of customizations added to specifically tailor the framework and inputs to the Companies. Navigant conservatively assumes there are no significant energy savings from the Companies’ Demand Response programs in any scenario.

SECTION 6: INTEGRATED RESOURCE PLAN AND RISK ANALYSIS UPDATE

6.1 CHANGES FROM REVISED 2013 ANNUAL UPDATE

Since the filing of the Revised 2013 Annual Update, changing conditions have contributed to the Preferred Plan identified in the Revised 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
- Demand-Side Management Program levels

6.2 CRITICAL UNCERTAIN FACTORS

The Critical Uncertain Factors for the 2014 Annual Update were same as those in the Revised 2013 Annual Update. 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:

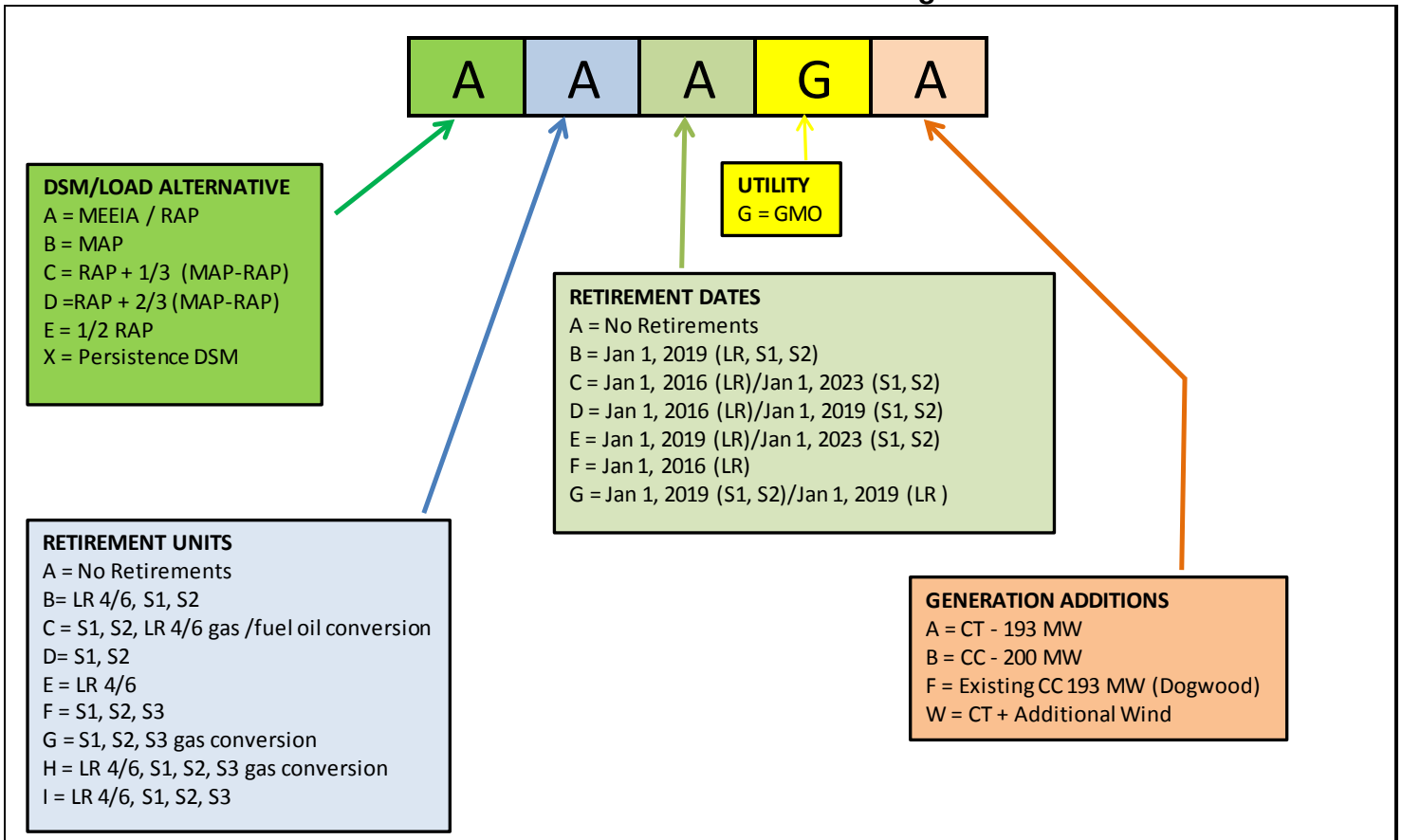
Figure 6: Decision Tree Probabilities

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 24 below:

Table 24: Alternative Resource Plan Naming Convention



Definitions:

DSM - Demand-Side Management
RAP - Realistic Achievable Potential
MAP - Maximum Achievable Potential
MEEIA - Missouri Energy Efficiency Investment Act
RPS - Renewable Portfolio Standard

LR 4/6 - Lake Road 4/6
S1 - Sibley Unit 1
S2 - Sibley Unit 2
S3 - Sibley Unit 3

CT - Combustion Turbine
CC - Combined Cycle

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 25 to Table 29 below.

Table 25: Overview of Alternative Resource Plans

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
AAAGA	MEEIA/RAP	none	n/a	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
ABBGA	MEEIA/RAP	Lake Road 4/6 Sibley-1 Sibley-2	2019 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2033
ABCGA	MEEIA/RAP	Lake Road 4/6 Sibley-1 Sibley-2	2016 2023 2023	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2033
ABDGA	MEEIA/RAP	Lake Road 4/6 Sibley-1 Sibley-2	2016 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2033
ABDGF	MEEIA/RAP	Lake Road 4/6 Sibley-1 Sibley-2	2016 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CC (Dogwood) in 2016

Table 26: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
ABDGW	MEEIA/RAP	Lake Road 4/6 Sibley-1 Sibley-2	2016 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW 2019 - 100 MW	193 MW CT in 2033
ABEGA	MEEIA/RAP	Lake Road 4/6 Sibley-1 Sibley-2	2019 2023 2023	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2033
ABFGA	MEEIA/RAP	Lake Road 4/6 Sibley-1 Sibley-2	2016 2016 2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2016
ACBGA	MEEIA/RAP	Convert to NG-FO: Lake Road 4/6 Retire Sibley-1 Sibley-2	2016** 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
ACFGA	MEEIA/RAP	Convert to NG-FO: Lake Road 4/6 Retire Sibley-1 Sibley-2	2016** 2016 2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
** Convert to Natural Gas/Fuel Oil						

Table 27: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
ACGGA	MEEIA/RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2033
		Retire: Lake Road 4/6 Sibley-1 Sibley-2	2019 2019 2019			
ADBGA	MEEIA/RAP	Sibley-1 Sibley-2	2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
AGAGA	MEEIA/RAP	Convert to NG: Sibley-1 Sibley-2 Sibley-3	2021*	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
AHFGA	MEEIA/RAP	Retire Lake Road 4/6	2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
		Convert to NG: Sibley-1 Sibley-2 Sibley-3	2021*			
* Convert to Natural Gas						
** Convert to Natural Gas/Fuel Oil						

Table 28: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
AIDGA	MEEIA/RAP	Lake Road 4/6 Sibley-1 Sibley-2 Sibley-3	2016 2019 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	579 MW CT in 2019
BBDGA	MAP	Lake Road 4/6 Sibley-1 Sibley-2	2016 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
CBDGA	RAP + 1/3(MAP-RAP)	Lake Road 4/6 Sibley-1 Sibley-2	2016 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
DBDGA	RAP + 2/3(MAP-RAP)	Lake Road 4/6 Sibley-1 Sibley-2	2016 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	n/n
EBDGA	1/2 RAP	Lake Road 4/6 Sibley-1 Sibley-2	2016 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2016 193 MW CT in 2026 193 MW CT in 2033

Table 29: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
ECFGA	1/2 RAP	Convert to NG-FO: Lake Road 4/6 Retire Sibley-1 Sibley-2	2016** 2016 2016	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2016 193 MW CT in 2030
XAAGA	Persistence Only	none	n/a	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2015 193 MW CT in 2023 193 MW CT in 2027 193 MW CT in 2033
XBDGA	Persistence Only	Lake Road 4/6 Sibley-1 Sibley-2	2016 2019 2019	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2016 - 200 MW	193 MW CT in 2015 193 MW CT in 2019 193 MW CT in 2023 193 MW CT in 2027 193 MW CT in 2032
* Convert to Natural Gas						
** Convert to Natural Gas/Fuel Oil						

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Refer to Appendix B, Capacity Balance Spreadsheets HC, for tables which provide the GMO forecast of capacity balance over the twenty-year planning period for each of the Alternative Resource Plans outlined above. These capacity forecasts include renewable and traditional generation additions. The capacity for wind facilities is based on SPP's criteria for calculating wind net capability using actual generation or wind data. Solar capacity is based on SPP criteria indicating that absent a net capability calculation, 10% of the facility's nameplate rating be used.

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 30 below. For each of the Alternative Resource Plans, the Probable Environmental Costs are shown in Table 31 below.

Table 30: Twenty-Year Net Present Value Revenue Requirement

Rank (L-H)	Plan	NPVRR ($mm)	Delta
1	ABDGA	$11,038	$0
2	ACGGA	$11,050	$12
3	ABBGA	$11,054	$16
4	ABDGW	$11,068	$30
5	ABCGA	$11,081	$43
6	ABEGA	$11,097	$59
7	ABDGF	$11,106	$68
8	ACFGA	$11,119	$81
9	ACBGA	$11,127	$89
10	ADBGA	$11,199	$161
11	ABFGA	$11,251	$212
12	AHFGA	$11,267	$229
13	CBDGA	$11,267	$229
14	AIDGA	$11,324	$286
15	EBDGA	$11,395	$357
16	AAAGA	$11,411	$373
17	ECFGA	$11,430	$392
18	AGAGA	$11,443	$404
19	DBDGA	$11,543	$505
20	XBDGA	$11,744	$706
21	BBDGA	$11,825	$787
22	XAAGA	$11,904	$865

Table 31: Twenty-Year Net Present Value Revenue Requirement - Probable Environmental Costs

Plan	PEC NPVRR ($mm)
AIDGA	$62
AHFGA	$117
AGAGA	$249
ABFGA	$309
BBDGA	$313
DBDGA	$315
ABDGA	$316
CBDGA	$316
ABDGW	$315
ACGGA	$318
ABDGF	$315
EBDGA	$319
XBDGA	$321
ABBGA	$327
ACFGA	$333
ECFGA	$336
ABCGA	$337
ACBGA	$341
ABEGA	$348
ADBGA	$448
AAAGA	$588
XAAGA	$595

6.5 PERFORMANCE MEASURES

A summary tabulation of the expected value of all performance measures is provided in Table 32 below. Detailed results behind this summary tabulation are attached in Appendix D, Economic Impact for Each Alternative Resource Plan HC.

Table 32: Expected Value of Performance Measures ** Highly Confidential **

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Table 33: Cumulative Probability – NPVRR ($MM)

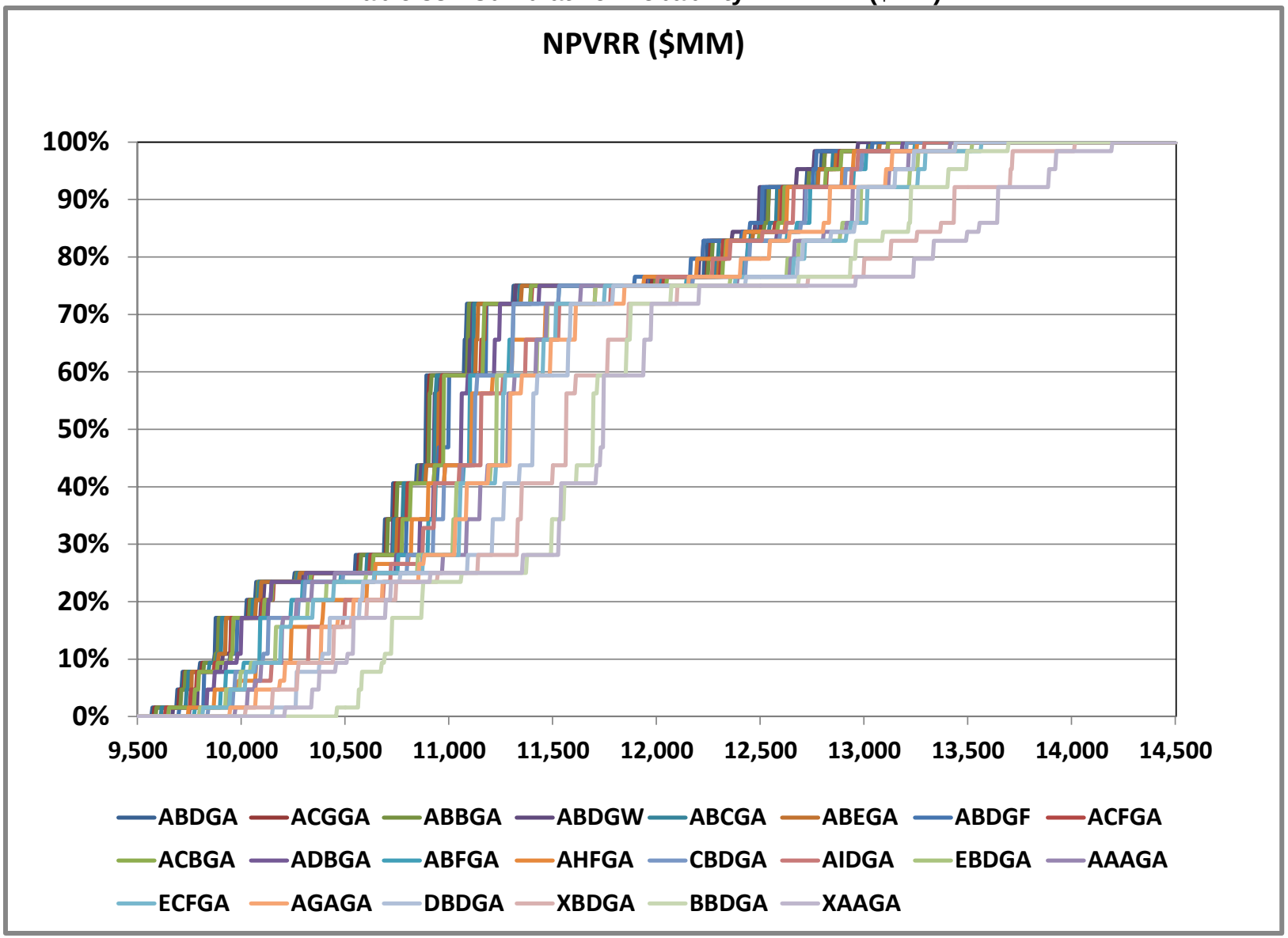


Table 34: Cumulative Probability - Probable Environmental Costs ($MM)

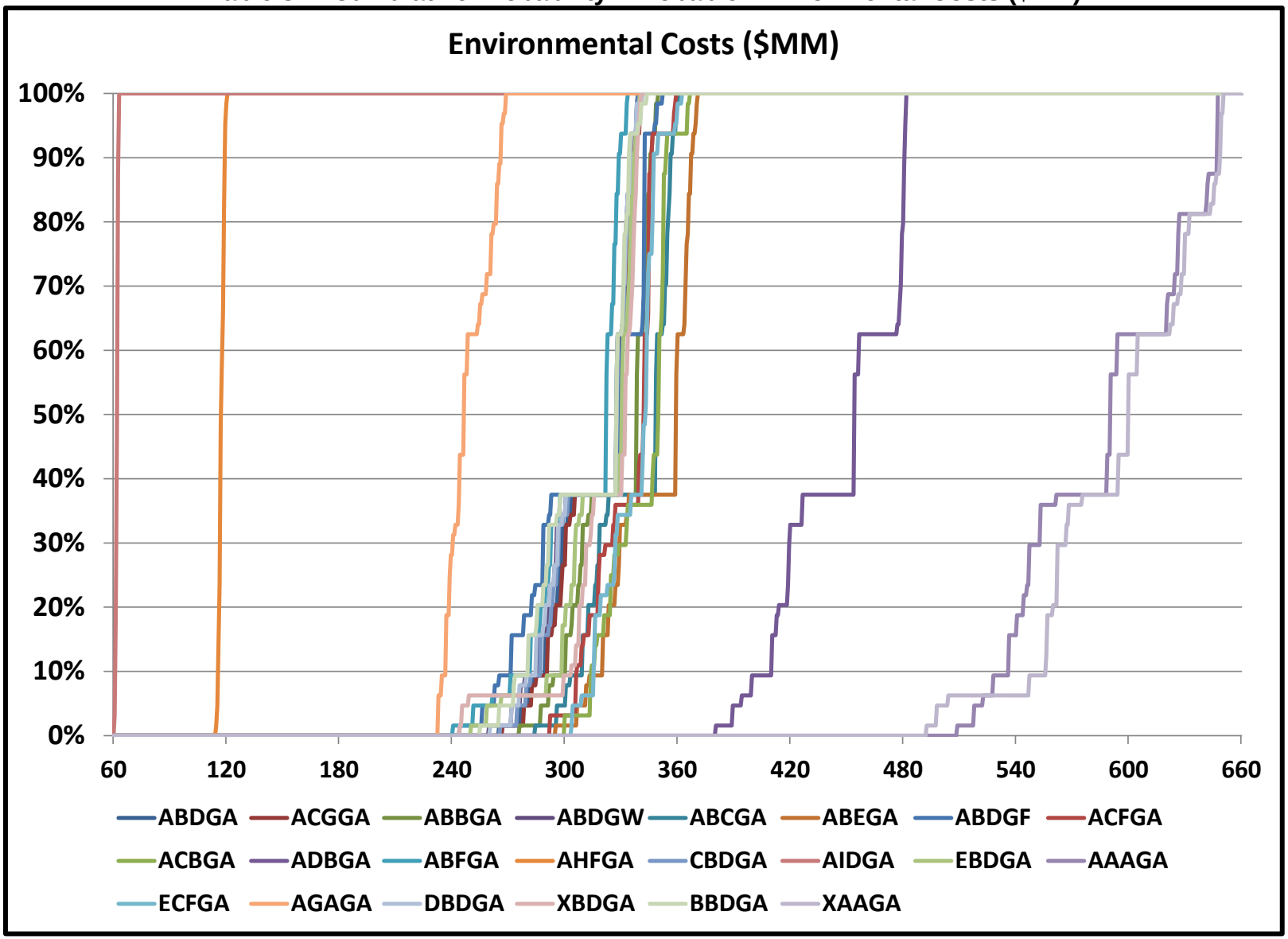
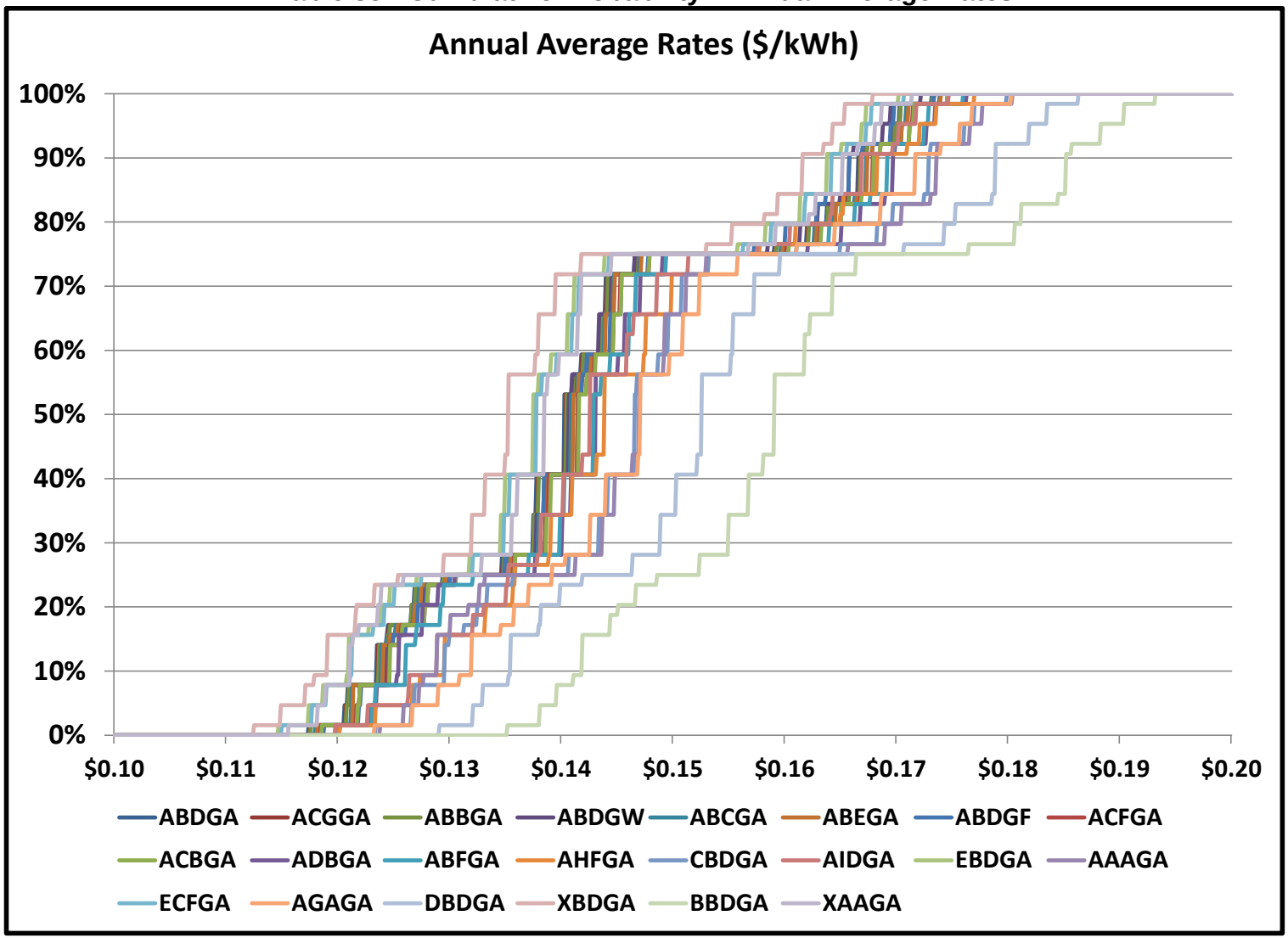


Table 35: Cumulative Probability - Annual Average Rates



6.6 UNSERVED ENERGY

There was no unserved energy for any of the Alternative Resource Plans analyzed.

6.7 COMBINED KCP&L/GMO RESOURCE PLANS

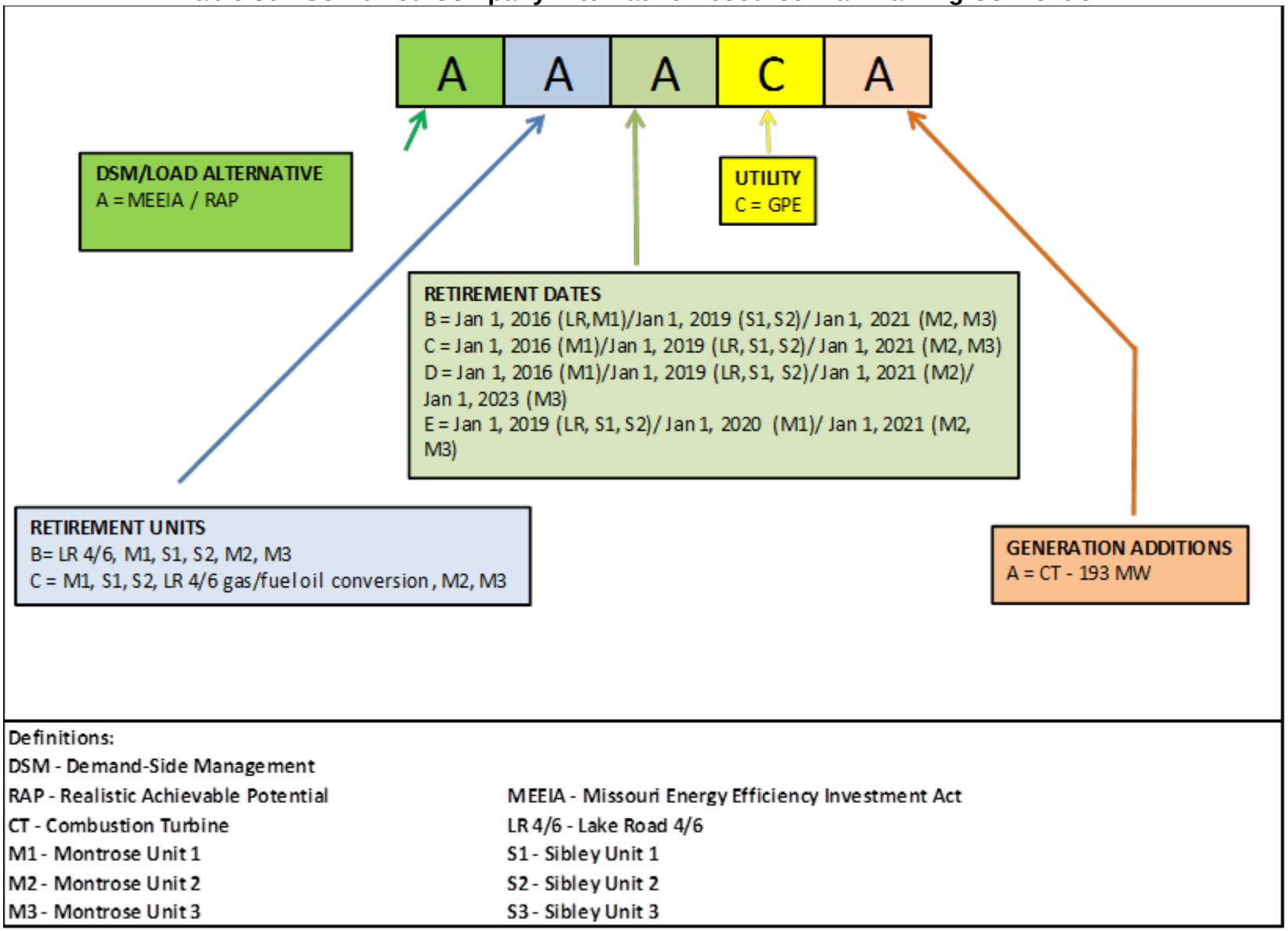
KCP&L/GMO are both held by Great Plains Energy, additional alternative resource plans were developed to determine if the KCP&L and/or GMO stand-alone resource plans should be modified to reflect potential combined company operations. This additional analysis is intended to minimize the risk that either 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 based on the results of the stand-alone company analysis. In general, they reflect combinations of the lowest NPVRR plans on a stand-alone company basis. For example, combined company plan ACCCA is the combination of KCP&L alternative resource plan ABBKA (retire Montrose 1 in 2016 and Montrose 2&3 in 2021) and GMO alternative resource plan ACGGA (Lake Road 4/6 on natural gas-fuel oil backup in 2016, retire Lake Road 4/6 and Sibley 1&2 in 2019).

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, CO_2 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 36 below.

Table 36: Combined Company Alternative Resource Plan Naming Convention



Definitions:

DSM - Demand-Side Management	
RAP - Realistic Achievable Potential	MEEIA - Missouri Energy Efficiency Investment Act
CT - Combustion Turbine	LR 4/6 - Lake Road 4/6
M1 - Montrose Unit 1	S1 - Sibley Unit 1
M2 - Montrose Unit 2	S2 - Sibley Unit 2
M3 - Montrose Unit 3	S3 - Sibley Unit 3

Alternative Resource Plans were developed using a combination of various capacities of supply-side resources and demand-side resources. In total, four combined company Alternative Resource Plans were developed for the integrated resource analysis for this 2014 Annual Update. An overview of the Alternative Resource Plans is shown Table 37 below.

Table 37: Overview of Combined Company Resource Plans

Plan Name	DSM Level	Retirement Assumption	Retirement Year	Renewable Additions		Generation Addition (if needed)
ABBCA	MEEIA/RAP	Retire: Montrose-1 Lake Road 4/6	2016	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 400 MW 2024 - 200 MW 2032- 150 MW	193 MW CT in 2030
		Sibley-1 Sibley-2	2019			
		Montrose-2 Montrose-3	2021			
ACCCA	MEEIA/RAP	Retire: Montrose-1	2016	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 400 MW 2024 - 200 MW 2032- 150 MW	193 MW CT in 2030
		Lake Road 4/6* Sibley-1 Sibley-2	2019			
		Montrose-2 Montrose-3	2021			
ACDCA	MEEIA/RAP	Retire: Montrose-1	2016	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 400 MW 2024 - 200 MW 2032- 150 MW	193 MW CT in 2030
		Lake Road 4/6* Sibley-1 Sibley-2	2019			
		Montrose-2	2021			
		Montrose-3	2023			
ACECA	MEEIA/RAP	Retire: Lake Road 4/6* Sibley-1 Sibley-2	2019	Solar: 2018 - 21 MW 2021 - 12 MW 2023 - 3 MW	Wind: 2016 - 400 MW 2024 - 200 MW 2032- 150 MW	193 MW CT in 2030
		Montrose-1	2020			
		Montrose-2 Montrose-3	2021			
* Convert to Natural Gas/Fuel Oil in 2016						

Results for each of the combined company Alternative Resource Plans are shown in Table 38 below. For each of the Alternative Resource Plans, the Probable Environmental Costs are shown in Table 39 below.

Table 38: Combined-Company Twenty-Year Net Present Value Revenue Requirement

Rank (L-H)	Plan	NPVRR ($mm)	Delta
1	ABBCA	$31,081	$0
2	ACCCA	$31,086	$5
3	ACECA	$31,106	$25
4	ACDCA	$31,110	$29

Table 39: Combined-Company Twenty-Year Net Present Value Revenue Requirement - Probable Environmental Cost

Plan	PEC NPVRR ($mm)
ACCCA	$1,021
ABBCA	$1,022
ACDCA	$1,034
ACECA	$1,035

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 40 below. Detailed results behind this summary tabulation are attached in Appendix D.

Table 40: Combined-Company Expected Value of Performance Measures
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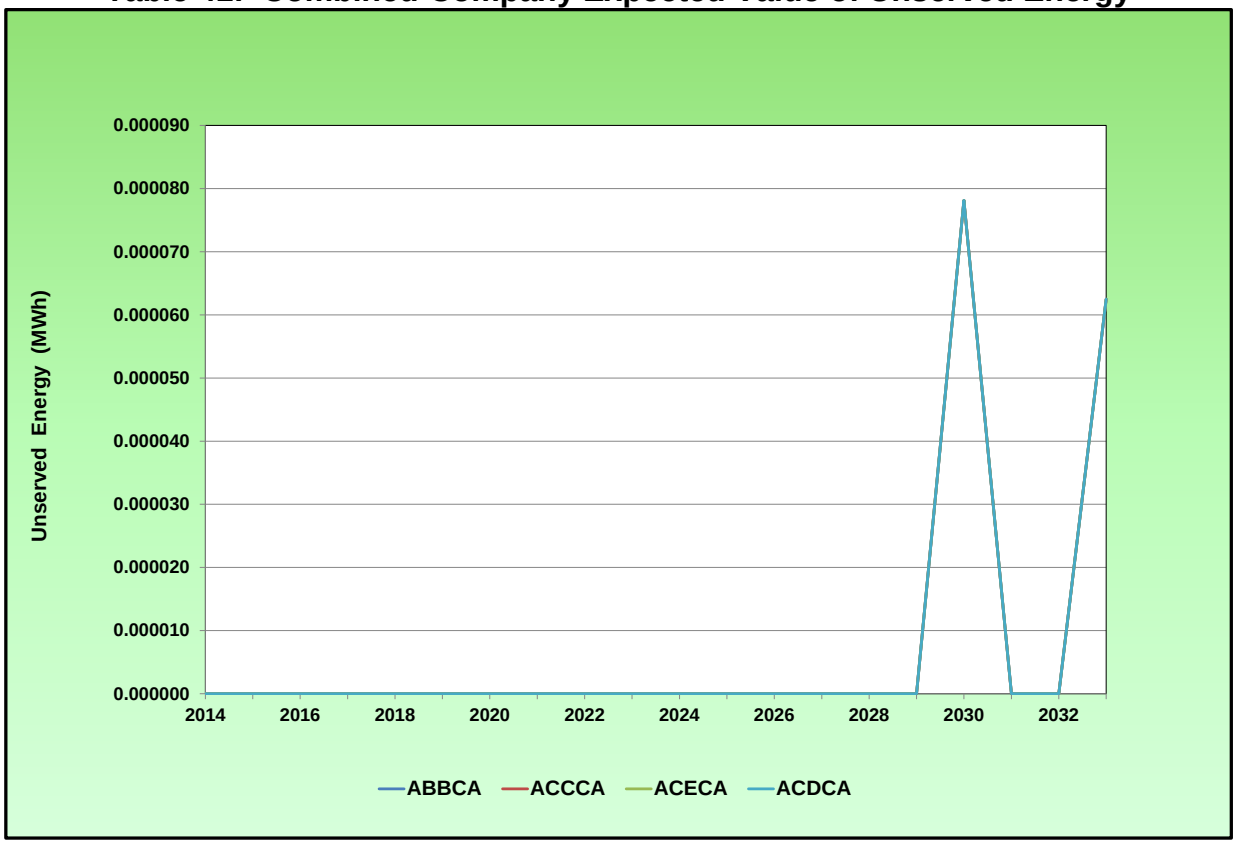
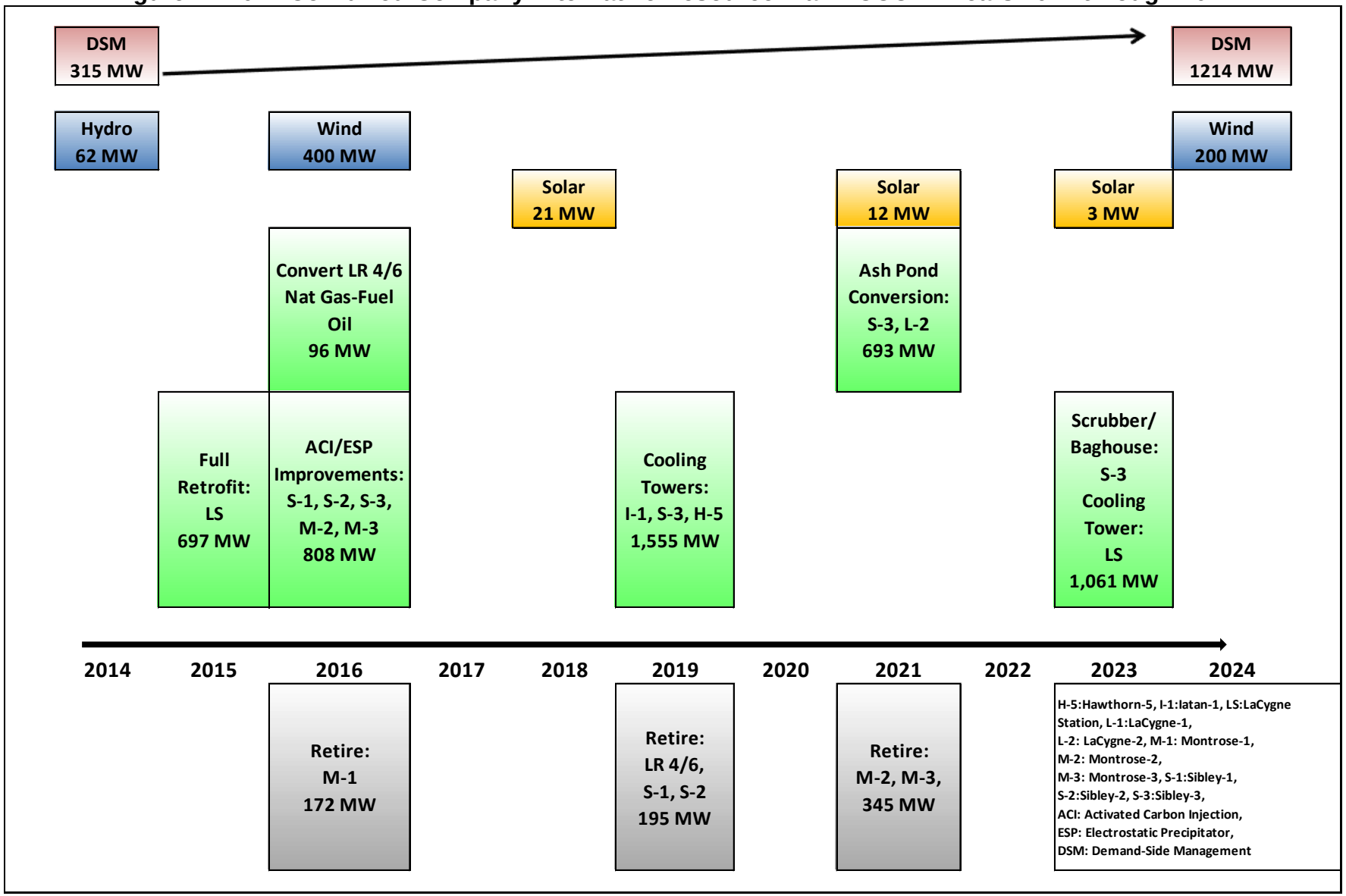
The expected value of unserved energy for all Combined-Company Alternative Resource Plans is provided in Table 41 below:

Table 41: Combined-Company Expected Value of Unserved Energy



The Combined-Company Alternative Resource Plan that reflects the combination of the KCP&L Preferred Plan, ABBKA and GMO's Preferred Plan, ACGGA is Alternative Resource Plan ACCCA. This plan is comprised of the following components for years 2014 – 2024 and shown in Figure 7 below. The combined-company additions shown are equivalent to the stand-alone KCP&L and GMO Alternative Resource Plans, ABBKA and ACGGA, respectively.

Figure 7: 2014 Combined-Company Alternative Resource Plan ACCCA - Years 2014 through 2024



The Combined-Company Alternative Resource Plan for the 20-year planning period is shown in Table 42 below:

Table 42: Combined-Company Alternative Resource Plan

Year	CT's (MW)	Solar (MW)	Wind (MW)	DSM (MW)	Retire (MW)	Existing Capacity (MW)
2014	-			316		6,459
2015	-			329		6,618
2016	-		400	480	172	6,441
2017	-			571		6,520
2018	-	21		678		6,520
2019	-			787	195	6,335
2020	-			889		6,335
2021	-	12		983	345	5,990
2022	-			1,070		5,990
2023	-	3		1,147		6,005
2024	-		200	1,214		5,943
2025	-			1,237		5,943
2026	-			1,260		5,943
2027	-			1,280		5,943
2028	-			1,297		5,943
2029	-			1,309		5,943
2030	193			1,319		5,943
2031	-			1,327		5,943
2032	-		150	1,334		5,943
2033	-			1,342		5,943

6.8 COMBINED-COMPANY ECONOMIC IMPACT

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

Table 43: Combined-Company Alternative Resource Plan - Economic Impact
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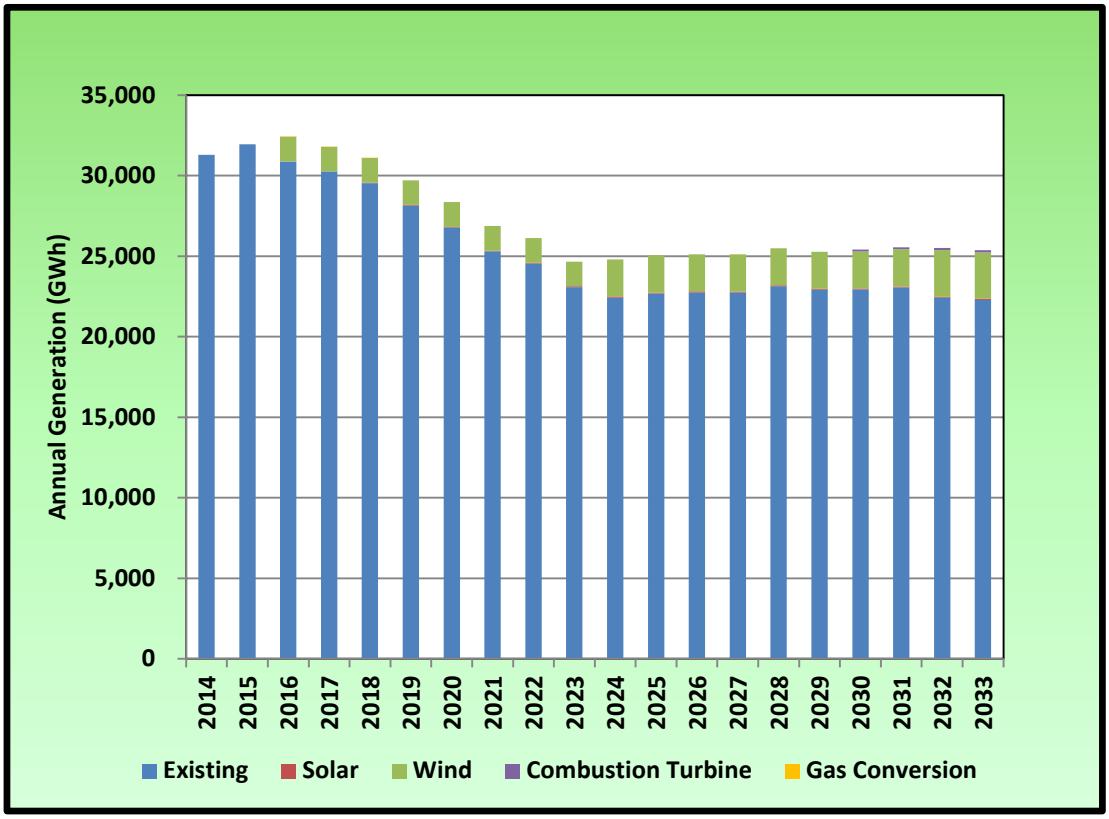
6.9 COMBINED-COMPANY ANNUAL GENERATION

The expected value of annual generation of the Combined-Company Alternative Resource Plan ACCCA is represented in Table 44 below. The annual generation of all Combined-Company plans can be found in Appendix C, Generation and Emissions for Each Alternative Resource Plan.

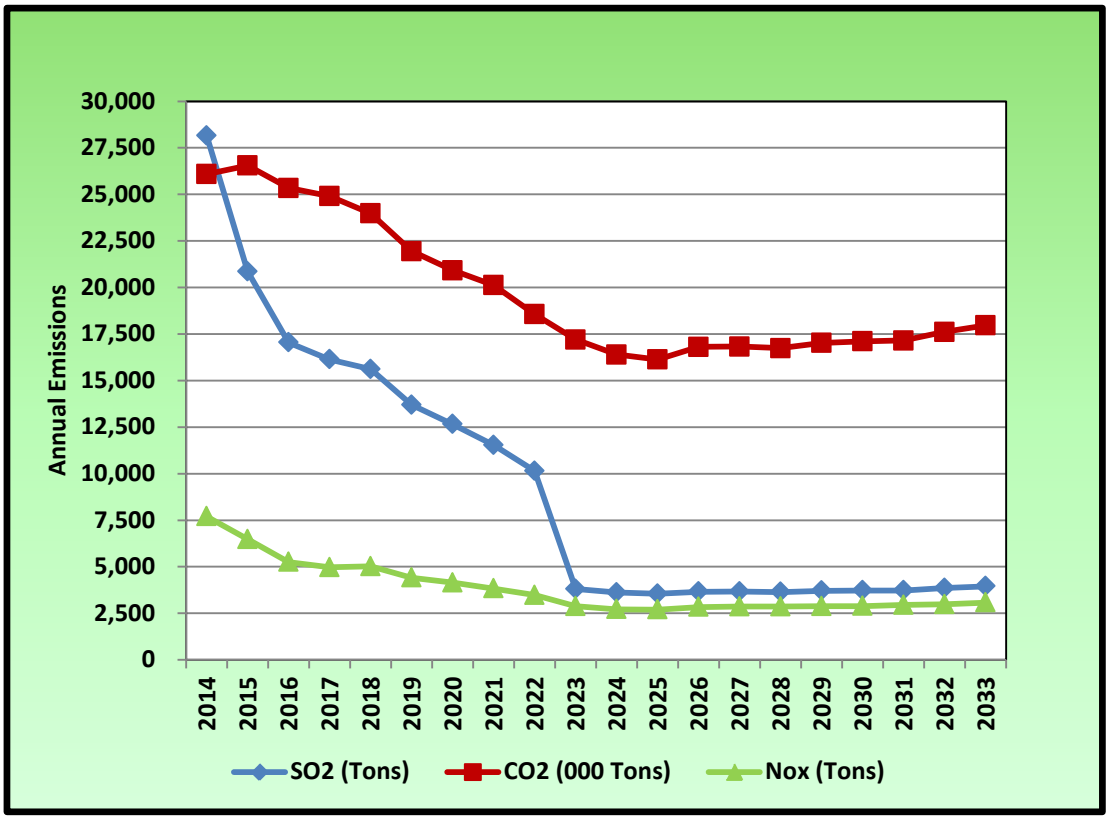
Table 44: Combined-Company Alternative Resource Plan ACCCA Annual Generation



6.10 COMBINED-COMPANY ANNUAL EMISSIONS

The expected value of annual emissions of the Combined-Company Alternative Resource Plan ACCCA is represented in Table 45 below. The annual emissions of all Combined-Company plans can be found in Appendix C.

Table 45: Combined-Company Alternative Resource Plan ACCCA Annual Emissions



6.11 REQUIREMENTS FOR JOINT PLANNING

GMO 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.

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.

6.12 INTEGRATED RESOURCE PLAN AND RISK ANALYSIS: ADDRESSING 2013 ANNUAL UPDATE ISSUES

6.12.1 MISSOURI PUBLIC SERVICE COMMISSION STAFF

Missouri Public Service Commission Staff report, August 20, 2013:

Summary Item 1, Page 2: GMO's request in its 2013 Annual Report that the Commission acknowledge under 4 CSR 22.080(17) "planning that includes a joint company view – consistent with GMO's and KCP&L's business planning processes, is reasonable" cannot be given – in whole or in part - by the Commission because:

a) 4 CSR 240-22.080(17) does not provide a means for Commission acknowledgment as a result of an annual update report; and

b) GMO did not request - and has not received - a waiver from 4 CSR 240-22.080(17);

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 Annual Update.

Summary Item 2, Page 2-3: Until there is a legally recognized, lawful merger of GMO and Kansas City Power & Light Company ("KCPL"), GMO and KCPL are required to perform and file separate Chapter 22 Electric Utility Resource Planning triennial compliance filings and annual update filings, unless a waiver is requested and received from the Commission respecting the requirements of Chapter 22 Electric Utility Resource Planning so as to allow joint company planning. No such waiver was requested;

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 Annual Update.

6.12.2 OFFICE OF THE PUBLIC COUNSEL

Office of the Public Counsel's Comments and Request for Hearing, August 21, 2013:

Item 1, Page 1: "GMO's request for "acknowledgment" by the Commission of using a combined company planning process to perform its IRP is flawed and improper in several respects."

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 Annual Update.

Item 2, Pages 1-2: "GMO's request that the Commission acknowledge its joint company planning process is flawed"

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 Annual Update.

Item 3, Pages 2-3: "The scope of IRP-related items that can be acknowledged under 4 CSR 240-22.080(17) is limited by the definition of "acknowledgement" in 4 CSR 240-22.020(1) which states "Acknowledgment is an action the commission may take with respect to the officially adopted resource acquisition strategy or any element of the resource acquisition strategy including the preferred resource plan."

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 Annual Update.

Item 4, Page 3: "The request in this Annual Update for the Commission to acknowledge joint company planning for KCPL and GMO is also flawed because the provision in the IRP rules for acknowledgment is only applicable to triennial resource plan filings."

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 Annual Update.

Item 5, Page 3: "Another flaw in the Company's request for the Commission to acknowledge a joint company planning process for KCPL and GMO stems from GMO's failure to request a variance from, or waiver of, the requirement for utilities make a utility-specific Annual Update report filing pursuant to 4 CSR 240-22.080 (3)(B)."

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 IRP Annual Update.

Item 6, Page 4: "The request for the Commission to acknowledge joint company planning for KCPL and GMO is also flawed because GMO is making the same request for acknowledgement of a combined company planning process in this Annual Update filing that was made in the Company's most recent triennial filing (Case No. EO-2012-0323), where this request was related to two of OPC's unresolved deficiencies that the Commission ordered GMO to address in this case.":

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 Annual Update.

6.12.3 MISSOURI DEPARTMENT OF NATURAL RESOURCES

Page 1: "MDNR still has reservations with GMO's continued adherence to the jointly determined resource acquisition strategy":

Response: While KCP&L and GMO do engage in joint planning, both companies perform and file separate triennial compliance filings and annual update filings. KCP&L and GMO are not seeking acknowledgment in the 2014 Annual Update.

6.12.4 DOGWOOD ENERGY

Responses to submittal by Carl J. Lumley on behalf of Dogwood Energy, LLC, August 30, 2013:

Item 8, Page 3: "GMO did not analyze the supply side options of acquiring a minority interest in the Dogwood facility and/or retiring the Crossroads plant in a manner that used the same methods, assumptions and net capacity additions as the other alternative resource plans that it studied."

Response: An Alternative Resource Plan (ARP), ABDGF, was created to analyze purchasing the Dogwood facility in the identical year that Lake Road 4/6 is retired. The capacity assumed for a Dogwood purchase was equivalent to the capacity addition of a new combustion turbine addition – 193 MW. GMO incorporated the cost and operating data provided by Dogwood Energy, LLC on February 21, 2014. The NPVRR results and ranking of this ARP are provided in Section 6.4 above.

Item 9, Page 3: "GMO continues to fail to use minimization of NPVRR as the primary criterion for selecting a preferred alternative resource plan and continues to fail to fully evaluate supply-side resource options."

Response: The Preferred Plan selected in the June, 2013 was not the lowest cost plan from a Net Present Value of Revenue Requirement (NPVRR) perspective. From the June, 2013 filing: "Two Alternative Resource Plans had slightly lower NPVRRs than the Preferred Plan. One ARP included retirement of Lake Road 4/6 in 2016. 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-CO_2) 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."

6.12.5 SIERRA CLUB

Responses to submittal by Thomas Cmar on behalf of Sierra Club, August 21, 2013:

Item I, Pages 2 – 3: "GMO Has Not Adequately Justified Selection of a Preferred Resource Plan that Is Not the Least-Cost Plan.":

Response: GMO clearly described and documented the reasoning for selecting an Alternative Resource Plan (ARP) that was not the lowest NPVRR ARP evaluated: From the June, 2013 filing: "Two Alternative Resource Plans had slightly lower NPVRRs than the Preferred Plan. One ARP included retirement of Lake Road 4/6 in 2016. 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-CO_2) and was the lower cost plan under more scenarios than the CC plan."

Item I, Page 4: "GMO's modeling results appears to indicate that the Lake Road plant is projected to operate at an unexpectedly higher capacity factor over the planning period than would be expected from a peaking resource that has a poor heat rate and high dispatch cost relative to other generating units."

Response: Based on current modeling assumptions and the conversion of Lake Road 4/6 to natural gas, the projected capacity factor of the converted unit is approximately 10% from 2016 to 2019 when it is retired.

Item II, Page 5: "Choice of which plans to model":

Response: GMO evaluated 22 ARPs alternatives varying DSM levels, retirement units, timing of retirement units, types of generation additions, and amounts of generation additions. Regarding not drafting an ARP that only retired Sibley 3 – given the 2014 Annual Update results indicate Lake Road 4/6, Sibley-1, and Sibley-2 would be retired, GMO modeled the additional retirement of Sibley-3. Results show that a Sibley-3 retirement would be costly compared to the Preferred Plan (ACGGA vs. AIDGA).

Item II, Pages 5 -7: "Ability of Sibley to Comply with MATS Acid Gas Requirements Using Only Low-Chlorine Coal":

Response: Subsequent to filing the 2013 Annual Update, Sibley Station completed stack tests to determine baseline HCl emissions while burning coal from the Station's typical sources in the Power River Basin (PRB). As expected and broadly observed throughout industry, the test results indicate that "native" HCl emissions while burning PRB coal are generally less than half the MATS limit and supports not needing Dry Sorbent Injection.

Additionally, the claim made by Sierra Club that KCP&L didn't take into account an increase in cost for low-chlorine coal is inapplicable because PRB coal is *less* expensive than higher-chlorine, higher BTU coals. For this reason, Sibley Station's efforts to "wean" itself from higher-chlorine coals predate the MATS acid gas limits.

Moreover, Sierra Club incorrectly stated that KCP&L ignored additional ACI system costs associated with the use of low-chlorine coal. Firstly, the VOM costs calculated by KCP&L for ACI are consistent with the use of brominated PAC, which is typically utilized for mercury capture when burning low-chlorine coal. Secondly, ACI operating costs are commonly greater for higher chlorine coals than for low-chlorine coals because higher chlorine fuels typically contain higher levels of sulfur, which is known to decrease activated carbon's ability to absorb mercury.

Item II, Pages 5 -7: "Risks to Sibley if CSAPR is reinstated":

Response: In the event the rule is reinstated in part or whole, the Company will comply through a combination of trading allowances within or outside its system in addition to changes in operations as necessary. Due to the significant amount of announced coal unit retirements and reduced generation caused by MATS compliance and the availability and economics of natural gas generation, it is anticipated adequate CSAPR allowances will likely be available to address any allowance trading by the Company for any shortfalls.

Item II, Pages 8 -10: “Carbon Price Assumptions”:

Response: The consensus of the six forecasts utilized in developing the CO_2 forecast for the 2013 Annual Update was that the mid case expectation was the year 2016 for Greenhouse gas regulations to commence and therefore CO_2 pricing was initiated in 2016. Regarding the potential for Greenhouse Gas Regulations - The impacts of rule CAA111(d) will not be known until after the rule is first proposed and ultimately finalized.

Item II, Pages 10 -11: “Reporting of Off-System Sales”:

Response: The integrated modeling process generates the off-system sales quantities and revenues as part of the economic analysis of each scenario and alternative and the results are tracked and reported within the model. These are not specifically required by 4 CSR 240-22 to be exhibited in the filing report. There are thousands of model results and outputs that could be reported, and the nature of the IRP as a long-term planning process, limits the degree of detail that can be reasonably represented in filing report details. These details have been provided to parties via data requests, but are too voluminous to be included in the reporting document.

The issue raised regarding the allocation of these sales revenues has been addressed. They are in the model and roll-up into the revenue requirement. Whereas a rate case may allocate specific revenues and expenditures differently across customer classes, or allocate between ratepayers and shareholders, the IRP does not.

Item II, Pages 11: “Accuracy of Assumed Cost of Wind Resources”:

Response: The All-In $/MWh for wind generation assumed ownership that included transmission upgrades and AFUDC. Also, it was assumed that the Production Tax Credit will not be renewed. Removing transmission upgrade costs and AFUDC, and adding in PTC would reduce the cost to below the U.S. DOE Lawrence Berkeley National Lab cost cited.

Item II, Pages 11 -12: "Unexplained Discrepancies between Combined and Individual Company Plans":

Response: In the 2014 Annual Update, the GMO Preferred Plan has been identified as ACGGA and the KCP&L Preferred Plan has been identified as ABBKA. The expected value NPVRR of ACGGA is $11,050 ($mm) and the expected value NPVRR of ABBKA is $20,074 ($mm). The summation of the stand-alone Preferred Plan NPVRRs is $31,124 ($mm). The Combined-Company Alternative Resource Plan (ARP) that is the combination of ACGGA and ABBKA is ACCCA which has an expected value NPVRR of $31,086. Therefore, the Combined-Company ARP yields a lower NPVRR than the summation of the two stand-alone Preferred Plans.

6.12.6 NATURAL RESOURCES DEFENSE COUNCIL (NRDC)

Responses to submittal by Kimiko Narita on behalf of NRDC, August 21, 2013:

Item 6, Pages 12 – 13: Not selecting the lowest cost NPVRR plan:

Response: GMO clearly described and documented the reasoning for selecting an Alternative Resource Plan (ARP) that was not the lowest NPVRR ARP evaluated: From the June, 2013 filing: "Two Alternative Resource Plans had slightly lower NPVRRs than the Preferred Plan. One ARP included retirement of Lake Road 4/6 in 2016. 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-CO_2) and was the lower cost plan under more scenarios than the CC plan."

SECTION 7: RESOURCE ACQUISITION STRATEGY

7.1 CORPORATE APPROVAL AND STATEMENT OF COMMITMENT

KCP&L GREATER MISSOURI OPERATIONS COMPANY

INTEGRATED RESOURCE PLAN – 2014 ANNUAL UPDATE

CORPORATE APPROVAL AND 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 Executive Officer

7.2 2014 ANNUAL UPDATE PREFERRED PLAN

The 2014 Annual Update Preferred Plan for the 20-year planning period is shown in Table 46 below.

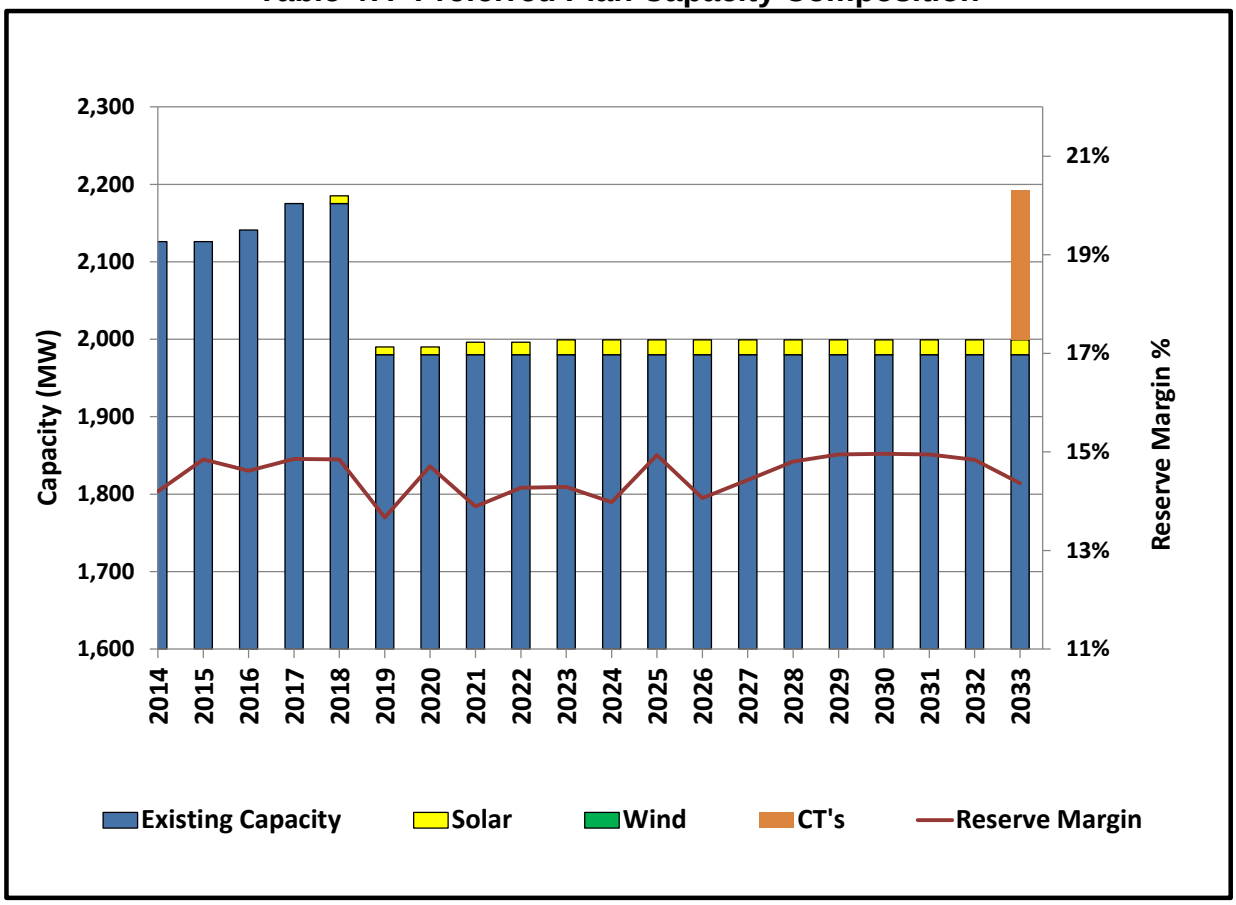
Table 46: 2014 Annual Update Preferred Plan

Year	CT's (MW)	Solar (MW)	Wind (MW)	DSM (MW)	Retire (MW)	Existing Capacity (MW)
2014	-			117		2,126
2015	-			131		2,126
2016	-		200	224		2,141
2017	-			280		2,175
2018	-	10		342		2,175
2019	-			406	195	1,980
2020	-			467		1,980
2021	-	6		523		1,980
2022	-			576		1,980
2023	-	3		625		1,980
2024	-			669		1,980
2025	-			688		1,980
2026	-			705		1,980
2027	-			720		1,980
2028	-			734		1,980
2029	-			746		1,980
2030	-			757		1,980
2031	-			766		1,980
2032	-			776		1,980
2033	193			785		1,980

7.2.1 PREFERRED PLAN COMPOSITION

The capacity composition by supply-side resource and reserve margin for the Preferred 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. It is anticipated that a large portion of the solar requirement will be met with solar RECs obtained from GMO retail customers that have received rebates for solar facility additions. A combustion turbine (CT) resource addition is also included in 2033. 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 (MATS), Ozone National Ambient Air Quality Standards (NAAQS), PM NAAQS, SO_2 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 expected value of economic impact by year of the Preferred Plan is represented in Table 48 below. The economic impact of all plans can be found in Appendix D.

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

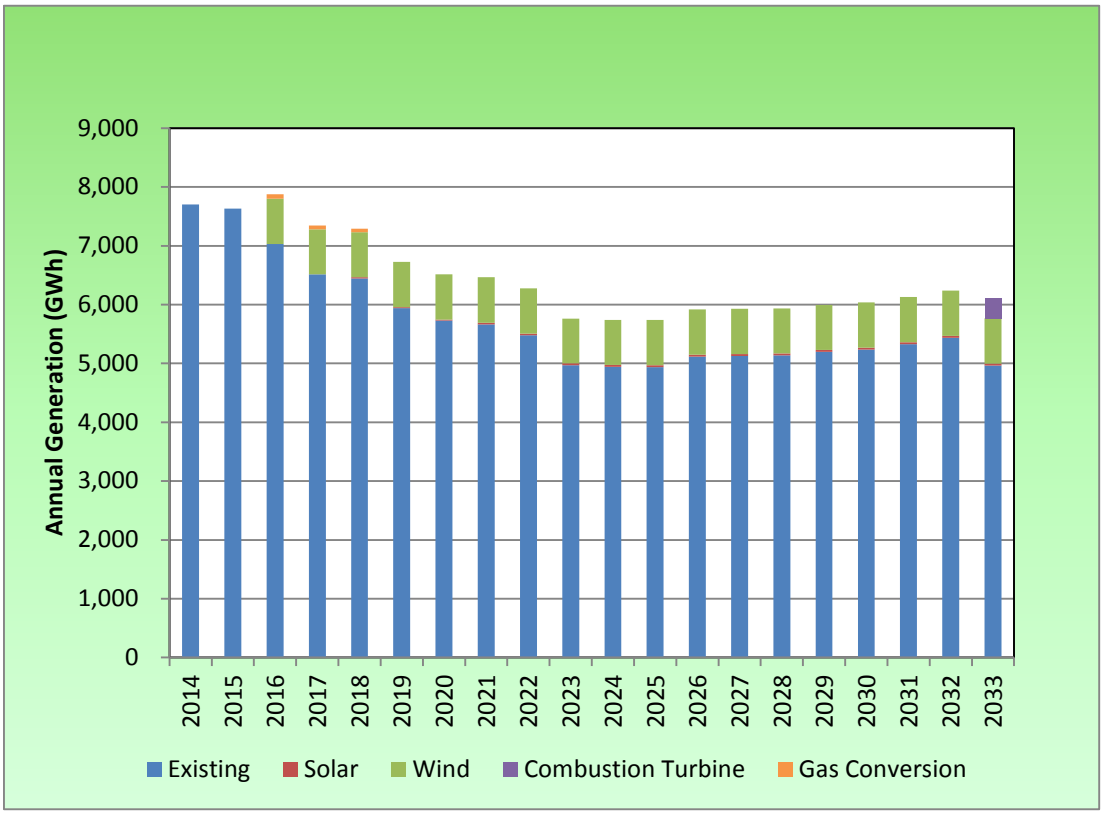
[redacted]

HC

7.2.3 PREFERRED PLAN ANNUAL GENERATION

The expected value of annual generation for the preferred plan is shown in Table 49 below. The annual generation for all plans is included in Appendix C.

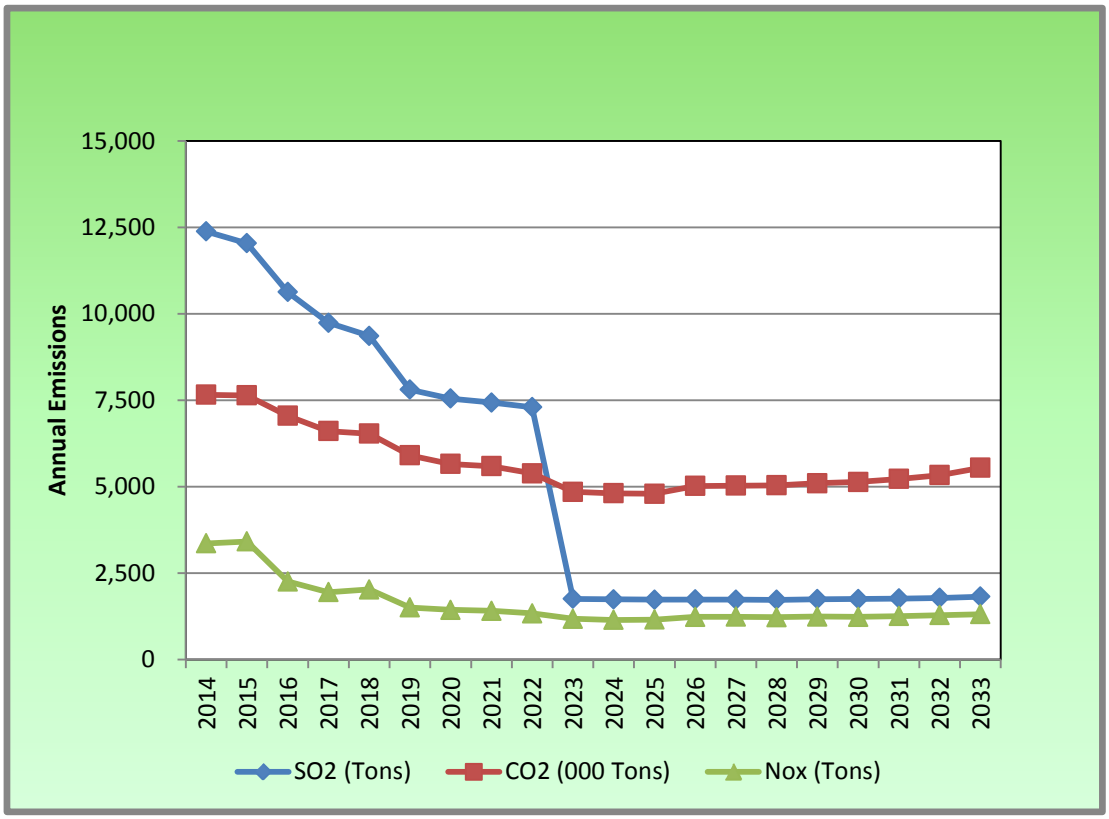
Table 49: Preferred Plan Annual Generation



7.2.4 PREFERRED PLAN ANNUAL EMISSIONS

The expected value of annual emissions for the Preferred Plan is shown in Table 50 below. The annual generation for all plans is included in Appendix C.

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. One Alternative Resource Plan (ARP) had a slightly lower NPVRR than the Preferred Plan. This ARP included retirement of Lake Road 4/6 in 2016 and Sibley Units 1 and 2 in 2019. Given GMO's net capacity position, GMO prefers to operate Lake Road 4/6 on natural gas/fuel oil for the years 2016 through, retiring the unit in 2019. This conversion slightly increases the 20-year NPVRR but it reduces the amount of capacity GMO would need to purchase for several years.

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 2014 Annual Update utilized the same critical uncertain factors as the Revised 2013 Annual Update. The critical uncertain factors are load, natural gas prices and CO_2 prices. Assumptions regarding the values and ranges of these inputs are covered in the relevant sections that discuss load, gas and CO_2 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 GAS	Endpoint	1	Endpoint	2	Endpoint	3
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGW	12,966	ABDGA	11,307	ABDGA	10,252
	ABDGA	13,018	ABBGA	11,316	ABBGA	10,261
	ABBGA	13,027	ABDGW	11,319	ACGGA	10,264
	ACGGA	13,030	ACGGA	11,319	ABCGA	10,267
	ABDGF	13,036	ABCGA	11,339	ABEGA	10,276
	ABCGA	13,065	ABEGA	11,348	ABDGW	10,294
	ABEGA	13,074	ABDGF	11,393	ADBGA	10,310
	ACBGA	13,111	ACBGA	11,394	ABDGF	10,326
	ACFGA	13,113	ACFGA	11,396	ACBGA	10,334
	ADBGA	13,185	ADBGA	11,434	ACFGA	10,336
	CBDGA	13,201	CBDGA	11,527	AAAGA	10,445
	ABFGA	13,240	ABFGA	11,530	ABFGA	10,478
	AHFGA	13,253	AAAGA	11,635	CBDGA	10,488
	AIDGA	13,286	AHFGA	11,701	EBDGA	10,600
	AAAGA	13,413	EBDGA	11,704	ECFGA	10,637
	AGAGA	13,436	ECFGA	11,745	DBDGA	10,765
	DBDGA	13,438	AIDGA	11,779	AHFGA	10,801
	EBDGA	13,517	DBDGA	11,789	AGAGA	10,875
	ECFGA	13,561	AGAGA	11,842	XAAGA	10,909
	BBDGA	13,691	BBDGA	12,070	AIDGA	10,929
	XBDGA	14,013	XBDGA	12,099	XBDGA	10,942
	XAAGA	14,195	XAAGA	12,200	BBDGA	11,055

	HIGH CO2		MID CO2		LOW CO2	
MID GAS	Endpoint	4	Endpoint	5	Endpoint	6
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGW	12,759	ABDGA	11,074	ABDGA	10,021
	ABDGF	12,768	ACGGA	11,086	ACGGA	10,034
	ABDGA	12,793	ABBGA	11,090	ABBGA	10,038
	ACGGA	12,806	ABDGW	11,113	ABCGA	10,052
	ABBGA	12,810	ABCGA	11,120	ABEGA	10,069
	ABCGA	12,845	ABEGA	11,136	ABDGW	10,093
	ABEGA	12,862	ACFGA	11,152	ACFGA	10,096
	ACFGA	12,877	ACBGA	11,161	ACBGA	10,105
	ACBGA	12,886	ABDGF	11,175	ABDGF	10,124
	AHFGA	12,894	ADBGA	11,243	ADBGA	10,143
	AIDGA	12,938	ABFGA	11,288	ABFGA	10,238
	CBDGA	12,986	AHFGA	11,304	CBDGA	10,274
	ADBGA	12,987	CBDGA	11,309	EBDGA	10,318
	ABFGA	13,007	AIDGA	11,365	AAAGA	10,336
	AGAGA	13,100	EBDGA	11,423	ECFGA	10,343
	AAAGA	13,213	ECFGA	11,452	AHFGA	10,393
	DBDGA	13,236	AAAGA	11,465	AIDGA	10,495
	EBDGA	13,258	AGAGA	11,490	AGAGA	10,537
	ECFGA	13,290	DBDGA	11,585	DBDGA	10,566
	BBDGA	13,492	XBDGA	11,764	XBDGA	10,604
	XBDGA	13,713	BBDGA	11,874	XAAGA	10,694
	XAAGA	13,922	XAAGA	11,939	BBDGA	10,867

	HIGH CO2		MID CO2		LOW CO2	
LOW GAS	Endpoint	7	Endpoint	8	Endpoint	9
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGF	12,410	ABDGA	10,888	ABDGA	9,796
	AHFGA	12,425	ACGGA	10,900	ACGGA	9,809
	ABDGW	12,473	ABBGA	10,912	ABBGA	9,820
	ABDGA	12,492	ABCGA	10,940	ABCGA	9,843
	ACGGA	12,504	ABDGW	10,945	ACFGA	9,866
	AIDGA	12,510	ABDGF	10,949	ABEGA	9,867
	ABBGA	12,515	ACFGA	10,959	ACBGA	9,881
	ABCGA	12,545	ABEGA	10,963	ABDGW	9,898
	ACFGA	12,567	ACBGA	10,975	ABDGF	9,925
	ABEGA	12,568	AHFGA	10,978	ADBGA	9,977
	ACBGA	12,583	AIDGA	11,045	AHFGA	9,984
	AGAGA	12,636	ADBGA	11,085	ABFGA	10,008
	ABFGA	12,675	ABFGA	11,096	EBDGA	10,040
	ADBGA	12,689	CBDGA	11,133	ECFGA	10,059
	CBDGA	12,693	AGAGA	11,190	AIDGA	10,066
	EBDGA	12,882	EBDGA	11,198	CBDGA	10,067
	ECFGA	12,914	ECFGA	11,221	AGAGA	10,184
	AAAGA	12,915	AAAGA	11,311	AAAGA	10,199
	DBDGA	12,952	DBDGA	11,420	XBDGA	10,271
	BBDGA	13,210	XBDGA	11,497	DBDGA	10,372
	XBDGA	13,250	XAAGA	11,709	XAAGA	10,454
	XAAGA	13,491	BBDGA	11,714	BBDGA	10,685

7.3.2 CRITICAL UNCERTAIN FACTOR: LOW LOAD GROWTH

LOW LOAD GROWTH																								
	HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2	
HIGH GAS	Endpoint	19	Endpoint	20	Endpoint	21	MID GAS	Endpoint	22	Endpoint	23	Endpoint	24	LOW GAS	Endpoint	25	Endpoint	26	Endpoint	27
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGW	12,362	ABDGA	10,844	ABDGA	9,865		ABDGW	12,201	ABDGA	10,686	ABDGA	9,712		ABDGF	11,893	ABDGA	10,549	ABDGA	9,566
	ABDGA	12,406	ABBGA	10,853	ABBGA	9,874		ABDGF	12,223	ACGGA	10,698	ACGGA	9,724		AHFGA	11,940	ACGGA	10,561	ACGGA	9,578
	ABBGA	12,415	ACGGA	10,856	ACGGA	9,877		ABDGA	12,230	ABBGA	10,702	ABBGA	9,728		ABDGW	11,949	ABBGA	10,572	ABBGA	9,589
	ACGGA	12,419	ABDGW	10,861	ABCGA	9,880		ACGGA	12,242	ABDGW	10,730	ABCGA	9,743		ABDGA	11,967	ABCGA	10,600	ABCGA	9,614
	ABDGF	12,448	ABCGA	10,877	ABEGA	9,889		ABBGA	12,246	ABCGA	10,733	ABEGA	9,760		ACGGA	11,979	ABDGW	10,609	ACFGA	9,633
	ABCGA	12,454	ABEGA	10,886	ABDGW	9,909		ABCGA	12,282	ABEGA	10,749	ACFGA	9,784		ABBGA	11,990	ACFGA	10,617	ABEGA	9,637
	ABEGA	12,463	ACBGA	10,927	ADBGA	9,924		ABEGA	12,298	ACFGA	10,761	ABDGW	9,785		AIDGA	12,001	ABDGF	10,618	ACBGA	9,649
	ACBGA	12,494	ACFGA	10,930	ABDGF	9,942		ACFGA	12,308	ACBGA	10,770	ACBGA	9,794		ABCGA	12,019	ABEGA	10,623	ABDGW	9,669
	ACFGA	12,496	ABDGF	10,943	ACBGA	9,946		ACBGA	12,317	ABDGF	10,801	ABDGF	9,817		ACFGA	12,034	ACBGA	10,633	ABDGF	9,699
	ADBGA	12,577	ADBGA	10,978	ACFGA	9,948		AHFGA	12,340	ADBGA	10,858	ADBGA	9,835		ABEGA	12,043	AHFGA	10,643	AHFGA	9,744
	CBDGA	12,591	CBDGA	11,064	AAAGA	10,062		AIDGA	12,354	AHFGA	10,896	ABFGA	9,924		ACBGA	12,050	AIDGA	10,683	ADBGA	9,747
	AHFGA	12,618	ABFGA	11,065	ABFGA	10,087		ADBGA	12,419	ABFGA	10,898	CBDGA	9,965		ABFGA	12,141	ADBGA	10,743	ABFGA	9,772
	AIDGA	12,623	AAAGA	11,183	CBDGA	10,100		CBDGA	12,426	CBDGA	10,922	EBDGA	9,995		AGAGA	12,150	ABFGA	10,754	EBDGA	9,796
	ABFGA	12,629	AHFGA	11,207	EBDGA	10,199		ABFGA	12,439	AIDGA	10,925	ECFGA	10,019		ADBGA	12,163	CBDGA	10,796	AIDGA	9,796
	AGAGA	12,801	EBDGA	11,226	ECFGA	10,236		AGAGA	12,543	EBDGA	11,020	AAAGA	10,030		CBDGA	12,173	EBDGA	10,849	ECFGA	9,815
	AAAGA	12,802	AIDGA	11,256	AHFGA	10,387		AAAGA	12,645	ECFGA	11,047	AHFGA	10,067		EBDGA	12,351	AGAGA	10,853	CBDGA	9,837
	DBDGA	12,839	ECFGA	11,266	DBDGA	10,387		DBDGA	12,680	AGAGA	11,081	AIDGA	10,141		ECFGA	12,378	ECFGA	10,870	AGAGA	9,943
	EBDGA	12,890	DBDGA	11,339	AGAGA	10,462		EBDGA	12,682	AAAGA	11,081	AGAGA	10,210		AAAGA	12,387	AAAGA	10,968	AAAGA	9,970
	ECFGA	12,931	AGAGA	11,349	AIDGA	10,488		ECFGA	12,712	DBDGA	11,207	DBDGA	10,263		DBDGA	12,430	DBDGA	11,085	XBDGA	10,016
	BBDGA	13,085	XBDGA	11,605	XAAGA	10,509		BBDGA	12,931	XBDGA	11,347	XBDGA	10,269		BBDGA	12,683	XBDGA	11,139	DBDGA	10,148
	XBDGA	13,370	BBDGA	11,614	XBDGA	10,526		XBDGA	13,126	BBDGA	11,492	XAAGA	10,373		XBDGA	12,726	XAAGA	11,352	XAAGA	10,208
	XAAGA	13,555	XAAGA	11,726	BBDGA	10,673		XAAGA	13,334	XAAGA	11,530	BBDGA	10,561		XAAGA	12,958	BBDGA	11,375	BBDGA	10,460

7.3.3 CRITICAL UNCERTAIN FACTOR: HIGH NATURAL GAS PRICES

HIGH NATURAL GAS PRICES																				
	HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2	
HIGH LOAD	Endpoint 1		Endpoint 2		Endpoint 3		MID LOAD	Endpoint 10		Endpoint 11		Endpoint 12		LOW LOAD	Endpoint 19		Endpoint 20		Endpoint 21	
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGW	12,966	ABDGA	11,307	ABDGA	10,252		ABDGW	12,675	ABDGA	11,084	ABDGA	10,067		ABDGW	12,362	ABDGA	10,844	ABDGA	9,865
	ABDGA	13,018	ABBGA	11,316	ABBGA	10,261		ABDGA	12,723	ABBGA	11,093	ABBGA	10,076		ABDGA	12,406	ABBGA	10,853	ABBGA	9,874
	ABBGA	13,027	ABDGW	11,319	ACGGA	10,264		ABBGA	12,732	ACGGA	11,096	ACGGA	10,079		ABBGA	12,415	ACGGA	10,856	ACGGA	9,877
	ACGGA	13,030	ACGGA	11,319	ABCGA	10,267		ACGGA	12,735	ABDGW	11,099	ABCGA	10,082		ACGGA	12,419	ABDGW	10,861	ABCGA	9,880
	ABDGF	13,036	ABCGA	11,339	ABEGA	10,276		ABDGF	12,754	ABCGA	11,116	ABEGA	10,091		ABDGF	12,448	ABCGA	10,877	ABEGA	9,889
	ABCGA	13,065	ABEGA	11,348	ABDGW	10,294		ABCGA	12,770	ABEGA	11,126	ABDGW	10,110		ABCGA	12,454	ABEGA	10,886	ABDGW	9,909
	ABEGA	13,074	ABDGF	11,393	ADBGA	10,310		ABEGA	12,780	ACBGA	11,169	ADBGA	10,126		ABEGA	12,463	ACBGA	10,927	ADBGA	9,924
	ACBGA	13,111	ACBGA	11,394	ABDGF	10,326		ACBGA	12,813	ACFGA	11,171	ABDGF	10,142		ACBGA	12,494	ACFGA	10,930	ABDGF	9,942
	ACFGA	13,113	ACFGA	11,396	ACBGA	10,334		ACFGA	12,815	ABDGF	11,177	ACBGA	10,148		ACFGA	12,496	ABDGF	10,943	ACBGA	9,946
	ADBGA	13,185	ADBGA	11,434	ACFGA	10,336		ADBGA	12,892	ADBGA	11,216	ACFGA	10,150		ADBGA	12,577	ADBGA	10,978	ACFGA	9,948
	CBDGA	13,201	CBDGA	11,527	AAAGA	10,445		CBDGA	12,906	CBDGA	11,304	AAAGA	10,262		CBDGA	12,591	CBDGA	11,064	AAAGA	10,062
	ABFGA	13,240	ABFGA	11,530	ABFGA	10,478		ABFGA	12,946	ABFGA	11,306	ABFGA	10,291		AHFGA	12,618	ABFGA	11,065	ABFGA	10,087
	AHFGA	13,253	AAAGA	11,635	CBDGA	10,488		AHFGA	12,949	AAAGA	11,418	CBDGA	10,302		AIDGA	12,623	AAAGA	11,183	CBDGA	10,100
	AIDGA	13,286	AHFGA	11,701	EBDGA	10,600		AIDGA	12,967	AHFGA	11,464	EBDGA	10,407		ABFGA	12,629	AHFGA	11,207	EBDGA	10,199
	AAAGA	13,413	EBDGA	11,704	ECFGA	10,637		AAAGA	13,119	EBDGA	11,474	ECFGA	10,443		AGAGA	12,801	EBDGA	11,226	ECFGA	10,236
	AGAGA	13,436	ECFGA	11,745	DBDGA	10,765		AGAGA	13,133	ECFGA	11,513	DBDGA	10,583		AAAGA	12,802	AIDGA	11,256	AHFGA	10,387
	DBDGA	13,438	AIDGA	11,779	AHFGA	10,801		DBDGA	13,150	AIDGA	11,526	AHFGA	10,602		DBDGA	12,839	ECFGA	11,266	DBDGA	10,387
	EBDGA	13,517	DBDGA	11,789	AGAGA	10,875		EBDGA	13,215	DBDGA	11,572	AGAGA	10,678		EBDGA	12,890	DBDGA	11,339	AGAGA	10,462
	ECFGA	13,561	AGAGA	11,842	XAAGA	10,909		ECFGA	13,257	AGAGA	11,606	AIDGA	10,715		ECFGA	12,931	AGAGA	11,349	AIDGA	10,488
	BBDGA	13,691	BBDGA	12,070	AIDGA	10,929		BBDGA	13,400	BBDGA	11,851	XAAGA	10,717		BBDGA	13,085	XBDGA	11,605	XAAGA	10,509
	XBDGA	14,013	XBDGA	12,099	XBDGA	10,942		XBDGA	13,704	XBDGA	11,860	XBDGA	10,741		XBDGA	13,370	BBDGA	11,614	XBDGA	10,526
	XAAGA	14,195	XAAGA	12,200	BBDGA	11,055		XAAGA	13,888	XAAGA	11,972	BBDGA	10,873		XAAGA	13,555	XAAGA	11,726	BBDGA	10,673

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			HIGH CO2		MID CO2		LOW CO2	
	Endpoint	7	Endpoint	8	Endpoint	9		Endpoint	16	Endpoint	17	Endpoint	18		Endpoint	25	Endpoint	26	Endpoint	27
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
HIGH LOAD	ABDGF	12,410	ABDGA	10,888	ABDGA	9,796	MID LOAD	ABDGF	12,164	ABDGA	10,726	ABDGA	9,686	LOW LOAD	ABDGF	11,893	ABDGA	10,549	ABDGA	9,566
	AHFGA	12,425	ACGGA	10,900	ACGGA	9,809		AHFGA	12,193	ACGGA	10,738	ACGGA	9,699		AHFGA	11,940	ACGGA	10,561	ACGGA	9,578
	ABDGW	12,473	ABBGA	10,912	ABBGA	9,820		ABDGW	12,225	ABBGA	10,749	ABBGA	9,710		ABDGW	11,949	ABBGA	10,572	ABBGA	9,589
	ABDGA	12,492	ABCGA	10,940	ABCGA	9,843		ABDGA	12,243	ABCGA	10,777	ABCGA	9,734		ABDGA	11,967	ABCGA	10,600	ABCGA	9,614
	ACGGA	12,504	ABDGW	10,945	ACFGA	9,866		ACGGA	12,255	ABDGW	10,784	ACFGA	9,755		ACGGA	11,979	ABDGW	10,609	ACFGA	9,633
	AIDGA	12,510	ABDGF	10,949	ABEGA	9,867		ABBGA	12,266	ABDGF	10,792	ABEGA	9,757		ABBGA	11,990	ACFGA	10,617	ABEGA	9,637
	ABBGA	12,515	ACFGA	10,959	ACBGA	9,881		AIDGA	12,267	ACFGA	10,795	ACBGA	9,770		AIDGA	12,001	ABDGF	10,618	ACBGA	9,649
	ABCGA	12,545	ABEGA	10,963	ABDGW	9,898		ABCGA	12,296	ABEGA	10,800	ABDGW	9,789		ABCGA	12,019	ABEGA	10,623	ABDGW	9,669
	ACFGA	12,567	ACBGA	10,975	ABDGF	9,925		ACFGA	12,315	ACBGA	10,811	ABDGF	9,817		ACFGA	12,034	ACBGA	10,633	ABDGF	9,699
	ABEGA	12,568	AHFGA	10,978	ADBGA	9,977		ABEGA	12,319	AHFGA	10,818	ADBGA	9,868		ABEGA	12,043	AHFGA	10,643	AHFGA	9,744
	ACBGA	12,583	AIDGA	11,045	AHFGA	9,984		ACBGA	12,331	AIDGA	10,871	AHFGA	9,869		ACBGA	12,050	AIDGA	10,683	ADBGA	9,747
	AGAGA	12,636	ADBGA	11,085	ABFGA	10,008		AGAGA	12,404	ADBGA	10,921	ABFGA	9,895		ABFGA	12,141	ADBGA	10,743	ABFGA	9,772
	ABFGA	12,675	ABFGA	11,096	EBDGA	10,040		ABFGA	12,421	ABFGA	10,932	EBDGA	9,923		AGAGA	12,150	ABFGA	10,754	EBDGA	9,796
	ADBGA	12,689	CBDGA	11,133	ECFGA	10,059		ADBGA	12,440	CBDGA	10,971	AIDGA	9,936		ADBGA	12,163	CBDGA	10,796	AIDGA	9,796
	CBDGA	12,693	AGAGA	11,190	AIDGA	10,066		CBDGA	12,446	AGAGA	11,029	ECFGA	9,941		CBDGA	12,173	EBDGA	10,849	ECFGA	9,815
	EBDGA	12,882	EBDGA	11,198	CBDGA	10,067		EBDGA	12,629	EBDGA	11,031	CBDGA	9,957		EBDGA	12,351	AGAGA	10,853	CBDGA	9,837
	ECFGA	12,914	ECFGA	11,221	AGAGA	10,184		ECFGA	12,659	ECFGA	11,052	AGAGA	10,069		ECFGA	12,378	ECFGA	10,870	AGAGA	9,943
	AAAGA	12,915	AAAGA	11,311	AAAGA	10,199		AAAGA	12,665	AAAGA	11,146	AAAGA	10,090		AAAGA	12,387	AAAGA	10,968	AAAGA	9,970
	DBDGA	12,952	DBDGA	11,420	XBDGA	10,271		DBDGA	12,705	DBDGA	11,260	XBDGA	10,148		DBDGA	12,430	DBDGA	11,085	XBDGA	10,016
	BBDGA	13,210	XBDGA	11,497	DBDGA	10,372		BBDGA	12,960	XBDGA	11,326	DBDGA	10,264		BBDGA	12,683	XBDGA	11,139	DBDGA	10,148
	XBDGA	13,250	XAAGA	11,709	XAAGA	10,454		XBDGA	13,000	XAAGA	11,538	XAAGA	10,336		XBDGA	12,726	XAAGA	11,352	XAAGA	10,208
	XAAGA	13,491	BBDGA	11,714	BBDGA	10,685		XAAGA	13,237	BBDGA	11,552	BBDGA	10,578		XAAGA	12,958	BBDGA	11,375	BBDGA	10,460

7.3.5 CRITICAL UNCERTAIN FACTOR: HIGH CO_2 PRICES

HIGH CO_2 CREDIT PRICES

	HIGH GAS		MID GAS		LOW GAS	
HIGH LOAD	Endpoint	1	Endpoint	4	Endpoint	7
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGW	12,966	ABDGW	12,759	ABDGF	12,410
	ABDGA	13,018	ABDGF	12,768	AHFGA	12,425
	ABBGA	13,027	ABDGA	12,793	ABDGW	12,473
	ACGGA	13,030	ACGGA	12,806	ABDGA	12,492
	ABDGF	13,036	ABBGA	12,810	ACGGA	12,504
	ABCGA	13,065	ABCGA	12,845	AIDGA	12,510
	ABEGA	13,074	ABEGA	12,862	ABBGA	12,515
	ACBGA	13,111	ACFGA	12,877	ABCGA	12,545
	ACFGA	13,113	ACBGA	12,886	ACFGA	12,567
	ADBGA	13,185	AHFGA	12,894	ABEGA	12,568
	CBDGA	13,201	AIDGA	12,938	ACBGA	12,583
	ABFGA	13,240	CBDGA	12,986	AGAGA	12,636
	AHFGA	13,253	ADBGA	12,987	ABFGA	12,675
	AIDGA	13,286	ABFGA	13,007	ADBGA	12,689
	AAAGA	13,413	AGAGA	13,100	CBDGA	12,693
	AGAGA	13,436	AAAGA	13,213	EBDGA	12,882
	DBDGA	13,438	DBDGA	13,236	ECFGA	12,914
	EBDGA	13,517	EBDGA	13,258	AAAGA	12,915
	ECFGA	13,561	ECFGA	13,290	DBDGA	12,952
	BBDGA	13,691	BBDGA	13,492	BBDGA	13,210
	XBDGA	14,013	XBDGA	13,713	XBDGA	13,250
	XAAGA	14,195	XAAGA	13,922	XAAGA	13,491

	HIGH GAS		MID GAS		LOW GAS	
MID LOAD	Endpoint	10	Endpoint	13	Endpoint	16
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGW	12,675	ABDGW	12,491	ABDGF	12,164
	ABDGA	12,723	ABDGF	12,508	AHFGA	12,193
	ABBGA	12,732	ABDGA	12,523	ABDGW	12,225
	ACGGA	12,735	ACGGA	12,535	ABDGA	12,243
	ABDGF	12,754	ABBGA	12,539	ACGGA	12,255
	ABCGA	12,770	ABCGA	12,575	ABBGA	12,266
	ABEGA	12,780	ABEGA	12,591	AIDGA	12,267
	ACBGA	12,813	ACFGA	12,604	ABCGA	12,296
	ACFGA	12,815	ACBGA	12,613	ACFGA	12,315
	ADBGA	12,892	AHFGA	12,629	ABEGA	12,319
	CBDGA	12,906	AIDGA	12,658	ACBGA	12,331
	ABFGA	12,946	ADBGA	12,714	AGAGA	12,404
	AHFGA	12,949	CBDGA	12,717	ABFGA	12,421
	AIDGA	12,967	ABFGA	12,736	ADBGA	12,440
	AAAGA	13,119	AGAGA	12,834	CBDGA	12,446
	AGAGA	13,133	AAAGA	12,940	EBDGA	12,629
	DBDGA	13,150	DBDGA	12,970	ECFGA	12,659
	EBDGA	13,215	EBDGA	12,982	AAAGA	12,665
	ECFGA	13,257	ECFGA	13,013	DBDGA	12,705
	BBDGA	13,400	BBDGA	13,223	BBDGA	12,960
	XBDGA	13,704	XBDGA	13,432	XBDGA	13,000
	XAAGA	13,888	XAAGA	13,641	XAAGA	13,237

	HIGH GAS		MID GAS		LOW GAS	
LOW LOAD	Endpoint	19	Endpoint	22	Endpoint	25
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGW	12,362	ABDGW	12,201	ABDGF	11,893
	ABDGA	12,406	ABDGF	12,223	AHFGA	11,940
	ABBGA	12,415	ABDGA	12,230	ABDGW	11,949
	ACGGA	12,419	ACGGA	12,242	ABDGA	11,967
	ABDGF	12,448	ABBGA	12,246	ACGGA	11,979
	ABCGA	12,454	ABCGA	12,282	ABBGA	11,990
	ABEGA	12,463	ABEGA	12,298	AIDGA	12,001
	ACBGA	12,494	ACFGA	12,308	ABCGA	12,019
	ACFGA	12,496	ACBGA	12,317	ACFGA	12,034
	ADBGA	12,577	AHFGA	12,340	ABEGA	12,043
	CBDGA	12,591	AIDGA	12,354	ACBGA	12,050
	AHFGA	12,618	ADBGA	12,419	ABFGA	12,141
	AIDGA	12,623	CBDGA	12,426	AGAGA	12,150
	ABFGA	12,629	ABFGA	12,439	ADBGA	12,163
	AGAGA	12,801	AGAGA	12,543	CBDGA	12,173
	AAAGA	12,802	AAAGA	12,645	EBDGA	12,351
	DBDGA	12,839	DBDGA	12,680	ECFGA	12,378
	EBDGA	12,890	EBDGA	12,682	AAAGA	12,387
	ECFGA	12,931	ECFGA	12,712	DBDGA	12,430
	BBDGA	13,085	BBDGA	12,931	BBDGA	12,683
	XBDGA	13,370	XBDGA	13,126	XBDGA	12,726
	XAAGA	13,555	XAAGA	13,334	XAAGA	12,958

7.3.6 CRITICAL UNCERTAIN FACTOR: LOW CO_2 PRICES

LOW CO_2 CREDIT PRICES

	HIGH GAS		MID GAS		LOW GAS	
HIGH LOAD	Endpoint	3	Endpoint	6	Endpoint	9
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGA	10,252	ABDGA	10,021	ABDGA	9,796
	ABBGA	10,261	ACGGA	10,034	ACGGA	9,809
	ACGGA	10,264	ABBGA	10,038	ABBGA	9,820
	ABCGA	10,267	ABCGA	10,052	ABCGA	9,843
	ABEGA	10,276	ABEGA	10,069	ACFGA	9,866
	ABDGW	10,294	ABDGW	10,093	ABEGA	9,867
	ADBGA	10,310	ACFGA	10,096	ACBGA	9,881
	ABDGF	10,326	ACBGA	10,105	ABDGW	9,898
	ACBGA	10,334	ABDGF	10,124	ABDGF	9,925
	ACFGA	10,336	ADBGA	10,143	ADBGA	9,977
	AAAGA	10,445	ABFGA	10,238	AHFGA	9,984
	ABFGA	10,478	CBDGA	10,274	ABFGA	10,008
	CBDGA	10,488	EBDGA	10,318	EBDGA	10,040
	EBDGA	10,600	AAAGA	10,336	ECFGA	10,059
	ECFGA	10,637	ECFGA	10,343	AIDGA	10,066
	DBDGA	10,765	AHFGA	10,393	CBDGA	10,067
	AHFGA	10,801	AIDGA	10,495	AGAGA	10,184
	AGAGA	10,875	AGAGA	10,537	AAAGA	10,199
	XAAGA	10,909	DBDGA	10,566	XBDGA	10,271
	AIDGA	10,929	XBDGA	10,604	DBDGA	10,372
	XBDGA	10,942	XAAGA	10,694	XAAGA	10,454
	BBDGA	11,055	BBDGA	10,867	BBDGA	10,685

	HIGH GAS		MID GAS		LOW GAS	
MID LOAD	Endpoint	12	Endpoint	15	Endpoint	18
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGA	10,067	ABDGA	9,874	ABDGA	9,686
	ABBGA	10,076	ACGGA	9,886	ACGGA	9,699
	ACGGA	10,079	ABBGA	9,890	ABBGA	9,710
	ABCGA	10,082	ABCGA	9,905	ABCGA	9,734
	ABEGA	10,091	ABEGA	9,921	ACFGA	9,755
	ABDGW	10,110	ABDGW	9,946	ABEGA	9,757
	ADBGA	10,126	ACFGA	9,947	ACBGA	9,770
	ABDGF	10,142	ACBGA	9,956	ABDGW	9,789
	ACBGA	10,148	ABDGF	9,977	ABDGF	9,817
	ACFGA	10,150	ADBGA	9,997	ADBGA	9,868
	AAAGA	10,262	ABFGA	10,088	AHFGA	9,869
	ABFGA	10,291	CBDGA	10,127	ABFGA	9,895
	CBDGA	10,302	EBDGA	10,163	EBDGA	9,923
	EBDGA	10,407	ECFGA	10,187	AIDGA	9,936
	ECFGA	10,443	AAAGA	10,190	ECFGA	9,941
	DBDGA	10,583	AHFGA	10,237	CBDGA	9,957
	AHFGA	10,602	AIDGA	10,324	AGAGA	10,069
	AGAGA	10,678	AGAGA	10,381	AAAGA	10,090
	AIDGA	10,715	DBDGA	10,421	XBDGA	10,148
	XAAGA	10,717	XBDGA	10,442	DBDGA	10,264
	XBDGA	10,741	XAAGA	10,540	XAAGA	10,336
	BBDGA	10,873	BBDGA	10,722	BBDGA	10,578

	HIGH GAS		MID GAS		LOW GAS	
LOW LOAD	Endpoint	21	Endpoint	24	Endpoint	27
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	ABDGA	9,865	ABDGA	9,712	ABDGA	9,566
	ABBGA	9,874	ACGGA	9,724	ACGGA	9,578
	ACGGA	9,877	ABBGA	9,728	ABBGA	9,589
	ABCGA	9,880	ABCGA	9,743	ABCGA	9,614
	ABEGA	9,889	ABEGA	9,760	ACFGA	9,633
	ABDGW	9,909	ACFGA	9,784	ABEGA	9,637
	ADBGA	9,924	ABDGW	9,785	ACBGA	9,649
	ABDGF	9,942	ACBGA	9,794	ABDGW	9,669
	ACBGA	9,946	ABDGF	9,817	ABDGF	9,699
	ACFGA	9,948	ADBGA	9,835	AHFGA	9,744
	AAAGA	10,062	ABFGA	9,924	ADBGA	9,747
	ABFGA	10,087	CBDGA	9,965	ABFGA	9,772
	CBDGA	10,100	EBDGA	9,995	EBDGA	9,796
	EBDGA	10,199	ECFGA	10,019	AIDGA	9,796
	ECFGA	10,236	AAAGA	10,030	ECFGA	9,815
	AHFGA	10,387	AHFGA	10,067	CBDGA	9,837
	DBDGA	10,387	AIDGA	10,141	AGAGA	9,943
	AGAGA	10,462	AGAGA	10,210	AAAGA	9,970
	AIDGA	10,488	DBDGA	10,263	XBDGA	10,016
	XAAGA	10,509	XBDGA	10,269	DBDGA	10,148
	XBDGA	10,526	XAAGA	10,373	XAAGA	10,208
	BBDGA	10,673	BBDGA	10,561	BBDGA	10,460

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-CO_2 scenario, Endpoint 14.

Table 52: Alternative Resource Plan NPVRRs

Expected Value			Endpoint 14		
PLAN	NPVRR	DELTA	PLAN	NPVRR	DELTA
ABDGA	10,886	-	ABDGA	10,559	-
ACGGA	10,899	12	ABBGA	10,565	6
ABBGA	10,903	16	ACGGA	10,570	11
ABDGW	10,928	42	ABCGA	10,585	26
ABCGA	10,933	47	ABEGA	10,591	31
ABEGA	10,949	63	ABDGW	10,601	42
ACFGA	10,963	77	ADBGA	10,604	44
ACBGA	10,972	86	ACFGA	10,621	62
ABDGF	10,996	109	ACBGA	10,622	63
ADBGA	11,058	171	ABDGF	10,666	107
ABFGA	11,100	213	AAAGA	10,691	131
AHFGA	11,108	222	ABFGA	10,778	219
CBDGA	11,122	236	CBDGA	10,795	236
AIDGA	11,153	266	EBDGA	10,898	339
EBDGA	11,229	342	ECFGA	10,913	354
ECFGA	11,256	370	AHFGA	10,991	432
AAAGA	11,281	394	AGAGA	11,048	489
AGAGA	11,294	408	DBDGA	11,075	516
DBDGA	11,402	516	AIDGA	11,090	531
XBDGA	11,563	677	XAAGA	11,143	583
BBDGA	11,691	805	XBDGA	11,231	672
XAAGA	11,742	856	BBDGA	11,364	805

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	Value	Joint Probability
1	ABDGW	12,966	1.6%
2	ABDGA	11,307	3.1%
3	ABDGA	10,252	1.6%
4	ABDGW	12,759	3.1%
5	ABDGA	11,074	6.3%
6	ABDGA	10,021	3.1%
7	ABDGF	12,410	1.6%
8	ABDGA	10,888	3.1%
9	ABDGA	9,796	1.6%
10	ABDGW	12,675	3.1%
11	ABDGA	11,084	6.3%
12	ABDGA	10,067	3.1%
13	ABDGW	12,491	6.3%
14	ABDGA	10,886	12.5%
15	ABDGA	9,874	6.3%
16	ABDGF	12,164	3.1%
17	ABDGA	10,726	6.3%
18	ABDGA	9,686	3.1%
19	ABDGW	12,362	1.6%
20	ABDGA	10,844	3.1%
21	ABDGA	9,865	1.6%
22	ABDGW	12,201	3.1%
23	ABDGA	10,686	6.3%
24	ABDGA	9,712	3.1%
25	ABDGF	11,893	1.6%
26	ABDGA	10,549	3.1%
27	ABDGA	9,566	1.6%

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

Table 54: Cumulative Probabilities of Lowest NPVRR Plans

Plan	Cumulative Probability	Count
ABBKA	75%	18
ABBKW	19%	6
AHFKB	6%	3

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 could 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 joint 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	ABDGA	11,074	6.25%	25.00%	10,883
Mid	14	ABDGA	10,886	12.50%	50.00%	
Low Load	23	ABDGA	10,686	6.25%	25.00%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Value**
High Load	5	ABDGA	11,074	6.25%	25.00%	10,883
Mid	14	ABDGA	10,886	12.50%	50.00%	
Low Load	23	ABDGA	10,686	6.25%	25.00%	
Expected Value of Better Information			-	Million		

Table 56: Better information - Natural Gas

Natural Gas						
Preferred Plan	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Value**
High Natural Gas	11	ABDGA	11,084	6.25%	25.00%	10,896
Mid	14	ABDGA	10,886	12.50%	50.00%	
Low Natural Gas	17	ABDGA	10,726	6.25%	25.00%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Value**
High Natural Gas	11	ABDGA	11,084	6.25%	25.00%	10,896
Mid	14	ABDGA	10,886	12.50%	50.00%	
Low Natural Gas	17	ABDGA	10,726	6.25%	25.00%	
Expected Value of Better Information			-	Million		

Table 57: Better information - CO_2

CO2						
Preferred Plan	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Value**
High CO2	13	ABDGA	12,523	6.25%	25.00%	11,042
Mid	14	ABDGA	10,886	12.50%	50.00%	
Low CO2	15	ABDGA	9,874	6.25%	25.00%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Value**
High CO2	13	ABDGW	12,491	6.25%	25.00%	11,034
Mid	14	ABDGA	10,886	12.50%	50.00%	
Low CO2	15	ABDGA	9,874	6.25%	25.00%	
Expected Value of Better Information			7.89	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)
ACGGA/ABDGW	MEEIA/RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: 2019 - 100 MW	193 MW CT in 2033
		Lake Road 4/6 Sibley-1 Sibley-2	2019 2019 2019			
ACGGA/ABDGF	MEEIA/RAP	Convert to NG-FO: Lake Road 4/6	2016**	Solar: 2018 - 10 MW 2021 - 6 MW 2023 - 3 MW	Wind: n/n	193 MW CC (Dogwood) in 2016
		Lake Road 4/6 Sibley-1 Sibley-2	2019 2019 2019			
** Convert to Natural Gas/Fuel Oil						

These contingency plans were identified through an evaluation of the relative cost performance of each alternative 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:

Mid or High Gas, High CO_2 Price Scenarios: Combined ACGGA/ABDGW (Preferred Plan retirements/retrofits/generation additions with additional wind resources above that required for Missouri Renewable Energy Standard compliance). Note that additional wind would not necessarily be limited to 100 MW under this plan. Actual amounts added would depend on factors such as project and transmission availability.

Low Gas, High CO_2 Price Scenario: Combined ACGGA/ABDGF (Preferred Plan retirements/retrofits with the purchase of Dogwood)

The Company will update and review the critical uncertainties, Preferred Plan and contingency plans as part of the 2015 IRP to be filed in April 2015.

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, 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 ** Highly Confidential **

7.6.2 GENERATION ADDITION

GMO issued a Request for Proposals ("RFP") on July 17, 2013 to obtain and evaluate wind project offers from wind developers. The RFP responses were such that the Company opted to pursue a wind facility in 2013 to lock-in the aggressive wind pricing offered in 2013 that may not be available in the future if the PTC is not renewed. The wind facility GMO obtained through a Power Purchase Agreement ("PPA") is for a 200 MW facility located in the State of Missouri. The PPA was executed on November 13 , 2013 and has an expected Commercial Operating Date ("COD") of on or before December 31, 2015. A draft schedule of the major milestones for the new wind resource addition is provided in Table 60 below:

Table 60: Wind Resource Addition Schedule

Milestone Description	Milestone Dates
Issue RFP	July 17, 2013
Proposals Due	August 12, 2013
Notify Responders of Status	September 12, 2013
Recommend Short List to Senior Leadership	September 23, 2013
Begin Contract Negotiations with Short Listed Responders	October 10, 2013
Conclude Contract Negotiations	November 12, 2013
PPA Executed	November 13, 2013
Engineering and Procurement Begins	1Q, 2014
Construction Begins	1Q, 2015
Commercial Operation	October 31, 2015 - December 31, 2015

7.6.3 DEMAND-SIDE MANAGEMENT SCHEDULE

The current schedule for ongoing and planned DSM programs is shown in Table 61 below:

Table 61: DSM Program Schedule

Program Name	Program Type	Segment	Tariff Filed	EM&V plan submitted	MEEIA DSM program approved	Program Implemented	Annual Report	Evaluations Begun	EM&V Completed and draft report available
Low-Income Weatherization Program	Energy Efficiency	Residential	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	Apr-14
Energy Star® New Homes Program	Energy Efficiency	Residential	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	No participation
Cool Homes Program	Energy Efficiency	Residential	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	Apr-14
Home Performance with Energy Star® Program	Energy Efficiency	Residential	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	Apr-14
Commercial and Industrial Rebate Program Program	Energy Efficiency	C&I	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	Apr-14
MPower Rider	Demand Response	C&I	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	Apr-14
Energy Optimizer Program	Demand Response	Residential	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	Apr-14
Building Operator Certification Program	Educational	C&I	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	N/A (Educational)
Home Energy Analyzer Program	Educational	Residential	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	N/A (Educational)
Business Energy Analyzer Program	Educational	C&I	Jan-13	Oct-13	Jan-13	Feb-13	12 months after MEEIA approval	Aug-13	N/A (Educational)
Appliance Turn-In Program	Energy Efficiency	Residential	Jan-13	Oct-13	Jan-13	Jun-13	12 months after MEEIA approval	Aug-13	Apr-14
Commercial and Industrial Prescriptive Rebate Program	Energy Efficiency	C&I	Jan-13	Oct-13	Jan-13	Jun-13	12 months after MEEIA approval	Aug-13	Apr-14
Multi-Family Rebate Progam	Energy Efficiency	Residential	Jan-13	Oct-13	Jan-13	Jun-13	12 months after MEEIA approval	Aug-13	N/A (Only 1 project)
Residential Energy Reports Program	Energy Efficiency	Residential	Jan-13	Oct-13	Jan-13	Jul-13	12 months after MEEIA approval	Aug-13	Apr-14
Residential Lighting and Appliance Program	Energy Efficiency	Residential	Jan-13	Oct-13	Jan-13	Jun-13	12 months after MEEIA approval	Aug-13	Apr-14

SECTION 8: SPECIAL CONTEMPORARY ISSUES

From the Commission Order, EO-2014-0065, the following Special Contemporary Resource Planning Issues are addressed as follows:

8.1 PROCESS TO QUANTIFY DEMAND-SIDE SAVINGS

Describe and document the process GMO used to quantify all cost-effective demand-side savings in its most recent annual update filing.

Response: GMO engaged Navigant, Inc. to conduct a comprehensive potential study. The results of the potential study were published in August 2013. The potential study included a baseline market characterization that involved collection of extensive primary data from 208 customer sites in Kansas and Missouri. These customer data, combined with SIC code analysis of KCP&L and GMO's customer database, were used to estimate baseline measure characteristics (e.g., savings and initial market shares – see Section 2.2) and the initial breakdown of GMO historic load by customer segment and by end use.

8.1.1 SUMMARY OF MARKET CHARACTERIZATION STUDY

Conducted on-site surveys with samples of 69 residential, 97 commercial, and 42 industrial customers across KCP&L/GMO territories.

- All significant energy using equipment was inventoried, as well as building shell characteristics.
- Data gathered includes efficient and baseline measure "densities" and market shares for each.
- Conducted online surveys of 400 residential, 400 commercial, and 150 industrial customers across KCP&L/GMO territories.
- Data gathered was focused on customer decision-making characteristics, with a focus on developing data to generate payback acceptance curves.
- Data were used to:

- Calibrate historical end-use analysis model and to facilitate developing an end-use forecasting model;

- Develop measure savings estimates/baseline assumptions and starting market-share estimates;

- Estimate market adoption parameters (e.g., willingness to pay).

The potential study also included a measure identification and characterization analysis. Navigant developed a comprehensive measure list of conventional and emerging technologies as the first step in the measure characterization process. The initial measure list was identified through a review of a) previous DSM potential studies conducted for the state of Missouri and other Missouri utilities, b) other Navigant potential, evaluation and program design work, and c) existing GMO program descriptions and custom applications. Navigant then modified the measure list – both adding and deleting measures - to incorporate feedback from GMO and Missouri stakeholders. Overall, 500 total measures were considered across the sectors and end-uses listed below, with 300 characterized for the final model. The final list of measures, including detailed measure characterization results, can be found in Appendix A of Navigant's Potential Study, which has been submitted as a workpaper to the 2014 Annual Update filing.

8.1.2 SUMMARY OF MEASURE IDENTIFICATION AND CHARACTERIZATION ANALYSIS

- Over 500 energy efficiency, demand response and CHP measures were considered for this study and over 300 were characterized in detail. Measures not characterized were those with very low densities as found in the baseline study.

- Measure characterization includes:

    - Measure definition: retrofit, new construction, or replace on burn-out;

    - EE and baseline definitions, appropriate units for normalizing;

- Energy savings for EE measure compared to code compliant and baseline measure;
- Peak demand savings for EE measure compared to code compliant and baseline;
- Natural gas savings, for benefit-cost analysis;
- Measure lifetimes;
- Incremental costs: material and labor compared to baseline/code;
- NTG estimates: mainly 1.0, except for 0.52 for recycled appliances;
- Technology densities: per home and per 1,000 square feet for non-residential space;
- Technology applicability: the percentages of base technology options that can be replaced by the EE alternative.

8.1.3 ESTIMATION OF MARKET POTENTIAL

The Potential Study also estimated the technical, economic, and market (achievable) potential for energy and demand savings. Navigant estimated the technical, economic, and market Potential for this study using its proprietary Demand Side Management Simulator (DSMSim™) model. DSMSim is a bottom-up technology diffusion and stock tracking model implemented using a System Dynamics framework.

The Potential Study included the development and estimation of payback acceptance curves which were used to estimate the long-run, or equilibrium, market share of energy efficiency measures. The objective of this analysis was to generate payback curves for each of three sectors: residential, commercial, and industrial. The approach chosen was to survey customers in the KCP&L/GMO service territory about the payback times required for the adoption of energy efficient technologies and to use these survey data to statistically estimate payback curves.

More information regarding the potential study can be found in the report documents and appendices;

1. Navigants_KCPL_Demand_Side_Resource_Potential_Study_Report_FINAL_2013_August_R17 HIGHLY CONFIDENTIAL.pdf

2. Navigants_KCPL_Demand_Response_Potential_Study_Report_August_2013.pdf

3. Appendix A -- Measure Characterization Summary R2.xlsx

4. Appendix L -- Detailed Potential Output R5.xlsm

8.2 QUANTIFICATION OF DEMAND-SIDE SAVINGS

Describe and document the quantification of all cost-effective demand-side savings for GMO in its most recent annual update filing.

Response: GMO used the results of the Navigant potential study as a guideline toward the expectation that the GMO demand-side programs are achieving the goal of all cost-effective demand-side savings.

8.3 PORTFOLIO OF DEMAND-SIDE RESOURCES

Describe and document how GMO's portfolio of demand-side resources in its adopted preferred resource plan in its most recent annual update filing is – or is not – designed to achieve a goal of all cost-effective demand-side savings during the 3-year implementation plan period and during the 20-year planning horizon, to the extent reasonable and possible.

Response: GMO developed a modified RAP level of DSM for 2013, 2014, and 2015 and filed a MEEIA demand-side resource plan based upon these modified levels. GMO's MEEIA demand-side resource plan was approved by the Commission and GMO began offering these approved MEEIA programs in January 2013. GMO used the potential study RAP levels and program recommendations starting in 2016 and beyond. This plan also assumes the potential study RAP level for program years 2016 and beyond.

GMO used the results of the Navigant potential study as a guideline toward the expectation that the GMO's demand-side programs are achieving the goal of all cost-effective demand-side savings during the 20-year planning horizon.

8.4 VENTYX MIDAS® MODEL PLANS

Describe and document generally GMO's plans and timing to replace the Ventyx Midas® model currently used to perform its integrated resource plan and risk analysis required in 4 CSR 240-22.060.

Response: GMO has no immediate plans to replace Midas®, but certainly would not rule out a change at some point in the future if another product could better serve its needs. KCP&L is not aware of another product that could effectively replace Midas®. Other models are available, but most only do part of what Midas® currently does, usually lacking the integration of financials along with the economic dispatch model, which are necessary components for revenue requirement and other performance measures used in IRP work. We will look at what possible replacements are available at this time and continue to evaluate this issue.

8.5 COMMON SOFTWARE PLATFORM TO PERFORM ANALYSIS

Describe and document generally GMO's plan to work collaboratively with Staff, the Office of Public Counsel, and other parties to consider the possible transition – over time – to a common software platform to perform the analysis required by 4 CSR 240-22.060.

Response: KCP&L would welcome a collaborative effort aimed at improving the entire process of performing this analysis, but views the choice of software platform(s) as merely one aspect of that. Addressing and targeting areas for improvement should be driven by rule requirements, not a selection of software.

8.6 DISTRIBUTED GENERATION, DSM, COMBINED HEAT AND POWER, & MICRO-GRID PROJECTS

Analyze and document the impacts of opportunities for GMO to implement distributed generation, DSM programs, combined heat and power (CHP), and micro-grid projects in collaboration with municipal, agricultural and/or industrial processes with on-site electrical and thermal load requirements, especially in targeted areas where there may be transmission or distribution line constraints.

Response: As part of the potential study, Navigant conducted an analysis of combined heat and power (CHP) systems to identify DSM opportunities from this technology. Navigant developed a stand-alone model for this analysis because the approach varied considerably from the analysis of EE measures considered in the potential study and because the results from this analysis indicate a large, but uncertain potential from CHP systems. Using this tool, Navigant evaluated the cost-effectiveness of CHP systems driven by a range of prime-movers, system configurations, and usage levels and then identified individual customers that may be well suited to the systems that were found to be cost effective.

Navigant limited this analysis to large commercial and industrial customers and assumed that CHP systems would be fueled by natural gas. Although the model is capable of analyzing both natural gas-fired and opportunity fuel-fired systems, Navigant did not have the data available to determine the availability of opportunity fuels at or near sites. This type of analysis must be highly customized to individual sites and must include a valuation of opportunity fuel feed stocks currently used for other purposes (or disposed of). This type of analysis was beyond the scope of the potential study.

8.7 NATURAL GAS, CO_2 AND COAL PRICE PROJECTIONS

Document for use in economic modeling and resource planning low, base, and high projections for natural gas prices, CO2 prices, and coal prices, to the extent it is not already included in the 2014 IRP filing.

Response: Low, base, and high projections for natural gas, CO_2, and coal prices have been included herein – see Section 3: above

8.8 ENVIRONMENTAL CAPITAL AND OPERATING COSTS FOR COAL-FIRED GENERATING UNITS

Analyze and document the future capital and operating costs faced by each GMO coal-fired generating unit in order to comply with the following environmental standards:

(1) Clean Air Act New Source Review provisions: The Company reviews proposed generation projects and permits these projects, as necessary, to comply with rule.

(2) 1-hour Sulfur Dioxide National Ambient Air Quality Standard: See Table 62, Table 63, and Table 64 below.

(3) National Ambient Air Quality Standards for ozone and fine particulate matter: See Table 62, Table 63, and Table 64 below.

(4) Cross-State Air Pollution Rule, in the event that the rule is reinstated:

In the event the rule is reinstated in part or whole, the Company will comply through a combination of trading allowances within or outside its system in addition to changes in operations as necessary.

(5) Clean Air Interstate Rule: The Company complies with the rule through a combination of trading allowances within or outside its system.

(6) Mercury and Air Toxics Standards: See Table 62, Table 63, and Table 64 below.

(7) Clean Water Act Section 316(b) Cooling Water Intake Standards: See Table 62, Table 63, and Table 64 below.

(8) Clean Water Act Steam Electric Effluent Limitation Guidelines: See Table 62, Table 63, and Table 64 below.

(9) Coal Combustion Waste rules: See Table 62, Table 63, and Table 64 below.

(10) Clean Air Act Section 111(d) Greenhouse Gas standards for existing sources: The impacts of this rule will not be known until after the rule is first proposed and ultimately finalized.

(11) Clean Air Act Regional Haze Requirements: The Company is installing BART at its LaCygne Generating Station for compliance with this rule.

Table 62: Retrofit Capital Cost Estimates ** Highly Confidential **

Table 63: Retrofit Fixed O&M Estimates ** Highly Confidential **

HC

Table 64: Retrofit Variable O&M Estimates ** Highly Confidential **

HC

8.9 TRANSMISSION GRID IMPACTS

Analyze and document the cost of any transmission grid upgrades or additions needed to address transmission grid reliability, stability, or voltage support impacts that could result from the retirement of any existing GMO coal-fired generating unit in the time period established in the IRP process, to the extent not already included in the 2014 IRP filing.

Response: The GMO coal units identified for potential retirement in the IRP plan are Sibley Units 1, and 2, and Lake Road 4/6. The transmission grid impact of retirement of these small units should be minimal. Retirement of any of the larger GMO coal fired generators would necessitate the replacement of that supply with some other resource. It is not possible to identify all the necessary transmission upgrades that might be associated with retirement of a specific generating unit without knowing the specific location of the replacement generation. From the transmission perspective, the most advantageous location for replacement generation is the site of the retired generation where the transmission capacity utilized by the retired generation would be available for new resources.

8.10 EMERGING ENERGY EFFICIENCY TECHNOLOGIES

Analyze the impact of foreseeable emerging energy efficiency technologies throughout the planning period.

Response: As part of the potential study analysis, Navigant developed a comprehensive measure list of conventional and emerging technologies as the first step in the measure characterization process described in Section 8.1 above.

The initial measure list was identified through a review of a) previous DSM potential studies conducted for the state of Missouri and other Missouri utilities, b) other Navigant potential, evaluation and program design work, and c) existing GMO program descriptions and custom applications. Navigant then modified the measure list – both adding and deleting measures - to incorporate feedback from GMO and Missouri stakeholders. Overall, 500 total measures were considered across the sectors and end-uses listed below, with 300 characterized for the final model. The

final list of measures, including detailed measure characterization results, can be found in Appendix A.

For example, emerging technologies such as LEDs show market penetration later in the forecast horizon as their costs and performance come down an estimated learning curve, thereby improving their competitiveness with other measures such as CFLs.