VOLUME 7:

RISK ANALYSIS AND STRATEGY SELECTION

KCP&L GREATER MISSOURI OPERATIONS COMPANY (GMOC)

INTEGRATED RESOURCE PLAN

CASE NO. EE-2009-0237

4 CSR 240-22.070

** PUBLIC **

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TABLE OF CONTENTS

TABLE OF TABLES

TABLE OF FIGURES

TABLE OF APPENDICES

INDEX OF RULES COMPLIANCE

VOLUME 7: RISK ANALYSIS AND STRATEGIC SELECTION

PURPOSE: This rule requires the utility to identify the critical uncertain factors that affect the performance of resource plans, establishes minimum standards for the methods used to assess the risks associated with these uncertainties and requires the utility to specify and officially adopt a resource acquisition strategy.

SECTION 1: FORMAL DECISION ANALYSIS

(1) The utility shall use the methods of formal decision analysis to assess the impacts of critical uncertain factors on the expected performance of each of the alternative resource plans developed pursuant to 4 CSR 240-22.060(3), to analyze the risks associated with alternative resource plans, to quantify the value of better information concerning the critical uncertain factors and to explicitly state and document the subjective probabilities that utility decision-makers assign to each of these uncertain factors. This assessment shall include a decision-tree representation of the key decisions and uncertainties associated with each alternative resource plan.

For the August 5, 2009 filing GMO prepared a Risk Analysis testing a number of potential risk factors. The original risk analysis is documented in Volume 7 of that filing. Subsequently, the Company has met with Stakeholders in both the Stakeholder Process and during the Missouri Electric Utility Risk Analysis Summit GMO organized on March 30, 2011. While the Risk Analysis for this filing draws heavily on the results of the initial IRP process from 2009, it has been modified to incorporate changing market conditions and feedback from Stakeholders provided during the Stakeholder Process and Risk Summit.

To perform the Risk Analysis, GMO utilized third-party software programs to study the risks that would impact the alternative resource plans and allowed the Company to judge which risk factors are critical to the relative performance of the alternative

plans. These models make use of decision tree risk analysis to calculate alternative plan financial performance under different risk scenarios.

These models and associated processes allowed GMO to quantify these risks and evaluate Critical Uncertain Factors. These models also provide results that allow GMO to quantify the value of better information.

A decision tree of the risks each plan is evaluated under is included in detail in Section 3 of this Volume as Figure 9 and Figure 10.

SECTION 2: PRELIMINARY SENSITIVITY ANALYSIS

(2) Before developing a detailed decision-tree representation of each resource plan, the utility shall conduct a preliminary sensitivity analysis to identify the uncertain factors that are critical to the performance of the resource plan. This analysis shall assess at least the following uncertain factors:

GMO compiled information concerning the risks listed in 22.070 (2) from subject matter experts within the company. The experts were requested to provide mid, high and low scenario forecasts for their particular risk driver. The mid, high and low scenarios were also assigned a subjective probability by the subject matter experts. The values for the mid low and high cases were to be the 10^{th}, 50^{th} and 90^{th} percentile values of the probability distributions of each individual risk factor. These values are chosen to approximate the values of risk factors that meet the guidelines provided in Miller and Rice[1] for a discrete approximation of continuous probability distributions. This information was collected and presented to management in a series of meetings to solicit management input into the drivers of the eventual model process.

The results of the preliminary risk analysis from the August 5, 2009 filing were retained and used for this filing. Two additional risk factors were studied as part of the Stakeholder Process and the results of their risk analysis have been included in this filing.

GMO utilized System Optimizer Model™ [CapEx™] from Ventyx to provide a preliminary test of each sensitivity listed in 22.070 (2) along with additional sensitivities chosen by the Company and input from stakeholders to complete its risk assessment.

[1] "Discrete Approximations of Probability Distributions", Allen C. Miller, III and Thomas R. Rice, Management Science, Vol. 29, No. 3, March 1983. Table 3, page 358.

CapEx™ is a linear program based model that chooses a lowest-cost expansion plan given a single determined load growth pattern and other fixed market factors. Once a load growth forecast and market is defined, the model is allowed to pick from among all supply, DSM and ** [redacted] ** available to arrive at the lowest possible cost expansion plan.

GMO executed test runs for each sensitivity to determine if the resulting lowest cost expansion plan constituted different choices of DSM, supply ** [redacted] ** If the model did not materially change its expansion plan due to a change in a sensitivity value, that factor was not deemed to be a Critical Uncertain Factor. However, if the model chose different expansion options, such as different technologies or foregoing DSM programs, then that factor would be deemed a Critical Uncertain Factor and was incorporated within the Integrated Analysis Risk Tree.

The results of the Preliminary CapEx™ studies were included in detail in the working papers attached to the August 5, 2009 filing. The results of the additional risk factors were presented to Stakeholders during the Stakeholder Process. What follows is a summary of each tested risk factor describing the manner in which that factor has been incorporated into this present analysis.

2.1 LOAD GROWTH

(A) The range of future load growth represented by the low-case and high-case load forecasts;

The high, mid and low load growth cases compliant with and described in Rule 22.030 (7) were used in the CapEx™ model. The CapEx™ results demonstrated that load growth is a Critical Uncertain Factor. Load growth sensitivity was passed onto the integrated analysis.

For the Revised filing, the Stakeholders agreed that the Company should update the values of the load forecast from the August 5, 2009 filing to the load growth forecasts developed for the 2010 Corporate Budgeting Process. The Stakeholders requested

an update using the 2011 Corporate Budgeting Process, however it was not available in time for the Revised filing in January 18, 2011.

For this filing, the Company has updated the load growth estimate to the forecast used in the 2011 Corporate Budgeting Process detailed in Figure 1 and Figure 2.

Figure 1: Peak Load Growth Forecasts

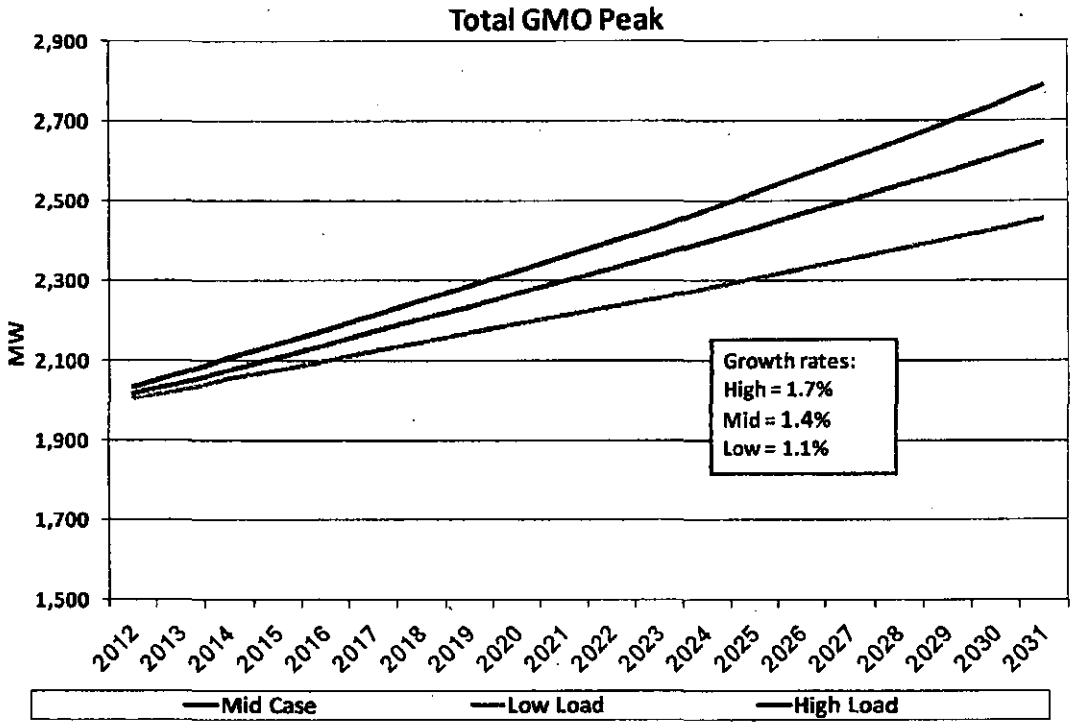

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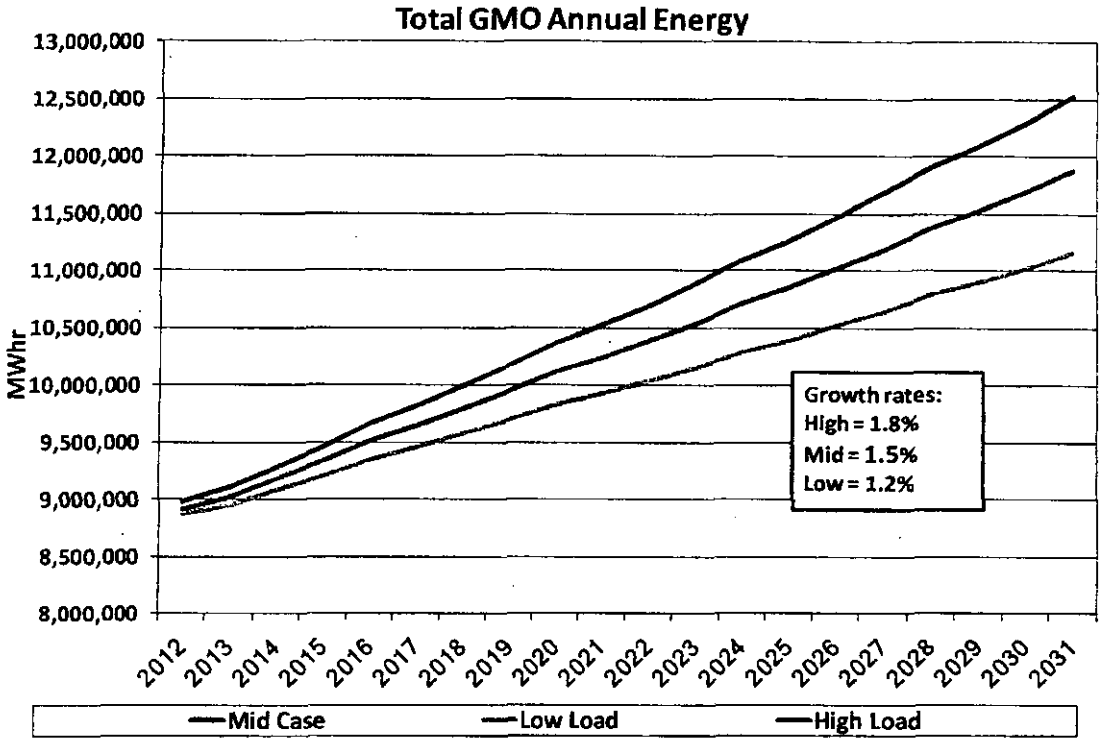
Figure 2: Energy Load Growth Forecasts



Tabular data that created Figure 1: Peak Load Growth Forecasts and Figure 2: Energy Load Growth Forecasts are provided on the work paper disc in an Excel file entitled "Load Forecasts.xlsx".

2.2 INTEREST RATE LEVELS

(B) Future interest rate levels and other credit market conditions that can affect the utility's cost of capital;

GMO compiled a family of interest rate impacted model determinants, such as Return on Ratebase, AFUDC, etc. Two CapEx™ scenarios of these determinants were developed assuming a high and low long term interest rate risk. GMO discovered that the CapEx™ lowest-cost expansion plans were sensitive to the high-interest case but insensitive to the low-interest case. Therefore only a high interest rate risk was forwarded to the Integrated Analysis Risk Tree.

The mid and high cases were updated for this filing to match current market conditions. These determinants are detailed in Table 1 below.

Table 1: Interest Rates and Credit Conditions **Highly Confidential**

Factor	Mid	High
Short-term Rate		
Long-term Rate		
Return on Equity		
Debt Ratio		
Pre-tax Return on Ratebase		
After-tax Return on Ratebase (t=39%)		
AFUDC Equity Rate		
AFUDC Debt Rate		
AFUDC Rate		

Tabular data that created Table 1: Interest Rates and Credit Conditions **Highly Confidential** is provided on the work paper disc in the Excel file entitled "Table240-22.070(2)(B)Interest Rates and Credit Conditions".

2.3 CHANGES IN ENVIRONMENTAL LAWS

(C) Future changes in environmental laws, regulations or standards;

All changes in environmental laws are incorporated into the Integrated Analysis as a capital cost outlay for retrofitting existing units. The only rule change not addressed in this fashion is the Clear Air Transport Rule (CATR). CATR changes the previously promulgated Clean Air Interstate Rule (CAIR) by adjusting the geography of implementation and the levels of emission targets. CATR covers both NO_X and SO2 emissions. Since SO_2 credit risk is detailed later in this section of the rule, only NO_X credit risk is modeled for rule 22.070 (2) (C). NO_X credit forecast development is detailed in the August 5, 2009 filing in Volume 4, Supply-Side Analysis.

In the preliminary Risk analysis performed for the August 5, 2009 filing, high and low NO_X credit scenarios were developed and run in CapEx™. Due to the small changes in optimal plans from CapEx™, GMO determined that future NO_X credit prices do not

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constitute a Critical Uncertain Factor and therefore are not included in the Integrated Analysis Risk Tree.

The mid level of NO_X credits prices are used in the long term forecast of power prices and the calculation of alternative plan revenue requirements. The mid level forecast of NO_X Annual and Seasonal credit prices was updated for this filing and is detailed in Figure 3: Annual NOX Credit Prices and Figure 4: Seasonal NOX Credit Prices below. Tabular data that created Figure 3: Annual NOX Credit Prices and Figure 4: Seasonal NOX Credit Prices is provided on the work paper disc in the Excel file entitled "Emission Credit Price Forecasts.xlsx".

Figure 3: Annual NO_X Credit Prices **Highly Confidential**

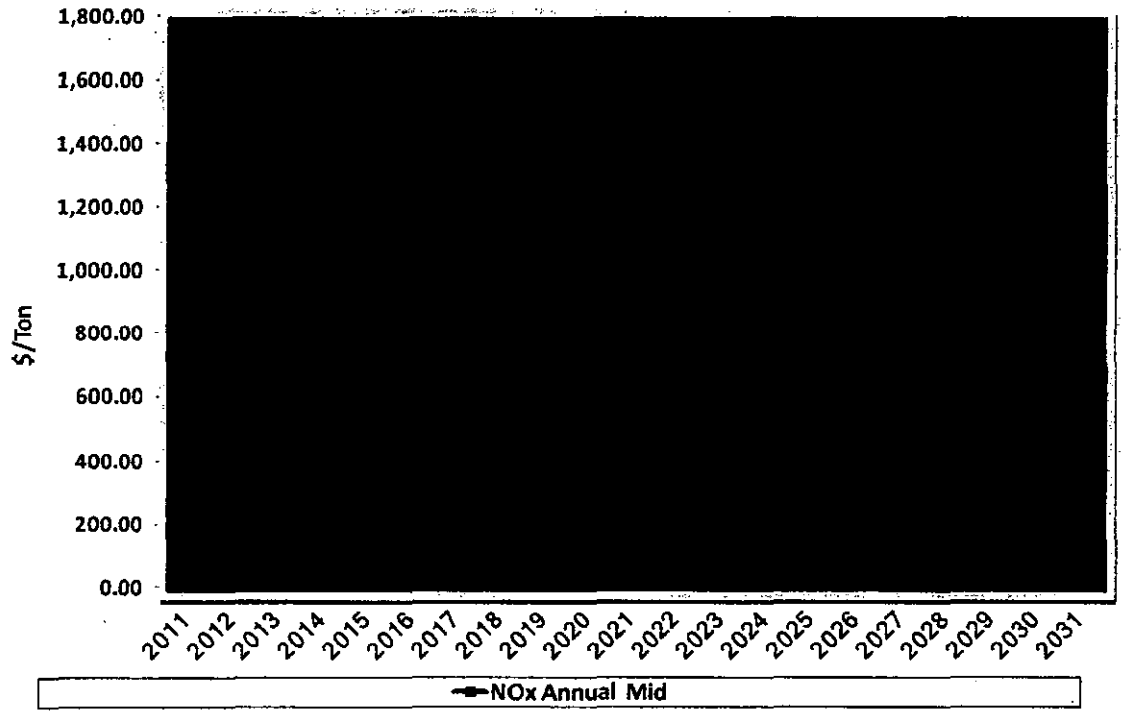

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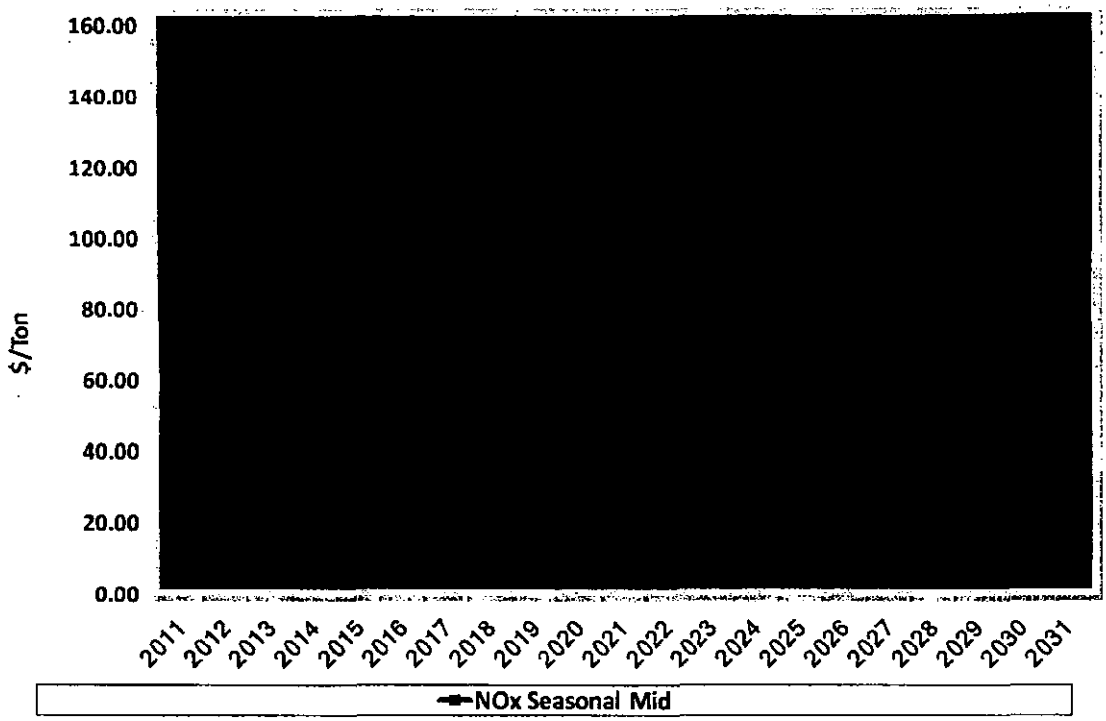
Figure 4: Seasonal NO_X Credit Prices **Highly Confidential**



2.4 REAL FUEL PRICES

(D) Relative real fuel prices;

See each individual fuel price discussion below.

2.4.1 NATURAL GAS

High, mid and low Natural Gas price forecast scenarios were developed as inputs into the CapEx™ model. In the original preliminary risk analysis performed for the August 5, 2009 filing, the optimized expansion plans for the high and low cases are sufficiently different to require adding Natural Gas price risk as a Critical Uncertain Factor. Natural Gas price forecast development is detailed in Volume 4, Supply-Side Analysis of the August 5, 2009 filing.

The Natural Gas price forecasts had been updated for this filing using a March 2011 Company update of fuel prices and are detailed in Figure 5.

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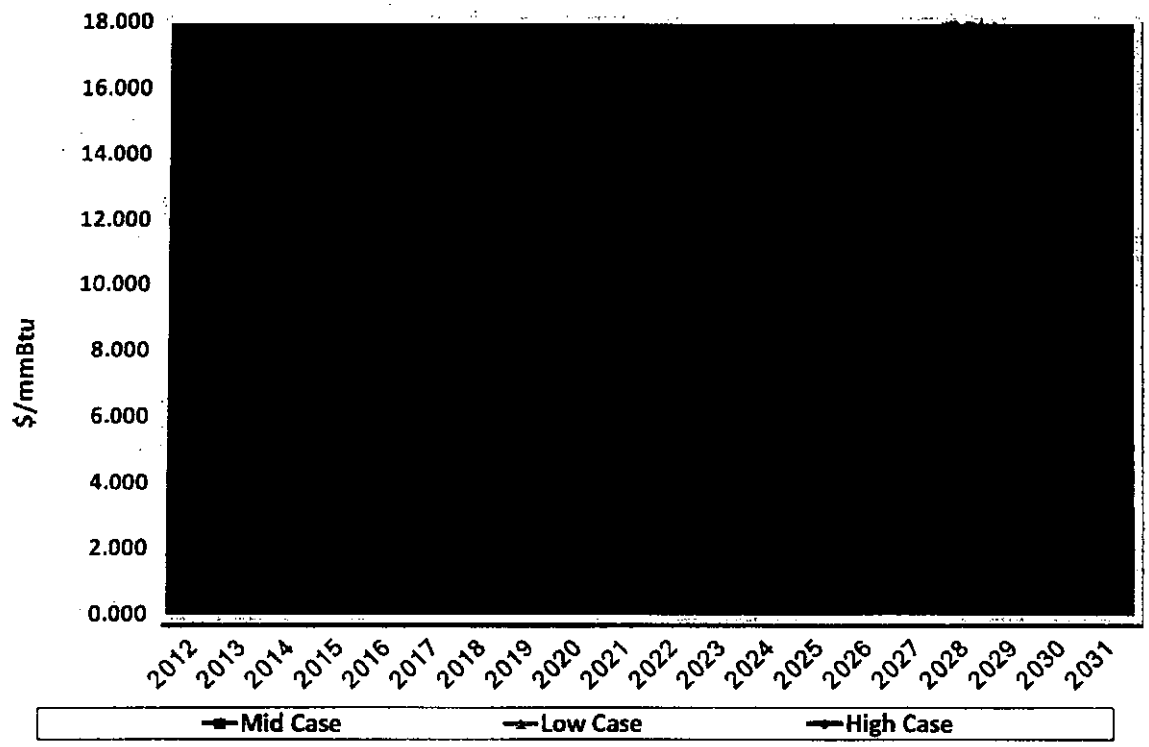
Figure 5: Natural Gas Price Forecasts **Highly Confidential**



Tabular data that created Figure 5: Natural Gas Price Forecasts is provided on the work paper disc in the Excel file entitled "Fuel Price Forecasts.xlsx".

2.4.2 COAL

High and low delivered coal price forecast scenario was modeled in CapEx™. The resulting optimal expansion plans were changed as a response to changes in the forecasted price of coal. Therefore coal price sensitivity was included in the Integrated Analysis Risk Tree as a Critical Uncertain Factor. Coal price forecast development is detailed in Volume 4, Supply-Side Analysis of the August 5, 2009 filing.

The coal price forecasts had been updated for this filing using a March 2011 Company update of fuel prices and are detailed in Figure 6.

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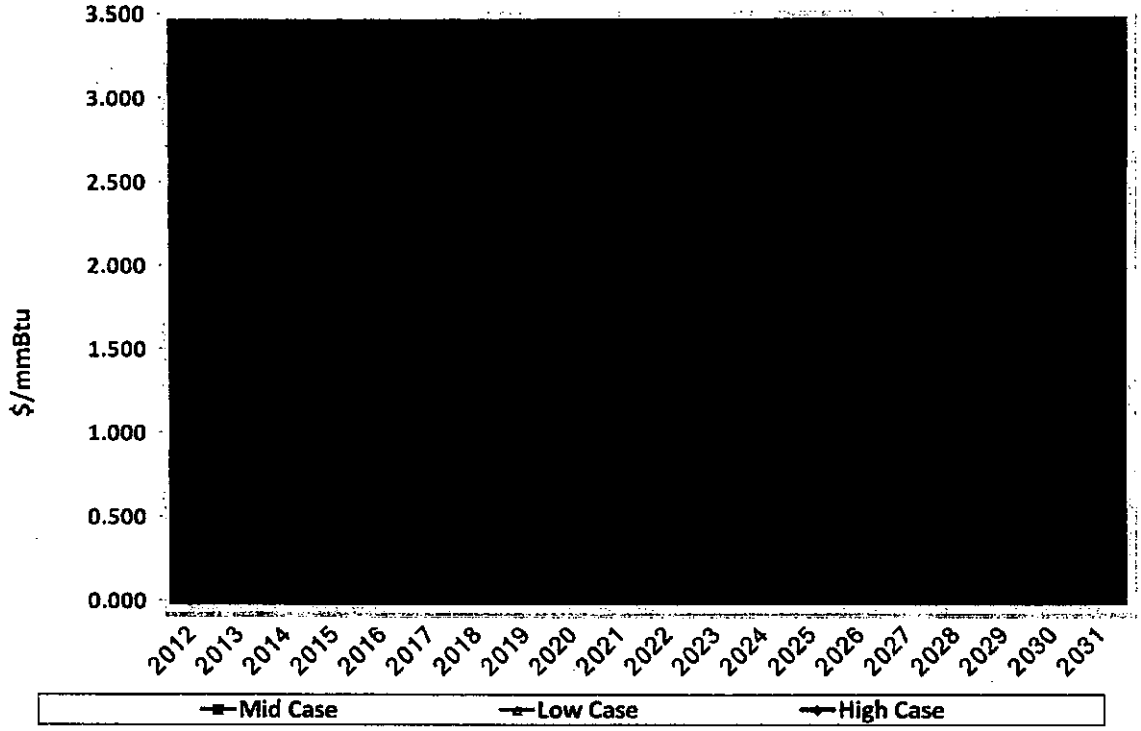
Figure 6: PRB Delivered Coal Price Forecast **Highly Confidential**



Tabular data that created Figure 6: PRB Delivered Coal Price Forecast is provided on the work paper disc in the Excel file entitled "Fuel Price Forecasts.xlsx".

2.5 SITING AND PERMITTING COSTS

(E) Siting and permitting costs and schedules for new generation and generation-related transmission facilities;

Siting and permitting costs are incorporated into the cost of construction risk detailed in 22.070 (2) (F).

2.6 CONSTRUCTION COSTS

(F) Construction costs and schedules for new generation and transmission facilities;

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GMO determined high and low construction cost estimates for each supply technology evaluated. The supply options forwarded from the preliminary screen conducted in compliance with Rule 22.040 (2). High and low construction costs scenarios were modeled in CapEx™. The resulting optimal expansion plans displayed material changes over the range of construction costs. Therefore, construction cost risk was incorporated as a Critical Uncertain Factor in the Integrated Analysis Risk Tree.

Construction costs risks vary by technology. Detailed information for each of the resource options identified can be viewed in Volume 4, Appendix 4E of the August 5, 2009 filing.

The mid point construction cost of some types of technology had been revised after studying the responses to RFPs placed by the company. Construction costs that have been modified since the August 5, 2009 filing are detailed in Table 2: Capital Construction Costs. Tabular data that created Table 2: Capital Construction Costs is provided on the work paper disc in the Excel file entitled "Table240-22.070(2)(F)Capital Construction Costs.xlsx".

Table 2: Capital Construction Costs ** Highly Confidential **

Capital Construction Costs	
Type	$/kw
Solar	[redacted]
Wind	
Combined Cycle	
Combustion Turbine	

2.7 PURCHASE POWER AVAILABILITY

(G) Purchased power availability, terms and cost;

High and low purchased power availability was simulated with a high and low cost for the capacity terms of the contracts. High and low purchased power availability scenarios were modeled in CapEx™. No material changes were identified in the

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model's optimal expansion plans. Purchased power availability was not identified as a Critical Uncertain Factor. This risk was not included in the Integrated Analysis Risk Tree.

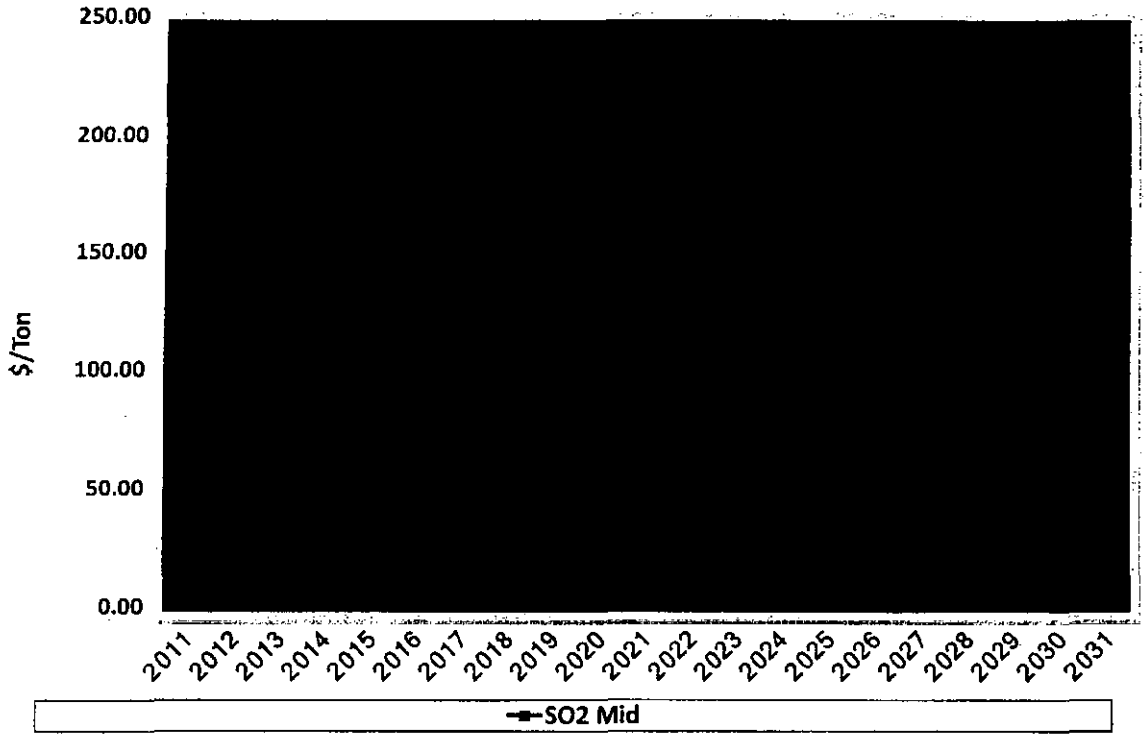
2.8 SULFUR DIOXIDE

(H) Sulfur dioxide emission allowance prices;

SO_2 credit price forecast development is detailed in Volume 4, Supply-Side Analysis. High and low SO_2 credit price forecasts were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this cost was varied. SO_2 credit prices are not considered a Critical Uncertain Factor and were not used as part of the Risk Tree used in the Integrated Analysis.

The mid level of SO_2 credit prices are used in the long term forecast of power prices and the calculation of alternative plan revenue requirements. The mid level forecast of SO_2 credit prices was updated for this filing and is detailed in Figure 7 below. Tabular data that created Figure 7: SO2 Credit Price Forecast is provided on the work paper disc in the Excel file entitled "Emission Credit Price Forecasts.xlsx".

Figure 7: SO_2 Credit Price Forecast **Highly Confidential**



2.9 FIXED O&M COSTS

(I) Fixed operation and maintenance costs for existing generation facilities;

High and low Fixed O&M costs were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this cost was varied. Therefore, fixed O&M costs were not considered a Critical Uncertain Factor and were not used as part of the Risk Tree in the Integrated Analysis.

2.10 EQUIVALENT FORCED OUTAGE RATES

(J) Equivalent or full- and partial-forced outage rates for new and existing generation facilities;

High and low equivalent forced outage rates were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this factor was varied.

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Therefore, equivalent forced outage rates were not considered a Critical Uncertain Factor and were not used as part of the Risk Tree in the Integrated Analysis.

2.11 LOAD IMPACT OF DSM

(K) Future load impacts of demand-side programs; and

High and low load impacts of DSM were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this factor was varied. Therefore, load impacts of DSM were not considered a Critical Uncertain Factor and were not used as part of the Risk Tree in the Integrated Analysis.

2.12 MARKETING COSTS OF DSM

(L) Utility marketing and delivery costs for demand-side programs.

High and low marketing costs of DSM were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this factor was varied. Therefore, marketing costs of DSM were not considered a Critical Uncertain Factor and were not used as part of the Risk Tree in the Integrated Analysis.

2.13 ADDITIONAL RISK MEASURES REVIEWED

GMO considered three other risks not specifically listed in 22.070 (2).

2.13.1 CO_2 CREDIT PRICES

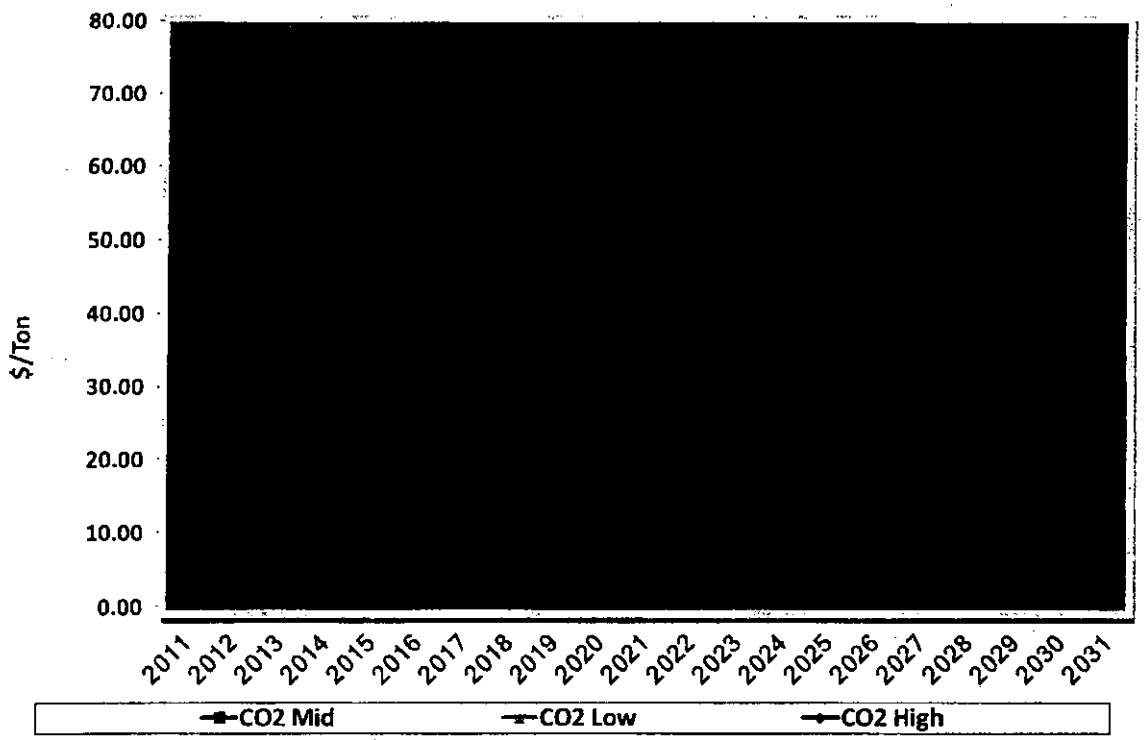
GMO assumed a market for CO_2 emission credits will form. The costs of this market were not planned to be included as a part of the Integrated Analysis Probable Environmental Costs but instead handled as a sensitivity which may of may not become a Critical Uncertain Factor.

High, mid and low CO_2 credit price forecasts were developed, and their effects modeled in CapEx™. The resulting optimal expansion plans showed sensitivity to CO_2 prices. Therefore, CO_2 credit prices were included in the Integrated Analysis

Risk Tree as a Critical Uncertain Factor. CO_2 credit price forecast development is detailed in Volume 4, Supply-Side Analysis of the August 5, 2009 filing.

The CO_2 credit price forecasts had been updated for this filing using a March 2011 Company update and are detailed in Figure 8. Tabular data that created Figure 8: CO2 Credit Price Forecasts is provided on the work paper disc in the Excel file entitled "Emission Credit Price Forecasts.xlsx".

Figure 8: CO_2 Credit Price Forecasts **Highly Confidential**



2.13.2 PRODUCTION TAX CREDIT

The extension of the Production Tax Credit associated with the emergency funding bill and the stimulus package pushed the time frame of the risk associated with the potential loss of renewable PTC well past the time frame of either the implementation plan or the resource acquisition time frame of the August 5, 2009 filing. When the

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remaining years of the test period were simulated with and without continuing the PTC, the resulting expansion plans did not change. Therefore the PTC is not a Critical Uncertain Factor for the IRP and was not included in the Risk Tree of the Integrated Analysis.

2.13.3 FEDERAL RENEWABLE PORTFOLIO STANDARD

The Company simulated a risk associated with a potential Federal Renewable Portfolio Standard. The Federal Renewable Standard bill that was modeled was the Bingaman bill. The requirements of the proposed bill were similar to the Missouri standard requirements except that they were on a national level and not on a state only level. The Federal standard would not require GMO to acquire additional renewable resources beyond the requirements of the Missouri rules. However, the entire country will be required to acquire additional renewable resources causing an adjustment to power market prices. When adjusted market prices were input into the CapEx™ model, no change to the optimal expansion plan occurred. Therefore the Federal renewable standard was not deemed to be a Critical Uncertain Factor and not included in the Risk Tree of the Integrated Analysis.

2.14 RISK FACTORS FROM STAKEHOLDER PROCESS

The settlement agreement of Case EO-2209-0237 stipulated that the Company will study the impact of two additional risk factors: a Federal Energy Efficiency Standard and Smart Grid. Results of the analysis performed on these two sensitivities were shared with the Stakeholders during the Stakeholder Process. This paper documents the method used to analyze these two factors to determine if they are a Critical Uncertain Factors as defined in 240-22.070 (2) and reviews the results of the evaluation.

2.14.1 FEDERAL ENERGY EFFICIENCY STANDARD

2.14.1.1 Proposed Rule by the company

At the June 2010 Stakeholder Meeting, the Company proposed using Title II of The American Clean Energy and Security Act of 2009 (Waxman-Markey Bill) this comprehensive climate and energy legislation would establish an economy-wide, greenhouse gas (GHG) cap-and-trade system. Title II of the Act sets national targets for energy efficiency by customer class. These and other complementary measures are meant to address climate change and build a clean energy economy. The House Energy and Commerce Committee voted 33-25 to approve the ACES Act on May 21, 2009. The Act passed the House on June 26, 2009 by a vote of 219 to 212.

Using the definition of the targets for energy efficiency in Title II, the Company proposed a level of national energy reduction to be used in the national power price forecasting model. These targets were shared with the Stakeholder parties.

2.14.1.2 Staff proposed rule

At the June Stakeholder Meeting, Staff proposed using the Save American Energy Act, HR 889 bill to use as a basis for analysis. The bill proposes to amend Title VI of the Public Utility Regulatory Policies Act of 1978 to establish a Federal energy efficiency resource standard for retail electricity and natural gas distributors.

This bill is in the first step in the legislative process. Introduced bills and resolutions first go to committees that deliberate, investigate, and revise them before they go to general debate. It was introduced on February 4, 2009 and referred to the House Energy and Commerce Committee.

The Company agreed to use H.R.889 and its energy efficiency targets and alternative payment structure to simulate the effect of a Federal Energy Standard on the IRP alternative plan selection.

2.14.1.3 Salient Features of HR 889

HR 889 introduced a federal energy efficiency mandate upon all utilities based on retail energy load.

2.14.1.4 Base Quantity

A Base Quantity is determined for each utility and required energy reduction mandates are set as percent targets from this quantity. The complete definition of Base Quantity is given in Section 610 (b) (3) of the bill as follows:

> (3) BASE QUANTITY- The term 'base quantity', with respect to a retail electricity distributor or retail natural gas distributor, means, for each year for which a performance standard is established under subsection (d), the average annual quantity of electricity or natural gas delivered by the retail electricity distributor or retail natural gas distributor to retail customers during the 2 calendar years immediately preceding such year. In determining the base quantity of a retail natural gas distributor, natural gas delivered for purposes of electricity generation shall be excluded.

Since the Base Quantity is set in the future from recent actual retail energy sales, a forecast needs to be selected for use as a future Base Quantity. For the risk analysis, the Base Quantity forecast was the load forecast from the GMO 2010 Corporate Budget.

2.14.1.5 Annual Energy Efficiency Targets

Energy efficiency targets were listed in Section 610 (d) (2) of the bill. The percentages applicable to retail electric distributors are detailed in Table 3: Annual Energy Efficiency Targets. Tabular data that created Table 3: Annual Energy Efficiency Targets is provided on the work paper disc in the Excel file entitled "Table240-22.070(2)(M)Fed EE Conditions.xlsx".

Table 3: Annual Energy Efficiency Targets

National Annual Energy Reduction From Baseline			
2012	1.00%	2022	15.00%
2013	2.00%	2023	15.00%
2014	3.25%	2024	15.00%
2015	4.50%	2025	15.00%
2016	6.00%	2026	15.00%
2017	7.50%	2027	15.00%
2018	10.00%	2028	15.00%
2019	12.50%	2029	15.00%
2020	15.00%	2030	15.00%
2021	15.00%	2031	15.00%

2.14.1.6 Alternative Compliance payments

The bill proposed a federal alternative compliance payment in Section 610 (g) (2) (A) as follows:

> (A) $100 per megawatt-hour of electricity savings or alternative compliance payment that the retail electricity distributor failed to achieve or make, respectively;

A similar proposal for a state-based alternative compliance payment would equal $50 per megawatt-hour in addition to the Federal compliance payment above. Since the bill did not specifically declare the alternative compliance payment as a fixed price instrument, it was assumed that this compliance payment would increase over time with the rate of inflation. The $150 total cost for both State and Federal alternative compliance prices were set for 2012, the first year of required reductions, but increased at the rate of inflation for subsequent years. Tabular data that created Table 4: Alternative Compliance Payments is provided on the work paper disc in the Excel file entitled "Table240-22.070(2)(M)Fed EE Conditions.xlsx".

Table 4: Alternative Compliance Payments

Alternative Compliance Payment per MWhr			
Year	Cost	Year	Cost
2012	$ 150.00	2022	$ 192.01
2013	$ 153.75	2023	$ 196.81
2014	$ 157.59	2024	$ 201.73
2015	$ 161.53	2025	$ 206.78
2016	$ 165.57	2026	$ 211.95
2017	$ 169.71	2027	$ 217.24
2018	$ 173.95	2028	$ 222.68
2019	$ 178.30	2029	$ 228.24
2020	$ 182.76	2030	$ 233.95
2021	$ 187.33	2031	$ 239.80

2.14.1.7 Method of Analysis

The sensitivity analysis was methodologically identical to the analysis used in the 2009 GMO IRP filing of August 5, 2009. It used the CapEx Model to determine the

impact of the bill should it become law. A base and a test scenario were defined to perform this analysis.

2.14.1.8 Base Scenario - Federal EE Standard risk

The Base Scenario used all the mid-level risk values from the GMO IRP filing of August 5, 2009. The only adjustments was an update of the load forecast to the GMO 2010 corporate budget forecast and update of the cost of construction for wind generation.

A new set of Eastern Interconnect wholesale market power prices were developed to incorporate the most recent Ventyx Reference Case national long-term load forecasts. This wholesale market power price forecast was identical to the wholesale price forecast used in the Base Scenario-Smart Grid Risk Analysis described later.

One last adjustment was assumed respecting available level and price of energy efficiency. In order to fairly compare the base scenario with the test scenario, both had the same option of available energy efficiency. Since the Test Scenario had mandated efficiency that was no higher that the alternative compliance price, The DSM option available in the Base Scenario allowed for energy efficiency programs that cost as much as the alternative compliance penalty.

2.14.1.9 Test Scenario - Federal EE Standard Risk

The Test Scenario for the Federal Energy Efficiency Standard was different from the Base Scenario for Federal Energy Efficiency in two regards.

First, the Test Scenario forced the CapEx Model to select the DSM option in its final expansion plan. Secondly, the wholesale power market price forecast had an assumption that all retail load across the Eastern Interconnect has complied with the Standard, and reduced total loads from the original Eastern Interconnect energy forecast by the percentages listed inTable 3.

2.14.1.10 Test results

Results shared with the Stakeholders showed that the planning process is sensitive to a future Federal EE Standard configured like HR889. Due to the large upheavals this law makes to the power markets, a separate Integrated Analysis was built to analyze the best plan under this risk. The separate analysis assumes the same Risk Tree, yet the wholesale market prices and system load forecasts are adjusted to accommodate the reductions in native load that will accompany the new law. The results of those runs are detailed in Section 7 of Volume 6.

2.14.2 SMART GRID

2.14.2.1 Basis of analysis

To begin this study, the Company referred to the July 2009 "Smart Grid System Report" published by the U.S. Department of Energy. The study appendix lists 20 metrics that are used to determine the effectiveness of Smart Grid activities.

Many of these metrics do not lend themselves to production cost based analysis. Others have no direct cost but provide indirect benefit such as consumer acceptance, data sharing measures or reductions in customer complaints. Only one metric can be modeled in such a way to demonstrate an impact on system production costs.

2.14.2.2 Dynamic Line Ratings

Metric #16, Dynamic Line Ratings, has a direct impact on the assumptions used to develop national market clearing prices for wholesale power. The MIDAS ™ Model assumes interregional transfers of power are possible and power is allowed to flow in the model to help lower overall system costs and reduce the resultant market clearing price for wholesale power.

The DOE Report estimates that a 10 – 15% increase in transmission power flow would be capable over 95% of all operating hours. The Company used an increase in the assumed level of power flow capability nationally to simulate in the power price model the impact of Smart Grid technology. Tabular data that created Table 5: Interregional Power Flow Improvement from Smart Grid is provided on the work paper disc in the Excel file entitled "Table240-22.070(2)(M)Smart Grid.xlsx".

Table 5: Interregional Power Flow Improvement from Smart Grid

Interregional Power Flow Improvement Multipliers			
2012	1.01	2022	1.14
2013	1.02	2023	1.12
2014	1.03	2024	1.13
2015	1.04	2025	1.14
2016	1.05	2026	1.15
2017	1.06	2027	1.15
2018	1.07	2028	1.15
2019	1.08	2029	1.15
2020	1.09	2030	1.15
2021	1.10	2031	1.15

2.14.2.3 Method of Analysis

The sensitivity analysis was methodologically identical to the analysis used in the 2009 GMO IRP. It utilized the CapEx Model to determine the impact of the Smart Grid should it increase inter-regional power flows. A base and a test scenario were defined to perform this analysis.

2.14.2.4 BASE Scenario-SMART Grid

The Base Scenario for Smart Grid Risk was identical to the Base Scenario for the Federal Energy Efficiency Standard with the exception that the DSM option is now returned to the level and cost used in the GMO IRP. This Base Scenario utilized all mid-level risks from the GMO IRP. It updated the load forecast to the GMO 2010 Corporate budget load forecast and used updated costs of wind construction. The wholesale market power price forecast were also updated to the Ventyx Reference Case Eastern Interconnect national energy consumption forecast. This power price forecast was identical to the price forecast used in the Base Scenario for the Federal Energy Efficiency Standard risk analysis.

2.14.2.5 Test Scenario-SMART Grid

The Test Scenario used identical inputs to the Base Scenario except for the wholesale power price forecast. The power price model was run assuming an

increased interregional power flows. This allows the market to dispatch generation more efficiently, lowering wholesale power prices.

2.14.2.6 Test Results

The results determined that the plan would not be sensitive to the SMART Grid. Therefore is does not constitute a Critical Uncertain Factor for planning purposes and was not included in the Risk Tree used in the Integrated Analysis.

SECTION 3: DECISION TREE DIAGRAM

(3) For each alternative resource plan, the utility shall construct a decision-tree diagram that appropriately represents the key resource decisions and critical uncertain factors that affect the performance of the resource plan.

Using the results of the preliminary sensitivity analysis, the Critical Uncertain Factors were incorporated into a decision tree representation of the risks that will impact the performance of the alternative resource plans. A preliminary tree of 486 scenarios was developed using every possible combination of risks factors weighted by their joint probability. To limit the number of scenarios to use in the final risk decision tree, all scenarios whose joint probability was less than 0.5% were excluded. The number of scenarios was reduced to 62 with two additional scenarios for extreme conditions retained, for a total of 64.

After consulting with Stakeholders in both the Stakeholder Process and the Utility Risk Analysis Summit, a change has been implemented to the Risk Tree to attempt to capture a wider range of effects than the precise definition given above. The proposal was to include additional scenarios chosen at random from the scenarios discarded in the previous method. The Company has implemented this by randomly selecting 34 additional scenarios from those that remain. For this Integrated Analysis a 100 Scenario Risk Tree has been used.

A graphical representation of the 100 Scenario Risk Tree is given in Figure 9: 100 Scenario Risk Tree with Probabilities and Figure 10: 100 Scenario Risk Tree with Probabilities cont. below. Tabular data that created Figure 9 and Figure 10 is provided on the work paper disc in the Excel file entitled "Figure240-22.070(3)100Scenario Risk Tree.xlsx".

Figure 9: 100 Scenario Risk Tree with Probabilities

Scenario	Load_Growth	Construction_Costs	Interest_Finances	CO2	Natural_Gas	Coal	Scenario Probability	Cumulative Probability
1							0.0723%	0.0723%
2							0.0723%	0.1446%
3							0.0723%	0.2170%
4			Mid	Mid	Mid	Mid	1.1746%	1.3916%
5			Mid				0.1468%	1.5384%
6							0.0723%	1.6107%
7						Mid	0.1446%	1.7553%
8		Mid			Mid		0.2893%	2.0446%
9		Mid			Mid	Mid	0.5785%	2.6232%
10		Mid	Mid		Mid	Mid	1.1746%	3.7978%
11		Mid	Mid	Mid		Mid	1.1746%	4.9724%
12		Mid	Mid	Mid	Mid		1.1746%	6.1470%
13		Mid		Mid	Mid	Mid	1.1571%	7.3041%
14		Mid	Mid	Mid	Mid	Mid	2.3492%	9.6533%
15		Mid	Mid	Mid	Mid		1.1746%	10.8279%
16		Mid	Mid	Mid		Mid	1.1746%	12.0025%
17		Mid	Mid				0.2937%	12.2962%
18		Mid	Mid		Mid	Mid	1.1746%	13.4708%
19		Mid	Mid			Mid	0.5873%	14.0581%
20					Mid	Mid	0.2893%	14.3474%
21				Mid			0.1446%	14.4920%
22			Mid	Mid	Mid		0.5873%	15.0793%
23			Mid	Mid	Mid	Mid	1.1746%	16.2539%
24			Mid				0.1468%	16.4008%
25			Mid		Mid	Mid	0.5873%	16.9881%
26			Mid				0.1468%	17.1349%
27						Mid	0.1446%	17.2795%
28	Mid		Mid		Mid	Mid	1.1746%	18.4542%
29	Mid						0.1446%	18.5988%
30	Mid		Mid	Mid		Mid	1.1746%	19.7734%
31	Mid		Mid	Mid		Mid	1.1746%	20.9480%
32	Mid		Mid	Mid	Mid		1.1746%	22.1226%
33	Mid			Mid	Mid	Mid	1.1571%	23.2797%
34	Mid		Mid	Mid	Mid	Mid	2.3492%	25.6289%
35	Mid		Mid	Mid	Mid		1.1746%	26.8036%
36	Mid		Mid		Mid	Mid	1.1746%	27.9782%
37	Mid	Mid	Mid			Mid	1.1746%	29.1528%
38	Mid	Mid	Mid		Mid		1.1746%	30.3274%
39	Mid	Mid			Mid	Mid	1.1571%	31.4845%
40	Mid	Mid	Mid		Mid	Mid	2.3492%	33.8337%
41	Mid	Mid	Mid		Mid		1.1746%	35.0083%
42	Mid	Mid	Mid			Mid	1.1746%	36.1829%
43	Mid	Mid	Mid	Mid			1.1746%	37.3576%
44	Mid	Mid		Mid		Mid	1.1571%	38.5146%
45	Mid	Mid	Mid	Mid		Mid	2.3492%	40.8639%
46	Mid	Mid	Mid	Mid			1.1746%	42.0385%
47	Mid	Mid		Mid	Mid		1.1571%	43.1956%
48	Mid	Mid	Mid	Mid	Mid		2.3492%	45.5448%
49	Mid	Mid		Mid	Mid	Mid	2.3142%	47.8590%
50	Mid	Mid	Mid	Mid	Mid	Mid	4.6985%	52.5574%

Figure 10: 100 Scenario Risk Tree with Probabilities cont.

Scenario	Load_Growth	Construction_Costs	Interest_Finances	CO2	Natural_Gas	Coal	Scenario Probability	Cumulative Probability
51	Mid	Mid		Mid	Mid		1.1571%	53.7145%
52	Mid	Mid	Mid	Mid	Mid		2.3492%	56.0637%
53	Mid	Mid		Mid			0.5785%	56.6423%
54	Mid	Mid	Mid	Mid			1.1746%	57.8169%
55	Mid	Mid		Mid		Mid	1.1571%	58.9740%
56	Mid	Mid	Mid	Mid		Mid	2.3492%	61.3232%
57	Mid	Mid	Mid	Mid			1.1746%	62.4978%
58	Mid	Mid	Mid			Mid	1.1746%	63.6724%
59	Mid	Mid	Mid		Mid		1.1746%	64.8470%
60	Mid	Mid			Mid	Mid	1.1571%	66.0041%
61	Mid	Mid	Mid		Mid	Mid	2.3492%	68.3533%
62	Mid	Mid	Mid		Mid		1.1746%	69.5280%
63	Mid	Mid					0.2893%	69.8172%
64	Mid	Mid	Mid			Mid	1.1746%	70.9918%
65	Mid						0.1446%	71.1365%
66	Mid		Mid			Mid	0.5873%	71.7238%
67	Mid				Mid		0.2893%	72.0131%
68	Mid		Mid		Mid	Mid	1.1746%	73.1877%
69	Mid		Mid	Mid		Mid	1.1746%	74.3623%
70	Mid		Mid	Mid	Mid		1.1746%	75.5369%
71	Mid			Mid	Mid	Mid	1.1571%	76.6940%
72	Mid		Mid	Mid	Mid	Mid	2.3492%	79.0432%
73	Mid			Mid	Mid		0.5785%	79.6218%
74	Mid		Mid	Mid	Mid		1.1746%	80.7964%
75	Mid		Mid	Mid		Mid	1.1746%	81.9710%
76	Mid		Mid		Mid	Mid	1.1746%	83.1456%
77	Mid						0.1446%	83.2902%
78			Mid			Mid	0.2937%	83.5839%
79							0.0723%	83.6562%
80			Mid	Mid		Mid	0.5873%	84.2435%
81			Mid	Mid			0.2937%	84.5372%
82			Mid	Mid	Mid	Mid	1.1746%	85.7118%
83							0.0723%	85.7841%
84			Mid			Mid	0.2937%	86.0778%
85			Mid		Mid		0.2937%	86.3714%
86		Mid	Mid		Mid		0.5873%	86.9587%
87		Mid	Mid		Mid	Mid	1.1746%	88.1333%
88		Mid	Mid				0.2937%	88.4270%
89		Mid	Mid	Mid		Mid	1.1746%	89.6016%
90		Mid	Mid	Mid	Mid		1.1746%	90.7762%
91		Mid		Mid	Mid	Mid	1.1571%	91.9333%
92		Mid	Mid	Mid	Mid	Mid	2.3492%	94.2825%
93		Mid	Mid	Mid	Mid		1.1746%	95.4571%
94		Mid	Mid	Mid		Mid	1.1746%	96.6317%
95		Mid	Mid		Mid	Mid	1.1746%	97.8064%
96			Mid	Mid	Mid	Mid	1.1746%	98.9810%
97				Mid		Mid	0.2893%	99.2702%
98			Mid		Mid		0.2937%	99.5639%
99					Mid	Mid	0.2893%	99.8532%
100			Mid				0.1468%	100.0000%

SECTION 4: CHANCE NODES OVER CONSECUTIVE SUBINTERVALS

(4) The decision-tree diagram for all alternative resource plans shall include at least two (2) chance nodes for load growth uncertainty over consecutive subintervals of the planning horizon. The first of these subintervals shall be not more than ten (10) years long.

GMO requested and received a full waiver of this section of the Rule.

SECTION 5: DISTRIBUTION OF PERFORMANCE MEASURES

(5) The utility shall use the decision-tree formulation to compute the cumulative probability distribution of the values of each performance measure specified pursuant to 4 CSR 240-22.060(2), contingent upon the identified uncertain factors and associated subjective probabilities assigned by utility decision makers pursuant to section (1) of this rule. Both the expected performance and the risks of each alternative resource plan shall be quantified.

GMO used the decision tree risks to compute probabilistic and expected values of each of the performance measures. The results of this analysis are detailed in this section.

5.1 EXPECTED VALUES

(A) The expected performance of each resource plan shall be measured by the statistical expectation of the value of each performance measure.

GMO calculated the expected value of the five performance measures listed in Rule 22.060 (2) for each alternative expansion plan. These results are shown in Table 6 below. Tabular data that created Table 6: Performance Measures is provided on the work paper disc in the Excel file entitled "Table240-22.070(5)(A)Plan Performance Measures.xlsx".

Table 6: Performance Measures

Plan	NPVRR ($MM)	DSM Costs ($MM)	Levelized Annual Rates ($/kw-hr)	Maximum Rate Increase
CAA00	12,677	153.50	0.1417	17.84%
CAA01	12,773	153.50	0.1432	19.09%
CAB00	12,603	153.50	0.1413	12.42%
CAB01	12,695	153.50	0.1427	12.42%
CAB04	12,670	153.50	0.1419	14.63%
CAB05	12,661	153.50	0.1420	12.42%
CBB00	12,754	153.50	0.1432	14.09%
CCB00	12,689	153.50	0.1422	13.82%
CCB01	12,778	153.50	0.1434	14.32%
CXX00	12,752	153.50	0.1430	14.46%
XAB00	13,066	153.50	0.1402	11.87%

5.2 PROBABILITY DISTRIBUTIONS

(B) The risk associated with each resource plan shall be characterized by some measure of the dispersion of the probability distribution for each performance measure, such as the standard deviation or the values associated with specified percentiles of the distribution.

GMO calculated the standard deviation of each performance measure for each alternative resource plan analyzed over 100 scenarios. The result of these calculations is detailed in Table 7 below. DSM expenses have no risk dispersion as they are a fixed assumption input within the integrated analysis. Probable Environmental Costs are included in the total NPVRR value. Tabular data that created Table 7: Performance Measure Standard Deviations is provided on the work paper disc in the Excel file entitled "Table240-22.070(5)(B)Plan Performance Standard Deviations.xlsx".

Table 7: Performance Measure Standard Deviations

Plan	NPVRR ($MM)	DSM Costs ($MM)	Levelized Annual Rates ($/kw-hr)	Maximum Rate Increase
CAA00	1,031	-	0.0134	5.480%
CAA01	977	-	0.0127	5.253%
CAB00	1,040	-	0.0135	3.508%
CAB01	999	-	0.0129	2.645%
CAB04	1,017	-	0.0132	4.312%
CAB05	1,022	-	0.0132	3.526%
CBB00	1,096	-	0.0143	4.309%
CCB00	1,083	-	0.0141	4.167%
CCB01	1,079	-	0.0141	4.340%
CXX00	1,132	-	0.0148	4.517%
XAB00	1,113	-	0.0137	2.876%

GMO analyzed the risks on each of these plans by ranking their individual performance under each of the 100 endpoint scenarios listed in Figure 9. Table 8 through Table 18 given below are risk tables summarizing these results.

Table 8: High CO_2 Risk Table

	Endpoint	1	Endpoint	2	Endpoint	3	Endpoint	8	Endpoint	9	Endpoint	10
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,870	CAB01	13,986	CAB01	13,953	CAB00	14,079	CAB00	14,256	CAB00	13,827
2	CAB05	14,894	CAB00	13,995	CAB00	13,999	CAB01	14,092	CAB01	14,301	CAB01	13,856
3	CAB04	14,927	CAB04	14,015	CAA01	14,009	CAB04	14,124	CAB04	14,301	CAB04	13,859
4	CAA00	14,939	CAB05	14,042	CAB05	14,056	CAB05	14,126	CAB05	14,303	CAB05	13,864
5	CCB00	14,975	CAA00	14,299	CAA00	14,067	CAA00	14,441	CAA00	14,321	CAA00	13,881
6	CAB01	15,013	CAB04	14,334	CAB04	14,098	CAA01	14,464	CAA01	14,346	CAA01	13,896
7	CXX00	15,061	CCB00	14,428	CCB00	14,161	CCB00	14,533	CCB00	14,401	CCB00	13,966
8	CBB00	15,065	CCB01	14,488	CBB00	14,230	CBB00	14,551	CBB00	14,480	CBB00	14,046
9	CCB01	15,071	CBB00	14,495	CCB01	14,255	CCB01	14,578	CCB01	14,496	CCB01	14,064
10	CAA01	15,075	CXX00	14,533	CXX00	14,298	CXX00	14,674	CXX00	14,525	CXX00	14,087
11	XAB00	15,578	XAB00	14,812	XAB00	14,573	XAB00	14,898	XAB00	14,774	XAB00	14,340

	Endpoint	20	Endpoint	28	Endpoint	29	Endpoint	37	Endpoint	38	Endpoint	39
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,101	CAB00	13,752	CAB01	13,762	CCB00	13,900	CAB00	13,730	CAB00	14,036
2	CAB01	14,112	CAB01	13,780	CAB00	13,806	CAB04	13,928	CAB01	13,760	CAB04	14,062
3	CAB04	14,115	CAB04	13,804	CAA01	13,819	CAB05	13,928	CAB04	13,762	CAB01	14,064
4	CAB05	14,123	CAB05	13,811	CAB05	13,864	CAA00	13,975	CAB05	13,765	CAB05	14,069
5	CAA00	14,161	CAA00	13,850	CAA00	13,875	CCB01	14,002	CAA00	13,790	CAA00	14,101
6	CAA01	14,232	CXX00	13,865	CAB04	13,906	CAB01	14,022	CAA01	13,799	CAA01	14,129
7	CCB00	14,257	CCB00	13,884	CCB00	13,969	CAA01	14,053	CCB00	13,884	CCB00	14,182
8	CBB00	14,336	CBB00	13,962	CBB00	14,038	CXX00	14,067	CCB01	13,961	CBB00	14,261
9	CCB01	14,352	CCB01	13,975	CCB01	14,064	CBB00	14,095	CBB00	13,963	CCB01	14,277
10	CXX00	14,390	CXX00	13,994	CXX00	14,107	CCB01	14,116	CXX00	14,021	CXX00	14,306
11	XAB00	14,691	XAB00	14,372	XAB00	14,379	XAB00	14,485	XAB00	14,241	XAB00	14,551

	Endpoint	40	Endpoint	41	Endpoint	42	Endpoint	65	Endpoint	66	Endpoint	67
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	13,607	CAB00	13,482	CAB01	13,302	CAB04	14,266	CAB04	13,713	CAB01	14,093
2	CAB01	13,639	CAB01	13,514	CAA01	13,333	CAB00	14,274	CAB05	13,726	CAB01	14,017
3	CAB04	13,640	CAB04	13,515	CAB00	13,375	CAB05	14,278	CAB00	13,732	CAB04	14,018
4	CAB05	13,643	CAB05	13,517	CAB05	13,429	CAA00	14,333	CAA00	13,792	CAB05	14,026
5	CAA00	13,671	CAA00	13,550	CAB04	13,432	CAB01	14,347	CAB01	13,793	CAA00	14,059
6	CAA01	13,681	CAA01	13,562	CAA00	13,433	CCB00	14,399	CCB00	13,832	CAA01	14,074
7	CCB00	13,746	CCB00	13,605	CCB00	13,559	CAA01	14,468	CAA01	13,916	CCB00	14,116
8	CBB00	13,826	CBB00	13,686	CBB00	13,631	CBB00	14,488	CXX00	13,919	CBB00	14,249
9	CCB01	13,839	CXX00	13,702	CCB01	13,638	CCB01	14,493	CBB00	13,924	CBB00	14,254
10	CXX00	13,868	CCB01	13,715	CXX00	13,722	CXX00	14,583	CCB01	13,949	CXX00	14,324
11	XAB00	14,117	XAB00	13,990	XAB00	13,824	XAB00	14,925	XAB00	14,374	XAB00	14,592

	Endpoint	68	Endpoint	78	Endpoint	79	Endpoint	86	Endpoint	87	Endpoint	88
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	13,465	CAB00	13,277	CAB01	13,538	CAB00	13,454	CAB00	13,342	CAB01	12,913
2	CAB01	13,466	CAB01	13,279	CAB00	13,576	CAB04	13,498	CAB04	13,376	CAB04	12,949
3	CAB04	13,469	CAB04	13,282	CAA01	13,594	CAB05	13,500	CAB05	13,379	CAB00	12,990
4	CAB05	13,477	CAB05	13,289	CAB05	13,634	CAB01	13,504	CAB01	13,383	CAB05	13,043
5	CAA00	13,522	CCB00	13,335	CAA00	13,644	CAA00	13,522	CAA00	13,404	CAA00	13,045
6	CAA01	13,584	CAB01	13,340	CAB04	13,676	CAA01	13,572	CAA01	13,425	CAA01	13,085
7	CCB00	13,613	CXX00	13,376	CCB00	13,740	CCB00	13,622	CCB00	13,484	CCB00	13,158
8	CBB00	13,693	CCB01	13,394	CBB00	13,809	CCB01	13,678	CCB01	13,556	CBB00	13,228
9	CCB01	13,706	CBB00	13,395	CCB01	13,832	CBB00	13,700	CBB00	13,564	CCB01	13,254
10	CXX00	13,744	CAA01	13,396	CXX00	13,879	CXX00	13,830	CXX00	13,609	CXX00	13,365
11	XAB00	14,041	XAB00	13,728	XAB00	14,144	XAB00	13,968	XAB00	13,843	XAB00	13,483

Table 9: High Natural Gas Price Risk Table

High Natural Gas Scenarios

	Endpoint	1	Endpoint	5	Endpoint	11	Endpoint	12	Endpoint	21	Endpoint	24
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,870	CXX00	11,330	CAB00	13,164	CXX00	11,204	CAB00	13,306	CXX00	11,395
2	CAB05	14,894	CCB00	11,445	CCB00	13,194	CCB00	11,310	CAB04	13,321	CCB00	11,463
3	CAB04	14,927	CBB00	11,510	CAB04	13,197	CBB00	11,375	CAB05	13,328	CAA00	11,510
4	CAA00	14,939	CAB00	11,540	CAB05	13,199	CAB00	11,396	CCB00	13,337	CBB00	11,528
5	CCB00	14,975	CAB05	11,593	CXX00	13,209	CAB05	11,456	CXX00	13,348	CAB05	11,547
6	CAB01	15,013	CAB04	11,649	CAA00	13,240	CAB04	11,466	CAB01	13,367	CAB04	11,551
7	CXX00	15,061	CAA00	11,658	CAB01	13,243	CAA00	11,504	CAA00	13,384	CAA00	11,599
8	CBB00	15,065	CCB01	11,663	CBB00	13,276	CAB01	11,518	CBB00	13,419	CAB01	11,603
9	CCB01	15,071	CAB01	11,683	CAA01	13,306	CCB01	11,528	CCB01	13,512	CCB01	11,645
10	CAA01	15,075	CAA01	11,808	CCB01	13,353	CAA01	11,626	CAA01	13,512	CAA01	11,774
11	XAB00	15,578	XAB00	12,084	XAB00	13,685	XAB00	11,829	XAB00	13,904	XAB00	12,012

	Endpoint	30	Endpoint	37	Endpoint	43	Endpoint	44	Endpoint	45	Endpoint	46
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	13,125	CAB00	13,908	CAB00	13,075	CAB00	13,372	CAB00	12,944	CAB00	12,811
2	CCB00	13,147	CAB04	13,921	CAB04	13,108	CCB00	13,409	CCB00	12,973	CCB00	12,825
3	CXX00	13,155	CAB05	13,928	CAB05	13,109	CAB04	13,419	CAB04	12,977	CXX00	12,825
4	CAB05	13,155	CAA00	13,975	CCB00	13,120	CAB05	13,420	CAB05	12,978	CAB04	12,846
5	CAB04	13,190	CCB00	14,002	CAA00	13,145	CXX00	13,428	CXX00	12,988	CAB05	12,846
6	CAA00	13,206	CAB01	14,012	CXX00	13,150	CAA00	13,450	CAA00	13,020	CAB01	12,890
7	CBB00	13,231	CAA01	14,059	CAB01	13,153	CAB01	13,467	CAB01	13,022	CAA00	12,894
8	CAB01	13,237	CXX00	14,062	CBB00	13,202	CBB00	13,490	CBB00	13,056	CBB00	12,908
9	CCB01	13,298	CBB00	14,095	CAA01	13,210	CAA01	13,533	CAA01	13,085	CAA01	12,959
10	CAA01	13,317	CCB01	14,116	CCB01	13,255	CCB01	13,560	CCB01	13,128	CCB01	12,999
11	XAB00	13,757	XAB00	14,485	XAB00	13,594	XAB00	13,897	XAB00	13,462	XAB00	13,329

	Endpoint	58	Endpoint	65	Endpoint	66	Endpoint	69	Endpoint	78	Endpoint	80
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CXX00	11,218	CAB04	14,266	CAB04	13,713	CAB00	12,801	CAB00	13,717	CAB00	12,811
2	CCB00	11,308	CAB00	14,274	CAB05	13,726	CAB04	12,806	CAB05	13,729	CCB00	12,835
3	CBB00	11,376	CAB05	14,279	CAB00	13,732	CAB05	12,813	CAB04	13,758	CAB05	12,839
4	CAB00	11,377	CAA00	14,333	CAA00	13,792	CCB00	12,840	CAA00	13,787	CXX00	12,844
5	CAB05	11,441	CAB01	14,347	CAB01	13,793	CAB01	12,849	CCB00	13,803	CAB04	12,873
6	CAB04	11,452	CCB00	14,399	CCB00	13,832	CXX00	12,864	CAB01	13,840	CAA00	12,890
7	CAA00	11,479	CAA01	14,469	CAA01	13,916	CAA00	12,872	CXX00	13,876	CBB00	12,918
8	CCB01	11,505	CBB00	14,488	CXX00	13,919	CBB00	12,923	CCB01	13,891	CAB01	12,919
9	CAB01	11,512	CCB01	14,493	CBB00	13,924	CAA01	12,986	CBB00	13,895	CCB01	12,965
10	CAA01	11,613	CXX00	14,503	CCB01	13,949	CCB01	12,995	CAA01	13,905	CAA01	12,999
11	XAB00	11,811	XAB00	14,929	XAB00	14,374	XAB00	13,387	XAB00	14,392	XAB00	13,432

	Endpoint	81	Endpoint	83	Endpoint	84	Endpoint	89
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,679	CXX00	11,680	CXX00	11,077	CAB00	12,666
2	CXX00	12,681	CCB00	11,764	CCB00	11,176	CCB00	12,700
3	CCB00	12,687	CAB00	11,819	CBB00	11,242	CAB04	12,700
4	CAB05	12,707	CBB00	11,828	CAB00	11,253	CAB05	12,702
5	CAB04	12,742	CAB05	11,886	CAB05	11,307	CXX00	12,778
6	CAA00	12,765	CAA00	11,921	CAB04	11,353	CAA00	12,781
7	CBB00	12,772	CCB01	11,931	CAA00	11,359	CAB01	12,782
8	CAB01	12,787	CAB04	11,936	CCB01	11,366	CBB00	12,784
9	CCB01	12,837	CAB01	11,992	CAB01	11,406	CAA01	12,817
10	CAA01	12,873	CAA01	12,108	CAA01	11,524	CCB01	12,831
11	XAB00	13,299	XAB00	12,473	XAB00	11,791	XAB00	13,176

Table 10: High Load Growth Risk Table

	Endpoint 1		Endpoint 2		Endpoint 3		Endpoint 4		Endpoint 5		Endpoint 6		Endpoint 7	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,870	CAB01	14,186	CAB01	13,953	CAB00	12,977	CXX00	11,330	CAB00	11,519	CAB00	11,414
2	CAB05	14,894	CAB00	14,235	CAB00	13,999	CAB05	13,029	CCB00	11,445	CCB00	11,656	CCB00	11,476
3	CAB04	14,927	CAA01	14,237	CAA01	14,009	CAA00	13,053	CBB00	11,510	CAA00	11,665	CXX00	11,496
4	CAA00	14,939	CAB05	14,292	CAB05	14,056	CCB00	13,058	CAB00	11,540	CCB01	11,677	CBB00	11,501
5	CCB00	14,975	CAA00	14,299	CAA00	14,067	CAB04	13,068	CAB05	11,593	CBB00	11,679	CAA00	11,507
6	CAB01	15,013	CAB04	14,334	CAB04	14,098	CAB01	13,096	CAB04	11,640	CXX00	11,697	CCB01	11,516
7	CXX00	15,061	CCB00	14,428	CCB00	14,161	CXX00	13,122	CAA00	11,653	CAB05	11,701	CAB05	11,534
8	CBB00	15,065	CCB01	14,488	CBB00	14,230	CBB00	13,125	CCB01	11,663	CAB04	11,762	CAB04	11,594
9	CCB01	15,071	CBB00	14,495	CCB01	14,255	CCB01	13,140	CAB01	11,683	CAB01	11,819	CAB01	11,639
10	CAA01	15,075	CXX00	14,593	CXX00	14,298	CAA01	13,172	CAA01	11,806	CAA01	11,922	CAA01	11,750
11	XAB00	15,578	XAB00	14,812	XAB00	14,573	XAB00	13,528	XAB00	12,084	XAB00	11,960	XAB00	11,792

	Endpoint 8		Endpoint 9		Endpoint 10		Endpoint 11		Endpoint 12		Endpoint 13		Endpoint 14	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,379	CAB00	13,250	CAB00	13,827	CAB00	13,164	CAB00	12,962	CAB00	13,251	CAB00	12,833
2	CAB01	14,422	CAB01	14,301	CAB01	13,856	CCB00	13,194	CAB05	13,020	CAB05	13,333	CAB05	12,891
3	CAB04	14,424	CAB04	14,301	CAB04	13,859	CAB04	13,197	CAB04	13,023	CAA00	13,335	CAB04	12,894
4	CAB05	14,426	CAB05	14,303	CAB05	13,862	CAB05	13,199	CAA00	13,028	CAB04	13,336	CAA00	12,904
5	CAA00	14,441	CAA00	14,321	CAA00	13,891	CXX00	13,260	CAB01	13,057	CCB00	13,368	CCB00	12,925
6	CAA01	14,464	CAA01	14,346	CAA01	13,898	CAA00	13,269	CCB00	13,069	CAB01	13,376	CAB01	12,931
7	CCB00	14,539	CCB00	14,401	CCB00	13,966	CAB01	13,243	CAA01	13,111	CBB00	13,425	CAA01	12,990
8	CBB00	14,618	CBB00	14,480	CBB00	14,046	CBB00	13,276	CCB01	13,131	CXX00	13,434	CBB00	12,991
9	CCB01	14,618	CCB01	14,486	CCB01	14,064	CAA01	13,306	CBB00	13,134	CCB01	13,436	CXX00	12,996
10	CXX00	14,678	CXX00	14,525	CXX00	14,087	CCB01	13,353	CXX00	13,155	CAA01	13,436	CCB01	13,006
11	XAB00	14,898	XAB00	14,774	XAB00	14,340	XAB00	13,585	XAB00	13,398	XAB00	13,703	XAB00	13,268

	Endpoint 15		Endpoint 16		Endpoint 17		Endpoint 18		Endpoint 19		Endpoint 20		Endpoint 21	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,867	CAB00	12,508	CXX00	11,204	CXX00	11,147	CAB00	10,828	CAB00	11,101	CAB00	13,306
2	CAB05	12,928	CAB01	12,544	CCB00	11,310	CCB00	11,176	CCB00	10,894	CAB01	11,112	CAB04	13,321
3	CAB04	12,931	CAA00	12,570	CBB00	11,375	CAB00	11,178	CAA00	10,914	CAB04	11,115	CAB05	13,328
4	CAA00	12,938	CAB05	12,588	CAB00	11,396	CBB00	11,224	CBB00	10,920	CAB05	11,123	CCB00	13,337
5	CCB00	12,962	CAA01	12,594	CAB05	11,456	CAB05	11,266	CXX00	10,922	CAA00	11,180	CXX00	13,348
6	CAB01	12,977	CAB04	12,597	CAB04	11,466	CAA00	11,275	CCB01	10,938	CAA01	11,232	CAB01	13,367
7	CBB00	13,029	CCB00	12,655	CAA00	11,504	CAB04	11,282	CAB05	10,943	CCB00	11,257	CAA00	13,384
8	CXX00	13,034	CCB01	12,695	CAB01	11,518	CCB01	11,289	CAB04	10,964	CBB00	11,336	CBB00	13,419
9	CAA01	13,036	CBB00	12,704	CCB01	11,528	CAB01	11,336	CAB01	11,014	CCB01	11,352	CCB01	13,512
10	CCB01	13,040	CXX00	12,779	CAA01	11,626	CAA01	11,436	XAB00	11,081	CXX00	11,396	CAA01	13,512
11	XAB00	13,303	XAB00	12,868	XAB00	11,829	XAB00	11,522	CAA01	11,105	XAB00	11,588	XAB00	13,904

	Endpoint 22		Endpoint 23		Endpoint 24		Endpoint 25		Endpoint 26		Endpoint 27	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,851	CAB00	12,690	CXX00	11,395	CXX00	11,022	CAB00	10,811	CAB00	11,001
2	CAB04	12,885	CAB01	12,723	CCB00	11,463	CAB00	11,036	CAA00	10,885	CAA00	11,218
3	CAB05	12,889	CAB05	12,726	CAB00	11,510	CCB00	11,043	CCB00	10,899	CCB00	11,222
4	CAA00	12,911	CAA00	12,756	CBB00	11,528	CBB00	11,091	CAB05	10,903	CAB05	11,241
5	CAB01	12,927	CAB01	12,758	CAB05	11,547	CAB05	11,101	CAB04	10,917	CBB00	11,245
6	CCB00	12,971	CCB00	12,782	CAB04	11,551	CAB04	11,110	CBB00	10,922	CAB04	11,255
7	CCB01	13,030	CBB00	12,858	CAA00	11,599	CAA00	11,126	CCB01	10,928	CAB01	11,260
8	CBB00	13,038	CXX00	12,871	CAB01	11,603	CAB01	11,165	CXX00	10,945	CXX00	11,264
9	CAA01	13,051	CCB01	12,873	CCB01	11,645	CCB01	11,166	CAB01	10,967	CAA01	11,316
10	CXX00	13,067	CAA01	12,889	CAA01	11,774	CAA01	11,335	CAA01	11,123	XAB00	11,467
11	XAB00	13,356	XAB00	13,193	XAB00	12,012	XAB00	11,446	XAB00	11,132	CAA01	11,481

Table 11: High Construction Cost Risk Table

High Construction Cost Scenario

	Endpoint 1		Endpoint 2		Endpoint 3		Endpoint 4		Endpoint 5		Endpoint 6	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,870	CAB01	14,186	CAB01	13,953	CAB00	12,977	CXX00	11,330	CAB00	11,579
2	CAB05	14,894	CAB00	14,235	CAB00	13,999	CAB05	13,029	CCB00	11,445	CCB00	11,656
3	CAB04	14,927	CAA01	14,237	CAA01	14,009	CAA00	13,051	CBB00	11,510	CAA00	11,665
4	CAA00	14,939	CAB05	14,292	CAB05	14,056	CCB00	13,059	CAB00	11,540	CCB01	11,677
5	CCB00	14,975	CAA00	14,299	CAA00	14,067	CAB04	13,068	CAB05	11,593	CBB00	11,679
6	CAB01	15,013	CAB04	14,334	CAB04	14,098	CAB01	13,096	CAB04	11,640	CXX00	11,687
7	CXX00	15,061	CCB00	14,428	CCB00	14,161	CXX00	13,122	CAA00	11,653	CAB05	11,701
8	CBB00	15,065	CCB01	14,488	CBB00	14,230	CBB00	13,125	CCB01	11,663	CAB04	11,762
9	CCB01	15,071	CBB00	14,496	CCB01	14,255	CCB01	13,140	CAB01	11,683	CAB01	11,819
10	CAA01	15,075	CXX00	14,593	CXX00	14,298	CAA01	13,172	CAA01	11,808	CAA01	11,922
11	XAB00	15,578	XAB00	14,812	XAB00	14,573	XAB00	13,523	XAB00	12,084	XAB00	11,960

	Endpoint 7		Endpoint 28		Endpoint 29		Endpoint 30		Endpoint 31		Endpoint 32	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	11,414	CAB00	13,752	CAB01	13,762	CAB00	13,525	CAB00	12,496	CAB00	12,954
2	CCB00	11,476	CAB05	13,780	CAB00	13,806	CCB00	13,147	CAB01	12,556	CAB05	13,008
3	CXX00	11,496	CAB01	13,803	CAA01	13,819	CXX00	13,155	CAA00	12,564	CAA00	13,025
4	CBB00	11,501	CAB04	13,814	CAB05	13,864	CAB05	13,155	CAB05	12,570	CAB04	13,048
5	CAA00	11,507	CAA00	13,820	CAA00	13,875	CAB04	13,190	CAB04	12,615	CCB00	13,056
6	CCB01	11,516	CAA01	13,863	CAB04	13,906	CAA00	13,206	CAA01	12,622	CAB01	13,086
7	CAB05	11,534	CCB00	13,881	CCB00	13,969	CBB00	13,231	CCB00	12,634	CCB01	13,110
8	CAB04	11,594	CBB00	13,961	CBB00	14,038	CAB01	13,232	CCB01	12,673	CBB00	13,122
9	CAB01	11,639	CCB01	13,973	CCB01	14,064	CCB01	13,298	CBB00	12,683	CXX00	13,134
10	CAA01	11,750	CXX00	13,994	CXX00	14,107	CAA01	13,317	CXX00	12,743	CAA01	13,156
11	XAB00	11,792	XAB00	14,372	XAB00	14,379	XAB00	13,757	XAB00	12,966	XAB00	13,503

	Endpoint 33		Endpoint 34		Endpoint 35		Endpoint 36		Endpoint 78		Endpoint 79	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	13,230	CAB00	12,826	CAB00	12,658	CXX00	11,128	CAB00	13,717	CAB01	13,538
2	CAB05	13,294	CAB05	12,879	CAB05	12,710	CCB00	11,167	CAB05	13,729	CAB00	13,576
3	CAA00	13,308	CAA00	12,901	CCB00	12,724	CAB00	11,178	CAB04	13,758	CAA01	13,594
4	CCB00	13,319	CCB00	12,911	CAA00	12,740	CBB00	11,213	CAA00	13,787	CAB05	13,634
5	CAB04	13,337	CAB04	12,919	CAB04	12,749	CAB05	11,260	CCB00	13,803	CAA00	13,644
6	CAB01	13,369	CAB01	12,959	CXX00	12,772	CAA00	11,279	CAB01	13,840	CAB04	13,676
7	CXX00	13,383	CXX00	12,975	CAB01	12,780	CCB01	11,288	CXX00	13,876	CCB00	13,740
8	CBB00	13,383	CBB00	12,978	CBB00	12,791	CAB04	11,312	CCB01	13,891	CBB00	13,809
9	CCB01	13,392	CCB01	12,985	CCB01	12,821	CAB01	11,356	CBB00	13,895	CCB01	13,832
10	CAA01	13,449	CAA01	13,035	CAA01	12,863	CAA01	11,472	CAA01	13,905	CXX00	13,879
11	XAB00	13,790	XAB00	13,374	XAB00	13,203	XAB00	11,631	XAB00	14,392	XAB00	14,144

	Endpoint 80		Endpoint 81		Endpoint 82		Endpoint 83		Endpoint 84		Endpoint 85	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,811	CAB00	12,679	CAB00	12,560	CXX00	11,680	CXX00	11,077	CXX00	10,799
2	CCB00	12,835	CXX00	12,681	CAB05	12,613	CCB00	11,764	CCB00	11,176	CCB00	10,842
3	CAB05	12,839	CCB00	12,687	CAA00	12,635	CAB00	11,819	CBB00	11,242	CAB00	10,865
4	CXX00	12,844	CAB05	12,704	CCB00	12,645	CBB00	11,828	CAB00	11,253	CBB00	10,889
5	CAB04	12,873	CAB04	12,742	CAB04	12,652	CAB05	11,886	CAB05	11,307	CAB05	10,947
6	CAA00	12,890	CAA00	12,765	CAB01	12,688	CAA00	11,921	CAB04	11,353	CAA00	10,973
7	CBB00	12,918	CBB00	12,772	CCB01	12,704	CCB01	11,931	CAA00	11,359	CCB01	10,976
8	CAB01	12,919	CAB01	12,787	CXX00	12,710	CAB04	11,936	CCB01	11,366	CAB04	10,998
9	CCB01	12,965	CCB01	12,817	CBB00	12,711	CAB01	11,992	CAB01	11,406	CAB01	11,049
10	CAA01	12,999	CAA01	12,878	CAA01	12,763	CAA01	12,000	CAA01	11,524	CAA01	11,071
11	XAB00	13,432	XAB00	13,256	XAB00	13,099	XAB00	12,373	XAB00	11,791	XAB00	11,314

Table 12: High Coal Price Risk Table

	Endpoint	1	Endpoint	2	Endpoint	6	Endpoint	8	Endpoint	12	Endpoint	22
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,870	CAB01	14,186	CAB00	11,579	CAB00	14,379	CAB00	12,962	CAB00	12,851
2	CAB05	14,894	CXX00	14,235	CCB00	11,656	CAB01	14,422	CAB05	13,020	CAB04	12,885
3	CAB04	14,927	CAA01	14,232	CAA00	11,665	CAB04	14,424	CAB04	13,023	CAB05	12,889
4	CAA00	14,939	CAB05	14,292	CCB01	11,677	CAB05	14,426	CAA00	13,028	CAA00	12,911
5	CCB00	14,975	CAA00	14,299	CBB00	11,679	CAA00	14,441	CAB01	13,057	CAB01	12,927
6	CAB01	15,013	CAB04	14,306	CXX00	11,687	CAA01	14,464	CCB00	13,069	CCB00	12,971
7	CXX00	15,061	CCB00	14,428	CAB05	11,701	CCB00	14,539	CAA01	13,111	CCB01	13,030
8	CBB00	15,065	CCB01	14,488	CAB04	11,762	CBB00	14,618	CCB01	13,131	CBB00	13,038
9	CCB01	15,071	CBB00	14,495	CAB01	11,819	CCB01	14,618	CBB00	13,134	CAA01	13,051
10	CAA01	15,075	CXX00	14,593	CAA01	11,922	CXX00	14,678	CXX00	13,155	CXX00	13,067
11	XAB00	15,578	XAB00	14,812	XAB00	11,960	XAB00	14,8987	XAB00	13,398	XAB00	13,356

	Endpoint	24	Endpoint	26	Endpoint	32	Endpoint	38	Endpoint	43	Endpoint	47
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CXX00	11,395	CAB00	10,811	CAB00	12,954	CAB00	13,730	CAB00	13,075	CAB00	13,201
2	CCB00	11,463	CAA00	10,885	CAB05	13,008	CAB01	13,760	CAB04	13,108	CAA00	13,270
3	CAB00	11,510	CCB00	10,899	CAA00	13,025	CAB04	13,762	CAB05	13,109	CAB05	13,273
4	CBB00	11,528	CAB05	10,905	CAB04	13,048	CAB05	13,765	CCB00	13,120	CAB04	13,277
5	CAB05	11,547	CAB04	10,917	CCB00	13,056	CAA00	13,790	CAA00	13,145	CAB01	13,316
6	CAB04	11,551	CBB00	10,922	CAB01	13,086	CAA01	13,799	CXX00	13,150	CCB00	13,317
7	CAA00	11,599	CCB01	10,928	CCB01	13,110	CCB00	13,884	CAB01	13,153	CCB01	13,372
8	CAB01	11,603	CXX00	10,945	CBB00	13,122	CCB01	13,961	CBB00	13,202	CAA01	13,372
9	CCB01	11,645	CAB01	10,967	CXX00	13,134	CBB00	13,963	CAA01	13,210	CBB00	13,380
10	CAA01	11,774	CAA01	11,123	CAA01	13,156	CXX00	14,021	CCB01	13,255	CXX00	13,405
11	XAB00	12,012	XAB00	11,132	XAB00	13,503	XAB00	14,241	XAB00	13,594	XAB00	13,643

	Endpoint	48	Endpoint	55	Endpoint	54	Endpoint	59	Endpoint	63	Endpoint	65
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,773	CAB00	12,902	CAB00	12,474	CXX00	11,156	CAB00	11,275	CAB04	14,266
2	CAB05	12,832	CAB01	12,956	CAB01	12,511	CAB00	11,160	CAA00	11,356	CAB00	14,274
3	CAB04	12,835	CAA00	12,963	CAA00	12,532	CCB00	11,171	CCB00	11,360	CAB05	14,279
4	CAA00	12,839	CAB05	12,966	CAB05	12,555	CBB00	11,219	CBB00	11,382	CAA00	14,333
5	CAB01	12,871	CAA01	13,003	CAA01	12,555	CAB05	11,248	CCB01	11,386	CAB01	14,347
6	CCB00	12,881	CAB04	13,005	CAB04	12,564	CAA00	11,249	CXX00	11,401	CCB00	14,399
7	CAA01	12,924	CCB00	13,072	CCB00	12,637	CAB04	11,264	CAB05	11,403	CAA01	14,469
8	CCB01	12,940	CCB01	13,092	CCB01	12,660	CCB01	11,277	CAB04	11,424	CBB00	14,488
9	CBB00	12,946	CBB00	13,118	CBB00	12,684	CAB01	11,347	CAB01	11,479	CCB01	14,493
10	CXX00	12,967	CXX00	13,206	CXX00	12,768	CAA01	11,410	XAB00	11,534	CXX00	14,503
11	XAB00	13,209	XAB00	13,269	XAB00	12,834	XAB00	11,503	CAA01	11,566	XAB00	14,929

	Endpoint	67	Endpoint	70	Endpoint	83	Endpoint	86	Endpoint	90	Endpoint	98
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,003	CAB00	12,631	CXX00	11,680	CAB00	13,464	CAB00	12,543	CAB00	10,833
2	CAB01	14,017	CAB04	12,653	CCB00	11,764	CAB04	13,498	CAB05	12,603	CCB00	10,853
3	CAB04	14,018	CAB05	12,656	CAB00	11,819	CAB05	13,500	CAB04	12,606	CAB04	10,858
4	CAB05	14,026	CAA00	12,693	CBB00	11,828	CAB01	13,514	CAA00	12,608	CAB05	10,899
5	CAA00	14,059	CAB01	12,698	CAB05	11,886	CAA00	13,522	CAB01	12,649	CBB00	10,905
6	CAA01	14,134	CCB00	12,748	CAA00	11,921	CAA01	13,542	CCB00	12,654	CAA01	10,908
7	CCB00	14,176	CCB01	12,807	CCB01	11,931	CCB00	13,622	CCB01	12,694	CAA00	10,917
8	CCB01	14,249	CBB00	12,813	CAB04	11,936	CCB01	13,678	CAA01	12,702	CCB01	10,956
9	CBB00	14,254	CAA01	12,824	CAB01	11,992	CBB00	13,700	CBB00	12,719	CAB01	10,967
10	CXX00	14,324	CXX00	12,843	CAA01	12,108	CXX00	13,760	CXX00	12,742	CXX00	11,137
11	XAB00	14,592	XAB00	13,113	XAB00	12,373	XAB00	13,966	XAB00	12,973	XAB00	11,240

Table 13: High Interest/Financing Cost Risk Table

High Interest/Financing Cost Risk

	Endpoint	1	Endpoint	2	Endpoint	3	Endpoint	5	Endpoint	7	Endpoint	8	Endpoint	9	Endpoint	13
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,870	CAB01	14,186	CAB01	13,953	CAB00	11,679	CAB00	11,414	CAB00	14,379	CAB00	14,256	CAB00	13,261
2	CAB05	14,894	CAB00	14,235	CAB00	13,999	CCB001	11,656	CCB00	11,476	CAB01	14,422	CAB01	14,301	CAB05	13,333
3	CAB04	14,927	CAA01	14,237	CAA01	14,009	CAA00	11,665	CXX00	11,496	CAB04	14,426	CAB04	14,301	CAA00	13,335
4	CAA00	14,939	CAB05	14,292	CAB05	14,056	CCB01	11,677	CBB00	11,501	CAB05	14,426	CAB05	14,303	CAB04	13,336
5	CCB00	14,975	CAA00	14,299	CAA00	14,067	CBB00	11,679	CAA00	11,507	CAA00	14,441	CAA00	14,321	CCB00	13,350
6	CAB01	15,013	CAB04	14,334	CAB04	14,098	CXX00	11,687	CCB01	11,516	CAA01	14,464	CAA01	14,346	CAB01	13,376
7	CXX00	15,061	CCB00	14,428	CCB00	14,161	CAB05	11,701	CAB05	11,534	CCB001	14,539	CCB00	14,401	CBB00	13,425
8	CBB00	15,065	CCB01	14,488	CBB00	14,230	CAB04	11,762	CAB04	11,594	CBB001	14,616	CBB00	14,480	CXX00	13,434
9	CCB01	15,071	CBB001	14,495	CCB01	14,255	CAA01	11,819	CAB01	11,639	CCB01	14,618	CCB01	14,496	CCB01	13,436
10	CAA01	15,075	CXX00	14,593	CXX00	14,298	CAA01	11,922	CAA01	11,750	CXX00	14,678	CXX00	14,525	CAA01	13,438
11	XAB00	15,578	XAB00	14,812	XAB00	14,573	XAB00	11,960	XAB00	11,792	XAB00	14,899	XAB00	14,774	XAB00	13,703

	Endpoint	20	Endpoint	21	Endpoint	27	Endpoint	29	Endpoint	33	Endpoint	38	Endpoint	44	Endpoint	47
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,101	CAB00	13,306	CAB00	11,136	CAB01	13,762	CAB00	13,230	CAB00	14,036	CAB00	13,372	CAB00	13,201
2	CAB01	14,112	CAB04	13,321	CAA00	11,218	CAB00	13,805	CAB05	13,294	CAB04	14,082	CCB00	13,409	CAA00	13,270
3	CAB04	14,115	CAB05	13,328	CCB00	11,222	CAA01	13,819	CAA00	13,308	CAB01	14,084	CAB04	13,419	CAB05	13,273
4	CAB05	14,123	CCB00	13,332	CAB05	11,241	CAB05	13,864	CCB00	13,319	CAB05	14,084	CAB05	13,420	CAB04	13,277
5	CAA00	14,161	CXX00	13,348	CBB00	11,249	CAA00	13,875	CAB04	13,337	CAA00	14,101	CXX00	13,426	CAB01	13,316
6	CAA01	14,232	CAB01	13,367	CAB04	11,256	CAB04	13,906	CAB01	13,369	CXX00	14,120	CAA00	13,450	CCB001	13,372
7	CCB00	14,257	CAA00	13,384	CCB01	11,260	CCB00	13,969	CXX00	13,383	CCB00	14,182	CAB01	13,467	CCB01	13,372
8	CBB00	14,336	CBB00	13,410	CXX00	11,264	CBB00	14,038	CBB00	13,383	CBB00	14,251	CBB00	13,490	CAA01	13,372
9	CCB01	14,352	CCB01	13,512	CAB01	11,316	CCB01	14,064	CCB01	13,392	CCB01	14,271	CAA01	13,533	CBB00	13,380
10	CXX00	14,390	CAA01	13,512	XAB00	11,468	CXX00	14,107	CAA01	13,449	CXX00	14,306	CCB01	13,560	CXX00	13,405
11	XAB00	14,691	XAB00	13,804	CAA01	11,481	XAB00	14,379	XAB00	13,790	XAB00	14,551	XAB00	13,897	XAB00	13,643

	Endpoint	49	Endpoint	50	Endpoint	53	Endpoint	57	Endpoint	60	Endpoint	63	Endpoint	65	Endpoint	67
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	13,109	CAB00	12,513	CAB00	12,902	CAB00	12,760	CXX00	11,441	CAB00	11,275	CAB04	14,266	CAB00	14,003
2	CAA00	13,182	CAB05	12,572	CAB01	12,956	CAB01	12,836	CAB00	11,462	CAA01	11,369	CAB00	14,274	CAB01	14,017
3	CAB05	13,184	CAB04	12,576	CAA00	12,963	CAA00	12,845	CCB00	11,467	CCB00	11,380	CAB05	14,279	CAB04	14,018
4	CAB04	13,188	CCB00	12,590	CAB05	12,996	CAB05	12,875	CBB00	11,513	CBB00	11,382	CAA00	14,333	CAB05	14,026
5	CCB00	13,212	CAA00	12,590	CAA01	13,003	CAB04	12,884	CAA00	11,560	CCB01	11,386	CAB01	14,347	CAA00	14,059
6	CAB01	13,239	CAB01	12,615	CAB04	13,005	CAA01	12,888	CAB05	11,564	CXX00	11,401	CCB00	14,399	CAA01	14,134
7	CBB00	13,278	CXX00	12,647	CCB00	13,072	CCB00	12,935	CAB04	11,580	CAB05	11,403	CAA01	14,469	CCB00	14,176
8	CCB01	13,283	CBB00	12,656	CCB01	13,092	CCB01	12,971	CCB01	11,586	CAB04	11,424	CBB00	14,488	CCB01	14,249
9	CXX00	13,287	CAA01	12,681	CBB00	13,118	CBB00	12,983	CAB01	11,635	CAB01	11,479	CCB01	14,493	CBB00	14,254
10	CAA01	13,300	CCB01	12,687	CXX00	13,206	CXX00	13,056	CAA01	11,738	CAA00	11,534	CXX00	14,503	CXX00	14,324
11	XAB00	13,550	XAB00	12,948	XAB00	13,269	XAB00	13,145	XAB00	11,810	CAA01	11,566	XAB00	14,929	XAB00	14,582

	Endpoint	71	Endpoint	73	Endpoint	77	Endpoint	79	Endpoint	83	Endpoint	91	Endpoint	97	Endpoint	99
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,918	CAB00	12,787	CAB00	10,865	CAB00	13,536	CXX00	11,680	CAB00	12,844	CAB00	12,439	CAB00	11,124
2	CAB04	12,962	CAB04	12,831	CCB00	10,933	CAA00	13,576	CCB00	11,764	CAA00	12,915	CAB01	12,466	CXX00	11,126
3	CAB05	12,965	CAB05	12,834	CAA00	10,953	CAA01	13,594	CAB00	11,819	CAB05	12,917	CAA00	12,496	CCB00	11,142
4	CAA00	12,985	CAA00	12,860	CBB00	10,961	CAB05	13,634	CBB00	11,828	CAB04	12,920	CAB05	12,508	CBB00	11,188
5	CAB01	13,001	CAB01	12,872	CXX00	10,962	CAA00	13,644	CAB05	11,886	CCB00	12,948	CAB04	12,511	CAB05	11,201
6	CCB00	13,028	CCB00	12,881	CAB05	10,968	CAB04	13,676	CAA00	11,921	CAB01	12,969	CAA01	12,593	CAB04	11,210
7	CBB00	13,083	CBB00	12,947	CAB04	10,983	CCB00	13,740	CCB01	11,931	CCB00	13,002	CCB00	12,605	CAA00	11,216
8	CCB01	13,103	CXX00	12,949	CCB01	10,993	CBB00	13,809	CAB04	11,936	CBB00	13,011	CCB01	12,633	CCB01	11,255
9	CXX00	13,111	CCB01	12,975	CAB01	11,035	CCB01	13,832	CAB01	11,992	CXX00	13,022	CBB00	12,652	CAB01	11,271
10	CAA01	13,136	CAA01	13,014	XAB00	11,195	CXX00	13,879	CAA01	12,108	CAA01	13,030	CXX00	12,736	CAA01	11,450
11	XAB00	13,431	XAB00	13,299	CAA01	11,210	XAB00	14,144	XAB00	12,373	XAB00	13,279	XAB00	12,872	XAB00	11,541

Table 14: Low CO2 Credit Price Risk Table

	Endpoint	5	Endpoint	6	Endpoint	7	Endpoint	17	Endpoint	18	Endpoint	19	Endpoint	24
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CXX00	11,330	CAB00	11,579	CAB00	11,414	CXX00	11,204	CXX00	11,147	CAB00	10,828	CXX00	11,395
2	CCB00	11,445	CCB00	11,656	CCB00	11,476	CCB00	11,319	CCB00	11,176	CCB00	10,894	CCB00	11,463
3	CBB00	11,510	CAA00	11,665	CXX00	11,496	CBB00	11,375	CAB00	11,178	CAA00	10,914	CAB00	11,510
4	CAB00	11,540	CCB01	11,677	CBB00	11,501	CAB00	11,396	CBB00	11,224	CBB00	10,920	CBB00	11,528
5	CAB05	11,593	CBB00	11,679	CAA00	11,507	CAB05	11,456	CAB05	11,266	CXX00	10,922	CAB05	11,547
6	CAB04	11,640	CXX00	11,687	CCB01	11,516	CAB04	11,466	CAA00	11,275	CCB01	10,939	CAB04	11,551
7	CAA00	11,653	CAB05	11,701	CAB05	11,534	CAA00	11,564	CAB04	11,282	CAB05	10,943	CAA00	11,599
8	CCB01	11,663	CAB04	11,782	CAB04	11,594	CAB01	11,578	CCB01	11,299	CAB04	10,984	CAB01	11,603
9	CAB01	11,683	CAB01	11,819	CAB01	11,639	CCB01	11,628	CAB01	11,336	CAB01	11,014	CCB01	11,645
10	CAA01	11,808	CAA01	11,922	CAA01	11,750	CAA01	11,626	CAA01	11,435	XAB00	11,081	CAA01	11,774
11	XAB00	12,084	XAB00	11,960	XAB00	11,792	XAB00	11,629	XAB00	11,522	CAA01	11,105	XAB00	12,012

	Endpoint	25	Endpoint	26	Endpoint	27	Endpoint	36	Endpoint	58	Endpoint	59	Endpoint	60
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CXX00	11,022	CAB00	10,811	CAB00	11,136	CXX00	11,128	CXX00	11,216	CXX00	11,158	CXX00	11,441
2	CAB00	11,036	CAA00	10,885	CAA00	11,218	CCB00	11,167	CCB00	11,308	CAB00	11,160	CAB00	11,462
3	CCB00	11,043	CCB00	10,899	CCB00	11,222	CAB00	11,178	CBB00	11,376	CCB00	11,173	CCB00	11,467
4	CBB00	11,091	CAB05	10,905	CAB05	11,241	CBB00	11,213	CAB00	11,377	CBB00	11,219	CBB00	11,513
5	CAB05	11,101	CAB04	10,917	CBB00	11,249	CAB05	11,250	CAB05	11,441	CAB05	11,248	CAA00	11,560
6	CAB04	11,110	CBB00	10,922	CAB04	11,256	CAA00	11,279	CAB04	11,452	CAA00	11,249	CAB05	11,564
7	CAA00	11,126	CCB01	10,926	CCB01	11,260	CCB01	11,288	CAA00	11,479	CAB04	11,264	CAB04	11,580
8	CAB01	11,163	CXX00	10,945	CXX00	11,264	CAB04	11,312	CCB01	11,505	CCB00	11,287	CCB01	11,586
9	CCB01	11,166	CAB01	10,957	CAB01	11,316	CAB01	11,356	CAB01	11,512	CAB01	11,317	CAB01	11,636
10	CAA01	11,335	CAA01	11,123	XAB00	11,468	CAA01	11,472	CAA01	11,813	CAA01	11,410	CAA01	11,738
11	XAB00	11,446	XAB00	11,132	CAA01	11,481	XAB00	11,631	XAB00	11,811	XAB00	11,503	XAB00	11,810

	Endpoint	61	Endpoint	62	Endpoint	63	Endpoint	64	Endpoint	76	Endpoint	77	Endpoint	83
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CXX00	11,003	CXX00	10,844	CAB00	11,275	CAB00	10,721	CXX00	10,878	CAB00	10,865	CXX00	11,680
2	CCB00	11,032	CCB00	10,887	CAA00	11,356	CCB00	10,787	CAB00	10,891	CCB00	10,900	CCB00	11,764
3	CAB00	11,033	CAB00	10,903	CCB00	11,360	CAA00	10,807	CCB00	10,899	CAA00	10,952	CAB00	11,819
4	CBB00	11,079	CBB00	10,934	CBB00	11,382	CBB00	10,813	CBB00	10,946	CBB00	10,966	CBB00	11,828
5	CAB05	11,122	CAB05	10,992	CCB01	11,386	CXX00	10,815	CAB05	10,957	CXX00	10,967	CAB05	11,886
6	CAA00	11,130	CAA00	11,006	CXX00	11,401	CCB01	10,831	CAB04	10,957	CAB05	10,968	CAA00	11,921
7	CAB04	11,138	CAB04	11,008	CAB05	11,403	CAB04	10,835	CAA00	10,981	CAB04	10,980	CCB01	11,931
8	CCB01	11,154	CCB01	11,026	CAB04	11,424	CAB04	10,858	CAB01	11,016	CCB01	10,990	CAB04	11,936
9	CAB01	11,191	CAB01	11,061	CAB01	11,479	CAB01	10,909	CCB01	11,021	CAB01	11,035	CAB01	11,992
10	CAA01	11,290	CAA01	11,166	XAB00	11,534	XAB00	10,974	CAA01	11,193	XAB00	11,196	CAA01	12,108
11	XAB00	11,376	XAB00	11,245	CAA01	11,566	CAA01	10,999	XAB00	11,300	CAA01	11,210	XAB00	12,373

	Endpoint	84	Endpoint	85	Endpoint	95	Endpoint	98	Endpoint	99	Endpoint	100		
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		
1	CXX00	11,077	CXX00	10,790	CXX00	10,823	CAB00	10,833	CAB00	11,124	CAB00	10,317		
2	CCB00	11,176	CCB00	10,842	CAB00	10,850	CXX00	10,855	CXX00	11,126	CCB00	10,378		
3	CBB00	11,242	CAB00	10,865	CCB00	10,851	CCB00	10,858	CCB00	11,142	CAA00	10,403		
4	CAB00	11,253	CBB00	10,889	CBB00	10,898	CAB05	10,899	CBB00	11,188	CXX00	10,405		
5	CAB05	11,307	CAB05	10,897	CAB05	10,939	CBB00	10,905	CAB05	11,201	CBB00	10,408		
6	CAB04	11,353	CAA00	10,913	CAA00	10,946	CCB01	10,909	CAB04	11,210	CAB05	10,409		
7	CAA00	11,359	CCB01	10,975	CAB04	10,955	CAA00	10,917	CAA00	11,216	CAB04	10,424		
8	CCB01	11,366	CAB04	10,998	CCB01	10,967	CCB01	10,956	CCB01	11,255	CCB01	10,433		
9	CAB01	11,406	CAB01	11,049	CAB01	11,014	CAB01	10,967	CAB01	11,271	CAB01	10,479		
10	CAA01	11,524	CAA01	11,211	CAA01	11,112	CAA01	11,135	CAA01	11,450	CXX00	10,515		
11	XAB00	11,791	XAB00	11,314	XAB00	11,190	XAB00	11,240	XAB00	11,541	CAA01	10,552		

Table 15: Low Natural Gas Price Risk Table

Low Natural Gas Scenario

RANK	Endpoint 2 PLAN	NPVRR	Endpoint 3 PLAN	NPVRR	Endpoint 6 PLAN	NPVRR	Endpoint 9 PLAN	NPVRR	Endpoint 16 PLAN	NPVRR	Endpoint 15 PLAN	NPVRR	Endpoint 26 PLAN	NPVRR
1	CAB01	14,186	CAB01	13,953	CAB00	11,579	CAB00	11,414	CAB00	12,508	CAB00	10,828	CAB00	10,811
2	CAB00	14,235	CAB00	13,999	CCB00	11,656	CCB00	11,476	CAB01	12,544	CCB00	10,894	CAA00	10,885
3	CAA01	14,237	CAA01	14,009	CAA00	11,665	CXX00	11,496	CAA00	12,570	CAA00	10,914	CCB00	10,899
4	CAB05	14,292	CAB05	14,056	CCB01	11,677	CBB00	11,501	CAB05	12,588	CBB00	10,920	CAB05	10,903
5	CAA00	14,299	CAA00	14,067	CBB00	11,679	CAA00	11,507	CAA01	12,594	CXX00	10,922	CAB04	10,917
6	CAB04	14,334	CAB04	14,098	CXX00	11,687	CCB01	11,516	CAB04	12,597	CCB01	10,938	CBB00	10,922
7	CCB00	14,428	CCB00	14,161	CAB05	11,701	CAB05	11,534	CCB00	12,655	CAB05	10,943	CCB01	10,928
8	CCB01	14,488	CBB00	14,230	CAB04	11,762	CAB04	11,594	CCB01	12,695	CAB04	10,964	CXX00	10,945
9	CBB00	14,495	CCB01	14,255	CAB01	11,819	CAB01	11,639	CBB00	12,704	CAB01	11,014	CAB01	10,967
10	CXX00	14,593	CXX00	14,298	CAA01	11,922	CAA01	11,750	CXX00	12,773	XAB00	11,081	CAA01	11,123
11	XAB00	14,812	XAB00	14,573	XAB00	11,960	XAB00	11,792	XAB00	12,868	CAA01	11,105	XAB00	11,132

RANK	Endpoint 27 PLAN	NPVRR	Endpoint 29 PLAN	NPVRR	Endpoint 31 PLAN	NPVRR	Endpoint 42 PLAN	NPVRR	Endpoint 53 PLAN	NPVRR	Endpoint 54 PLAN	NPVRR	Endpoint 55 PLAN	NPVRR
1	CAB00	11,136	CAB01	13,782	CAB00	12,496	CAB01	13,302	CAB00	12,902	CAB00	12,474	CAB00	12,780
2	CAA00	11,218	CAB00	13,806	CAB01	12,556	CAA01	13,333	CAB01	12,956	CAB01	12,511	CAB01	12,836
3	CCB00	11,222	CAA01	13,819	CAA00	12,564	CAB00	13,375	CAA00	12,963	CAA00	12,532	CAA00	12,845
4	CAB05	11,241	CAB05	13,864	CAB05	12,570	CAB05	13,429	CAB05	12,996	CAB05	12,555	CAB05	12,875
5	CBB00	11,249	CAA00	13,875	CAB04	12,615	CAB04	13,432	CAA01	13,003	CAA01	12,555	CAB04	12,884
6	CAB04	11,256	CAB04	13,906	CAA01	12,622	CAA00	13,443	CAB04	13,005	CAB04	12,564	CAA01	12,888
7	CCB01	11,260	CCB01	13,969	CCB00	12,634	CCB00	13,559	CCB00	13,072	CCB00	12,637	CCB00	12,935
8	CXX00	11,264	CBB00	14,038	CCB01	12,673	CBB00	13,631	CCB01	13,092	CCB01	12,660	CCB01	12,971
9	CAB01	11,316	CCB01	14,064	CBB00	12,683	CCB01	13,638	CBB00	13,118	CBB00	12,684	CBB00	12,983
10	XAB00	11,468	CXX00	14,107	CXX00	12,743	CXX00	13,722	CXX00	13,206	CXX00	12,768	CXX00	13,056
11	CAA01	11,481	XAB00	14,379	XAB00	12,966	XAB00	13,824	XAB00	13,269	XAB00	12,804	XAB00	13,145

RANK	Endpoint 56 PLAN	NPVRR	Endpoint 57 PLAN	NPVRR	Endpoint 63 PLAN	NPVRR	Endpoint 64 PLAN	NPVRR	Endpoint 75 PLAN	NPVRR	Endpoint 77 PLAN	NPVRR	Endpoint 79 PLAN	NPVRR
1	CAB00	12,352	CAB00	12,227	CAB00	11,275	CAB00	10,721	CAB00	12,209	CAB00	10,865	CAB01	13,538
2	CAB01	12,391	CAB01	12,266	CAA00	11,356	CCB00	10,787	CAB01	12,218	CCB00	10,933	CAB00	13,576
3	CAA00	12,414	CAA00	12,294	CCB00	11,360	CAA00	10,807	CAA00	12,266	CAA00	10,953	CAA01	13,594
4	CAB05	12,433	CAB05	12,306	CBB00	11,382	CBB00	10,811	CAB05	12,268	CBB00	10,961	CAB05	13,634
5	CAA01	12,440	CAB04	12,317	CCB01	11,386	CXX00	10,815	CAB04	12,270	CXX00	10,962	CAA00	13,644
6	CAB04	12,442	CAA01	12,323	CXX00	11,401	CCB01	10,831	CAA01	12,340	CAB05	10,968	CAB04	13,676
7	CCB00	12,499	CCB00	12,359	CAB05	11,403	CAB05	10,836	CCB00	12,366	CAB04	10,983	CCB00	13,740
8	CCB01	12,539	CBB00	12,409	CAB04	11,424	CAB04	10,858	CCB01	12,406	CCB01	10,993	CBB00	13,809
9	CBB00	12,549	CCB01	12,415	CAB01	11,479	CAB01	10,905	CBB00	12,416	CAB01	11,035	CCB01	13,832
10	CXX00	12,618	CXX00	12,463	XAB00	11,534	XAB00	10,974	CXX00	12,493	XAB00	11,111	CXX00	13,879
11	XAB00	12,711	XAB00	12,585	CAA01	11,566	CAA01	10,999	XAB00	12,635	CAA01	11,210	XAB00	14,144

RANK	Endpoint 88 PLAN	NPVRR	Endpoint 94 PLAN	NPVRR	Endpoint 97 PLAN	NPVRR	Endpoint 108 PLAN	NPVRR
1	CAB01	12,913	CAB00	12,155	CAB00	12,439	CAB00	10,317
2	CAA01	12,949	CAB01	12,209	CAB01	12,466	CCB00	10,378
3	CAB00	12,990	CAA00	12,227	CAA00	12,498	CAA00	10,403
4	CAB05	13,043	CAB05	12,246	CAB05	12,508	CXX00	10,405
5	CAB04	13,046	CAB04	12,255	CAB04	12,511	CBB00	10,406
6	CAA00	13,051	CAA01	12,256	CAA01	12,593	CAB05	10,409
7	CCB00	13,158	CCB00	12,314	CCB00	12,605	CAB04	10,424
8	CBB00	13,228	CCB01	12,345	CCB01	12,633	CCB01	10,437
9	CCB01	13,254	CBB00	12,362	CBB00	12,652	CAB01	10,479
10	CXX00	13,305	CXX00	12,433	CXX00	12,736	XAB00	10,635
11	XAB00	13,433	XAB00	12,520	XAB00	12,872	CAA01	10,652

Table 16: Low Load Growth Risk Table

Low Load Growth Scenario

RANK	Endpoint 78 PLAN	NPVRR	Endpoint 79 PLAN	NPVRR	Endpoint 80 PLAN	NPVRR	Endpoint 81 PLAN	NPVRR	Endpoint 82 PLAN	NPVRR	Endpoint 83 PLAN	NPVRR
1	CAB00	13,717	CAB01	13,538	CAB00	12,811	CAB00	12,679	CAB00	12,560	CXX00	11,680
2	CAB05	13,729	CAB00	13,578	CCB00	12,835	CXX00	12,681	CAB05	12,613	CCB00	11,754
3	CAB04	13,758	CAA01	13,594	CAB05	12,839	CCB00	12,687	CAA00	12,635	CAB00	11,819
4	CAA00	13,787	CAB05	13,634	CXX00	12,844	CAB05	12,707	CCB00	12,645	CBB00	11,828
5	CCB00	13,803	CAA00	13,644	CAB04	12,873	CAB04	12,742	CAB04	12,652	CAB05	11,886
6	CAB01	13,840	CAB04	13,676	CAA00	12,890	CAA00	12,765	CAB01	12,688	CAA00	11,921
7	CXX00	13,876	CCB00	13,740	CBB00	12,918	CBB00	12,772	CCB01	12,704	CCB01	11,931
8	CCB01	13,891	CBB00	13,809	CAB01	12,919	CAB01	12,787	CXX00	12,710	CAB04	11,936
9	CBB00	13,895	CCB01	13,832	CCB01	12,965	CCB01	12,837	CBB00	12,711	CAB01	11,992
10	CAA01	13,905	CXX00	13,870	CAA01	12,999	CAA01	12,873	CAA01	12,763	CAA01	12,108
11	XAB00	14,392	XAB00	14,144	XAB00	13,432	XAB00	13,299	XAB00	13,099	XAB00	12,373

RANK	Endpoint 84 PLAN	NPVRR	Endpoint 85 PLAN	NPVRR	Endpoint 86 PLAN	NPVRR	Endpoint 87 PLAN	NPVRR	Endpoint 88 PLAN	NPVRR	Endpoint 89 PLAN	NPVRR
1	CXX00	11,077	CXX00	10,790	CAB00	13,464	CAB00	13,342	CAB01	12,913	CAB00	12,666
2	CCB00	11,176	CCB00	10,842	CAB04	13,498	CAB04	13,376	CAA01	12,949	CCB00	12,700
3	CBB00	11,242	CAB00	10,885	CAB05	13,500	CAB05	13,379	CAB00	12,990	CAB04	12,700
4	CAB00	11,253	CBB00	10,889	CAB01	13,504	CAB01	13,383	CAB05	13,043	CAB05	12,702
5	CAB05	11,307	CAB05	10,947	CAA00	13,522	CAA00	13,404	CAB04	13,046	CXX00	12,719
6	CAB04	11,353	CAA00	10,973	CAA01	13,542	CAA01	13,425	CAA00	13,051	CAA00	12,741
7	CAA00	11,359	CCB01	10,975	CCB00	13,622	CCB00	13,484	CCB00	13,158	CAB01	12,754
8	CCB01	11,366	CAB04	10,998	CCB01	13,678	CCB01	13,556	CBB00	13,228	CBB00	12,784
9	CAB01	11,406	CAB01	11,049	CBB00	13,700	CBB00	13,564	CCB01	13,254	CAA01	12,817
10	CAA01	11,524	CAA01	11,172	CXX00	13,760	CXX00	13,609	CXX00	13,305	CCB01	12,831
11	XAB00	11,791	XAB00	11,314	XAB00	13,966	XAB00	13,843	XAB00	13,433	XAB00	13,176

RANK	Endpoint 90 PLAN	NPVRR	Endpoint 91 PLAN	NPVRR	Endpoint 92 PLAN	NPVRR	Endpoint 93 PLAN	NPVRR	Endpoint 94 PLAN	NPVRR	Endpoint 95 PLAN	NPVRR
1	CAB00	12,543	CAB00	12,844	CAB00	12,415	CAB00	12,285	CAB00	12,165	CXX00	10,823
2	CAB05	12,603	CAA00	12,916	CAB05	12,475	CAB05	12,345	CAB01	12,209	CAB00	10,850
3	CAB04	12,606	CAB05	12,917	CAB04	12,478	CAB04	12,348	CAA00	12,227	CCB00	10,851
4	CAA00	12,608	CAB04	12,920	CAA00	12,485	CAA00	12,361	CAB05	12,246	CBB00	10,896
5	CAB01	12,649	CCB00	12,946	CCB00	12,510	CCB00	12,364	CAB04	12,255	CAB05	10,939
6	CCB00	12,654	CAB01	12,969	CAB01	12,523	CAB01	12,395	CAA01	12,258	CAA00	10,946
7	CCB01	12,694	CBB00	13,002	CCB01	12,570	CXX00	12,429	CCB00	12,314	CAB04	10,955
8	CAA01	12,702	CBB00	13,011	CBB00	12,577	CBB00	12,431	CCB01	12,345	CCB01	10,964
9	CBB00	12,719	CXX00	13,022	CAA01	12,582	CCB01	12,443	CBB00	12,362	CAB01	11,014
10	CXX00	12,742	CAA01	13,030	CXX00	12,584	CAA01	12,490	CXX00	12,433	CAA01	11,112
11	XAB00	12,973	XAB00	13,279	XAB00	12,844	XAB00	12,713	XAB00	12,520	XAB00	11,190

RANK	Endpoint 96 PLAN	NPVRR	Endpoint 97 PLAN	NPVRR	Endpoint 98 PLAN	NPVRR	Endpoint 99 PLAN	NPVRR	Endpoint 100 PLAN	NPVRR
1	CAB00	12,273	CAB00	12,419	CAB00	10,833	CAB00	11,206	CAB00	10,317
2	CAB04	12,307	CAB01	12,486	CXX00	10,853	CXX00	11,226	CCB00	10,378
3	CAB05	12,310	CAA00	12,498	CCB00	10,858	CCB00	11,242	CAA00	10,403
4	CAA00	12,337	CAB05	12,508	CAB05	10,899	CBB00	11,288	CXX00	10,405
5	CAB01	12,350	CAB04	12,511	CBB00	10,905	CAB05	11,290	CBB00	10,408
6	CCB00	12,377	CAA01	12,593	CAB04	10,908	CAB04	11,310	CAB05	10,409
7	CCB01	12,437	CBB00	12,605	CAA00	10,917	CAA00	11,316	CAB04	10,424
8	CBB00	12,444	CCB01	12,633	CCB01	10,956	CCB01	11,325	CCB01	10,437
9	CXX00	12,459	CBB00	12,652	CAB01	10,967	CAB01	11,427	CAB01	10,479
10	CAA01	12,484	CXX00	12,736	CAA01	11,137	CAA01	11,450	XAB00	10,635
11	XAB00	12,769	XAB00	12,872	XAB00	11,240	XAB00	11,541	CAA01	10,652

Table 17: Low Construction Costs Risk Table

Low Construction Costs Scenario

	Endpoint 20		Endpoint 21		Endpoint 22		Endpoint 23		Endpoint 24		Endpoint 25		Endpoint 26	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	14,101	CAB00	13,305	CAB00	12,851	CAB00	12,690	CXX00	11,395	CXX00	11,022	CAB00	10,811
2	CAB01	14,112	CAB04	13,321	CAB04	12,885	CAB04	12,723	CCB00	11,463	CAB00	11,035	CAA00	10,885
3	CAB04	14,115	CAB05	13,328	CAB05	12,889	CAB05	12,726	CAB00	11,510	CCB00	11,043	CCB00	10,899
4	CAB05	14,123	CCB00	13,337	CAA00	12,911	CAA00	12,756	CBB00	11,528	CBB00	11,091	CAB05	10,903
5	CAA00	14,161	CXX00	13,348	CAB01	12,927	CAB01	12,758	CAB05	11,547	CAB05	11,101	CAB04	10,917
6	CAA01	14,232	CAB01	13,367	CCB00	12,971	CCB00	12,792	CAB04	11,551	CAB04	11,110	CBB00	10,922
7	CCB00	14,257	CAA00	13,384	CCB01	13,030	CBB00	12,858	CAA00	11,599	CAA00	11,126	CCB01	10,928
8	CBB00	14,336	CBB00	13,419	CBB00	13,038	CXX00	12,871	CAB01	11,603	CAB01	11,163	CXX00	10,945
9	CCB01	14,352	CCB01	13,512	CAA01	13,051	CCB01	12,873	CCB01	11,645	CCB01	11,166	CAB01	10,967
10	CXX00	14,390	CAA01	13,512	CXX00	13,067	CAA01	12,889	CAA01	11,774	CAA01	11,335	CAA01	11,123
11	XAB00	14,691	XAB00	13,904	XAB00	13,356	XAB00	13,193	XAB00	12,012	XAB00	11,446	XAB00	11,132

	Endpoint 27		Endpoint 65		Endpoint 66		Endpoint 67		Endpoint 68		Endpoint 69		Endpoint 70	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	11,136	CAB04	14,266	CAB04	13,713	CAB00	14,003	CAB00	13,465	CAB00	12,801	CAB00	12,631
2	CAA00	11,218	CAB00	14,274	CAB05	13,726	CAB01	14,017	CAB01	13,466	CAB04	12,806	CAB04	12,663
3	CCB00	11,222	CAB05	14,279	CAB00	13,732	CAB04	14,019	CAB04	13,469	CAB05	12,813	CAB05	12,666
4	CAB05	11,241	CAA00	14,330	CAA00	13,792	CAB05	14,026	CAB05	13,477	CCB00	12,840	CAA00	12,691
5	CBB00	11,249	CAB01	14,347	CAB01	13,793	CAA00	14,059	CAA00	13,522	CAB01	12,849	CAB01	12,698
6	CAB04	11,256	CCB00	14,399	CCB00	13,832	CAA01	14,134	CAA01	13,584	CXX00	12,864	CCB00	12,748
7	CCB01	11,260	CAA01	14,469	CAA01	13,916	CCB00	14,176	CCB00	13,613	CAA00	12,872	CCB01	12,807
8	CXX00	11,264	CBB00	14,488	CXX00	13,919	CCB01	14,249	CBB00	13,693	CBB00	12,923	CBB00	12,813
9	CAB01	11,316	CCB01	14,493	CBB00	13,924	CBB00	14,254	CCB01	13,706	CAA01	12,986	CAA01	12,824
10	XAB00	11,468	CXX00	14,503	CCB01	13,949	CXX00	14,324	CXX00	13,744	CCB01	12,995	CXX00	12,843
11	CAA01	11,481	XAB00	14,929	XAB00	14,374	XAB00	14,592	XAB00	14,041	XAB00	13,387	XAB00	13,133

	Endpoint 71		Endpoint 72		Endpoint 73		Endpoint 74		Endpoint 75		Endpoint 76		Endpoint 77	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,918	CAB00	12,502	CAB00	12,787	CAB00	12,371	CAB00	12,209	CXX00	10,878	CAB00	10,865
2	CAB04	12,962	CAB04	12,535	CAB04	12,831	CAB04	12,404	CAB01	12,218	CAB00	10,891	CCB00	10,933
3	CAB05	12,965	CAB05	12,538	CAB05	12,834	CAB05	12,407	CAA00	12,266	CCB00	10,899	CAA00	10,953
4	CAA00	12,985	CAA00	12,567	CAA00	12,860	CAA00	12,442	CAB05	12,268	CBB00	10,946	CBB00	10,981
5	CAB01	13,001	CAB01	12,571	CAB01	12,872	CAB01	12,442	CAB04	12,270	CAB05	10,957	CXX00	10,962
6	CCB00	13,028	CCB00	12,604	CCB00	12,881	CCB00	12,457	CAA01	12,340	CAB04	10,957	CAB05	10,968
7	CBB00	13,093	CBB00	12,670	CBB00	12,947	CXX00	12,522	CCB00	12,366	CAA00	10,961	CAB04	10,983
8	CCB01	13,103	CCB01	12,682	CXX00	12,949	CBB00	12,524	CCB01	12,406	CAB01	11,018	CCB01	10,993
9	CXX00	13,111	CXX00	12,684	CCB01	12,975	CCB01	12,554	CBB00	12,416	CCB01	11,021	CAB01	11,035
10	CAA01	13,136	CAA01	12,703	CAA01	13,014	CAA01	12,581	CXX00	12,493	CAA01	11,193	XAB00	11,195
11	XAB00	13,431	XAB00	13,003	XAB00	13,299	XAB00	12,872	XAB00	12,535	XAB00	11,300	CAA01	11,210

	Endpoint 96		Endpoint 97		Endpoint 98		Endpoint 99		Endpoint 100	
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,273	CAB00	12,459	CAB00	10,833	CAB00	11,241	CAB00	10,317
2	CAB04	12,307	CAB01	12,466	CXX00	10,853	CXX00	11,326	CCB00	10,378
3	CAB05	12,310	CAA00	12,496	CCB00	10,858	CCB00	11,142	CAA00	10,403
4	CAA00	12,337	CAB05	12,508	CAB05	10,899	CBB00	11,188	CXX00	10,405
5	CAB01	12,350	CAB04	12,511	CBB00	10,905	CAB05	11,201	CBB00	10,408
6	CCB00	12,377	CAA01	12,593	CAB04	10,908	CAB04	11,240	CAB05	10,409
7	CCB01	12,437	CCB00	12,605	CAA00	10,917	CAA00	11,216	CAB04	10,424
8	CBB00	12,444	CCB01	12,633	CCB01	10,956	CCB01	11,255	CCB01	10,437
9	CXX00	12,459	CBB00	12,652	CAB01	10,967	CAB01	11,271	CAB01	10,479
10	CAA01	12,484	CXX00	12,736	CAA01	11,137	CAA01	11,450	XAB00	10,635
11	XAB00	12,769	XAB00	12,872	XAB00	11,240	XAB00	11,541	CAA01	10,652

Table 18: Low Coal Costs Risk Table

	Endpoint	3	Endpoint	5	Endpoint	15	Endpoint	17	Endpoint	21	Endpoint	29
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB01	13,953	CXX00	11,330	CAB00	12,867	CXX00	11,204	CAB00	13,306	CAB01	13,762
2	CAB00	13,999	CCB00	11,445	CAB05	12,928	CCB00	11,310	CAB04	13,321	CAB00	13,806
3	CAA01	14,009	CBB00	11,510	CAB04	12,931	CBB00	11,375	CAB05	13,328	CAA01	13,819
4	CAB05	14,056	CAB00	11,540	CAA00	12,938	CAB00	11,396	CCB00	13,337	CAB05	13,864
5	CAA00	14,067	CAB05	11,593	CCB00	12,962	CAB05	11,456	CXX00	13,348	CAA00	13,875
6	CAB04	14,098	CAB04	11,640	CAB01	12,977	CAB04	11,466	CAB01	13,367	CAB04	13,906
7	CCB00	14,161	CAA00	11,650	CBB00	13,029	CAA00	11,504	CAA00	13,384	CCB00	13,969
8	CBB00	14,230	CCB01	11,663	CXX00	13,034	CAB01	11,518	CBB00	13,419	CBB00	14,038
9	CCB01	14,255	CAB01	11,683	CAA01	13,036	CCB01	11,526	CCB01	13,512	CCB01	14,064
10	CXX00	14,298	CAA01	11,805	CCB01	13,040	CAA01	11,626	CAA01	13,512	CXX00	14,107
11	XAB00	14,573	XAB00	12,084	XAB00	13,303	XAB00	11,829	XAB00	13,904	XAB00	14,379

	Endpoint	35	Endpoint	42	Endpoint	46	Endpoint	51	Endpoint	52	Endpoint	57
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CAB00	12,658	CAB00	13,482	CAB00	12,811	CAB00	12,513	CAB00	12,513	CAB00	12,227
2	CAB05	12,710	CAB01	13,514	CCB00	12,825	CAB05	12,572	CAB05	12,572	CAB01	12,268
3	CCB00	12,724	CAB04	13,515	CXX00	12,825	CAB04	12,576	CAB04	12,576	CAA00	12,294
4	CAA00	12,740	CAB05	13,517	CAB04	12,846	CCB00	12,590	CCB00	12,590	CAB05	12,308
5	CAB04	12,749	CAA00	13,550	CAB05	12,846	CAA00	12,590	CAA00	12,590	CAB04	12,317
6	CXX00	12,772	CAA01	13,562	CAB01	12,890	CAB01	12,615	CAB01	12,615	CAA01	12,323
7	CAB01	12,780	CCB00	13,605	CAA00	12,894	CXX00	12,647	CXX00	12,647	CCB00	12,359
8	CBB00	12,791	CBB00	13,680	CBB00	12,908	CBB00	12,656	CBB00	12,656	CBB00	12,409
9	CCB01	12,821	CXX00	13,712	CAA01	12,959	CAA01	12,681	CAA01	12,681	CCB01	12,415
10	CAA01	12,863	CCB01	13,715	CCB01	12,999	CCB01	12,687	CCB01	12,687	CXX00	12,463
11	XAB00	13,203	XAB00	13,990	XAB00	13,329	XAB00	12,948	XAB00	12,948	XAB00	12,545

	Endpoint	62	Endpoint	73	Endpoint	74	Endpoint	77	Endpoint	79	Endpoint	81
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CXX00	10,844	CAB00	12,787	CAB00	12,371	CAB00	10,865	CAB01	13,538	CAB00	12,679
2	CCB00	10,887	CAB04	12,831	CAB04	12,404	CCB00	10,930	CAB00	13,576	CXX00	12,681
3	CAB00	10,903	CAB05	12,834	CAB05	12,407	CAA00	10,953	CAA01	13,594	CCB00	12,687
4	CBB00	10,934	CAA00	12,860	CAA00	12,442	CBB00	10,961	CAB05	13,634	CAB05	12,707
5	CAB05	10,992	CAB01	12,872	CAB01	12,442	CXX00	10,962	CAA00	13,644	CAB04	12,742
6	CAA00	11,006	CCB00	12,881	CCB00	12,457	CAB05	10,968	CAB04	13,676	CAA00	12,765
7	CAB04	11,008	CBB00	12,947	CXX00	12,522	CAB04	10,983	CCB00	13,740	CBB00	12,772
8	CCB01	11,028	CXX00	12,949	CBB00	12,524	CCB01	11,033	CBB00	13,809	CAB01	12,787
9	CAB01	11,061	CCB01	12,975	CCB01	12,554	CAB01	11,035	CCB01	13,832	CCB01	12,836
10	CAA01	11,166	CAA01	13,014	CAA01	12,581	XAB00	11,195	CXX00	13,879	CAA01	12,873
11	XAB00	11,245	XAB00	13,299	XAB00	12,872	CAA01	11,210	XAB00	14,144	XAB00	13,299

	Endpoint	85	Endpoint	91	Endpoint	93	Endpoint	100
RANK	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
1	CXX00	10,790	CAB00	12,913	CAB00	12,285	CAB00	10,317
2	CCB00	10,842	CAB01	12,949	CAB05	12,345	CCB00	10,370
3	CAB00	10,865	CAB05	12,990	CAB04	12,348	CAA00	10,403
4	CBB00	10,889	CAB04	13,043	CAA00	12,361	CXX00	10,405
5	CAB05	10,947	CAB04	13,046	CCB00	12,364	CBB00	10,476
6	CAA00	10,973	CAA00	13,091	CAB01	12,395	CAB05	10,489
7	CCB01	10,975	CCB00	13,095	CXX00	12,423	CAB04	10,524
8	CAB04	10,998	CBB00	13,228	CBB00	12,431	CAB01	10,537
9	CAB01	11,049	CCB01	13,254	CCB01	12,443	CCB01	10,579
10	CAA01	11,171	CXX00	13,305	CAA01	12,460	XAB00	10,835
11	XAB00	11,314	XAB00	13,433	XAB00	12,713	CAA01	10,852

The lowest cost plan for each scenario is detailed in Table 19 below.

Table 19: Lowest NPVRR Plan by Scenario

LOWEST NPVRR PLAN BY SCENARIO							
SCENARIO	PLAN	NPVRR	PROBABILITY	SCENARIO	PLAN	NPVRR	PROBABILITY
1	CAB00	14,870	0.0723%	51	CAB00	12,513	1.1571%
2	CAB01	14,186	0.0723%	52	CAB00	12,513	2.3492%
3	CAB01	13,953	0.0723%	53	CAB00	12,902	0.5785%
4	CAB00	12,977	1.1746%	54	CAB00	12,474	1.1746%
5	CXX00	11,330	0.1468%	55	CAB00	12,780	1.1571%
6	CAB00	11,579	0.0723%	56	CAB00	12,352	2.3492%
7	CAB00	11,414	0.1446%	57	CAB00	12,277	1.1746%
8	CAB00	14,379	0.2893%	58	CXX00	11,218	1.1746%
9	CAB00	14,256	0.5785%	59	CXX00	11,158	1.1746%
10	CAB00	13,827	1.1746%	60	CXX00	11,441	1.1571%
11	CAB00	13,164	1.1746%	61	CXX00	11,003	2.3492%
12	CAB00	12,962	1.1746%	62	CXX00	10,844	1.1746%
13	CAB00	13,261	1.1571%	63	CAB00	11,225	0.2893%
14	CAB00	12,833	2.3492%	64	CAB00	10,721	1.1746%
15	CAB00	12,867	1.1746%	65	CAB04	13,266	0.1446%
16	CAB00	12,508	1.1746%	66	CAB04	13,713	0.5873%
17	CXX00	11,204	0.2937%	67	CAB00	14,083	0.2893%
18	CXX00	11,147	1.1746%	68	CAB00	13,465	1.1746%
19	CAB00	10,828	0.5873%	69	CAB00	12,800	1.1746%
20	CAB00	14,101	0.2893%	70	CAB00	12,631	1.1746%
21	CAB00	13,306	0.1446%	71	CAB00	12,918	1.1571%
22	CAB00	12,851	0.5873%	72	CAB00	12,502	2.3492%
23	CAB00	12,690	1.1746%	73	CAB00	12,787	0.5785%
24	CXX00	11,395	0.1468%	74	CAB00	12,371	1.1746%
25	CXX00	11,022	0.5873%	75	CAB00	12,209	1.1746%
26	CAB00	10,811	0.1468%	76	CXX00	10,878	1.1746%
27	CAB00	11,136	0.1446%	77	CAB00	10,865	0.1446%
28	CAB00	13,752	1.1746%	78	CAB00	13,717	0.2937%
29	CAB01	13,762	0.1446%	79	CAB01	13,538	0.0723%
30	CAB00	13,125	1.1746%	80	CAB00	12,817	0.5873%
31	CAB00	12,496	1.1746%	81	CAB00	12,679	0.2937%
32	CAB00	12,954	1.1746%	82	CAB00	12,560	1.1746%
33	CAB00	13,230	1.1571%	83	CXX00	11,680	0.0723%
34	CAB00	12,825	2.3492%	84	CXX00	11,077	0.2937%
35	CAB01	12,658	1.1746%	85	CXX00	10,790	0.2937%
36	CXX00	11,128	1.1746%	86	CAB00	13,464	0.5873%
37	CAB00	13,808	1.1746%	87	CAB00	13,342	1.1746%
38	CAB00	13,730	1.1746%	88	CAB01	12,913	0.2937%
39	CAB00	14,036	1.1571%	89	CAB00	12,666	1.1746%
40	CAB00	13,607	2.3492%	90	CAB00	12,543	1.1746%
41	CAB00	13,482	1.1746%	91	CAB00	12,946	1.1571%
42	CAB01	13,302	1.1746%	92	CAB00	12,415	2.3492%
43	CAB00	13,075	1.1746%	93	CAB00	12,285	1.1746%
44	CAB00	13,372	1.1571%	94	CAB00	12,165	1.1746%
45	CAB00	12,944	2.3492%	95	CXX00	10,823	1.1746%
46	CAB00	12,811	1.1746%	96	CAB00	12,273	1.1746%
47	CAB00	13,260	1.1571%	97	CAB00	12,854	0.2893%
48	CAB00	12,773	2.3492%	98	CAB00	10,833	0.2937%
49	CAB00	13,108	2.3142%	99	CAB00	12,424	0.2893%
50	CAB00	12,644	4.6985%	100	CAB00	10,317	0.1468%

The cumulative probability that an individual plan is the lowest cost plan is given in Table 20 below.

Table 20: Lowest NPVRR Plan Cumulative Probability

PLAN	PROBABILITY
CAB00	85.88%
CXX00	13.56%
CAB01	1.83%
CAB04	0.73%
TOTAL	100.00%

Tabular data that created Table 8 through Table 20 is provided on the work paper disc in the Excel file entitled "Table240-22.070(5)(B)Risk Tables.xlsx".

SECTION 6: PREFERRED PLAN

(6) The utility shall select a preferred resource plan from among the alternative plans that have been analyzed pursuant to the requirements of 4 CSR 240-22.060 and sections (1)–(5) of this rule. The preferred resource plan shall satisfy at least the following conditions:

GMO has reviewed the results of the risk analysis and has chosen Plan CAB00 as the Preferred Resource Plan. A complete description of Plan CAB00 is given in Appendix 7A.

6.1 OBJECTIVES

(A) In the judgment of utility decision makers, the preferred plan shall strike an appropriate balance between the various planning objectives specified in 4 CSR 240--22.010(2); and

The Preferred Resource Plan was the lowest cost plan from a Net Present Value of Revenue Requirements (NPVRR) perspective. Plan CAB00 resulted in the lowest expected value of NPVRR of all modeled plans.

6.2 TRENDS

(B) The trend of expected unserved hours for the preferred resource plan must not indicate a consistent increase in the need for emergency imported power over the planning horizon.

The preferred plan adequately provides for the capacity and energy needs of the system. The expected value of unserved megawatt-hours for the preferred plan is detailed in Table 21 below.

Table 21: Unserved Energy - Preferred Plan

Year	MegaWatt-hrs
2012	-
2013	-
2014	-
2015	-
2016	-
2017	-
2018	-
2019	-
2020	-
2021	-
2022	-
2023	-
2024	-
2025	-
2026	-
2027	-
2028	-
2029	-
2030	-
2031	-

Tabular data that created Table 21is provided on the work paper disc in the Excel file entitled "Table240-22.070(6)(B)Unserved Energy_Preferred Plan.xlsx".

SECTION 7: EMERGENCY POWER

(7) The impact of the preferred resource plan on future requirements for emergency imported power shall be explicitly modeled and quantified. The requirement for emergency imported power shall be measured by expected unserved hours under normal-weather load conditions.

7.1 NORMAL WEATHER

(A) The daily normal-weather series used to develop normal-weather loads shall contain a representative amount of day-to-day temperature variation. Both the high and low extreme values of daily normal-weather variables shall be consistent with the historical average of annual extreme temperatures.

GMO utilized the MIDAS™ model software from Ventyx which uses weather normalized monthly peak and energy forecast inputs and applies historical load shapes to these two factors. This allows the model to simulate both high and low extreme values of daily normal-weather variables consistent with historical average and extreme temperatures. MIDAS™ model complies with the requirement of 22.070 (7) (A).

7.2 SIMULATION SOFTWARE

(B) The supply-system simulation software used to calculate expected unserved hours shall be capable of accurately representing at least the following aspects of system operations:

GMO utilized the MIDAS™ model software from Ventyx which complies with all requirements specified in 22.070 (7) (B).

7.2.1 CHRONOLOGICAL DISPATCH

1. Chronological dispatch, including unit commitment decisions that are consistent with the operational characteristics and constraints of all system resources; .

GMO utilized the MIDAS™ model software from Ventyx which includes unit commitment logic that simulates operational characteristics of the GMO resource fleet and all other material system constraints.

7.2.2 HEAT RATES, ET. AL.

2. Heat rates, fuel costs, variable operation and maintenance costs, and sulfur dioxide emission allowance costs for each generating unit; .

GMO utilized the MIDAS™ model software from Ventyx which includes unit heat rates, fuel costs, variable O&M costs and the cost of SO2 and other environmental allowances.

7.2.3 MAINTENANCE OUTAGES

3. Scheduled maintenance outages for each generating unit; .

GMO utilized the MIDAS™ model software from Ventyx which included scheduled maintenance outages for each generating unit.

7.2.4 OUTAGE RATES

4. Partial- and full-forced-outage rates for each generating unit; and

GMO utilized the MIDAS™ model software from Ventyx which included forced outage rates for each generating unit.

7.2.5 CAPACITY AND ENERGY PURCHASES

5. Capacity and energy purchases and sales, including the full spectrum of possibilities, from long-term firm contracts or unit participation agreements to hourly economy transactions. .

GMO utilized the MIDAS™ model software from Ventyx which included a full range of modeling options of capacity and energy purchases. These options include long-term firm contracts, unit participation agreements and hourly economic energy transactions.

7.2.5.1 Sulfur Dioxide Emission Allowances

A. The utility shall maintain the capability to model purchases and sales of energy both with and without the inclusion of sulfur dioxide emission allowances. .

GMO utilized the MIDAS™ model software from Ventyx which includes the capability to model purchases and sales of energy both with and without the inclusion of sulfur dioxide emission allowances,

7.2.5.2 Consistency

B. The level of energy sales and purchases shall be consistent with forecasts of the utility's own production costs as compared to the forecasted production costs of other likely participants in the bulk power market; and .

GMO utilized the MIDAS™ model software from Ventyx which uses consistent forecasts of the utility's own production costs as compared to the forecasted production costs of other likely participants in the bulk power market.

7.3 ALTERNATIVE METHODS

(C) The utility may use an alternative method of calculating expected unserved hours per year if it can demonstrate that the alternative method produces

results that are equivalent to those obtained by a method that meets the requirements of subsection (7)(B).

GMO attests that the MIDAS™ model complies with the requirements of Rule 22.070 (B). No alternative methodology is proposed.

SECTION 8: VALUE OF BETTER INFORMATION

(8) The utility shall quantify the expected value of better information concerning at least the critical uncertain factors that affect the performance of the preferred resource plan, as measured by the present value of utility revenue requirements.

GMO calculated the value of better information for each of the continuous probability Critical Uncertain Factors identified in the preliminary sensitivity analysis. For each Critical Uncertainty, the preferred plan NPVRR for the specific uncertainty scenarios (or endpoints) was compared to the better plan under each extreme uncertainty condition. The comparison was made on an expected value basis assuming that only those three particular scenarios (high value uncertainty, mid value and low value uncertainty) would occur. Baye's Theorem was applied to the endpoint probabilities to develop conditional probabilities for the calculation scenarios. The difference between the expected value of the preferred plan and the expected value of the better information results is the expected value of better information.

These value represent the maximum amount GMO should be willing to spend to study each of these uncertainties.

The results for these calculations are shown in Table 22 through Table 27 below.

Table 22: Better Information - CO_2

CO2						
Preferred Plan	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High CO2	42	CAB00	13,375	1.17%	14.29%	12,288
Mid	50	CAB00	12,644	4.70%	57.14%	
Low CO2	61	CAB00	11,033	2.35%	28.57%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High CO2	42	CAB01	13,302	1.17%	14.29%	12,269
Mid	50	CAB00	12,644	4.70%	57.14%	
Low CO2	61	CXX00	11,003	2.35%	28.57%	
Expected Value of Better Information			[illegible]			

Table 23: Better Information - Coal

Coal						
Preferred Plan	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Coal	24	CAB00	11,510	0.15%	2.44%	12,277
Mid	50	CAB00	12,644	4.70%	78.05%	
Low Coal	62	CAB00	10,903	1.17%	19.51%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Coal	24	CXX00	11,395	0.15%	2.44%	12,262
Mid	50	CAB00	12,644	4.70%	78.05%	
Low Coal	62	CXX00	10,844	1.17%	19.51%	
Expected Value of Better Information			$14.40 Million			

Table 24: Better Information - Construction

Construction						
Preferred Plan	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Construction	36	CAB00	11,178	1.17%	16.67%	12,108
Mid	50	CAB00	12,644	4.70%	66.67%	
Low Construction	76	CAB00	10,891	1.17%	16.67%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Construction	36	CXX00	11,128	1.17%	16.67%	12,097
Mid	50	CAB00	12,644	4.70%	66.67%	
Low Construction	76	CXX00	10,878	1.17%	16.67%	
Expected Value of Better Information			$10.50 Million			

Table 25: Better Information - Load

Load						
Preferred Plan	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Load	18	CAB00	11,178	1.17%	16.67%	12,101
Mid	50	CAB00	12,644	4.70%	66.67%	
Low Load	95	CAB00	10,850	1.17%	16.67%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Load	18	CXX00	11,147	1.17%	16.67%	12,091
Mid	50	CAB00	12,644	4.70%	66.67%	
Low Load	95	CXX00	10,823	1.17%	16.67%	
Expected Value of Better Information			$9.83 Million			

Table 26: Better Information - Natural Gas

Natural Gas						
Preferred Plan	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Natural Gas	5	CAB00	11,540	0.15%	2.99%	12,625
Mid	50	CAB00	12,644	4.70%	95.54%	
Low Natural Gas	79	CAB00	13,576	0.07%	1.47%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Natural Gas	5	CXX00	11,330	0.15%	2.99%	12,618
Mid	50	CAB00	12,644	4.70%	95.54%	
Low Natural Gas	79	CAB01	13,538	0.07%	1.47%	
Expected Value of Better Information			6.83 Million			

Table 27: Better Information - Interest

Interest						
Preferred Plan	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Interest	42	CAB00	13,375	1.17%	20.00%	12,790
Mid	50	CAB00	12,644	4.70%	80.00%	
Better Information	**Endpoint**	**Plan**	**NPVRR**	**EP Prob**	**Cond. Prob**	**Expected Valu**
High Interest	42	CAB01	13,302	1.17%	20.00%	12,776
Mid	50	CAB00	12,644	4.70%	80.00%	
Expected Value of Better Information			14.60 Million			

Tabular data that created Table 22 through Table 27 is provided on the work paper disc in the Excel file entitled "Table240-22.070(8)Better Information.xlsx".

SECTION 9: IMPLEMENTATION PLAN

(9) The utility shall develop an implementation plan that specifies the major tasks and schedules necessary to implement the preferred resource plan over the implementation period. The implementation plan shall contain:

The Implementation Plan is attached as Appendix 7A.

9.1 SCHEDULE OF RESEARCH

(A) A schedule and description of ongoing and planned research activities to update and improve the quality of data used in load analysis and forecasting;

The response is included in the Implementation Plan which is attached as Appendix 7A.

9.2 SCHEDULE OF DSM

(B) A schedule and description of ongoing and planned demand-side programs, program evaluations and research activities;

The response is included in the Implementation Plan which is attached as Appendix 7A.

(C) A schedule and description of all supply-side resource acquisition and construction activities; and .

The response is included in the Implementation Plan which is attached as Appendix 7A.

9.3 CRITICAL PATH

(D) Identification of critical paths and major milestones for each resource acquisition project, including decision points for committing to major expenditures.

The response is included in the Implementation Plan which is attached as Appendix 7A.

SECTION 10: RESOURCE ACQUISITION STRATEGY

(10) The utility shall develop, document and officially adopt a resource acquisition strategy. This means that the utility's resource acquisition strategy shall be formally approved by the board of directors, a committee of senior management, an officer of the company or other responsible party who has been duly delegated the authority to commit the utility to the course of action described in the resource acquisition strategy. The officially adopted resource acquisition strategy shall consist of the following components:

The Resource Acquisition Strategy is attached as Appendix 7A.

10.1 PREFERRED RESOURCE PLAN

(A) A preferred resource plan selected pursuant to the requirements of section (6) of this rule;

The response is included in the Preferred Resource Plan which is attached as Appendix 7A.

10.2 IMPLEMENTATION PLAN

(B) An implementation plan developed pursuant to the requirements of section (9) of this rule; .

The response is included in the Preferred Resource Plan which is attached as Appendix 7A.

10.3 RANGES OF CRITICAL UNCERTAIN FACTORS

(C) A specification of the ranges or combinations of outcomes for the critical uncertain factors that define the limits within which the preferred resource plan is judged to be appropriate and an explanation of how these limits were determined;

The response is included in the Preferred Resource Plan which is attached as Appendix 7A.

10.4 CONTINGENCY OPTIONS

(D) A set of contingency options that are judged to be appropriate responses to extreme outcomes of the critical uncertain factors and an explanation of why these options are judged to be appropriate responses to the specified outcomes; and

The response is included in the Preferred Resource Plan which is attached as Appendix 7A.

10.5 MONITORING CRITICAL UNCERTAIN FACTORS

(E) A process for monitoring the critical uncertain factors on a continuous basis and reporting significant changes in a timely fashion to those managers or officers who have the authority to direct the implementation of contingency options when the specified limits for uncertain factors are exceeded..

The response is included in the Preferred Resource Plan which is attached as Appendix 7A.

SECTION 11: REPORTING REQUIREMENTS

(11) Reporting Requirements. To demonstrate compliance with the provisions of this rule, and pursuant to the requirements of 4 CSR 240-22.080, the utility shall furnish at least the following information:

In this section GMO either supplies requested information or cites where in the filing requested information is located.

11.1 DECISION TREE DIAGRAM

(A) A decision-tree diagram for each of the alternative resource plans along with narrative discussions of the following aspects of the decision analysis:

The decision tree detailing the risks evaluated in the risk analysis is show in Section 3, Figure 9 of this Volume.

11.1.1 SEQUENCE AND TIMING

1. A discussion of the sequence and timing of the decisions represented by decision nodes in the decision tree and a description of the specific decision alternatives considered at each decision point; and

The decision tree used in the risk analysis and detailed in Figure 9 of this volume does not contain decision nodes. Timing of decisions resides in the specification of each alternative resource plan. Those timing considerations are detailed in Volume 6, Integrated Resource Analysis.

11.1.2 CRITICAL UNCERTAIN FACTORS

2. An explanation of how the critical uncertain factors were identified, how the ranges of potential outcomes for each uncertain factor were determined and how the subjective probabilities for each outcome were derived; .

The method for identifying Critical Uncertain Factors is detailed in Section 2: of this Volume. The derivation of subjective probabilities is detailed in Volume 4, Supply-Side Resource Analysis of the August 5, 2009 filing.

11.2 PROBABILITY PLOTS

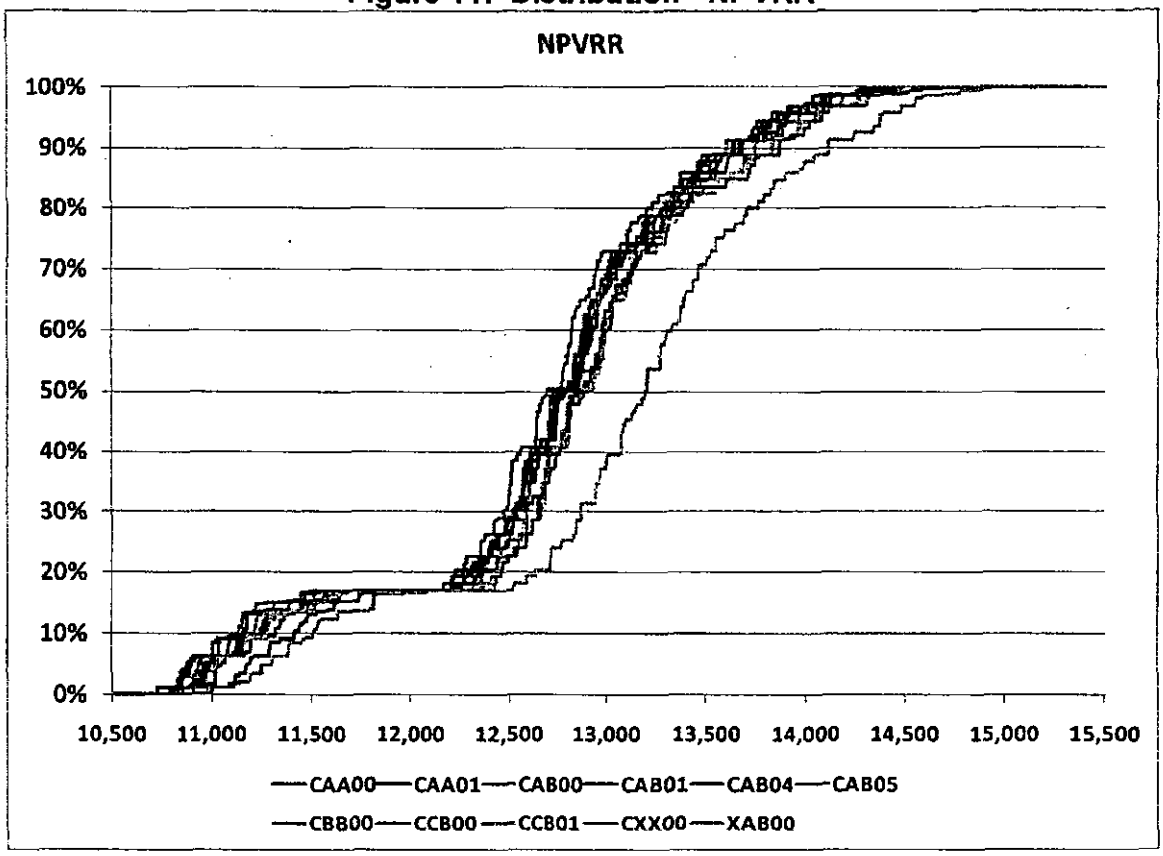
(B) Plots of the cumulative probability distribution of each performance measure for each alternative resource plan;

Cumulative probability distribution charts for the performance measures listed in 22.060 (2) are given below in Figure 11 through Figure 13.

One of the five performance measure listed DSM Out-Of-Pocket Expenses can not be displayed with a meaningful cumulative probability distribution due to its value being an input to the NPVRR calculation of the model and does not vary with respect to the risk sensitivities. It is applied across all the alternative plans. These values are detailed in Table 6 of this Volume.

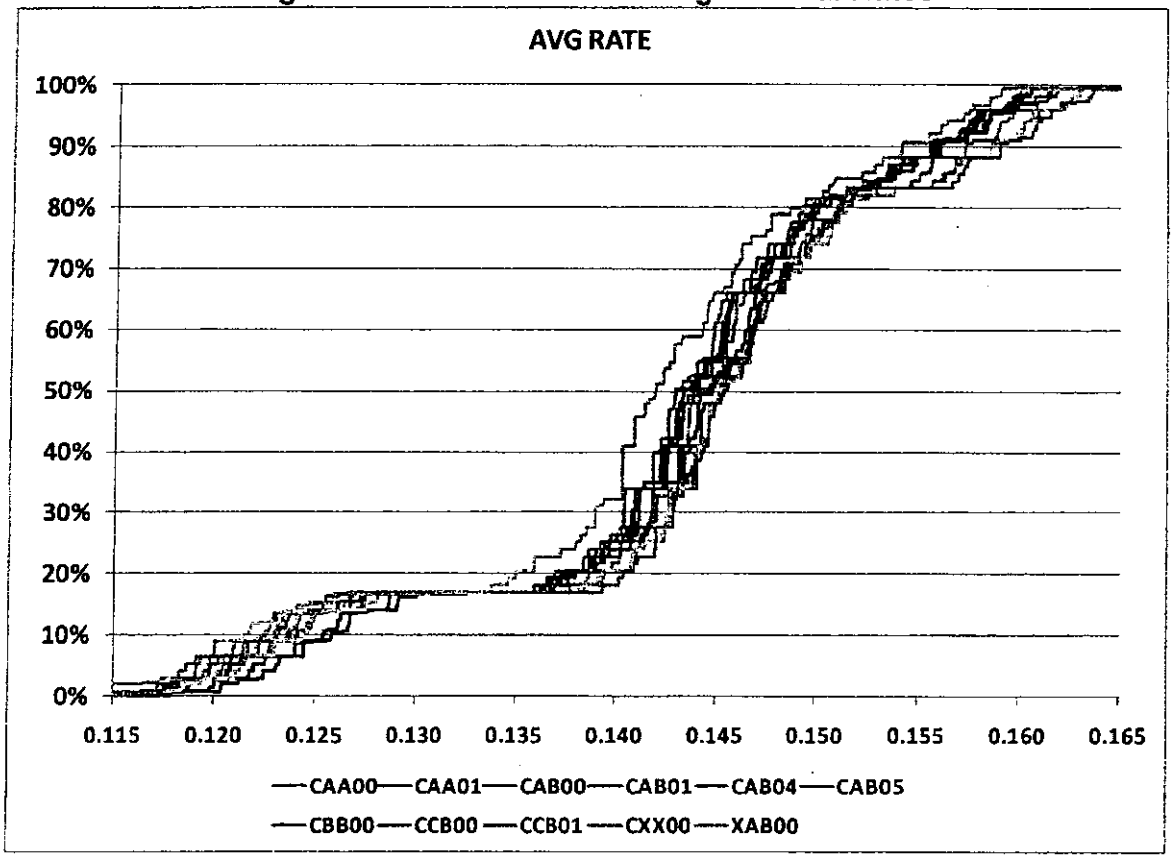
Further, Probable Environmental costs are incorporated into the NPVRR calculation of every plan and is not separated out for special distinction.

Figure 11: Distribution - NPVRR



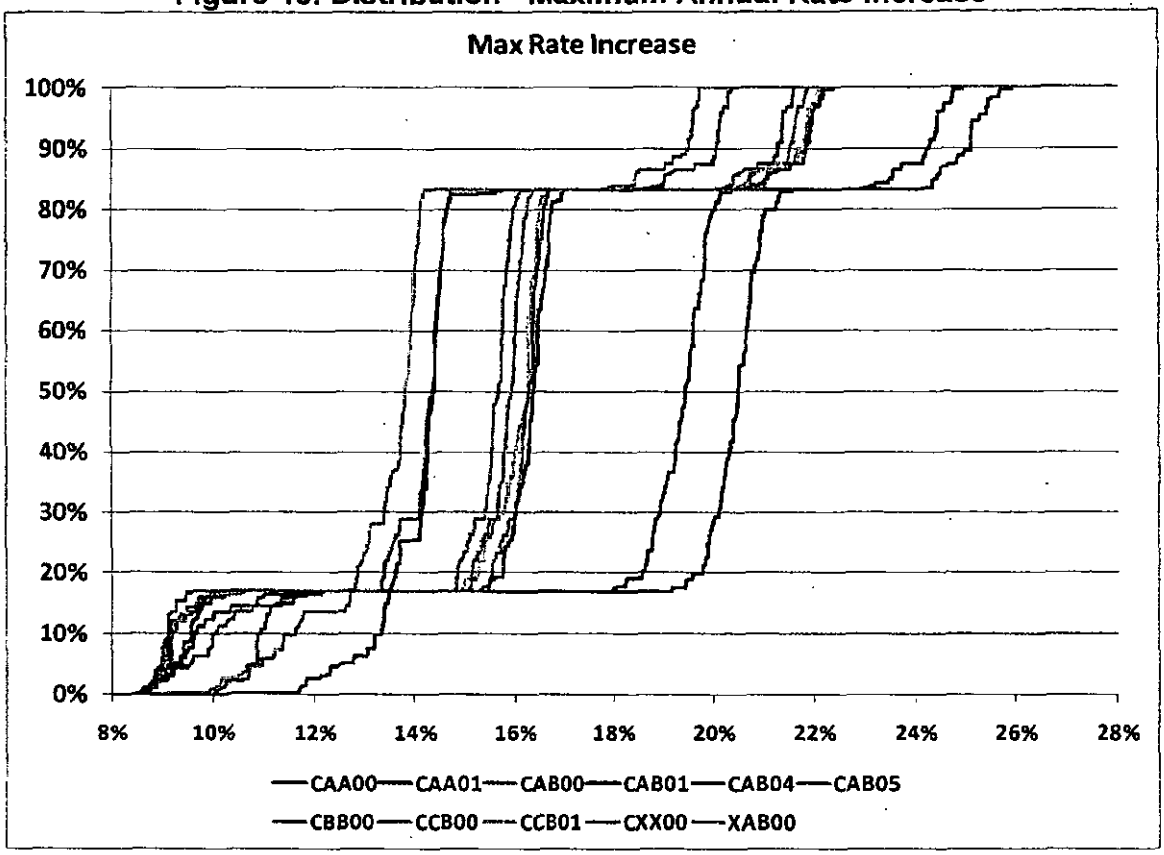
Tabular data that created Figure 11: Distribution - NPVRR is provided on the work paper disc in the Excel file entitled "Figure240-22-070(11)(B)OGIVE_NPVRR.xlsx".

Figure 12: Distribution - Average Annual Rates



Tabular data that created Figure 11: Distribution - NPVRR is provided on the work paper disc in the Excel file entitled "Figure240-22-070(11)(B)OGIVE_Rates.xlsx".

Figure 13: Distribution - Maximum Annual Rate Increase



Tabular data that created Figure 11: Distribution - NPVRR is provided on the work paper disc in the Excel file entitled "Figure240-22-070(11)(B)OGIVE_MAX Rates.xlsx".

11.3 EXPECTED VALUE AND RISK

(C) For each performance measure, a table that shows the expected value and the risk of each resource plan;

Expected values of each performance measure for each alternative plan is given in Table 6 of this volume. The risk of each alternative plan expressed in standard deviations of the performance measures is given in Table 7 of this volume.

11.4 PLOT OF UNSERVED HOURS

(D) A plot of the expected level of annual unserved hours for the preferred resource plan over the planning horizon;

The amount of unserved megawatt-hours of energy in the preferred plan is very small. To provide this data more clearly, it was presented in tabular format in Table 21 of this volume.

11.5 ANALYSIS OF BETTER INFORMATION

(E) A discussion of the analysis of the value of better information required by section (8), a tabulation of the key quantitative results of that analysis and a discussion of how those findings will be incorporated in ongoing research activities;

The calculation of the value of better information is detailed in Table 22 through Table 27 of this volume. The method of calculation is discussed in Section 8: Value of Better Information in this volume.

11.6 SELECTION PROCESS

(F) A discussion of the process used to select the preferred resource plan, including the relative weights given to the various performance measures and the rationale used by utility decision-makers to judge the appropriate tradeoffs between competing planning objectives and between expected performance and risk; and

The selection process can be found in the attached Appendix 7A.

11.7 RESOURCE ACQUISITION STRATEGY

(G) The fully documented resource acquisition strategy that has been developed and officially adopted pursuant to the requirements of section (10) of this rule.

The Resource Acquisition Strategy is attached as Appendix 7A.