

10. Strategy Selection

Highlights

- *Ameren Missouri has developed and is executing on a plan that is focused on transitioning its generation fleet to a cleaner and more fuel diverse portfolio in a responsible fashion over the next 20 years to ensure we provide service to our customers that is safe, reliable and environmentally responsible at a reasonable cost.*
 - *Our plan includes continued customer energy efficiency program offerings, retirement of approximately one-third of our coal-fired generating capacity, which will be reaching the end of its useful life, and expansion of renewable and cleaner-burning natural gas-fired generation.*
 - *Our plan allows us to continue to rely on our existing, low-cost and dependable nuclear generation while also preserving options for future carbon-free nuclear generation.*
 - *By 2035, our plan would result in a diverse, balanced and dependable mix of coal, nuclear, natural gas and renewable energy resources that result in further significant reductions in emissions of carbon dioxide, sulfur dioxide, nitrogen oxides, mercury and particulate matter in addition to those we have achieved since 1990.*
- *Our plan allows us to achieve the goals of the U.S. EPA's proposed Clean Power Plan, reducing carbon dioxide emissions by 30% from 2005 levels, but at a customer cost savings of \$4 billion.*
- *Our implementation plan for the next three years includes seeking approval for a new three-year portfolio of customer energy efficiency programs, construction of our second utility-scale solar energy center, identification of potential sites for renewable and gas-fired generation, and actions to preserve contingency resource options and enable us to quickly respond to changing needs and conditions while continuing to ensure safe, reliable and cost-effective service to our customers.*
- *Ameren Missouri will continue to monitor critical uncertain factors to assess their potential impacts on our preferred plan, contingency plans and implementation.*

Ameren Missouri has selected its preferred resource plan and contingency plans in accordance with its planning objectives and practical considerations that inform our decision making. Our selection process consists of several key elements:

- ✓ Establishing planning objectives and associated performance measures to develop and assess alternative resource plans
- ✓ Creating a scorecard based on our planning objectives and performance measures to evaluate the degree to which various alternative resource plans would satisfy our planning objectives
- ✓ Critically analyzing the most promising alternative resource plans to ensure that we select a plan that best balances competing objectives

In addition, Ameren Missouri has subjected its preferred resource plan to testing under several scenarios that represent events that, while not necessarily considered probable, could have a significant impact on our resource needs and the performance of our preferred resource plan. These include 1) the loss of significant customer demand due to a proliferation of distributed solar generation, 2) loss of our largest retail customer, and 3) compliance with proposed regulation of emissions of greenhouse gases (GHG) by existing power plants.

We have established an implementation plan for 2015-2017 that allows us to begin implementing the resource decisions embodied in our preferred resource plan and to preserve contingency options to allow us to effectively respond to changing needs and conditions while continuing to ensure safe, reliable and cost-effective electric service to our customers.

10.1 Planning Objectives

The fundamental objective of the resource planning process in Missouri is to ensure delivery of electric service to customers that is safe, reliable and efficient, at just and reasonable rates in a manner that serves the public interest. This includes compliance with state and federal laws and consistency with state energy policies.¹ Ameren Missouri considers several factors, or planning objectives, that are critical to meeting this fundamental objective. Planning objectives provide guidance to our decision making process and ensure that resource decisions are consistent with business planning and strategic objectives that drive our long-term ability to satisfy the fundamental objective of resource planning. Following are the planning objectives, established in the development of our 2011 IRP, that continue to inform our resource planning decisions.

¹ 4 CSR 240-22.010(2); 4 CSR 240-22.010(2)(A)

Cost (to Customers): Ameren Missouri is mindful of the impact that its future energy choices will have on cost to its customers. Therefore, minimization of present value of revenue requirements is our primary selection criterion.²

Costs alone do not and should not dictate resource decisions. Our other planning objectives, reaffirmed by Ameren Missouri decision makers, are discussed below.

Customer Satisfaction: Ameren Missouri is dedicated to improving customer satisfaction. While there are many factors that can be measured, for practical reasons Ameren Missouri focused primarily on measures that can be significantly impacted by resource decisions: 1) rate impacts – average rates and maximum single-year rate increases – and 2) customer preferences – cleaner energy sources and demand-side programs that provide customers with options to manage their usage and costs.

Environmental & Resource Diversity: Ameren Missouri, like other electric utilities in Missouri, produces the majority of the energy it generates from coal. Current and potential future environmental regulations may have a significant impact on Ameren Missouri's existing coal-fired energy centers and its selection of future generation resources. Ameren Missouri is focused on transitioning its generation fleet to a cleaner and more fuel diverse portfolio. To assess resource diversity and environmental considerations, we evaluate the composition of future portfolio options in terms of capacity and energy and assess the relative levels of various emissions for different alternatives.

Financial/Regulatory: The continued financial health of Ameren Missouri is crucial to ensuring safe, reliable and cost-effective service in the future. Ameren Missouri will continue to need the ability to access large amounts of capital for investments needed to comply with renewable energy standards and environmental regulations and invest in demand and/or supply side resources to meet customer demand and reliability needs. Measures of expected financial performance and creditworthiness are evaluated along with potential risks.

Economic Development: Ameren Missouri is committed to support the communities it serves beyond providing reliable and affordable energy. Ameren Missouri assesses the economic development opportunities, for its service territory and for the state of Missouri, associated with our resource choices. We do this by examining the potential for primary job growth, which in turn promotes additional economic activity.

Table 10.1 summarizes our planning objectives and the primary measures used to assess our ability to achieve these objectives with our alternative resource plans.

² 4 CSR 240-22.010(2)(B)

Table 10.1 Planning Objectives and Measures³

Planning Objective Categories	Measures
Cost	Present Value of Revenue Requirements
Customer Satisfaction	Customer Preferences, Levelized Rates, Single-Year Rate Increase
Environmental & Resource Diversity	Resource Diversity, CO ₂ Emissions, Probable Environmental Costs
Financial/Regulatory	ROE, EPS, FCF, Financial Ratios, Stranded Cost Risk, Transaction Risk, Cost Recovery Risk
Economic Development	Primary Job Growth (FTE-years)

10.2 Assessment of Alternative Resource Plans

Ameren Missouri used a scorecard to evaluate the performance of alternative resource plans with respect to our planning objectives and measures described above. The scorecard and measures include both objective and subjective elements that together represent the trade-offs between competing objectives. It is important to keep in mind that the scorecard is a tool for decision makers and does not, in and of itself, determine the preferred resource plan. The selection of the preferred resource plan is informed by the scorecard and by a more critical analysis of the relative merits of alternative resource plans, including an assessment of any risks or other constraints.

10.2.1 Scoring of Alternative Resource Plans⁴

To score each of the alternative resource plans, we employed a standard approach to scoring for each planning objective on a 5-point scale and determined a composite score by applying a weighting to each planning objective. As Cost is the primary selection criterion, it was given the greatest weight – 30% -- just as it was in the scoring performed for our 2011 IRP.⁵ Economic Development carried a weight of 10%. Each of the other three planning objectives – Customer Satisfaction, Environmental & Resource Diversity, and Financial/Regulatory – carried a weight of 20%. The scoring approach for each planning objective is as follows:

³ 4 CSR 240-22.060(2); 4 CSR 240-22.060(2)(A)1 through 7

⁴ 4 CSR 240-22.010(2)(C); 4 CSR 240-22.010(2)(C)1; 4 CSR 240-22.010(2)(C)2; 4 CSR 240-22.010(2)(C)3; 4 CSR 240-22.070(1); 4 CSR 240-22.070(1)(A) through (D)

⁵ 4 CSR 240-22.010(2)(B)

Cost – The 19 alternative resource plans were separated into five groups according to probability weighted average PVRR results from the risk analysis discussed in Chapter 9 – four groups of 4 plans and 1 group of 3 plans. The lowest cost group of plans were given a score of 5, the next lowest cost group a score of 4, and so on, with the highest cost group of plans receiving a score of 1.

Customer Satisfaction – Alternative resource plans were evaluated based on levelized annual average rates for a portion of the score. As was done with the PVRR results, the alternative resource plans were separated into five groups according to the probability-weighted average levelized annual average rate results produced from our risk analysis. The plans resulting in the lowest rates were given a score of 5, the next lowest rate group a score of 4, and so on, with the highest rate group of plans receiving a score of 1. Plans that yielded a score greater than 3 for rates were given 2 points in the overall scoring for Customer Satisfaction. In addition, plans which include continued energy efficiency programs (RAP or MAP) were given a point. Also, plans which included demand response programs were given an additional point. Finally, plans that include additional renewable generation sources beyond those needed to comply with legal mandates were given an additional point.

Environmental & Resource Diversity – Alternative resource plans were awarded points for each plan attribute contributing to greater resource diversity and/or environmental impact in terms of emission reductions. Plans were awarded one point each for each of the following:

- ✓ Inclusion of demand-side programs
- ✓ Addition of nuclear generation
- ✓ Addition of combined cycle gas generation
- ✓ Addition of renewables (beyond those needed to comply with legal mandates)
- ✓ Addition of storage resources
- ✓ Retirement of coal generation (beyond Meramec and Sioux)

Financial/Regulatory – Scoring for Financial/Regulatory is based on a default score of 5 with deductions for risks and financial impacts that may detrimentally affect Ameren Missouri's ability to continue to access lower cost sources of capital. Plans that would result in relatively lower free cash flow were reduced by one point. Plans were also reduced by one point each for potential risks associated with:

- ✓ Lack of customer energy efficiency programs
- ✓ Significant risk of not achieving energy efficiency targets
- ✓ Nuclear construction costs
- ✓ Retirement and replacement of additional coal units beyond Meramec and Sioux (one point deduction for every 1,200 MW of additional retirement)

Economic Development – Alternative plans were scored based on direct job creation, including construction and ongoing operation. Estimates for direct job creation were developed using the Jobs and Economic Development Impact (JEDI) Model, developed by Marshall Goldberg of MRG & Associates under contract with the National Renewable Energy Laboratory, or more specific estimates where available (e.g., nuclear). Construction and operating jobs were translated into full-time equivalent years (FTE-years). Alternative plans were ranked based on FTE-years and divided into five groups based on relative rank. The group of plans resulting in the highest FTE-year values were given a score of 5 points each, the next highest FTE-year group a score of 4, and so on, with the lowest FTE-year group of plans receiving a score of 1.

Table 10.2 Alternative Resource Plan Scoring Results

Plan	Description	Overall Assessment
R	600MW CC in 2034, MAP, Balanced	4.10
I	600MW CC in 2034, RAP, Balanced	4.00
E	800MW Wind in 2034, 352MW SC in 2034, 600MW CC in 2034, RAP	3.80
G	600MW CC in 2034, MAP	3.80
A	600MW CC in 2034, RAP	3.60
C	704MW SC in 2034, RAP	3.60
S	600MW CC in 2034, MAP EE Only	3.60
H	169MW Nuke in 2034, 600MW CC in 2034, RAP, Balanced	3.40
F	1200MW CC in 2034, RAP EE Only	3.20
D	600MW Pumped Hydro in 2034, RAP	3.10
Q	169MW Nuke in 2034, MAP, Balanced	3.10
P	169MW Nuke in 2025, 600MW CC in 2025, 1200MW CC in 2034, RAP, Balanced, RI Ret 12/31/2024	3.00
B	450MW Nuke in 2034, 600MW CC in 2034, RAP	2.80
O	169MW Nuke in 2025, 1800MW CC in 2024, 1200MW CC in 2034, RAP, Balanced, LAB Ret 12/31/2023	2.50
N	600MW CC in 2025, 1200MW CC in 2034, MAP, RI Ret 12/31/2024	2.40
K	600MW CC in 2023, 600MW CC in 2031, 600MW CC in 2034, MEEIA1, Balanced	2.10
M	1800MW CC in 2024, 1200MW CC in 2034, MAP, LAB Ret 12/31/2023	2.10
J	169MW Nuke in 2031, 600MW CC in 2023, 1200MW CC in 2034, MEEIA1, Balanced	2.00
L	3300MW Wind in 2023, 3300MW Wind in 2027, 6600MW Wind in 2034, MEEIA1	1.60

Table 10.2 shows the composite scores for each of the 19 alternative resource plans. The full scorecard with scores for each planning objective for each alternative resource plan is shown in Appendix A.

Based on the scoring results, the alternative resource plans were separated into three tiers – Top, Mid, and Bottom. The range of composite scores across the 19 alternative resource plans is 1.6 to 4.1, a difference of 2.5. This range was divided into thirds to establish the plan tiers. Plans with scores greater than 3.27 were placed in the Top Tier. Plans with scores between 2.43 and 3.27 were placed in the Mid-Tier. Plans with scores below 2.43 were placed in the Bottom Tier.

All Top Tier plans include energy efficiency and demand response at the realistic achievable potential (RAP) or maximum achievable potential (MAP) level. In general, plans that include combined cycle gas generation and renewable generation beyond that required for RES compliance scored highest. Only one plan with a Cost score greater than 3 is not included in the Top Tier – Plan F, which includes combined cycle generation and RAP energy efficiency, but no demand response.

10.2.2 DSM Portfolio Considerations

The top two plans identified in the plan scoring include either RAP DSM or MAP DSM. While MAP DSM results in lower total customer costs over the 30 years evaluated in our risk analysis, it is important to further evaluate the performance of MAP relative to RAP, in particular because MAP is defined as the hypothetical upper boundary of achievable demand-side potential, assuming ideal conditions for implementation. To further investigate the relative merits of RAP and MAP DSM portfolios, we evaluated:

- ✓ The inclusion in revenue requirements of the cost to customers of the incentives needed to align customer and utility interests in energy efficiency
- ✓ The inclusion in revenue requirements of participant costs
- ✓ The year-by-year relative net benefits for RAP and MAP
- ✓ A “Mid DSM” portfolio between RAP and MAP

Total Costs with Incentives and Participant Costs

In addition to the risk analysis discussed in Chapter 9, which excludes the cost of DSM incentives and participant out-of-pocket costs for energy efficiency measures, we also examined revenue requirements including these two components, both separately and in combination. Table 10.3 shows the results for the top two plans – one with RAP and

one with MAP – under various combinations of assumptions for inclusion of incentive costs and participant out-of-pocket costs.

Table 10.3 PVRR Comparison of RAP and MAP

\$ Million	PVRR	PVRR w/ Incentives	PVRR w/ DSM Participant Costs	PVRR w/ Incentives & DSM Participant Costs
R - CC-MAP-Balanced	61,081	61,420	61,834	62,172
I - CC-RAP-Balanced	61,352	61,635	61,928	62,211
MAP Cost Advantage	271	215	94	38

As the table shows, the cost advantage for MAP is reduced when either or both incentives and participant costs are included. Including only the incentives results in a cost advantage of \$215 million for MAP, compared to a cost advantage of \$271 million excluding incentives. Including participant out-of-pocket costs (and excluding incentive costs) reduces the advantage to \$94 million, while including both incentives and participant out-of-pocket costs reduces it to \$38 million.

The Missouri Energy Efficiency Investment Act (MEEIA) includes three requirements to ensure the alignment of utility incentives with helping customers use energy more efficiently:

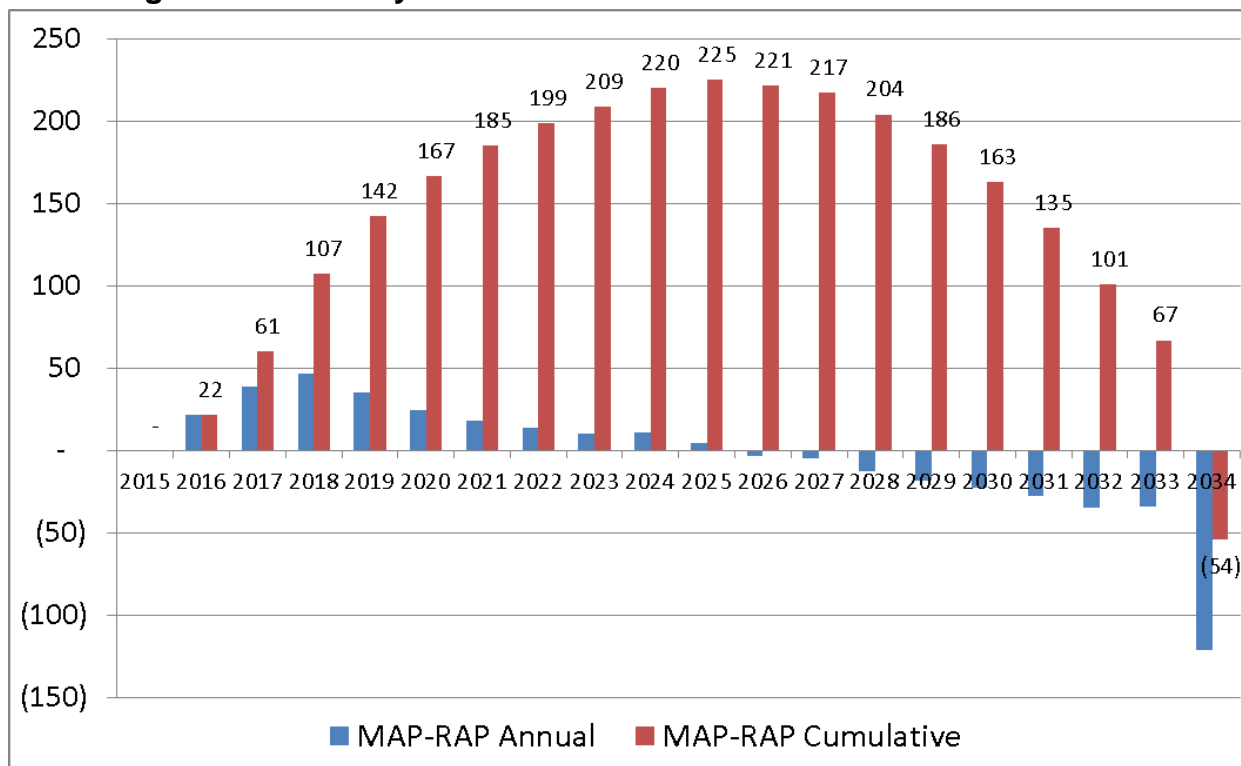
- ✓ Timely recovery of program costs
- ✓ Alignment of incentives to reduce energy consumption (i.e., elimination of the so-called “throughput disincentive”)
- ✓ Timely earnings opportunities

The incentives included for RAP and MAP are based on an analysis of equivalency between demand side and supply side resources. Because the top scoring plans include gas-fired combined cycle generation, we based our equivalency analysis on the displacement of combined cycle generation by demand-side programs. We evaluated the earnings opportunity available to Ameren Missouri from a plan with no DSM programs after our current three-year cycle of programs (i.e., 2013-2015) and with combined cycle generation to meet load and reserve margin requirements instead of DSM. The present value earnings opportunity for each of RAP and MAP was leveled over the planning horizon. This amount was then included in the PVRR results including DSM incentives.

Year-by-Year Net Costs/Benefits

Implementation of the MAP energy efficiency portfolio would require a program budget for 2016-2018 that is roughly twice the budget needed to implement the RAP portfolio, although MAP reflects energy savings that are only roughly 35% greater than those for RAP. For the entire planning horizon, the program budget for MAP would total \$2.45 billion compared to \$1.27 billion for RAP, or 93% more costly than RAP, with energy savings that are only roughly 36% greater. We analyzed the year-by-year revenue requirement impacts of the RAP EE Only plan (Plan F) and the MAP EE Only plan (Plan S), including all costs and benefits. Figure 10.1 shows the annual and cumulative revenue requirement differences between the two plans.

Figure 10.1 Year-by-Year PVRR Differences for RAP and MAP Plans



As the chart shows, the MAP plan results in higher overall costs than the RAP plan through 2025. While the MAP plan results in lower overall costs starting in 2026, the cumulative increase in costs for the MAP plan reaches \$225 million in 2025 and persists until 2034, the last year of the twenty-year planning horizon, when an additional combined cycle plant is assumed to be placed in service in the RAP EE Only plan. The greater net benefits of MAP relative to RAP increase significantly once program spending ceases and the persistent energy savings continue to yield benefits in the form of capacity and energy value in addition to deferral of the combined cycle plant.

Portfolios between RAP and MAP

To further evaluate the economics of DSM portfolios and to assist us in addressing the policy goal of MEEIA to achieve all cost-effective demand-side savings, we evaluated the possibility of a DSM portfolio that results in savings that are between those represented by RAP and MAP. Because primary market research exists only to support the development of RAP and MAP portfolios, we must estimate the costs and savings for any other portfolio assumptions.

We started by estimating the costs and savings for a portfolio that lies midway between the RAP and MAP portfolios, called the “Mid DSM” portfolio. The costs and savings were estimated by interpolating between the costs and savings associated with the RAP and MAP portfolios resulting from the primary market research included in our 2013 DSM potential study, described in Chapter 8. We then constructed a test plan including this portfolio and supply side resources necessary to meet load and reserve requirements. The plan was evaluated using the same ranges of assumptions used to evaluate alternative resource plans in our risk analysis. The results of the analysis, with a comparison of comparable plans including RAP and MAP portfolios (Plans I and R), is shown in Table 10.4. As the table shows, the PVRR results for the Mid DSM portfolio are midway between the results for plans with RAP and MAP DSM portfolios.

Table 10.4 PVRR Comparison of RAP and MAP

DSM Portfolio	PVRR
RAP	61,352
MAP	61,081
Mid	61,217

While it is possible to repeat this process, estimating other portfolios between RAP and MAP at different points on a continuum between the two portfolios, it would not provide additional insight into the merits of these various portfolios. Based on the results of our analysis of the Mid DSM portfolio, we would expect such additional portfolios to produce results that are similarly predictable. We would also expect the year-by-year analysis to produce similarly predictable results, showing a net advantage for RAP through 2025 on an annual basis and through 2033 on a cumulative basis.

Pursuing the Policy Goal of MEEIA⁶

As stated previously, the stated goal of MEEIA is to achieve all cost-effective demand-side savings by aligning utility incentives with helping customers to use energy more

⁶ EO-2014-0062 a; EO-2014-0062 b

efficiently. Ameren Missouri has demonstrated its commitment to pursuing this goal by implementing the largest utility energy efficiency program in Missouri history. And while we believe this is a goal worth pursuing, it cannot be quantified with any degree of accuracy for the next twenty years. Rather, it is a goal that will constantly be shaped and reshaped through continuous implementation, evaluation, research, testing and readjustment.

As noted earlier, Ameren Missouri has conducted a DSM Potential Study, prepared by a nationally recognized independent contractor team. That study reflects an energy efficiency market assessment using 100% Ameren Missouri appliance saturation surveys, demographics surveys and customer psychographic surveys. The primary objective of the study was to assess and understand the technical, economic, and achievable potential for all Ameren Missouri customer segments for the period from 2016 to 2034. The amount of energy efficiency achieved by customers as a direct result of Ameren Missouri sponsored customer energy efficiency programs is defined as realistic achievable potential (RAP). Assuming regulatory treatment that reflects the requirements of MEEIA, RAP represents all cost-effective energy efficiency because, by definition, it represents a forecast of likely customer behavior under realistic program design and implementation.

10.3 Preferred Plan Selection⁷

In selecting its Preferred Resource Plan, Ameren Missouri decision makers⁸ relied on the planning objectives discussed earlier in this chapter and the considerations reflected in the scoring and comparison of DSM portfolios highlighted in the previous section. As was noted previously, the Top Tier plans identified through scoring include combinations of RAP and MAP DSM portfolios as well as renewables, gas-fired resources and nuclear. These define the key options for consideration in the selection of the preferred resource plan.

DSM Portfolio⁹ – RAP and MAP DSM portfolios both performed well in the scoring and, importantly, both result in reduced total costs to customers. The decision between the two must involve a consideration of risk and reward from the perspective of both customers and Ameren Missouri. Based on our analysis of the year-by-year cost differences between RAP and MAP, and an understanding of the increased level of risk

⁷ 4 CSR 240-22.010(2)(C); 4 CSR 240-22.010(2)(C)1; 4 CSR 240-22.010(2)(C)2
4 CSR 240-22.010(2)(C)3; 4 CSR 240-22.060(3)(A)5; 4 CSR 240-22.070(1); 4 CSR 240-22.070(1)(A)
through (D)

⁸ Names, titles and roles of decision makers are provided in Appendix B.

⁹ EO-2014-0062 c

in achieving MAP relative to RAP, Ameren Missouri has chosen to include the RAP portfolio in its preferred resource plan.

This is not to say that there couldn't be additional potential energy savings that can be realized. Indeed our uncertainty range for the RAP portfolio includes some significant amount of upside. However, we must consider the immediate cost impact to all customers of a large increase in DSM expenditures (the 2016-2018 budget would be nearly double for MAP) and the uncertainty of the relative long-term benefits. We must also consider that the path for demand-side programs is not "locked in" for twenty years.

Including RAP DSM in our preferred resource plan allows us to continue to offer highly cost-effective programs to customers at roughly the same level of annual spending budgeted for our first cycle of MEEIA programs while also allowing the potential for increased savings if our experience and expectations indicate they could be achieved in a cost-effective manner. Identifying such opportunities will depend on the results of program implementation and periodic updates of our market research.

Renewable Resources – One of Ameren Missouri's planning objectives is to transition our generation portfolio to one that is cleaner and more fuel diverse in a responsible fashion. Compliance with the Missouri RES is reflected in all of our alternative resource plans. This includes approximately 300 MW of wind, solar, hydro and landfill gas generation. While the addition of these resources does help to transition our portfolio, additional renewable resources would further advance this objective while also further mitigating fuel price risks and the risks associated with additional environmental regulation, including regulation of emissions of greenhouse gases. We have therefore included additional wind and solar generation in our preferred resource plan to bring our renewable generation additions to approximately 500 MW.

Supply Side Resources – Considering costs, risks and the ability to further diversify our generating portfolio, we have included combined cycle generation in our preferred resource plan when needed to meet customer load and reliability reserve margin requirements. Based on our planning assumptions, we expect to need new capacity by 2034 to replace our Sioux energy center, which would be retired by the end of 2033. Because combined cycle generation technology is relatively mature, although still continuing to evolve, and is characterized by relatively short lead times, its inclusion preserves a measure of flexibility with respect to deployment for meeting load and reserve requirements. While simple cycle combustion turbine generators (CTGs) also exhibit short lead times and are relatively inexpensive, their operating characteristics prevent them from providing significant benefits in terms of energy diversity, and Ameren Missouri currently has a robust fleet of CTGs. Nuclear remains an attractive option for carbon-free around-the-clock generation with newer commercial and developing technologies.

The plan that embodies these key choices is listed in Table 10.2 as “Plan I”. It includes RAP energy efficiency and demand response programs, roughly 500 MW of new renewable generation, and a new 600 MW combined cycle energy center in 2034 along with conversion of Meramec Units 1&2 to natural gas-fired operation in 2016, retirement of all Meramec units by the end of 2022, and retirement of Sioux Energy Center at the end of 2033.

10.4 Contingency Planning¹⁰

Because any assumptions about the future are subject to change, we must be prepared for changing circumstances by evaluating such potential circumstances and options for providing safe, reliable, cost-effective and environmentally responsible service to our customers. We have identified several cases which could significantly impact the performance of our preferred resource plan. These include cases that may result in 1) significantly higher or lower demand, 2) altered costs and feasibility of continuing to operate existing generating units, and 3) policies that may encourage the development of new nuclear generation.

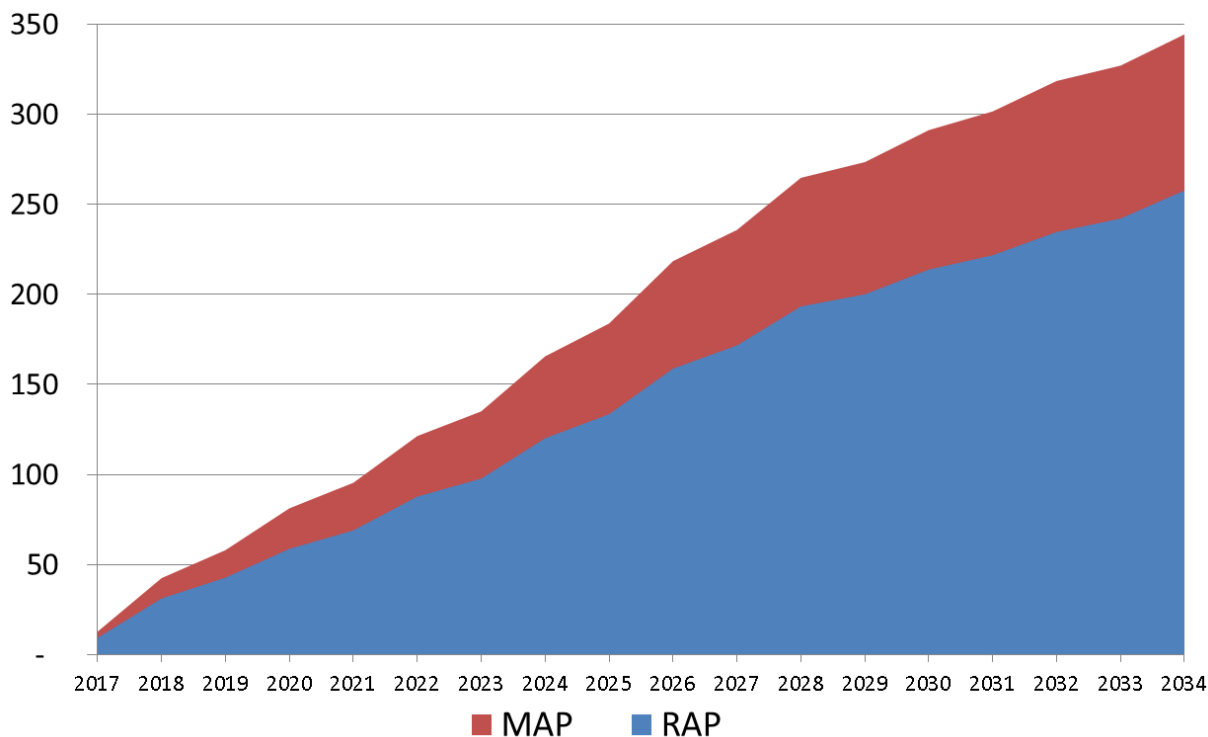
10.4.1 DSM Cost Recovery and Incentives

As stated previously, MEEIA provides for cost recovery and incentives for utility-sponsored demand-side programs to align utility incentives with helping customers to use energy more efficiently. In 2012, the Missouri Public Service Commission (Commission) approved our first cycle of MEEIA programs and supporting cost recovery and incentives. Our preferred resource plan is based on the expectation that supporting cost recovery and incentives will continue to be approved in the future. If such alignment is not achieved, it may be necessary for Ameren Missouri to change its preferred resource plan.

Ameren Missouri expects to file a request with the Commission for approval of a new three-year portfolio of demand-side programs in the fourth quarter of 2014. This portfolio would be implemented in 2016-2018. Program costs are expected to be recovered through our Rider Energy Efficiency Investment Charge (Rider EEIC). In our request, we will also seek recovery of costs associated with the so-called “throughput disincentive.” The throughput disincentive results from reduced sales due to energy efficiency programs and rates that are designed to recover fixed costs based on sales volume. Figure 10.2 illustrates the impact of the throughput disincentive on Ameren Missouri’s sales revenues for inclusion vs. exclusion of customer energy efficiency programs.

¹⁰ 4 CSR 240-22.070(4)

Figure 10.2 Cumulative Throughput Disincentive for RAP and MAP Plans (\$Millions)



In addition to recovery of program costs and addressing the throughput disincentive, MEEIA also mandates that utilities be provided with timely earnings opportunities that serve to make investments in demand-side resources equivalent to investments in supply-side resources. Ameren Missouri will seek such incentives in its upcoming MEEIA filing.

10.4.2 Expansion of Distributed Generation

The deployment of customer-owned distributed generation, particularly solar photovoltaic systems, continues to expand. Ameren Missouri has included its expectation for the deployment of customer-owned solar resources in its load forecast assumptions, described in Chapter 3. Because the economics of distributed generation can change rapidly, as we have seen in recent years, it is important for us to assess a greater-than-expected expansion of these resources. As described in Chapter 3, we identified the potential for additional distributed solar generation consistent with the U.S. DOE’s Sunshot Initiative. Based on the DOE assumptions, Ameren Missouri would see an additional 614 MW of distributed solar generation in its service territory by 2034.

We have evaluated the impact of this change in load in two ways. First, we analyzed the impact on the cost of our preferred resource plan if the plan itself were not changed. Second, we analyzed the impact of the reduction in load on our need for, and timing of, new resources. If our resource plan is altered as a result of this significant change in customer load, we would expect to be able to defer the combined cycle generator that is shown in service in 2034 in our preferred resource plan.

The costs (PVRR) and levelized rates for our preferred resource plan, including that for the plan in which the combined cycle generator is deferred, are shown in Table 10.5 for our base distributed solar assumption and for the Sunshot case. The table shows that PVRR would be reduced by over \$1.8 billion, while rates would increase by 0.21 cents/kWh if the timing of resources in the preferred plan did not change. It also shows that PVRR would be reduced by over \$2 billion, and rates would increase by 0.17 cents/kWh if the combined cycle were deferred beyond the end of the planning horizon. Because the Sunshot Initiative would impact customer load across the Eastern Interconnect, we developed a price scenario using the process discussed in Chapter 2 to reflect the impacts of this additional change in load on power prices.

Table 10.5 Impact of Distributed Generation Expansion

Plan	PVRR (\$Million)
Preferred Plan	61,352
DG Expansion-CC in 2034	59,513
DG Expansion-No CC in 2034	59,320

It is important to note that our preferred resource plan provides flexibility in responding to significant changes in load like the change that could be driven by a proliferation of distributed generation, solar or otherwise.

10.4.3 Loss of Large Customer Load

Ameren Missouri's largest customer is the aluminum smelter operated by Noranda Aluminum, Inc., in New Madrid, Missouri. The smelter uses 4,169 GWh of electricity annually with a peak demand of approximately 495 MW and is served at retail rates regulated by the Commission under a contract with Ameren Missouri that expires in May 2020. To evaluate the impact on our preferred plan of a loss of Noranda's load at the end of their current contract, we examined cases in which 1) the resources and timing reflected in our preferred plan are not changed and 2) the resources and timing reflected in our preferred plan are changed. This is similar to the analysis we conducted for the proliferation of distributed solar generation described in the previous section.

The loss of Noranda's load would allow us to defer the combined cycle that is shown going into service in 2034 in our preferred resources plan. The costs (PVRR) and levelized rates for our preferred resource plan, including that for the plan in which the combined cycle generator is deferred, are shown in Table 10.6 for our base assumption with Noranda continuing to take electric service from Ameren Missouri and for the case with no Noranda load after May 2020. The table shows that PVRR would be reduced by nearly \$3.4 billion if the timing of resources in the preferred plan did not change. It also shows that PVRR would be reduced by \$3.6 billion if the combined cycle were deferred beyond the end of the planning horizon.

Table 10.6 Impact of Noranda Load Loss

Plan	PVRR (\$Million)
Preferred Plan	61,352
Noranda Contract Expired-CC in 2034	57,966
Noranda Contract Expired-No CC in 2034	57,755

As with the distributed generation case discussed in the previous section, the flexibility of our preferred resource plan allows us to adjust our resource timing to minimize cost impacts, which in this case would be borne by our remaining customers outside of Noranda.

10.4.4 Incremental Wind Additions¹¹

Ameren Missouri has also modeled its preferred plan with the addition of 150 MW of wind resources (beyond that already included in the preferred plan) in year 2022 in order to evaluate the cost effectiveness of additional incremental renewable resources. Table 10.7 shows the results of the analysis, which indicates increased cost to customers for the plan with additional wind resources compared to our preferred plan.

Table 10.7 Impact of Additional Wind

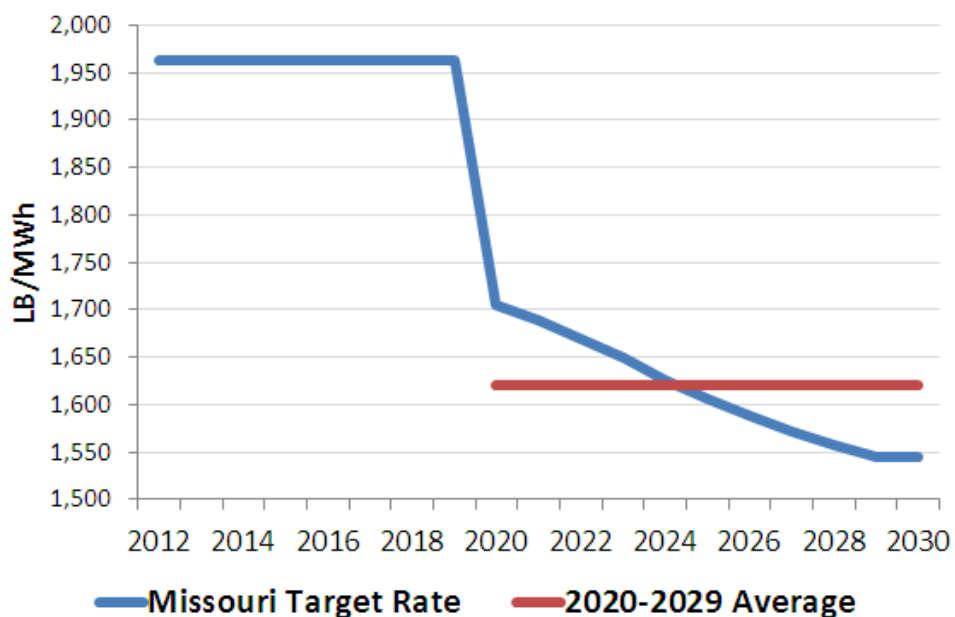
Plan	PVRR (\$Million)
Preferred Plan	61,352
Additional Wind	61,455
Difference	102

¹¹ 4 CSR 240-22.060(4)(E); EO-2011-0271 Order

10.4.5 Greenhouse Gas Regulation

On June 2, 2014, the EPA announced its proposed “Clean Power Plan,” which calls for a 30% reduction in carbon dioxide emissions from existing power plants compared to 2005 levels from existing power plants by 2030, with aggressive interim targets beginning in 2020. These targets are not based on mass carbon emission reductions, but instead are based on rates of carbon emitted from existing plants as derived from 2012 levels. The EPA established different targets for each state, including a 21% reduction for Missouri. Figure 10.3 shows the required reduction and timing of carbon dioxide emission rates proposed by the EPA. As the chart shows, much of the targeted 2030 reduction, 13% of the 21% final target, is required starting in 2020 due to interim targets included in the proposed rule. This means that more than 60% of the 2030 reduction goal must be met by 2020.

Figure 10.3 EPA Target Carbon Dioxide Emission Rates for Missouri



The proposal’s basic formula for setting CO₂ emissions reduction requirements is:

CO₂ emissions from fossil fuel-fired power plants (in pounds)

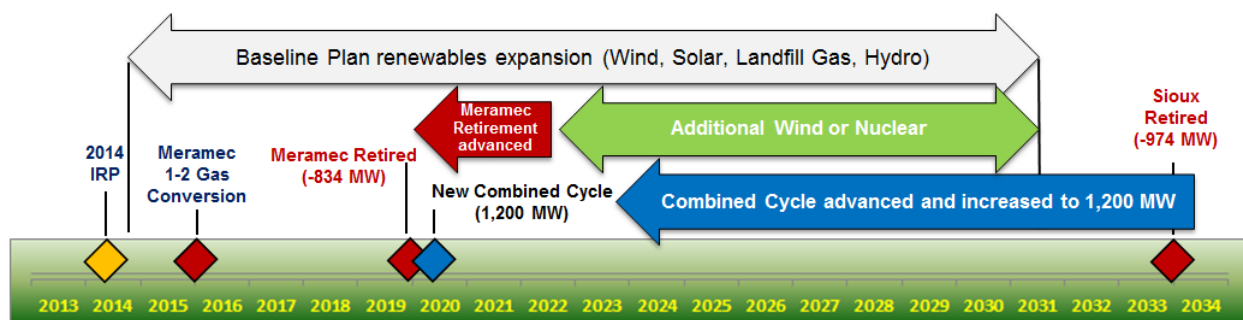
divided by:

Electricity generation from fossil fuel-fired power plants and certain low- or zero-emitting power sources (in MWh)

According to the EPA, this approach “factors in MWh from fossil fuel power plants and other types of power generation, such as renewables, new nuclear and natural gas combined cycle, as well as MWh savings from energy efficiency in the state.”

Should the rule be implemented as proposed, Ameren Missouri would have to significantly alter its preferred resource plan in such a way as to lead to much higher capacity reserves by advancing and adding natural gas-fired generation, as early as 2020, and uneconomically dispatching those resources, which would not otherwise be needed until 2034 to meet customer demand and reserve margin requirements for reliability. Figure 10.4 illustrates the changes that could have to be made to Ameren Missouri’s preferred resource plan to comply with the proposed regulations.

Figure 10.4 Impacts of GHG Regulations on Preferred Resource Plan



The changes include 1) advancing the retirement of Meramec by three years to the end of 2019, 2) constructing a 1,200 MW combined cycle generation facility to be operational by the beginning of 2020, 3) altering the operation of the new combined cycle and existing coal resources such that gas generation runs more (about twice what it would run otherwise) and coal generators run less than they would under current methods for economic dispatch in MISO, and 4) constructing additional wind (or possibly nuclear) resources in the 2022-2030 timeframe. Making these changes would result in additional costs to customers of approximately \$4 billion over the 15 year period starting in 2020 while achieving roughly the same level of annual carbon dioxide emission reductions a few years earlier than under our preferred plan.

Ameren is advocating for changes to the EPA’s proposed rules that will allow Ameren Missouri to execute its Preferred Resource Plan and achieve the overall objective of the Clean Power Plan to reduce carbon emissions by 30 percent below 2005 levels over a slightly longer period of time. Specifically, Ameren proposes that EPA:

1. Eliminate the aggressive interim emission reduction targets and give states, who possess intimate knowledge of their system needs, the flexibility to adopt interim milestones as appropriate

2. Treat unreplaced retired coal units as a zero-emitting resource (similar to how customer energy efficiency programs are treated)
3. Give states the flexibility to extend the compliance date to allow the orderly retirement of coal plants as states implement their transition plans

Comments to the rule are due December 1, 2014, and EPA expects to issue a final rule in June 2015. States are required to develop plans to implement the rule by mid-2016, with the possibility of a one or two year extension. Legal challenges to the rule are expected and could in turn cause significant planning and operational challenges in developing and executing plans to comply with EPA's proposed interim targets starting in 2020. The changes we are advocating would alleviate these planning and operational challenges in addition to saving our customers \$4 billion.

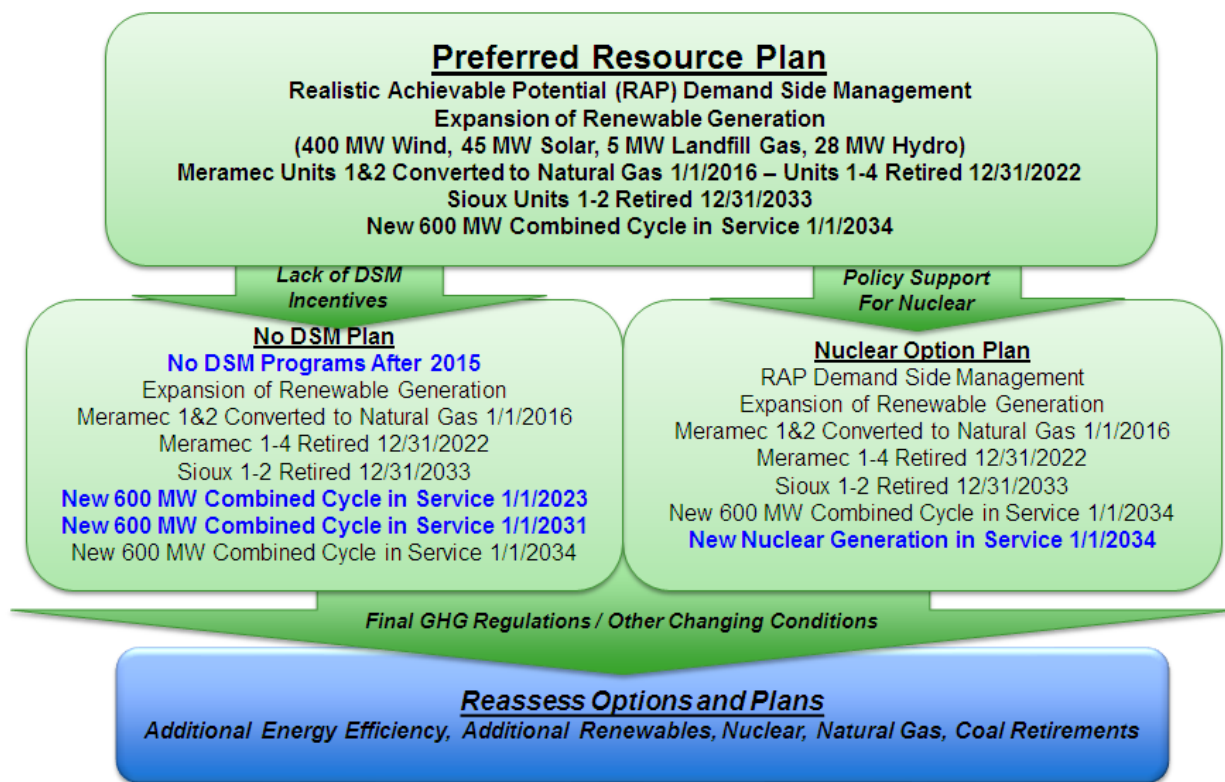
10.4.6 Optionality for New Generation

As the contingency cases described earlier illustrate, it is important to maintain options and flexibility to ensure Ameren Missouri can meet its customers' energy needs in a safe, reliable, and environmentally responsible manner at a reasonable cost. Our analysis has shown that renewables, gas-fired combined cycle, and nuclear generation continue to be attractive options for meeting our customers' future energy needs. It is therefore important to ensure that we can exercise these options when needed and in response to changing circumstances. This includes continuing to evaluate opportunities for developing additional renewable energy resources, evaluating potential sites for new gas-fired generation, and taking actions to maintain an option for future nuclear generation and the associated economic development benefits that would be realized for the state of Missouri. As the discussion of greenhouse gas regulation demonstrates, options for cleaner and dependable resources are also critical for ensuring compliance with such regulations while maintaining safe, reliable, and cost-effective service to customers.

10.5 Resource Acquisition Strategy¹²

Our resource acquisition strategy has three main components. First is the Preferred Resource Plan which is discussed in more detail in Section 10.5.1. The second component of the resource acquisition strategy is contingency planning. Under no ranges or combinations of outcomes for the critical uncertain factors, would the Preferred Resource Plan be inappropriate. Figure 10.5 shows the Preferred Resource Plan as well as several contingency options and the events that could lead to a change in our preferred plan. The final component of the resource acquisition strategy is the implementation plan which includes details of major actions over the next three years, 2015-2017.

Figure 10.5 Preferred Plan and Contingency Plans



¹² 4 CSR 240-22.070(1); 4 CSR 240-22.070(1)(A) through (D); 4 CSR 240-22.070(2); 4 CSR 240-22.070(4); 4 CSR 240-22.070(4)(A) through (C); 4 CSR 240-22.070(7); 4 CSR 240-22.070(7)(A) through (C)

10.5.1 Preferred Plan

As discussed in Section 10.3, our Preferred Resource Plan includes RAP energy efficiency and demand response programs, roughly 500 MW of new renewable generation, and a new 600 MW combined cycle energy center in 2034 along with conversion of Meramec Units 1&2 to natural gas-fired operation in 2016, retirement of all Meramec units by the end of 2022, and retirement of Sioux Energy Center at the end of 2033.

Demand Side Resources

The preferred plan includes RAP energy efficiency and demand response programs. Energy efficiency programs under our current three-year MEEIA plan run through 2015. Energy efficiency programs under subsequent MEEIA cycles begin in 2016. Demand response programs begin in 2019 based on our expectation for higher avoided capacity costs in that timeframe. Program spending for the 20-year planning horizon is \$1.41 billion. Cumulative peak demand reductions reach 1090 MW by 2034 (not including planning reserve margin), and cumulative energy savings (at the customer meter) total over 23.6 million MWh.

Renewables

Chapter 9 includes a detailed description of renewable resource requirements. In summary, Ameren Missouri will need additional non-solar resources starting in 2019. We also expect to need additional solar resources to continue to meet the RES solar requirements when SRECs transferred to Ameren Missouri from customer-owned solar facilities are no longer available. Beyond those renewable resources included for RES compliance, we have included additional wind and solar resources to advance our objective to transition our generation portfolio to a cleaner and more fuel diverse mix of resources. Our expansion of renewables includes 400 MW of wind, 45 MW of solar, 20 MW of new hydroelectric, 8 MW of upgrades to existing hydroelectric facilities, and 5 MW of additional landfill gas generation.

Supply-Side Resources

The Preferred Resource Plan calls for the conversion of Units 1&2 at our Meramec Energy Center to natural gas-fired operation in early 2016 and retirement of all Meramec units by the end of 2022. It also includes retirement of Sioux Energy Center by the end of 2033 and a 600 MW combined cycle plant near the end of the planning horizon in 2034.

10.5.2 Contingency Plans¹³

Figure 10.5 presents our key contingency options. In the event that Ameren Missouri's interests are not aligned with helping customers use energy more efficiently, as required by MEEIA, we have included a contingency plan that reflects a discontinuation of demand side programs after our current MEEIA cycle programs expire at the end of 2015. The contingency plan therefore also includes the installation of a 600 MW combined cycle facility to be in service in 2023 and another 600 MW combined cycle in 2031 in addition to the generation resources included in our preferred plan. We are also maintaining a contingency option to reflect policy support for new nuclear generation, which would result in the addition of nuclear generation in 2034. Maintaining an option for new nuclear generation also affords us greater flexibility to comply with requirements of greenhouse gas regulations.

10.5.3 Expected Value of Better Information Analysis¹⁴

After selecting the preferred plan, Ameren Missouri conducted an expected value of better information (EVBI) analysis to assess the performance of its preferred resource plan under the range of values defined for the critical uncertain factors and to inform its on-going research and implementation activities. Table 10.8 displays the results of the EVBI analysis as measured by PVRR. Under almost all critical uncertain factor values, Plan G results in a lower PVRR than the preferred plan. In part, because it is possible that additional cost-effective energy savings could be identified, we will continue to undertake rigorous evaluation of our programs and periodically update our market research to identify additional such opportunities.

Under the high carbon price scenario, Plan L with only additional renewable resources (no further DSM after MEEIA Cycle 1), performs significantly better than the preferred plan. While the addition of such a vast amount of wind generation may not be practical or feasible, the analysis does indicate the potential for greater value for renewable resources under aggressive scenarios for greenhouse gas regulation. We will continue to evaluate opportunities for additional renewable resources as we identify options and candidate sites for our planned renewable additions and as current efforts to regulate greenhouse gas emissions continue to unfold.

¹³ 4 CSR 240-22.070(4)

¹⁴ 4 CSR 240-22.070(3)

Table 10.8 EVBI Analysis Results

Alternative Resource Plans	PVR Without Better Info	Coal Retirements			Carbon				Load Growth			Natural Gas Price			Project Cost			Interest Rate & ROE			DSM			Coal Price				
		Low	Base	High	None	Low	Base	High	PWA	Low	Base	High	PWA	Low	Base	High	Low	Base	High	Low	Base	High	Low	Base	High	Low	Base	High
		A CC-RAP	61,113	59,612	59,551	69,821	59,576	66,484	69,475	74,195	69,821	55,926	59,682	62,910	61,056	61,151	61,179	60,975	60,349	61,084	62,106	60,259	61,124	61,874	61,335	55,439	60,405	57,490
B Nuke2-RAP	62,262	60,813	60,757	70,657	60,780	67,488	70,325	74,823	70,657	57,138	60,879	64,127	62,211	62,380	62,307	61,974	60,613	62,187	64,507	61,296	62,275	63,122	62,484	56,484	61,554	58,639	62,372	64,999
C SC-RAP	61,060	59,553	59,489	69,813	59,516	66,421	69,464	74,253	69,813	55,859	59,627	62,838	60,997	61,126	61,122	60,916	60,342	61,033	62,000	60,213	61,072	61,815	61,283	55,392	60,353	57,438	61,171	63,797
D Pumped Hydro-RAP	61,522	60,007	59,943	70,319	59,969	66,910	69,968	74,780	70,319	56,312	60,081	63,291	61,458	61,577	61,586	61,393	60,760	61,494	62,502	60,645	61,533	62,303	61,744	55,811	60,814	57,899	61,632	64,259
E Wind-SC-RAP	61,338	59,881	59,823	69,791	59,847	66,592	69,456	73,993	69,791	56,206	59,946	63,190	61,287	61,438	61,388	61,080	60,389	61,306	62,546	60,444	61,350	62,135	61,561	55,644	60,631	57,716	61,449	64,075
F CC-RAP EE only	61,335	59,840	59,782	70,002	59,806	66,716	69,658	74,317	70,002	56,163	59,906	63,150	61,285	61,347	61,407	61,207	60,490	61,305	62,420	60,459	61,347	62,116	61,431	55,702	61,113	57,713	61,446	64,073
G CC-MAP	60,842	59,360	59,297	69,449	59,323	66,165	69,108	73,758	69,449	55,683	59,425	62,656	60,788	60,909	60,900	60,647	60,078	60,813	61,835	59,990	60,854	61,601	61,192	55,088	60,134	57,220	60,953	63,579
H Nuke-RAP-Balanced	61,800	60,338	60,276	70,290	60,302	67,067	69,953	74,523	70,290	56,665	60,402	63,639	61,748	61,895	61,851	61,552	60,620	61,752	63,359	60,884	61,812	62,616	62,022	56,064	61,092	58,177	61,911	64,537
I CC-RAP-Balanced	61,352	59,870	59,807	69,959	59,833	66,673	69,618	74,270	69,959	56,193	59,936	63,166	61,298	61,418	61,411	61,161	60,505	61,322	62,440	60,479	61,364	62,130	61,575	55,657	60,645	57,730	61,463	64,089
J Nuke-MEEIA1-Balanced	63,935	62,446	62,384	72,575	62,410	69,343	72,234	76,832	72,575	58,794	62,500	65,755	63,897	63,851	64,026	63,892	62,411	63,879	65,908	62,935	63,948	64,825	63,935	58,123	63,935	60,312	64,045	66,672
K CC-MEEIA1-Balanced	63,357	61,846	61,782	72,135	61,808	68,837	71,788	76,477	72,135	58,193	61,900	65,148	63,319	63,226	63,460	63,391	62,235	63,323	64,754	62,407	63,370	64,203	63,357	57,597	63,357	59,735	63,468	66,094
L Wind-MEEIA1	66,973	66,403	66,293	70,570	66,339	69,808	70,444	71,706	70,570	63,035	66,317	69,708	67,029	68,360	66,671	64,256	62,635	66,871	72,134	65,437	66,995	68,337	66,973	60,885	66,973	63,351	67,084	69,710
M CC-MAP-Labadie	64,452	63,500	63,471	69,939	63,483	67,817	69,705	72,761	69,939	59,717	63,621	66,835	64,328	63,624	64,780	65,789	63,158	64,418	66,011	63,526	64,465	65,271	64,802	58,370	63,743	62,360	64,517	66,015
N CC-MAP-Rush	62,617	61,394	61,353	69,686	61,370	66,948	69,396	73,296	69,686	57,649	61,495	64,714	62,523	62,249	62,811	63,194	61,654	62,587	63,823	61,746	62,629	63,393	62,968	56,703	61,909	59,810	62,708	64,701
O Nuke2025-RAP-Labadie-Balanced	65,397	64,489	64,457	70,650	64,470	68,645	70,427	73,326	70,650	60,722	64,602	67,821	65,279	64,624	65,710	66,627	63,477	65,331	67,844	64,390	65,411	66,290	65,620	59,334	64,690	63,306	65,463	66,961
P Nuke2025-RAP-Rush-Balanced	64,018	62,838	62,794	70,853	62,812	68,231	70,573	74,315	70,853	59,109	62,931	66,156	63,929	63,705	64,195	64,487	62,347	63,954	66,202	63,043	64,031	64,886	64,240	58,080	63,310	61,211	64,108	66,102
Q Nuke-MAP-Balanced	61,431	59,982	59,915	69,863	59,942	66,640	69,528	74,091	69,863	56,308	60,045	63,269	61,375	61,581	61,469	61,118	60,333	61,384	62,897	60,538	61,443	62,226	61,781	55,624	60,722	57,808	61,541	64,168
R CC-MAP-Balanced	61,081	59,618	59,553	69,588	59,580	66,354	69,251	73,834	69,588	55,950	59,680	62,911	61,030	61,176	61,132	60,833	60,234	61,051	62,169	60,211	61,093	61,857	61,432	55,306	60,373	57,459	61,192	63,818
S CC-MAP EE only	61,078	59,595	59,532	69,687	59,558	66,402	69,346	73,999	69,687	55,918	59,661	62,891	61,024	61,144	61,136	60,885	60,314	61,049	62,070	60,224	61,089	61,838	61,278	55,376	60,914	57,455	61,188	63,815
Minimum PVR among plans		59,360	59,297	69,449	59,323	66,165	69,108	71,706	69,449	55,683	59,425	62,656	60,788	60,909	60,900	60,647	60,078	60,813	61,835	59,990	60,854	61,601	61,192	55,088	60,134	57,220	60,953	63,579
Plan with Minimum PVR		G	G	G	G	G	G	L	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Subjective Probability		35%	50%	15%	85%	3%	9%	3%	15%	17%	51%	17%	40%	18%	36%	6%	10%	80%	10%	10%	80%	10%	45%	55%	5%	10%	80%	10%
Expected Value of Better Info		510	510	510	510	508	510	2,564	510	510	510	510	510	508	511	514	427	509	605	489	510	529	382	568	511	510	510	510

10.5.4 Implementation Plan¹⁵

As mentioned earlier, the implementation plan outlines the major activities to be completed during the next three years, 2015-2017. Below is a description of those major activities.

Load Analysis and Forecasting Implementation

Ameren Missouri continually works to explore additional data sources and enhanced forecasting and analytical techniques to improve its load analysis processes, and, as of this writing, is in the process of developing and implementing a new sample for its load research program. Ameren Missouri has worked with Enernoc Utility Solutions in 2009 and 2013 to perform extensive primary market research and anticipates continuing to engage in periodic collection of primary data to further enhance its understanding of the mix of end-use appliances and equipment in its service territory. More detail on load analysis research activities is provided in Chapter 3.

Demand-Side Resources Implementation

The detailed implementation plan for RAP DSM is presented in Chapter 8 and includes program templates, evaluation strategies, energy and peak savings goals, budgets, and other information for the implementation period. Table 10.9 provides a summary of the annual energy savings and peak reduction goals, as well as annual budgets, for residential and business programs.

Table 10.9 DSM Implementation Plan Summary

	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>Total</u>
Residential EE Programs net energy savings (MWh)	58,505	45,691	61,472	165,668
Business EE Programs net energy savings (MWh)	46,252	91,927	122,536	260,715
Total estimated net energy savings (MWh) at meter	104,757	137,617	184,008	426,382
Residential EE Programs net demand reduction (MW)	14	9	13	36
Business EE Programs net demand reduction (MW)	13	28	37	78
Estimated net demand reduction (MW) at meter	27	37	50	114
Residential EE Programs annual costs (\$ millions)	\$21.81	\$18.61	\$22.96	\$63.38
Business EE Programs annual costs (\$ millions)	\$14.60	\$30.23	\$39.36	\$84.19
Estimated costs (Program costs in millions)*	\$36.41	\$48.84	\$62.32	\$147.57

*Note: The Company may choose to equalize expenditures for each year after finalizing implementation plans with its implementation contractors.

¹⁵ 4 CSR 240-22.070(6); 4 CSR 240-22.070(6)(A) through (D)

Demand-Side Resources Cost Recovery and Incentives

Ameren Missouri continues to implement its first cycle of approved MEEIA programs, which run through 2015. Ameren Missouri expects to file a request with the Commission in the fourth quarter of 2014 for approval of demand-side programs and associated cost recovery and incentive mechanisms to be implemented in 2016-2018. Upon approval, Ameren Missouri will proceed with contractor onboarding and implementation planning.

Combined Cycle

While the preferred resource plan includes new combined cycle generation near the end of the planning horizon, in 2034, our contingency planning indicates a need to prepare for the possibility of needing new generation much sooner. This may be as a result of triggering a contingency option related to DSM cost recovery and incentives or to comply with greenhouse gas regulations. To prepare for such contingency options, Ameren Missouri will be evaluating potential sites for new combined cycle generation.

Nuclear

To preserve the nuclear resource option, Ameren Missouri continues nuclear development activities as necessary to ensure that this option remains viable in the projected needed timeframes. This includes maintaining the existing application for a new nuclear unit on the US NRC docket with the review suspended, interface with vendors developing new small modular light water reactor technologies, and a continued review and evaluation of large light water reactors with passive safety features.

Renewables

Our preferred resource plan includes the addition of new solar generation in 2016, expansion of our existing landfill gas-fueled Maryland Heights Renewable Energy Center in 2018, and new wind resources beginning in 2019. Ameren Missouri will be engaging in activities during the implementation period to support the construction of the new solar generation in 2016, including bid solicitation, contractor selection, applying for a certificate of convenience and necessity, and construction. We will also be continuing to evaluate the feasibility and timing for expansion at Maryland Heights and evaluating potential sites and options for wind generation.

Meramec

Ameren Missouri will be taking steps to convert Meramec Units 1&2 to natural gas-fired operation by early 2016. Because the units were originally designed with the option of operating on natural gas fuel, the work necessary to ensure reliable operation on natural gas is expected to be minimal and cost less than \$2 million.

Environmental

Ameren Missouri will continue to monitor changes in environmental regulations and options for compliance. In the near term, we will complete work needed to comply with MATS.

Voltage Control Pilot Project

Ameren Missouri has initiated a Voltage Control Pilot Project to evaluate Volt/Var Optimization effectiveness and to evaluate Conservation Voltage Reduction on selected distribution power lines. Distributed control programming and operational testing are expected to be completed during 2014-2015.

Competitive Procurement Policies¹⁶

Ameren Missouri assigns a Project Manager to lead the activities necessary to ensure the successful completion of its acquisition and development of supply-side resources. In general, a project team comprised of a Project Manager and various lead engineers will identify all items to be procured and will coordinate with the Strategic Sourcing and Purchasing departments within Ameren to ensure proper contract structures are considered and used for each procurement activity. A Contract Development Team (CDT) is assembled and assists in collecting material and labor estimates based on the overall project design. Strategic Sourcing, CDT and the project team work to set up a number of components as Ameren stock items that are the basis for ordering materials. A detailed procurement matrix is developed to identify the major purchases that are anticipated to be required as part of the project. Material purchases make use of stock items established by the CDT. Where material has not been established as a stock item, the preferred approach is to solicit and obtain at least three quotations from a group of preferred Ameren vendors wherever possible to ensure the most competitive pricing for the material.

In the case of utilizing engineering, procurement and construction contracts (EPC), competitive bids are acquired from multiple vendors capable of meeting the requirements of the project. For the planned 2016 solar project, for example, the EPC contract will be fixed fee-based and the procurement of all components will be in the bid price and therefore under the full responsibility of the contractor.

Ameren Missouri will be following Ameren's Project Oversight Process, which is provided in Appendix C, for monitoring the progress made implementing its Preferred Resource Plan.¹⁷

¹⁶ 4 CSR 240-22.070(6)(E)

¹⁷ 4 CSR 240-22.070(6)(G)

10.5.5 Monitoring Critical Uncertain Factors¹⁸

Ameren Missouri will be monitoring the critical uncertain factors that would help determine whether the Preferred Resource Plan is still valid and whether contingency options should be pursued. Below is a description of how Company decision makers will be monitoring the factors most relevant to future resource decisions.

Climate Policy

Ameren Missouri senior management and the Environmental Services Group will continue to monitor and evaluate developments on efforts to regulate greenhouse gas emissions. With EPA scheduled to announce its final rule for existing power plants in June 2015, Ameren Missouri will continue to be engaged at both the federal and state level.

Gas Prices

The President and CEO of Ameren Missouri is updated at least annually by Corporate Planning on trends and drivers of natural gas prices as part of the update on the drivers of forward commodity prices. Ameren Missouri senior management may, in its sole discretion, request more frequent updates to discuss significant changes in natural gas prices.

Load Growth

Corporate Planning will update Ameren Missouri's capacity position as needed based on the latest assumptions regarding load growth. Any significant changes in resource needs, whether timing or size, will be communicated to Ameren Missouri senior management. Corporate Planning will also reassess, at least annually, its assumptions for load growth in the Eastern Interconnect, which is a critical dependent uncertain factor included in our power price scenario modeling.

Coal Prices

Corporate Planning will work with Ameren Missouri's Fuels organization to monitor coal prices, with updates at least annually and as needed.

Project Costs

Corporate Planning, with support from other groups and as directed by Ameren Missouri senior management, will monitor trends in capital costs for all of the candidate supply-side resource options and environmental compliance retrofits with careful attention to those included in the preferred and contingency resource plans. Any significant changes will be communicated to Ameren Missouri senior management.

¹⁸ 4 CSR 240-22.070(6)(F)

Demand-Side Resource Impacts and Cost

Corporate Planning will continue to evaluate the cost-effectiveness of its DSM programs internally and through the evaluation process. To further enhance our ability to ensure the continued cost effectiveness of our demand side programs, Ameren Missouri will 1) annually adjust its estimate of annual load reductions from its DSM potential study to incorporate the most recent EM&V measure impact energy savings estimates and 2) seek program design changes to account for emerging baseline energy savings constructs that could affect available potential as well as program cost effectiveness. Any major deviations from planning assumptions like participation rates, technology costs, and customer opt-out will be communicated to Ameren Missouri senior management.

Interest Rates and Financial Metrics

Corporate Planning and Treasury will continue to evaluate the impact of interest rates and various financial metrics on revenue requirements consistent with maintaining investment grade credit ratings. This evaluation will include an analysis of the level of interest rates and financial metrics that would trigger consideration of a contingency plan.

10.6 Compliance References

4 CSR 240-22.010(2)	2
4 CSR 240-22.010(2)(A)	2
4 CSR 240-22.010(2)(B)	3, 4
4 CSR 240-22.010(2)(C)	4, 11
4 CSR 240-22.010(2)(C)1	4, 11
4 CSR 240-22.010(2)(C)2	4, 11
4 CSR 240-22.010(2)(C)3	4, 11
4 CSR 240-22.060(2)	4
4 CSR 240-22.060(2)(A)1 through 7	4
4 CSR 240-22.060(3)(A)5	11
4 CSR 240-22.060(4)(E)	16
4 CSR 240-22.070(1)	4, 11, 20
4 CSR 240-22.070(1)(A) through (D)	4, 11, 20
4 CSR 240-22.070(2)	20
4 CSR 240-22.070(3)	22
4 CSR 240-22.070(4)	13, 20, 22
4 CSR 240-22.070(4)(A) through (C)	20
4 CSR 240-22.070(6)	24
4 CSR 240-22.070(6)(A) through (D)	24
4 CSR 240-22.070(6)(E)	26
4 CSR 240-22.070(6)(F).....	27
4 CSR 240-22.070(6)(G)	26
4 CSR 240-22.070(7)	20
4 CSR 240-22.070(7)(A) through (C)	20
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EO-2014-0062 b.....	10
EO-2014-0062 c.....	11