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1. Executive Summary

Ameren Missouri provides this first IRP annual update pursuant to the Commission's revised Integrated Resource Planning ("IRP") rules as a means of keeping the Commission and other stakeholders informed of changes in the planning environment since the filing of the Company's 2011 IRP and the potential implications of those changes on future resource decisions.

As this is simply an update it cannot take the place of a full IRP analysis and report, as is required every three years. Rather, it provides transparency into the current conditions, issues and considerations that are important to prudent resource planning decisions. In doing so, the analysis and discussion presented here highlight the fact that significant uncertainty remains with respect to key decision drivers, including environmental regulations, economic conditions, future fuel and power prices and other long-term market trends. As a result, maintaining effective resource options to meet our customers' future energy resource needs remains of paramount importance.

Environmental Regulation

The specific requirements of federal environmental regulations continue to evolve as new rules continue to be considered, drafted and implemented. While some requirements have become clearer since the filing of the Company's 2011 IRP, much uncertainty remains as additional rules are drafted and court challenges are heard. Ameren Missouri has continued to modify its plans for environmental compliance to match its view of known and expected regulations. This report reflects the impact of those regulations which have been finalized and the estimated impact of certain potential regulations, while acknowledging that changes are still likely to occur.

In July, 2011, the U.S. Environmental Protection Agency ("EPA") finalized the Cross-state Air Pollution Rule ("CSAPR"), to replace the Clean Air Interstate Rule ("CAIR") that was remanded to EPA by the courts in 2008. While CSAPR was stayed by the U.S. Court of Appeals in December, 2011, our expectation is that the ultimate regulation will be very similar to that represented by the final CSAPR issued in July, 2011.

Our plan to address those new requirements included entering into a long-term contract for ultra low sulfur coal that eliminated and/or deferred the need to make significant investments in environmental control equipment by 2017, thus avoiding associated increases in customer electric rates.

In December, 2011, EPA released its final Mercury and Air Toxics Standards ("MATS"). The requirements of the final rule were largely similar to the draft rule released by EPA

in March, 2011. Ameren Missouri has put in place plans for compliance with MATS at each of its existing coal-fired plants, which includes upgrading some of our electrostatic precipitators ("ESP") at our coal-fired power plants. As a result of these environmental regulations, as well as other potential environmental regulations, we continue to carefully evaluate compliance options at the Meramec plant, our oldest coal-fired generating plant. At this time, should no additional environmental regulations be promulgated that affect Meramec, continued operation of the plant may still be in the best interest of our customers and the state. However, much uncertainty continues to exist with respect to future environmental regulations as well as long-term market conditions. Further monitoring and analysis of this issue is required.

While more is known about the CSAPR and MATS rules than was known when the Company filed its 2011 IRP, the possibility still exists for further emission reduction requirements under these and other standards in the future. Further, the potential impact of future rules limiting carbon emissions remains, especially in light of rules recently issued by the EPA for new coal-fired power plants and continuing discussions of a federal "Clean Energy Standard". These additional emissions reductions and regulations have not been factored into our base analysis, but could clearly have a significant impact on our future resource planning.

Resource Options

As we discuss in more detail in this report, there have been significant changes in market conditions since the analysis was performed for the Company's 2011 IRP filing. Most notable are changes in current prices for natural gas and the outlook for future prices, due primarily to developments in the extraction of domestic shale gas. Because market conditions can change rapidly, and in unforeseen ways, this is an area that will require careful monitoring.

It is also important to evaluate the potential for emerging technologies that may represent robust options for dealing with the uncertainties of the market. For its 2011 IRP, Ameren Missouri evaluated a host of demand side and supply side options. The supply side options included resources powered by renewable resources such as wind, lower-carbon fossil fueled resources such as simple cycle or combined cycle gas turbines, and zero-carbon resources such as nuclear generation.

While the Company's 2011 IRP evaluation of nuclear resources was based on large, single-unit reactor technology, emerging small modular reactor ("SMR") technologies were also assumed to be represented by the analysis because of the expected similarities in cost and operating performance characteristics. For the 2012 IRP Annual Update, the Company has chosen to specifically evaluate SMR technology as a

resource option because of the increased flexibility it can provide in terms of operation, scalability, construction risk, and financing considerations.

In fact, consistent with our commitment to taking proactive steps today to maintain generation options to meet our state's energy needs in the future, on April 19th Ameren Missouri and Westinghouse Electric Company announced an alliance to apply for Department of Energy ("DOE") SMR investment funds of up to $452 million. The investment funding, announced by the DOE on March 22, will support first-of-its-kind engineering, design certifications and operating licenses for up to two SMR designs over five years.

The objectives of the DOE program are to support efforts for the United States to become the global leader in the design, engineering, manufacturing and sale of American-made SMRs around the world, as well as expand our nation's options for nuclear power. Westinghouse expects to submit the investment fund application by mid-May. A final decision on awarding the investment funds is expected in the summer of 2012.

This DOE program comes with a tremendous opportunity to save customers millions of dollars associated with design and operating license development costs. It also comes with a transformational economic development opportunity for the state of Missouri which includes becoming the hub for the engineering design, development, manufacturing and construction of American-made SMR technology in Missouri, in the United States and around the world.

Figure 1.1 Levelized Cost of Energy

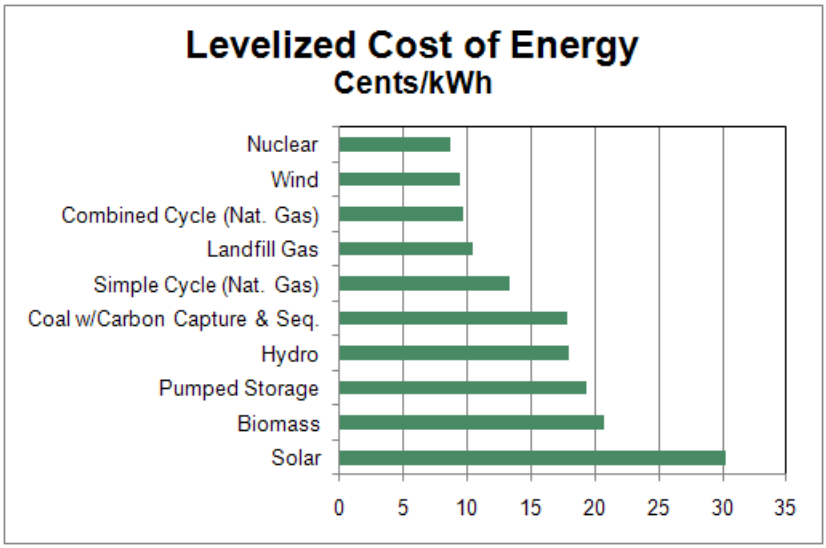


Figure 1.1 shows the levelized cost of energy ("LCOE") for a range of potential supply side resources. The costs have been updated to reflect our current views on capital requirements, fuel prices, and financing costs. The costs for the nuclear resource represent the SMR technology. Because SMR technology is by definition modular, implementation of the technology requires shorter lead-times and construction schedules, which results in significant savings in financing during construction. This savings results in a levelized

cost of energy which is lower than that for wind or combined cycle gas turbines. In addition, the potential cost savings from DOE investment funding have not been factored into our analysis at this time. It is important to note that levelized cost of energy figures, while useful for convenient comparisons of resource alternatives, do not fully capture all of the relative strengths and challenges of each resource type. For example, wind resources are intermittent resources and therefore cannot be counted on for meeting peak demand requirements in the same way a nuclear or gas-fired resource can. The levelized cost of wind resources presented in Figure 1.1 also does not reflect the full cost of transmission infrastructure needed to integrate wind and other intermittent resources into the electric grid. Such costs are allocated to members of the Midwest Independent System Operator ("MISO") based on methods approved by the Federal Energy Regulatory Commission ("FERC").

The levelized cost of energy for future resource options is an important measure for assessing these options. However, it is not the only factor that must be considered in making resource decisions. Facts and conditions surrounding future environmental regulations, commodity market prices, economic conditions, economic development opportunities, and other factors must be considered as well. A robust range of uncertainty exists for many of these factors, all of which leads to one overriding conclusion – maintaining effective options to pursue alternative resource options in a timely fashion is a prudent course of action.

Natural Gas Prices

Significant changes have occurred in the market for natural gas and therefore in the long-term outlook for natural gas prices. In its 2011 IRP, Ameren Missouri evaluated its resource options under a range of gas price forecasts that varied between $6/MMBtu and $10/MMBtu in constant year dollars (i.e., "real" prices). Because of the developments in the extraction of domestic shale gas over the past year, the Company's current forecasts for natural gas prices have been significantly reduced, falling in a range of $4/MMBtu to $6/MMBtu average real prices over the planning horizon.

One thing is clear with respect to natural gas prices – they are volatile. In light of the significant changes we have recently seen in this area, this is an issue that will need to be closely monitored. While these market changes may result in low long-term prices for natural gas, future prices are subject to a host of changes in both supply and demand, including those driven by regulation, and are by no means assured.

Renewable Energy Standards

Compliance with Missouri's Renewable Energy Standard ("RES") continues to be a focus for Ameren Missouri. The Company's existing portfolio of hydro, wind, solar and

landfill gas resources allow it to meet the non-solar portion of the standard through 2018, after which new sources of renewable energy credits ("REC's") will have to be procured. The Company has taken steps to ensure compliance with the solar portion of the standard through at least 2013 through the acquisition of solar REC's ("S-REC's") from the market and through the Company's standard offer contract ("SOC") from customers in our retail service territory who have installed solar generating equipment. The Company continues to evaluate the potential for large-scale solar resources at one of Ameren Missouri's existing plant sites to meet the standard, at least in part, after 2013.

Ameren Missouri is also following developments that may lead to new state or federal renewable or clean energy standards. As part of our 2012 IRP Annual Update, we have evaluated the impact of a new standard which would require the acquisition of renewable resources in greater amounts than those required by the existing Missouri RES. Our analysis shows that a standard that requires acquisition of renewable energy equal to 25% of our retail sales by 2026 could increase rates by over 20% in some years relative to current rates. Efforts to mitigate the rate impact through fixed bill caps for each customer class may result in residential and small commercial customers shouldering a disproportionate share of the costs.

Energy Efficiency

Ameren Missouri's 2011 IRP demonstrated that meaningful savings could be realized by customers through participation in energy efficiency programs. Our analysis also showed that under the existing regulatory treatment for investments in energy efficiency, the Company would suffer significant financial losses by implementing such programs. To address this issue and unlock the benefits of energy efficiency for both customers and investors, Ameren Missouri filed with the Missouri Public Service Commission ("PSC" or "Commission") earlier this year for approval of energy efficiency programs and supportive rate mechanisms under the Missouri Energy Efficiency Investment Act ("MEEIA").

MEEIA requires that the Commission align the incentives of utilities with helping customers use energy more efficiently. The intent of MEEIA is that by achieving such alignment of incentives, Missouri customers will realize the benefits of all cost-effective energy efficiency. Ameren Missouri expects an order from the Commission in its MEEIA case later in 2012. In the meantime, we have continued to reflect our "Bridge" portfolio of DSM programs in our ongoing analysis.

Load Forecast and Resource Needs

Another factor that could affect the timing for new resources is load growth in our service territory. Several factors will impact long-term load growth, including general economic conditions and energy intensity. During the development of our 2011 IRP, we generally expected annual load growth to approximate 1%. Under that scenario, there is a need for up to 400 MW in the 2021-2025 timeframe and up to 900 MW in the 2026-2030 timeframe. This assumes that no additional environmental regulations or other meaningful changes in fuel prices, economic conditions, customer use or other factors take place. Should certain of these factors drive the closure of our Meramec plant by the 2020 timeframe, our resource needs would climb to approximately 600 MW by 2020, up to 1200 MW in the 2021-2025 timeframe, and up to 1700 MW in the 2026-2030 timeframe.

Table 1.1 Resource Needs for Various Load Growth Assumptions

Approximate Resource Needs (MW)	0.5% Load Growth	0.75% Load Growth	1.0% Load Growth	1.25% Load Growth
2020	0	0	0	0
2021-2025 (up to)	0	0	400	600
2026-2030 (up to)	0	400	900	1,300
2020 w/o Meramec	200	400	600	800
2021-2025 w/o Meramec (up to)	500	900	1,200	1,500
2026-2030 w/o Meramec (up to)	750	1,200	1,700	2,100

Since the filing of our 2011 IRP, recent data suggests that current economic conditions and efficiency have slowed load growth somewhat. Because of the number of factors and uncertainties that could influence load growth, it is important to assess this important factor within a range of possible values. Table 1.1 shows the approximate resource needs for several different values for load growth, both with and without retirement of Meramec. As the table shows, resource needs are highly dependent on both load growth assumptions and the status of Meramec. For this and other reasons, it remains prudent to preserve all available resource options to meet future customer demand.

Summary

As was mentioned at the outset, this document represents only an update of the conditions that affect resource planning decisions. As such, the analysis presented here must be viewed as a work in progress as better information is acquired with

respect to environmental regulations, costs of building and operating various resource options, customers' energy usage, the way resources are treated in the ratemaking process, and economic development opportunities for the state of Missouri.

The Company continues to analyze the most attractive options identified in its 2011 IRP. With falling prices for natural gas, gas-fired combined cycle generation continues to look attractive, with low capital costs and relatively low operating costs. Nuclear resources remain attractive as an option, particularly if natural gas prices remain volatile and in light of the uncertainties associated with environmental regulations limiting carbon emissions. Another key factor to consider is the potential cost savings and significant economic development opportunities associated with statewide actions being taken in connection with the recently announced DOE funding opportunity associated with SMR technology. The promise of operating and construction flexibility afforded by SMR technology further adds to the attractiveness of new nuclear resources. Wind resources also remain an attractive energy option and make up a significant portion of the Company's long-term plans for compliance with the Missouri RES.

While this annual update does not, nor could it, serve as a complete reconsideration of all the options, variables and other considerations that go into the development of a full IRP filing, it presents a comprehensive view of conditions that affect resource planning decisions at this time. Based on our analysis, we believe that our existing preferred resource plan remains appropriate at this time as we continue to evaluate environmental regulations, commodity prices, economic conditions, and economic development opportunities, as our request for approval of energy efficiency programs and appropriate rate treatment is considered by the Commission, and as we continue to evaluate options for future supply. One thing is very clear from our updated analysis – key factors impacting future resource decisions remain highly uncertain, and in some cases volatile. Consequently, the ability to maintain effective options to pursue alternative resources in a timely fashion is a prudent course of action for our customers and the state of Missouri.

2. Technical Overview

2.1 Purpose of Annual Updates

Annual Updates are required by 4 CSR 22.080(3). The rules indicate that the purpose of annual updates is to ensure that members of the stakeholder group have the opportunity to provide input and to stay informed regarding the items listed below.

- The utility's current preferred resource plan (see Chapter 6)
- The status of the identified critical uncertain factors (see Chapter 3)
- The utility's progress in implementing the resource acquisition strategy (see Chapter 6)
- Analyses and conclusions regarding any special contemporary issues identified by the Commission (see section 2.2 and included references for each issue)
- Resolution of any deficiencies or concerns in the utility's most recent triennial filing, either as agreed to among the utility and the other parties or as found by the Commission in its Order in the case (see section 2.5)

Ameren Missouri has created this annual update report to satisfy the intended purpose established in the IRP rules and has updated its planning analysis to reflect changes in general planning conditions. Each item explicitly cited in the rules is addressed in the referenced chapter or section of this report as noted above.

2.2 Special Contemporary Issues

The Commission included in its Order in Docket EO-2012-0039 several special contemporary issues to be addressed by Ameren Missouri in its 2012 IRP Annual Update. Following are the special contemporary issues included in the Order, a brief description of how Ameren Missouri has evaluated each item, and references to the location in this report of any further discussion on each issue, as applicable.

> **Environmental Compliance** – *"Evaluate the need and options for mitigation to comply with current and pending EPA rules based on currently available assessments of the rule requirements and costs for mitigation measures including ranges of uncertainty for capital costs for large retrofits."*
>
> Ameren Missouri has evaluated environmental compliance as an integral element of its resource planning, focusing primarily on the final Cross-State Air

Pollution Rule issued by EPA in 2011 due to the range and cost of potential compliance options relative to those for other current and pending regulations. Discussion of Ameren Missouri's analysis of environmental compliance can be found in Chapter 5 of this report.

Reduced Demand Side Management ("DSM") Levels – *"Include evaluation of plans with reduced levels of DSM consistent with Ameren Missouri's updated preferred resource plan."*

Ameren Missouri's updated resource plan analysis reflects the "Bridge" DSM portfolio included in its Notification of Change in Preferred Resource Plan filed in Docket EO-2012-0127. A discussion of the updated resource plan analysis can be found in Chapter 6 of this report.

Natural Gas Prices – *"Update forecasts for natural gas prices and include the effects of lower gas prices in scenarios used for risk analysis."*

Ameren Missouri has revised its forecasts for natural gas prices and included the effects on power prices in scenarios used for risk analysis. The gas price forecasts are discussed in Chapter 3 of this report (section 3.3.2). Power price forecasts are presented in section 3.4.

Coal Prices – *"Evaluate coal price uncertainty as an independent uncertain factor to generally reflect uncertainties that could drive the cost of coal to Ameren Missouri."*

Ameren Missouri evaluated coal prices as an independent uncertain factor as discussed in section 3.3.5.

Future Regulation – *"Analyze potential or proposed changes in state or federal environmental or renewable energy standards and report how those changes would affect Ameren Missouri's plans for compliance with those standards."*

Ameren Missouri has evaluated the effects of potential future environmental regulation in terms of the effects on nationwide coal retirements and potential carbon policy. These considerations are discussed in Chapter 3 (section 3.3.1). Ameren Missouri has also evaluated potential changes in Renewable Energy Standards requirements as discussed in Chapter 4.

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

Ameren Missouri has analyzed the cost of the current RES as discussed in Chapter 4.

Fuel Subsidies – *"Disclose and discuss the amount and impact of every state or federal subsidy Ameren Missouri expects to receive with regard to any or all fuel sources it intends to use during the IRP study period."*

Ameren Missouri has indicated the fuel subsidies it expects to receive and discussed such subsidies in Chapter 7 of this report.

2.3 Ameren Missouri's Approach to its Annual Update

In its Order in Docket EO-2012-0039 establishing special contemporary issues to be evaluated by Ameren Missouri in its 2012 IRP Annual Update, the Commission noted that, "the requirement to examine special contemporary issues should not be allowed to expand the limited annual update report into something more closely resembling a triennial compliance report." Ameren Missouri agrees with the Commission that the scope and depth of an IRP Annual Update should not be comparable to that for a triennial IRP filing. On that basis, Ameren Missouri has relied heavily on the groundwork developed in its 2011 IRP as a basis for updating its analysis and reporting its findings. Specifically, the Company has:

- Relied on the identification and screening of supply side resource options from the 2011 IRP, focusing only on limited updating of cost information associated with the most promising resource types.
- Elected to defer an updated analysis of aggressive DSM portfolios until such time as utility incentives are aligned with their implementation, as required by MEEIA.
- Relied on the screening of candidate uncertain factors from the 2011 IRP, focusing only on updating forecasts for those identified as critical and incorporating coal prices as required by the Commission's Order on special contemporary issues.

The Company also views the IRP Annual Update in its proper role as just that, an update on the nature of key variables and the conclusions that follow. Based on the conclusions drawn from the analysis discussed here and the need for 1) further analysis

of options to meet environmental requirements at the Meramec plant, 2) near-term resolution of incentives associated with pursuit of energy efficiency through the Company's MEEIA filing, and 3) further analysis of recent developments associated with potential DOE funding and the potential for significant economic development opportunities for the state of Missouri associated with SMR's, the Company believes that its previously communicated preferred resource plan is still appropriate at this time. Should the Company's continued planning and consideration of these and other issues lead to a conclusion that its Preferred Resource Plan is no longer appropriate, the Company will notify the Commission of its decision in accordance with 4 CSR 240-22.080(12).

2.4 Overview of Analytical Assumptions and Conclusions

Critical Uncertain Factors

Ameren Missouri has updated its views with respect to the critical uncertain factors identified and analyzed in its 2011 IRP. This includes both dependent uncertain factors that define market scenarios, such as gas prices, and independent uncertain factors, such as financing costs and project costs. Gas price forecasts, discussed in detail in Chapter 3, are significantly lower than those used in the 2011 IRP, reflecting the shift in natural gas markets that has continued over the past year. A slight change in approach has been applied to the uncertain factor for federal greenhouse gas policy to more generally reflect the impact of both climate and environmental regulation in terms of coal retirements.

Coal prices have been added as an independent uncertain factor as required in the Commission's order on special contemporary issues. Project costs have been updated for major supply side resources and major environmental retrofits, including uncertain ranges for each. A complete discussion of the updates to uncertain factors is presented in Chapter 3.

Environmental Compliance

Ameren Missouri has evaluated the resource and cost implications of current and pending environmental regulations, focusing primarily on compliance with the EPA's CSAPR, which was finalized in July, 2011. Ameren Missouri has contracted for ultra-low sulfur coal through 2017 to meet CSAPR SO_2 requirements while continuing to evaluate compliance with other environmental regulations that are still under development. One such regulation, the Mercury and Air Toxics Standards, was recently published in the Federal Register and will require compliance by April 16, 2015 (with a potential one-year extension that can be approved by the state). Ameren Missouri had developed its plans for compliance based on the proposed version of the rule and most

recently known as the Maximum Achievable Control Technology ("MACT") rule and has determined that those plans are still valid. Nevertheless, Ameren Missouri has initiated further review and evaluation of compliance options for the Meramec plant in the context of all known current and pending regulations. Identification and evaluation of potential compliance solutions for Meramec is underway, but has not reached a stage that is appropriate for inclusion in this update. Major options evaluated for compliance with CSAPR after 2017 also included installation of flue gas desulfurization ("FGD") technology at the Company's Rush Island facility.

Updated Plan Analysis

An updated analysis of candidate resource plans has been conducted, incorporating the findings from the environmental compliance analysis described in this section and reflecting the updated values for uncertain factors described in section 3.3. The plans reflect Ameren Missouri's "Bridge" DSM portfolio, updated portfolios for compliance with the existing Missouri RES, and one of three environmental compliance plans to meet the CSAPR requirements.

The analysis shows that the four different supply-side options continue to perform in a range that is relatively close in terms of present value of revenue requirements ("PVRR"), although the relative performance of gas-fired options has improved with the drop in gas price forecasts. Small modular nuclear also remains a viable option under certain conditions. A discussion of plan analysis observations can be found in Chapter 6.

Preferred Plan Implementation

At this time, Ameren Missouri has not concluded that a change in its preferred resource plan is warranted. Ameren Missouri's key implementation steps at this time include the Company's pending MEEIA filing to seek alignment of incentives between the Company and customers and implementation of the "Bridge" DSM portfolio under tariffs approved by the Commission. Those tariffs expire on June 30, 2012, but may be continued depending on the outcome of the MEEIA filing. The Company has filed a request with the Commission to extend the tariffs through September 30, 2012. Efforts to preserve long-term options for nuclear generation are also ongoing. On April 19th Ameren Missouri and Westinghouse Electric Company announced an alliance to apply for Department of Energy (DOE) SMR investment funds of up to $452 million. The investment funding, announced by the DOE on March 22, will support first-of-its-kind engineering, design certifications and operating licenses for up to two SMR designs over five years.

The objectives of the DOE program are to support efforts for the United States to become the global leader in the design, engineering, manufacturing and sale of

American-made SMRs around the world, as well as expand our nation's options for nuclear power. Westinghouse expects to submit the investment fund application by mid-May. A final decision on awarding the investment funds is expected in the summer of 2012.

This DOE program comes with a tremendous opportunity to save customers millions of dollars associated with operating license development cost. It also comes with a transformational economic development opportunity for the state of Missouri which includes becoming the hub for the engineering design, development, manufacturing and construction of American-made SMR technology in Missouri, in the United States and around the world.

Evaluation of long-term options for Meramec Energy Center is also underway in the context of ongoing environmental compliance planning.

2.5 Status on Resolution of Deficiencies and Concerns

On March 28, 2012, the Commission issued its Report and Order in the Company's 2011 IRP docket (ER-2012-0271). That order included the following areas of deficiency in the Company's filing:

- Evaluation of demand side resources compared to existing supply side resources
- Use of a two-year rate case cycle
- Analysis of wind resources, including analysis pursuant to a stipulation and agreement in case ER-2007-0409

As the order in the Company's 2011 IRP was only recently issued, the Company has not yet identified actions to remedy the first item listed above. Similarly, no actions have yet been identified to specifically address issues with the stipulation portion of the third item listed above. Ameren Missouri will provide an update on its plans and progress toward resolving these issues at its 2013 IRP Annual Update workshop.

The remaining issues are addressed by the analysis performed for the 2012 Annual Update. First, all analysis of PVRR results has been conducted using the assumption of annual rate cases, as was done for the 2011 IRP analysis. Second, the evaluation of the impact of both the existing RES and an alternative RES clearly shows that the inclusion of additional wind as a stand-alone resource option results in an increase in costs to customers, even when the resource build is spread over many years and is not needed to meet capacity requirements. This is consistent with the results of the RES compliance analysis included in the 2011 IRP.

3. Planning Environment

3.1 Overview of Current Conditions

For this update, Ameren Missouri updated certain key IRP inputs. The following discussion provides an overview of the updates made to certain key assumptions.

Climate and Environmental Regulation

Ameren Missouri's 2011 IRP reflected a probability for enactment of federal climate policy with a price on carbon starting in 2015. Since that time, the push for broad action on new climate legislation has slowed, and attention has turned more toward the continued development of new regulations primarily affecting coal-fired generation sources. EPA finalized the CSAPR in 2011, and published the final MATS rule (formerly "Utility MACT" rule) in the Federal Register on February 16, 2012. While CSAPR was stayed by the U.S. Court of Appeals on December 30, 2011, Ameren Missouri has assumed for its analysis that the rule, or something very similar to it, will be in effect in the long term. To reflect a broader-based approach to consideration of environmental and climate legislation and regulation, Ameren Missouri has chosen to more generally represent their effects on market conditions in terms of coal power plant retirements as a scenario variable for this update. At the same time, we still believe that some type of action on climate policy that results in an explicit price on carbon emissions sometime during the planning horizon is possible. Our approach is discussed in greater detail in section 3.3.1.

Natural Gas Prices

Natural gas price forecasts have been updated to reflect the continued drop in price outlook seen in the market over the course of the past year. Updated forecasts are generally in line with the characterizations included in the U.S. Department of Energy's ("DOE") early release of the Energy Information Administration's 2012 Annual Energy Outlook ("AEO 2012") – that is, real prices for natural gas are expected to remain below $5/MMBtu for the next decade. Natural gas price scenarios are discussed in section 3.3.1, and natural gas price forecasts are presented in section 3.3.2.

Load Growth

The third and final variable used for scenario definition and modeling is load growth in the Eastern Interconnect, which is also discussed in section 3.3.1. Two load growth scenarios were utilized in this update –1.0% per year and 0.5% per year – each carrying a 50% probability.

Scenario Modeling

Ameren Missouri has performed scenario modeling to determine associated prices for wholesale electric power for each combination of coal retirements, natural gas price forecasts and load growth. This modeling takes the place of the modeling performed by Charles River Associates ("CRA") for the Company's 2011 IRP and is discussed in section 3.3.3.

Independent Uncertain Factors

Critical independent uncertain factors identified in Ameren Missouri's 2011 IRP have been updated for current and expected financial market conditions and expected capital costs for new resources. Project cost uncertainty, which also includes costs for major environmental retrofits, has been further expanded to include ongoing capital costs associated with the continued operation of the Meramec plant. Updates to critical independent uncertain factors are discussed in section 3.3.4

As required in the Commission's order on special contemporary issues, Ameren Missouri has included evaluation of coal price ranges as an independent uncertain factor. With anticipated coal requirements largely under contract through 2017, variations in coal price for both a 0.8 lb/MMBtu sulfur PRB coal and for a so-called "ultra-low sulfur" PRB coal (0.55 lb/MMBtu or less) are reflected beginning in 2018. Coal price forecasts are discussed and presented in section 3.3.5.

Peak Demand and Retail Energy Sales

The Company has updated its peak and energy forecasts to account for changes in conditions including economic conditions in our service territory. While future load growth cannot be precisely predicted, for this update the planning case used as the basis for resource planning analysis reflects 0.75% annual load growth. Based on this single planning case, the need for new supply side resources is delayed somewhat compared to the 2011 IRP. As stated previously, because of the many factors that can influence load growth, assessing this key factor within a range of possible values for long-term planning purposes is appropriate. The Company's updated forecasts for peak demand and energy are discussed in greater detail in section 3.7. Changes in forecasted retail energy sales have been reflected in updated analysis of compliance with the existing Missouri RES, which is discussed in Chapter 4.

3.2 Environmental Regulation

Ameren Missouri has updated its view on the eventual requirements for pending regulations and developed compliance options to meet these requirements. In some cases, such as the requirements for protection of aquatic life, the cost of mitigation is relatively low. In others, such as the CSAPR, the potential cost of mitigation is

Table 3.1 Current/Pending Environmental Regulations

Regulatory Driver	Summary Requirements	Regulation Status	Compliance Timing
Cross-State Air Pollution Rule (CSAPR)	Reduction in Nox and SO2 allowances vs. CAIR; New allowances for trading program (state level caps)	Final rule from EPA on July 7, 2011; Stayed by U.S. Court of Appeals on December 30, 2011	January 1, 2012 (stayed by U.S. Court of Appeals) *(note: assumed no long-term change in regulation as a result of court challenges)*
Revisions to National Ambient Air Quality Standards (NAAQS)	Lower Nox and SO2 limits; Expansion of non-attainment areas	SO2 final rule May, 2010; Facility modeling in 2012	2015-2017
Clean Air Visibility Rule (CAVR)	Application of Best Available Retrofit Technology (BART); Targets reduction in transported SO2 and Nox; Satisfied by CAIR in Missouri; CSAPR may trigger evaluation of additional controls	Final rule issued by EPA in 1999; States submit progress reports in 2013	2011-2013
Mercury and Air Toxics Standards (MATS)	Reduction in emissions of Mercury, HCl (proxy for acid gases) and particulate emissions (proxy for non-mercury metals)	Final rule released by EPA December 21, 2011; published in Federal Register February 16, 2012	April 16, 2015 (with possible one-year extension that can be approved by the state)
Clean Water Act Section 316(b) - Protection of Aquatic Life	Case-by-case determination of controls required to meet entrainment standards; national standard for impingement	Final rule from EPA expected July 27, 2012	2016-2020
Clean Water Act Section 316(a) - Thermal Standards	Potential revisions to existing thermal limitations on once-through cooling systems; Implementation through NPDES permit conditions	Evaluation triggered by NPDES permit renewals	2014-2017
Coal Combustion Residuals (CCR)	Conversion to dry bottom ash and fly ash; Closure of existing ash ponds; Dry disposal in landfill	Final rule from EPA expected late 2012 or early 2013	2014-2019
Revisions to Steam Electric Effluent Guidelines (EGL)	Lower effluent emissions for existing parameters; Installation of wastewater treatment facilities; Implemented through NPDES permit conditions	Proposal from EPA expected November 2012 and final rule April 2014	2016-2019
Clean Air Act Regulation of Greenhouse Gases (GHG)	Inclusion of GHG in permitting; Projects can trigger BACT for GHG	"Tailoring Rule" applies as of January 2, 2011; New unit NSPS proposed March 2012	2011

significant. Table 3.1 summarizes the current and pending environmental regulations for which Ameren Missouri must implement mitigation measures, along with expectations for compliance requirements for certain potential regulations.

Ameren Missouri's analysis for this update includes assumptions for compliance with particulate emissions standards through upgrades of electrostatic precipitators ("ESP") and particulate matter ("PM") continuous emissions monitoring systems ("CEMS") for existing coal units. A more detailed evaluation of options for environmental compliance at Meramec has been initiated but is not at a stage appropriate for inclusion in this annual update. Implementation of activated carbon injection ("ACI") and mercury ("Hg") CEMS have been included in the analysis for compliance with the MATS mercury standard. Due to the low chlorine content of coal used by Ameren Missouri and the installation of FGD systems at Sioux, compliance with the MATS hydrochloric acid ("HCl") limits is not expected to require additional mitigation. Additional monitoring (CEMS or emissions tests) will also be required for HCl.

Specific mitigation actions for Ameren Missouri's coal-fired fleet are presented in Chapter 5. While mitigation has been included in our analysis for current and certain potential future regulations, further changes in regulations remain likely. The Company continues to monitor the potential for further changes in regulation that may impact resource planning decisions.

3.3 Uncertain Factors

3.3.1 Scenarios

As with the Company's 2011 IRP, a range of market scenarios was defined through combinations of independent uncertain factors. Two independent uncertain factors, or scenario variables, used in both the 2011 IRP and this update are natural gas prices and load growth (Eastern Interconnect). The 2011 IRP also included federal greenhouse gas policy as a third independent uncertain factor. For this update, the Company has chosen to more broadly represent the impacts of environmental and climate policy in terms of retirements of existing coal generation.

By focusing on coal retirements, the Company can consider the potential effects of a broad range of policy considerations and how they manifest themselves in ways that directly impact the values for market variables, such as power prices, while ensuring that the end result of such policy considerations is reasonable. Were the Company to assess the separate probabilities of a host of policies to address specific environmental and climate issues, which would be quite a large undertaking, some combinations may result in impacts to the nationwide coal fleet that do not appear feasible. At the same

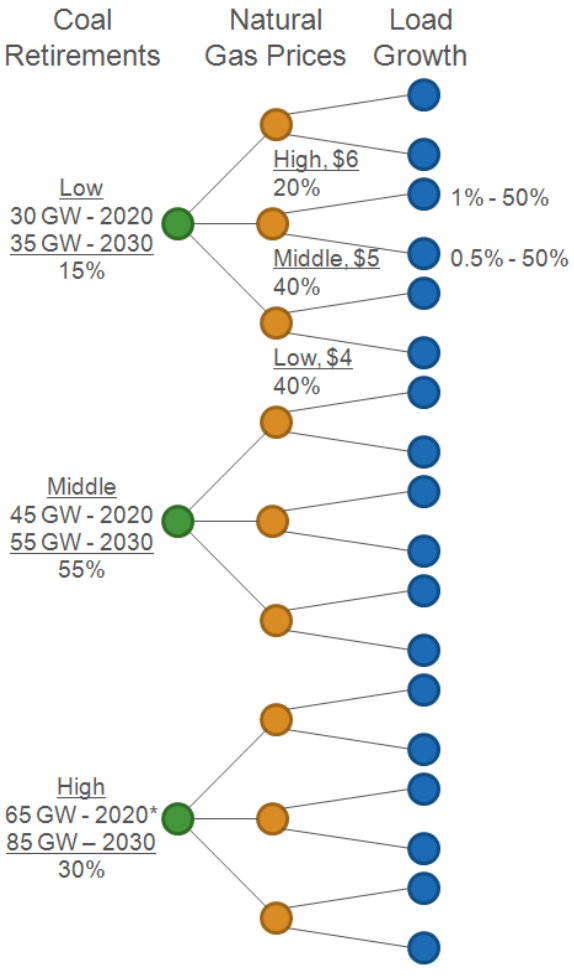
time, this does not preclude the potential for consideration of specific policies that may more directly impact power prices and other market variables. Indeed, the Company has done just that by continuing to include the possibility of carbon policy that results in an explicitly defined price for carbon emissions.

Figure 3.1 shows the new scenario probability tree which is based on environmental regulations, natural gas prices, and load growth. The rationale behind the levels and probabilities represented by the probability tree are discussed further in this section.

Coal Retirements

Given the constantly shifting nature of environmental regulations and the potential for changes in the mitigation options available to address regulations at a plant or unit level, it is problematic to precisely define various scenarios in terms of specific regulations. To understand the impact of environmental regulations on market price forecasts, it is more practical to capture the uncertainty in terms of how the electricity generation fleet responds to environmental regulations, rather than in terms of a range of discrete, explicitly determined environmental regulations. Using this approach ensures that whatever Ameren Missouri's resource plans include with respect to environmental mitigation is not inconsistent with the scenarios we use to evaluate the plans.

Figure 3.1 Scenario Tree



The three levels of coal retirements are generally consistent with the range of industry studies that have aimed to characterize the potential impact of various EPA policies. It is believed that the highest level of retirements would incorporate some explicit carbon policy, and that carbon policy is generically represented by a carbon price. The benefit of using a carbon price is that it is easier to understand the financial impacts of carbon policy. For example, in the 2011 IRP, one carbon policy option was the Federal

Energy Bill, which was characterized as an indirect attempt to mitigate carbon emissions. A Federal Energy Bill type of scenario requires intricate macro modeling to capture the effects on the market prices of electricity. Then, even with this intricate modeling, the effects on utility level resource planning analysis are muted because of the indirect signals sent by such a policy. Furthermore, there become practical constraints in modeling utility-specific resource plans that are explicitly consistent with both a Federal Energy Bill scenario and the other scenarios. Therefore, using a carbon price as an indicative carbon policy provides clear and direct economic signals for utility resource planning purposes. As a result, it avoids introducing the potential for inconsistency between the plans being evaluated and the scenarios used for evaluation. The carbon prices used, while not introduced until 2025 in this update, are consistent with those used in the 2011 IRP.

Again, the goal is to characterize generic assumptions about the effects of environmental regulations instead of trying to predict the explicit regulations. Likewise the assignment of probabilities need not be overly complex. The subjective probabilities need to be consistent with the views of Company subject matter experts. Those experts were tasked with presenting their view of possible coal retirement levels and associated probabilities. In assessing probabilities, it is more important to understand the relative probabilities rather than to focus on the precise probabilities. For example, is one level of coal retirements more or less likely compared to the other levels? Following this more generic approach, it was determined that the lowest level of coal retirements is the least likely given current actions being taken by various utilities and the middle level was the most likely. It was also thought that the highest level was more likely than the lowest level. The final probabilities, included in Figure 3.1, approximate the views of the Company's subject matter experts.

Natural Gas Prices

In an effort to provide a series of natural gas forecasts that reflect an Ameren perspective on potential prices of the commodity, a group of subject matter experts at Ameren have reviewed and developed a common understanding of those drivers in the natural gas industry that influence, affect and drive its price. Following is the Company’s current view on basic fundamentals affecting the market price of natural gas.

Supply – US natural gas production has surged with a significant expansion of domestic resources. Efficiencies in horizontal drilling have continued to reduce gas production costs. New shale basins have proven to hold greater reserves than initial estimates.

Demand – Reduction in demand from the economic downturn has shown to be structural in nature with heavy energy intensive industry moving from US shores. Several directional indicators did help to frame the perspectives on both supply and demand.

Rig Count – Rig count can be an indicator of health of the supply of gas, but with new technologies being deployed by drillers (i.e. horizontal and directional drilling) this indicator is not as helpful as it had been in the past. When a single rig can now drill in several directions for natural gas this efficiency gain often overcomes the lack of increases in rig count.

Fuel Switching – High coal or oil price increases can place pressure on the users of these energy sources to switch to natural gas, putting potential upward pressure on gas prices.

Export Capacity & Potential – The current US market is in an import capacity oversupply situation caused by cheap domestic shale gas production. This will create pressure to re-export LNG that arrives to the US with Global supply/demand factors influencing the potential for exports and upward price pressures.

Economic Health of Producers – The gas industry is very fragmented and diverse and if this highly leveraged group experiences financial stress, a period of consolidation could put upward pressure on the price of natural gas.

Environmental Regulation –Environmental regulations continue to become more restrictive for domestic shale drillers. Should this trend continue and the cost of meeting these regulations rise beyond current expectations, upward pressure would be placed on the market price for natural gas.

Several sources of forward natural gas projections have been reviewed in the determination for natural gas prices. These sources include Pira, Wood Mackenzie, and Bentek, along with the NYMEX Henry Hub market prices. These research services, along with general market knowledge of the natural gas industry, have helped to frame the long term projections used and to provide context to the drivers of the market clearing price of natural gas.

Based on our assessment of the market fundamentals at this time, the Company has reflected a view on future prices for natural gas that are represented by the price levels and probabilities shown in Figure 3.1. Note that the labels on the three levels of gas prices indicate the approximate average real price over the planning horizon. In general, the Company assigns a lower probability to the occurrence of real natural gas prices that exceed $5/MMBtu on average during the planning horizon.

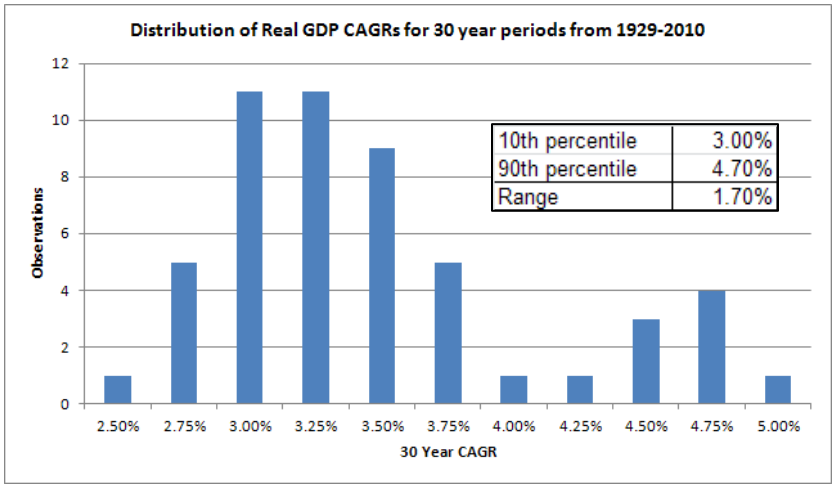
Load Growth

In the probability tree in Figure 3.1, load growth has 2 different value levels – one features a 1% compound annual growth rate ("CAGR") over the IRP 20-year timeframe, with a 50% subjective probability; the other is 0.5% CAGR over the IRP 20-year timeframe, also with a 50% subjective probability. While it is certainly possible that load growth could exceed 1% or fall short of 0.5% over the planning horizon, we have used these two values to represent the distribution of potential load growth for simplicity. A similar approach was used in the 2011 IRP, although the load growth values were different.

These 2 different value levels were derived by estimating the upside and downside risk around the planning case forecast described above, which resulted in a 0.75% CAGR. The risk analysis focused on a macro top down look at risks from two key load growth drivers, GDP growth and the energy intensity of GDP. This approach differed from the more micro bottom up approach used in the 2011 IRP, which used the results of a variety of models developed and run by CRA, described in detail in the 2011 IRP report.

One potential source of upside or downside risk for load growth is GDP growth., To determine the range of risk for GDP growth, analysis of real GDP growth rates for each distinct 30-year period (a timeframe similar to the IRP timeframe) from 1929 to 2010 was conducted. A distribution of values for GDP growth from 1929 to 2010 is shown in Figure 3.2.

Figure 3.2 GDP Growth Rates



In this data, the range of variability in long-term growth, when going from the 10th percentile to the 90th percentile, was 1.70 percentage points. This 1.70 percentage point historical variability in long-term economic growth suggested that the 2012 IRP Update's estimate of GDP growth may vary by +/- 0.85 percentage points.

To translate GDP growth uncertainty to load growth uncertainty, an estimate of elasticity for electricity consumption with respect to GDP growth was developed from a review of national and regional electricity consumption and economic activity. When this 0.33 elasticity estimate was applied to the +/-0.85 percentage points uncertainty range for

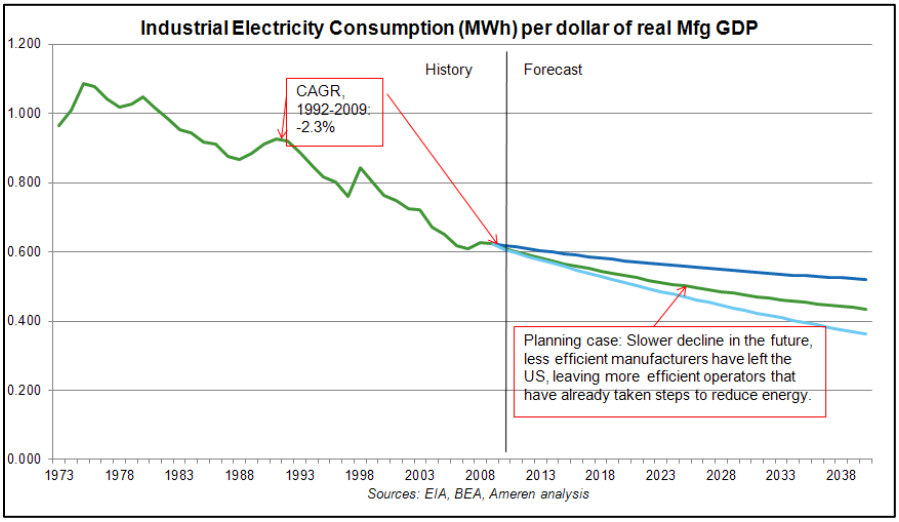
GDP growth, it yields around a +/- 0.25 percentage point of load growth uncertainty. This +/- 0.25 percentage points applied to the 0.75% planning case's load growth produces the 0.5% case and the 1.0% case for load growth.

A second source of upside and downside risk for load growth is the energy intensity of the economy. Results from this second source qualitatively confirm conclusions from analysis of the first source discussed above. Energy intensity can be the manifestation of naturally occurring energy efficiency, changes in the mix of commercial and industrial customer types, changes in customer behavior, or any of a number of other possible factors. Analysis of this factor was separated into 2 sectors, industrial and non-industrial, due to different scales of energy intensity and different forces at work in these different sectors. However, declines have been occurring over time in both sectors.

The industrial sector's energy intensity is shown in Figure 3.3. The energy intensity for the planning case shows a slower decline in the future than in the past.

The reason is that it is assumed that the least-efficient manufacturers have already been driven out of business or left the country. This leaves the more efficient manufacturers, which have already taken some steps to reduce energy consumption.

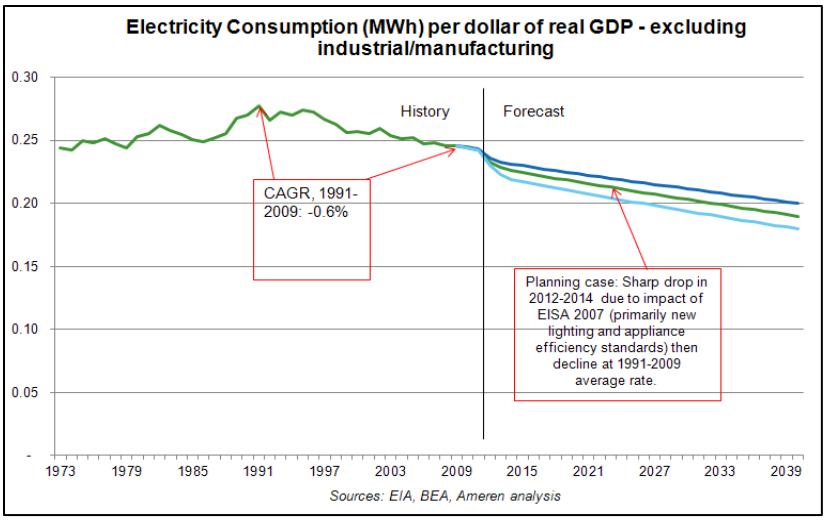
Figure 3.3 Energy Intensity - Industrial Sector



One alternative to the planning case in this sector is that cheaper competitive economies to which some US manufacturing has moved could mature and become more expensive, and/or the economics of shipping manufactured goods to the US could become less favorable, either one of them leading to a higher-than-planning-level of energy intensity as manufacturers return to domestic production. A different alternative is that as competitive economies achieve better economies of scale or other innovations, some of the marginal remaining US manufacturers may move or close in response, leading to a continuation of historical trends in industrial energy intensity.

The non-industrial sector's energy intensity is shown in Figure 3.4. After a sharp drop in the 2012-2014 timeframe, due primarily to lighting efficiency standards required by the Energy Independence and Security Act of 2007 ("EISA"), its energy intensity is expected to decline at the 1991-2009 average rate for this sector.

Figure 3.4 Energy Intensity – Non-industrial Sector



One alternative to this sector's planning case is that Congress repeals some or all of the unpopular (amongst some) lighting and efficiency standards in EISA, leading to higher-than-planning-level energy intensity. Another alternative is that commercial businesses become more efficient than expected due to unknown innovations and/or due to competitive/financial reasons, leading to lower-than-planning-level energy intensity.

Both of these uncertainties, economic and energy intensity, suggest potential uncertainty in load growth of approximately +/- 0.25% per year. However, the two factors are not necessarily expected to both move in the same direction at the same time and at their most extreme magnitudes. For the subjective probabilities of each occurring, it was assumed that the combination effect would likely range between +/- 0.25% in total. This range of uncertainty applied to the 0.75% modeled growth resulted in the 0.5% case and the 1.0% case.

While the updated planning case load forecast results in projections of annual load growth of approximately 0.75% per year, it is well within the realm of possibility to see load growth reach levels as high as 1% or 1.25% per year. From a historical perspective, 1.25% load growth would in fact be relatively modest. From 1996-2009 residential and commercial load grew at 1.8% per year and 2.0% per year respectively. Industrial load also grew by 2.0% per year in the early part of that time period (1995-2001) before a decline beginning with the 2001 recession. A return to growth rates from this recent historical experience would produce load growth well in excess of 1.25%.

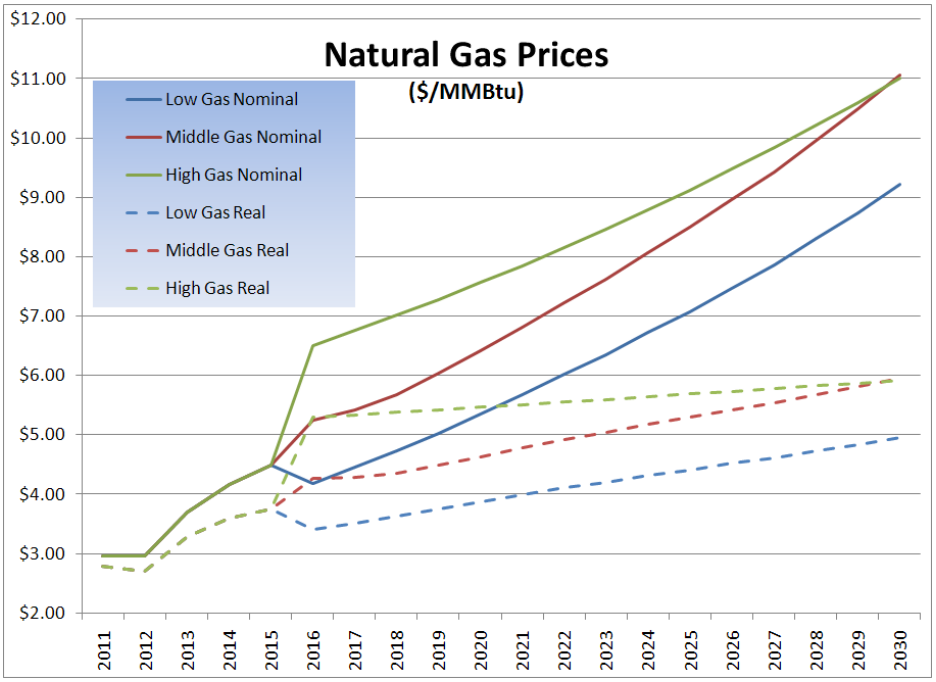
In addition, there are a number of key uncertainties that could push load growth higher, including greater levels of energy intensity. A return of a significant amount of domestic manufacturing as overseas labor costs increase as those economies develop could reverse the trend of declining industrial energy intensity. The commercial sector could

become more energy intense if economic growth is driven more from the healthcare and information technology sectors, which have higher inherent energy intensities. The residential sector could become more energy intensive with the adoption of electric vehicles or a new wave of innovation that brings even more previously unimagined plug loads like the now ubiquitous smart phones, DVRs, tablets, and the like.

3.3.2 Natural Gas Price Forecasts

Figure 3.5 shows price forecasts for natural gas corresponding to the three levels shown on the scenario tree in Figure 3.1. Prices are shown in both nominal and real terms. These gas price forecasts were used for the scenario modeling described in the next section to develop corresponding forecasts for wholesale electric power prices.

Figure 3.5 Natural Gas Price Forecasts



3.3.3 Scenario Modeling

For the 2011 IRP, Ameren Missouri retained CRA to perform scenario modeling and produce forecast of prices for wholesale electric power and other commodity variables. The forward price forecasts used in this IRP annual update were developed with modeling software provided by Ventyx and commonly referred to as “Strategic Planning” or “MIDAS”. This detailed simulation modeling software provides a dispatch production cost projection that utilizes load, fuel and many other projections. To provide the detailed data needed to populate the Strategic Planning model for purposes of developing a forward electric price forecast, Ventyx provides a service that incorporates all the assumptions that are used in their Power Reference Case.

The Ventyx Power Reference Case is a product that uses an iterative integrated process to determine the impacts that capacity additions and retirements have on power and natural gas markets. This process also considers the renewable energy expansion necessary to meet state Renewable Portfolio Standard ("RPS") targets.

The Fall 2010 Reference Case used assumes no federal climate legislation in the base assumptions. Similarly, Ventyx does not assume the implementation of a federal renewable energy standard. However, individual state RPS mandates are assumed to be met through the study horizon. Ventyx's Fall 2010 Federal Environmental Legislation Case assumes the implementation of a federal GHG legislation and a national renewable energy standard beginning in 2015.

Three of the assumptions used in the Ventyx Fall 2010 Reference Case were changed and varied to reflect the variability defined in the scenarios described in section 3.3.1 – load growth, natural gas prices, and coal retirements – and represented by the probability tree in Figure 3.1.

The process of determining which coal plants should be retired started with a review from current news sources regarding announced coal plant retirements. This list was then compared to what was in the existing Ventyx dataset. If the coal unit retirement dates needed to be brought into alignment with recent announcements, a change was made. This dataset was then compared to the total MW's of coal generation that need to be retired by the 2020 and 2030 time frames to match a given scenario. If additional coal retirements were required to meet the targets, they were brought forward from future years from the existing coal plant retirements in the Ventyx dataset.

Finally, to reflect the inclusion of a carbon price in the high retirements scenario, a carbon price was explicitly modeled. The resultant power prices for the modeled scenarios are presented in section 3.4.

3.3.4 Independent Uncertain Factor Updates

The Company updated its value ranges for the independent uncertain factors identified in the 2011 IRP. Coal price uncertainty was added to the list of uncertain factors modeled and is discussed in section 3.3.5.

Project Cost Uncertainty

In its 2011 IRP, Ameren Missouri used the uncertainty distributions provided by Black and Veatch to develop its low, base and high project cost values for each resource type. To be able to provide more differentiation between different supply side types and more

transparency into the process, Ameren Missouri developed uncertainty distributions with the help of its own subject matter experts.

A meeting was held with five internal experts to explain the purpose and how their input would be used in developing the high/base/low values. A survey for the different supply side resources and environmental compliance/conversion options was sent to the experts following the meeting. The experts were given the expected value of each resource type and were asked to provide:

- Upside Risk – a measure between 1 and 5 for incurring a total project cost higher than the expected value. (5 meaning higher cost is much more likely than 1)
- Downside Risk – a measure between -5 and -1 for incurring a total project cost lower than the expected value. (-5 meaning lower cost is much more likely)
- Maximum – higher bound for the project cost so that 90% of the time total project cost will be equal or less than this value; 90th percentile
- Minimum – lower bound for the project cost so that 10% of the time total project cost will be equal or less than this value; 10th percentile

Table 3.2 shows the project cost ranges along with the ranges used in the 2011 IRP. Note that cost estimates for new resources are in 2012 dollars per kilowatt, and cost estimates for environmental retrofits are in millions of dollars.

Table 3.2 2012 Annual Update vs. 2011 IRP Overnight Project Costs

$2012	Size	2012 Annual Update			2011 IRP		
Resource Type ($/kW)	(MW)	Low	Base	High	Low	Base	High
Nuclear (Conventional)	1,600	4,238	4,901	5,941	3,875	4,613	5,444
Nuclear (Modular)	480	3,936	4,777	5,719	-	-	-
Combined Cycle	600	1,071	1,258	1,445	1,077	1,260	1,512
Simple Cycle	692	649	811	988	714	835	1,002
Wind	800*	1,683	2,148	2,608	1,871	2,190	2,632
Conversion/Compliance Option ($MM)		**Low**	**Base**	**High**	**Low**	**Base**	**High**
SNCR		7.0	8.1	9.2	6.9	8.1	9.7
FGD - Rush Island		578	691	812	579	677	814

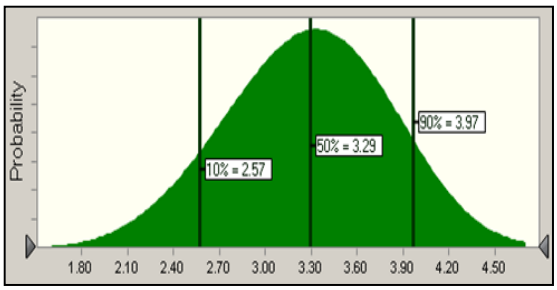
* Nameplate capacity; regulatory capacity credit is 14.9% of nameplate.

Long-term Interest Rates Uncertainty

The same process used in the 2011 IRP was used for estimating uncertainty for long term interest rates, using updated values.

First, a probability distribution for recent years' (2008-2011) 10-year Treasury yields was created, as shown in figure 3.6. Low, base, and high values were obtained from its 10th, 50th, and 90th percentiles. These values for 10-year Treasury uncertainty are shown in column A in Table 3.3, and are very similar to comparable values used in the 2011 IRP.

Figure 3.6 10-year Treasury Uncertainty



Next, a review of 38 recent electric utility financings was used to determine an electric utility "adder" over 10-year Treasuries (+1.74%). This was added to the low, base, and high 10-year Treasury uncertainty values, as shown in Table 3.3 in column B. The new adders are lower than those in the 2011 IRP report, reflecting a recently lower interest rate environment.

Table 3.3 Long-term Interest Rate Uncertainty

Low, Base, High Values for Long-Term Debt Interest Rates						
	10-Year Treasury Rate	+ Average Adder for Electric Utility financings	= Prelim Long-term Debt Interest Rate	+ Adder for rising rate environment during IRP horizon	**= Final Long-term Debt Interest Rate**	Probability
Low	2.57%	1.74%	4.31%	0.00%	**4.31%**	*20%*
Base	3.29%	1.74%	5.03%	1.25%	**6.28%**	*60%*
High	3.97%	1.74%	5.71%	2.50%	**8.21%**	*20%*
	A	B	C=A+B	D	E=C+D	

Next, projections for changes in 10-year Treasury yields between 2012 and years 2018-2022 were taken from a review by Blue Chip Financial Forecasts, which showed a 2.50 percentage point change as shown in Table 3.4. This change was higher than that used in the 2011 IRP, but reflects that recent interest rates are lower than during the 2011 IRP, thus resulting in a larger comparable change in future years.

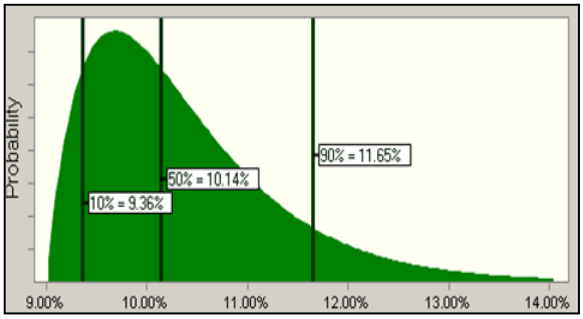
Table 3.4 Yield Changes

10-year Treasuries yield	
Average 2018-2022:	5.20%
Year 2012	2.70%
Pct Pt Change	2.50%

As in the 2011 IRP, the full amount of this change in Treasuries was added to the high case, while half was added to the base case, and no adjustment was made to the low case, as is shown in column D in Table 3.3. The final low, base, and high values for long term interest rates are shown in column E in that same table, along with their respective probabilities.

Return on Equity Uncertainty

Figure 3.7 Starting Value Return on Equity



The same process used in the 2011 IRP was used for return on equity uncertainty. However, in this case only the values for a rising interest rate environment were updated, leaving the other components unchanged. First, a probability distribution of returns on equity was developed, as shown in Figure 3.7. Next, an adder was summed together with the "starting values" so that the base value at this step would be around the current value for return on equity. Finally, an adder was included to adjust for a rising interest rate environment, the same adder as discussed in the prior section on long term interest rate uncertainty and shown in column D in Table 3.5.

Table 3.5 Return on Equity Uncertainty

Case	Starting Value	Adder to place base at current	Prelim Value	Adder for rising rate environmt	Final value	Probability
Low	9.36%	0.80%	10.16%	0.00%	**10.16%**	*20%*
Base	10.14%	0.80%	10.94%	1.25%	**11.58%**	*60%*
High	11.65%	0.80%	12.45%	2.50%	**13.73%**	*20%*
	A	B	C=A+B	D	E=C+D	

As with long term interest rates, the full change was added to this uncertain factor's high case value, while half was added to the base case, and no adjustment was made to the low case. This sequence of steps and the associated values are shown in Table 3.5.

DSM Cost and Performance Uncertainty

While the evaluation of plans includes only the Bridge DSM portfolio, uncertainty was included for the cost and performance of this portfolio as it was for the portfolios evaluated in the 2011 IRP. A range of +/- 10% was used for cost, with probabilities of 20% for each of the low and high values. Because all plans evaluated include the Bridge DSM Portfolio, the uncertainty in DSM cost and performance does not influence the relative results of the plans.

3.3.5 Coal Price Forecasts

Ameren Missouri has included coal prices as an additional critical independent uncertain factor in its IRP analysis pursuant to the Commission's order on special contemporary issues. Ameren Missouri's Fuels team provided price curves for three major types of coal, each with a base forecast and a high forecast. The three coal types for which price forecasts were prepared are Illinois Basin ("ILB") coal, Power River Basin ("PRB") coal with a sulfur content of 0.8 lb/MMBtu, and PRB coal with a sulfur

content of 0.55 lb/MMBtu or less. The basis for each coal forecast is described below, and the price forecasts are presented at the end of this section.

Long Term Coal Supply/Demand Fundamentals Overview

The two biggest fundamental drivers affecting Ameren Missouri's long term coal price outlook are EPA regulations in the U.S. and global demand for coal. China and India are experiencing rapid growth in their economies and in energy demand. This growth is driving U.S. coal exports from the eastern U.S. (Appalachian Basin), from the Illinois Basin, and from the Powder River Basin. U.S. exports include steam coal and metallurgical coal. Short term coal prices are influenced by power demand, coal inventories, railroad performance and natural gas prices. Current short term coal markets are in decline compared to when the 2011 IRP was filed.

EPA released the Cross States Air Pollution Rule on July 7, 2011 to replace the Clean Air Interstate Rule ("CAIR"). The CSAPR is the final and renamed version of the Clean Air Transport Rule ("CATR"). The CSAPR requires 27 Midwestern and eastern states to reduce power plant emissions by 73% for sulfur dioxide (SO_2) and 54% for nitrogen oxides (NO_X) from 2005 levels. However, the CSAPR, which was scheduled to take effect on January 1, 2012, was stayed by the U.S. Court of Appeals on December 30, 2011.

The environmental assumptions reflected in the development of coal price assumptions are: (a) CSAPR or something similar will remain in effect long-term despite legal challenges, (b) implementation of the MATS by 2016, (c) EPA's review of the ozone National Ambient Air Quality Standards ("NAAQS") will be delayed until after the 2012 election, and (d) the effective date of new greenhouse gas legislation will be delayed beyond this decade.

Additionally, the Japanese nuclear incident in 2011 represents a potential driver for an increase in global coal demand as Japan, Germany and other European countries reduce nuclear energy capacity by keeping nuclear plants on shutdown mode after outages.

PRB Base Case Methodology

Ameren Missouri's currently expected fuel prices represent the Base Case for PRB pricing. This Base Case represents Ameren Missouri's perspective of the generic (0.8 lb/MMBtu SO_2) PRB market even though the majority of our hedged coal through 2017 is from ultra-low sulfur (0.55 lb/MMBtu or less) sources.

PRB High Case Methodology

The High Case for PRB coal is based on the high marks posted during the past 18 months in the Over-The-Counter ("OTC") market for 2012, 2013 & 2014, which represents the extent of PRB market transparency at the time analysis was conducted. The OTC market is posted and reported out 2 years in several market publications. The 3rd year, 2014, is taken from ICAP broker sheets. The increase in these high marks from 2012 to 2013 is $1.70 per ton, and from 2013 to 2014 is $1.80 per ton. Therefore, we extrapolated the high PRB curve to 2030 with an annual increase of $1.75 per ton, which would account for fundamental increases in mining costs from materials, fuel, and geological conditions (e.g., increasing strip ratios).

PRB Fundamentals

Long term demand for PRB coal in the US may be affected by declining natural gas prices and increasing supply. Appalachian coal supply to domestic markets is expected to shrink due to tighter mine regulations and increasing mining costs, along with increasing exports out of the eastern seaboard. ILB supply is expected to increase to backfill Appalachian demand and to supply export markets, and PRB is expected to backfill the ILB demand.

Several factors are expected to drive PRB production costs higher. First, strip ratios (overburden vs. coal seam) are expected to continue to increase as mining progresses from east to west in the basin. These ratios have increased from 3 to 4 (33% increase) over the past 10 years and are expected to increase another 25% over the next 10 years. Second, government regulations continue to increase reclamation costs, severance taxes, and coal lease fees. Third, the cost of materials and supplies such as diesel fuel, explosives, and haul truck tires continue to increase. Finally, haul distances from coal pit to load-out are expected to increase.

Low Sulfur PRB Fundamentals

****HC****

NP

[redacted]

****HC****

The PRB produces more than 400 million tons of coal per year. Only two mines in the basin currently meet the ultra-low sulfur levels – Peabody's North Antelope Rochelle Mine ("NARM") and Cloud Peak's Antelope Mine. Arch has recently announced that its Black Thunder Mine will begin segregating its products to supply a portion of the mine into the LS PRB market. Together these LS PRB sources will represent about 200 million tons of annual production, or about half of the PRB.

Illinois Basin (ILB) Base Case and Fundamentals

Similar to the PRB Base Case, this ILB Base Case is based on the expected Ameren Missouri fuel prices. Approximately 20% of the coal supply for the Sioux Energy Center is sourced from the ILB.

Illinois Basin production, currently at 125 million tons per year, has made a resurgence over the past few years as several new mines have been developed in central and southern Illinois and in western Indiana and Kentucky. The ILB and the PRB will continue to increase output in the next few years while eastern US coal supplies, Central Appalachia ("CAPP") and Northern Appalachia ("NAPP"), shrink. CAPP coal serves both the steam markets and the metallurgical coal markets (used for steelmaking) but are expected to lose production capacity due to the increasing costs associated with more stringent mining regulations and permitting issues along with geologic challenges.

Figure 3.8 PRB and LS PRB Price Forecasts **HC**

[redacted]

Coal Price Forecasts

HC

[redacted]

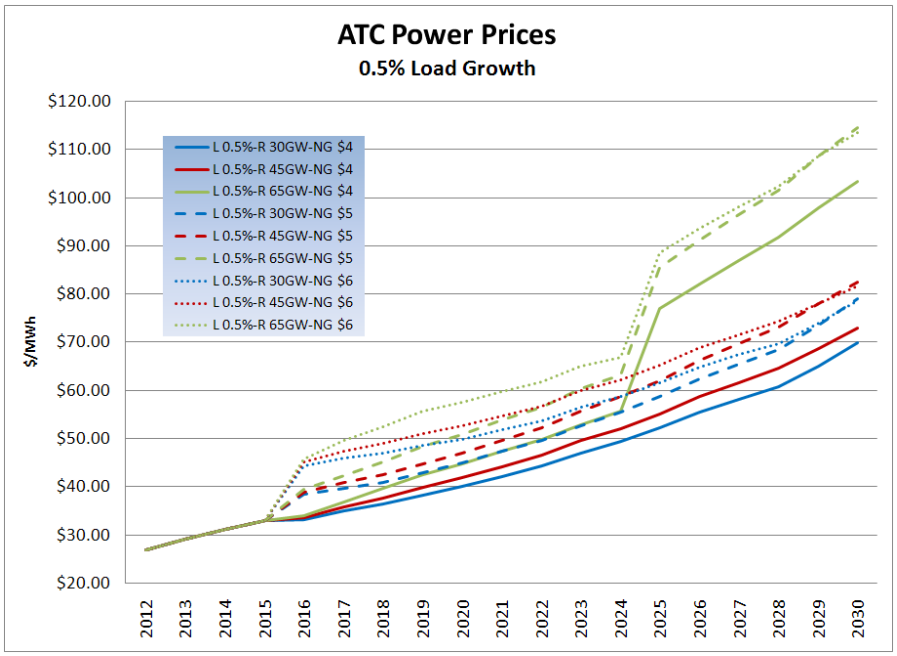
Figure 3.9 Coal Delivery Price Forecasts **HC**

[redacted]

HC

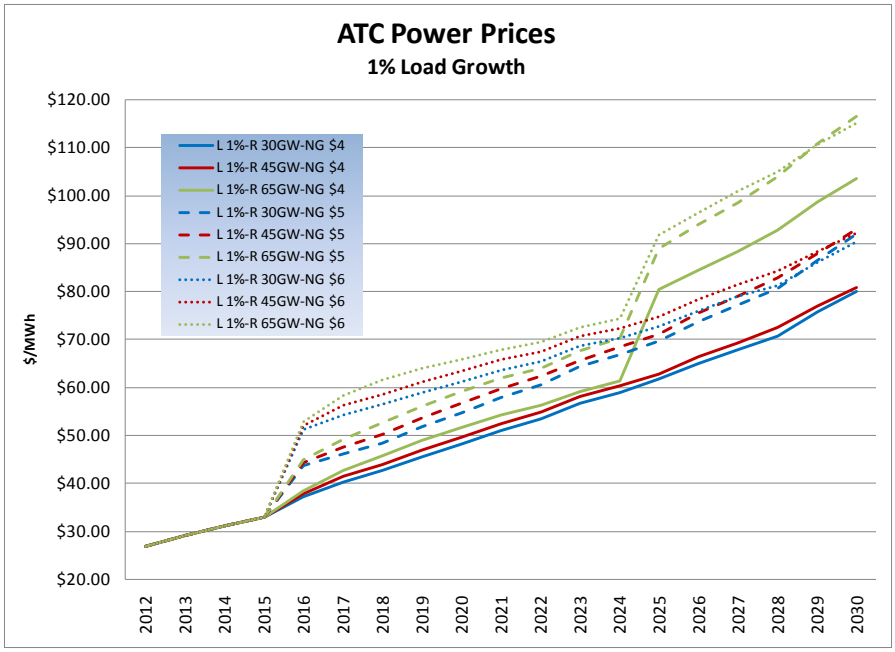
3.4 Power Price Forecasts

Figure 3.10 ATC Power Prices for 0.5% Load Growth



For the ranges of forecasts of dependent uncertain factors represented in Figure 3.1, power price forecasts were developed using the method described in section 3.3.3. The results are 18 unique forecasts for wholesale power prices, which are shown in Figures 3.10 and 3.11. Figure 3.10 shows price forecasts for scenarios with 0.5% load growth, and Figure 3.11 shows prices forecasts for scenarios with 1% load growth. Note that the prices for scenarios including high coal retirements

Figure 3.11 ATC Power Prices for 1% Load Growth



reflect the inclusion of an explicit price on carbon emissions starting in 2025, resulting in a significant step change in power prices. These power prices were then used, along with the ranges of dependent uncertain factors described in sections 3.3.4 and 3.3.5, for analysis of environmental compliance options (Chapter 5) and resource plans (Chapter 6). In general, the power price forecasts produced for this update are lower than those produced by CRA's modeling for use in the 2011 IRP.

3.5 Nuclear Fuel Price Forecast

Ameren Missouri engaged the Ux Consulting Company ("UxC"), a leading firm in the field of nuclear fuel market consulting, supply and demand analysis and price forecasting, to provide a forecast of nuclear fuel prices for use in its IRP Annual Update, a role they fulfilled in both 2008 and 2011 IRP filings.

UxC provided annual price forecasts through 2025 for uranium ("U3O8"), conversion ("UF6"), enrichment ("SWU"), and fabrication front-end fuel components. The UxC price forecasts are generated by considering both market fundamentals (supply and demand) as well as an examination of short-term market behavior on the part of speculators and others that can exacerbate price trends set in motion by underlying supply and demand. The same forecasting methodology was used with each of the components; however, UxC forecasted spot prices for uranium and conversion, while it forecasted base prices for new term contracts for enrichment and fabrication.

Fundamental analysis addresses the level of prices needed to support new production as well as the supply/demand balance in the long-term market. This analysis captures the pressure placed on available long-term supplies and the degree of competition that exists for long-term contracts, which gives an indication of the relative pricing power of

producers. The fact that the published long-term price is above marginal costs attests to the situation where a simple marginal cost price analysis does not necessarily capture the current market dynamics at any point in time.

As before, UxC continues to focus on the demand for production, which takes total reactor requirements and nets out secondary supplies such as Highly Enriched Uranium ("HEU") feed to derive the underlying need for production. Like reactor requirements, the demand for production is growing. In fact, it is growing more quickly than requirements, since the availability of inventory supplies is generally shrinking over time, and HEU feed is earmarked to disappear from the market by 2014. Also, inventory demand is growing, which has the tendency of moving requirements (and demand for production) forward in time.

UxC also focuses on the expected balance of supply and demand in the spot market, since they are forecasting a spot price for uranium and conversion. Here, the role of speculators and financial interests become more important as they can represent additional demand. Financial interests may accumulate inventories, thus adding additional supply sources to the spot market.

Even more so than with the long-term price, the spot price can vary considerably from production costs because it is an inventory-driven price. Ultimately, spot prices are linked to a production-cost based price since an excess/shortage of production causes inventories to rise/fall, and this, in turn, causes changes in the spot price, which affects prices received by producers by virtue of it being referenced in long-term contracts.

For this analysis, UxC's Base case forecasts were used, which extend through 2025. A mid-point value (simple average price) per year is also provided to aid those customers that need a single price point per year forecast. Figure 3.12 shows the nuclear price forecasts for a new nuclear unit used in the 2011 IRP and 2012 Annual IRP Update.

Figure 3.12 Nuclear Fuel Price Comparison **HC**

For forecast periods beyond 2025, UxC has suggested using the mid-point price level in 2025 and applying a specific escalation rate that is appropriate with either current

market conditions or the client's expectations. At no point in the planning horizon is there expected to be additional restrictions on the use of nuclear fuel for the production of electricity.

The Fukushima event has reduced demand, lessening the tightness in the market for enrichment services, resulting in a more competitive market and any supply/demand gap being pushed out a few years. Using Urenco based centrifuge technology, the plants that are expanding or new are:

- Areva's current enrichment plant in France, with old technology, is being replaced with a centrifuge based facility,
- Urenco's European enrichment plants are expanding,
- Urenco's National Enrichment Facility in New Mexico was recently built, is in production and continued expansion.
- Areva is proceeding with plans for a new enrichment plant in Idaho.

While most of this expansion is sold, additional expansion may become available for sale but it is not expected for deliveries prior to 2015. However, excess capacity may be available in the next 2-3 years due to situations in Germany and Japan following the Fukushima incident.

3.6 Capacity Price Forecast

Ameren Missouri has updated its forecast for capacity prices. These capacity prices were used for avoided capacity cost estimates in Ameren Missouri's recent MEEIA filing.

Figure 3.13 Capacity Price Forecast **HC**

HC

NP

[redacted]

****HC****

3.7 Energy and Peak Forecasting

For its 2011 IRP, Ameren Missouri forecasted an expected compound annual growth rate in retail energy sales of 1.09%. This expected growth was identified as the "planning case". The analysis also included a detailed assessment of uncertainties that could contribute to actual load growth deviating from the expected path. Consideration of these uncertainties resulted in a range of outcomes that spanned from 0.33% to 1.68% annual load growth. For the 2012 update to the IRP, a number of updates were made to the planning case that will be described further in the coming section. The end result of the updated analysis is a reduction in expected growth over the forecast horizon to approximately 0.75% annual load growth. Further analysis was done to create scenarios around the expected growth. For purposes of this update, rather than conduct a detailed micro level analysis similar to that done for the 2011 IRP, an analysis was done of the macro-level drivers of load. Uncertainty in these drivers produce estimates of likely high and low load growth (absent further DSM efforts) ranging from approximately 0.5% to 1.0%. Actual load growth in the future could be outside this range. Because various factors can influence load growth, it is important to consider a range of possible values for long-term planning.

3.7.1 Updates/Adjustments

The planning case load forecast was produced by running the same econometric and “statistically-adjusted end use models” that were discussed in detail in the 2011 IRP filing in section 3.1.4, “Energy Forecasting.” However, before re-running these models, several updates or adjustments were made since over a year had passed since the analysis was performed during early 2010 for the 2011 IRP.

Following is a summary of four updates or adjustments in preparing the 2012 IRP Annual Update:

- Values for the models’ driver variables were updated using the latest values from Ameren Missouri's economic vendor, Moody’s Analytics
- The 30-year normal weather calculation was updated to include data from the years 1981-2010 in place of the years 1971-2000
- Adjustments were made to loads to account for historical energy efficiency impacts, so that “reconstituted” loads could be used in the models

- Models were re-estimated to include 20 months of actual sales data that had occurred since preparation of the 2011 IRP forecast

Updated Economic Driver Values

For the 2012 IRP Update, the same economic indicators used in the 2011 IRP analysis were used as independent variables (driver variables) in our energy forecasting process. However, updated values were obtained from the data provider, Moody's Analytics for two reasons. First, a portion of the time period used in the 2011 IRP forecast period has passed, and secondly, forecasted economic conditions in the remaining portion of the forecast period have changed since the 2011 IRP was performed in early 2010.

An example of changed economic conditions is that when the 2011 IRP load forecasting analysis was being prepared in early 2010, the US economy had recently emerged from a recession that ended during 2009, and a rebound in growth was expected to occur. However, since then, the path to recovery has been more difficult and slower than expected, so updated economic driver forecasts used in this update reflect these updated economic conditions.

Table 3.6 Forecast Revisions

MacroEconomic Advisers Projections

Comparing a forecast with that of 1 year earlier

US GDP growth, percent		
Issued	*2011*	*2012*
09/2011	1.3	2.6
09/2010	3.7	4.2
	-2.4	-1.6
Issued	*2010*	*2011*
09/2010	2.3	3.7
09/2009	4.0	4.0
	-1.7	-0.3
Issued	*2009*	*2010*
09/2009	-0.4	4
09/2008	2.8	3.6
	-3.2	0.4

US Housing starts, 000's		
Issued	*2011*	*2012*
09/2011	594	709
09/2010	830	1192
	-236	-483
Issued	*2010*	*2011*
09/2010	583	830
09/2009	1041	1419
	-458	-589
Issued	*2009*	*2010*
09/2009	624	1041
09/2008	951	1255
	-327	-214

While revisions to economic variables' historical and forecasted values happen routinely, the frequency and amount of downward revision during the time between IRP analyses was notable. For example, Table 3.6 shows some original and revised projections from another one of Ameren Missouri's economic consultants, Macroeconomic Advisers ("MA"), from which we receive national level economic data.

During the time between the 2011 IRP filing and the 2012 IRP Update, MA's original 1-year-ahead and 2-years-ahead forecasts of some key driver variables were revised downward by significant amounts: GDP growth rates were revised downward by 1 to 2 percentage points and housing starts were slashed by 30+%. These downward revisions illustrate that economic performance in 2010 and 2011 was worse than expected for those years at the time of the preparation of the 2011 IRP filing.

Returning to data from Moody's Analytics for use in the IRP filings, Table 3.7 shows the Compound Annual Growth Rate ("CAGR") from 2011 to 2030 for key driver variables in this update, and the classes that they generally impact.

Table 3.7 Updated Values of Driver Variables

Economic driver	*CAGR, 2011-2030*	Class impacted
Population	0.5%	Residential
Households	0.8%	
Real Personal Income	2.3%	
GDP	2.9%	Commercial
Employment	1.0%	
GDP for Manufacturing	4.1%	Industrial
Employment for Manufacturing	0.5%	

For the load forecast of residential class energy sales, service territory population, households, and personal income were used as driver variables. For forecasts of commercial class sales, service territory GDP and employment disaggregated by major industry group (such as financial activities, educational & health services or professional & business services) were used as driver variables. For the forecast of industrial class sales, manufacturing employment and GDP were used as driver variables.

New 30-year Normal Weather

Consistent with the period used to describe normal weather by the National Oceanic and Atmospheric Administration ("NOAA") at the time the forecast was prepared, Ameren Missouri utilized temperatures for the 1971-2000 period to calculate its normal weather variables for the 2011 IRP forecast. At the time of the 2012 IRP Update, NOAA had updated its normal calculations to encompass the years from 1981-2010. Ameren Missouri similarly re-calculated its normal weather variables over this time period.

Table 3.8 shows a comparison of the monthly cooling degree days ("CDDs") and heating degree days ("HDDs") for these two 30-year periods. The "Total" row of the table shows an increase of 118 CDDs and a decrease 270 HDDs for non-leap-years by moving to this newer set of 30-year weather normalization data.

Table 3.8 Update of Normal Weather Dataset

	CDDs			HDDs		
	1971-2000	1981-2010	Change	1971-2000	1981-2010	Change
Jan	0	0	0	1,128	1,049	-79
*Feb**	*0*	*0*	*0*	*864*	*831*	*-32*
Mar	5	6	1	643	620	-23
Apr	24	33	9	321	299	-22
May	98	112	14	98	84	-14
Jun	284	306	22	8	7	-1
Jul	425	445	19	1	0	0
Aug	366	401	35	1	1	0
Sep	173	185	12	56	47	-10
Oct	29	34	5	269	259	-10
Nov	2	2	0	619	574	-44
Dec	0	0	0	990	956	-34
Total	**1,407**	**1,524**	**118**	**4,997**	**4,727**	**-270**
**Feb, if Leap Yr*	*0*	*0*	*0*	*889*	*831*	*-58*
Total if Leap Yr	*1,407*	*1,524*	*118*	*5,023*	*4,727*	*-296*

Having more CDDs in the new weather normalization dataset means expectations of warmer summers and more cooling load than before, all else being equal. Having fewer

HDDs in the new weather normalization dataset means expectations of warmer winters and less heating loads than before, all else being equal.

"Reconstituted" Loads

The load forecast models use historical actual loads' relationships to the driver variables to build projections of future loads. It is important that the stream of actual historical loads are consistent with the driver variables used to model them.

At the time of the 2011 IRP forecast, only seven months of actual loads used in the modeling process had any energy efficiency program impacts, and those impacts were relatively small due to the ramp up of programs. The total impact of these 7 months is shown in the first row of Table 3.9.

Table 3.9 Energy Efficiency Impact, MWHs

# months	Year	Residential MWHs	Commercial MWHs	Industrial MWHs	Total MWHs
7	2009	1,338	7,681	2,175	11,193
12	2010	64,756	53,135	12,951	130,842
8	2011	102,834	88,043	20,211	211,088

A year and a half later, when the load forecasting analysis for this update was performed, there were three times as many months of actual load results with actual energy efficiency impacts. More importantly, these impacts were considerably larger than those in the earlier seven months' data, which is seen by comparing the first row with either the second or the third rows in any class. Thus at the time of this update, the full dataset of 27 months was available with more comprehensive and more "mature" data.

The set of load forecast driver variables was not updated to include the impacts of Company sponsored energy efficiency. Specifically, the saturation and efficiency levels used in the Statistically Adjusted End-Use modeling are, as described more fully in the IRP 2011 load forecast section, derived from a combination of secondary data provided by EIA via the consulting firm Itron and primary data from the 2009 Market Potential Study conducted by Ameren Missouri and its consultant Global Energy Partners. Neither of these sources would have reflected in their base case assumptions any new DSM programs by Ameren Missouri. Therefore, to use loads impacted by Company programs with end-use assumptions that do not reflect such programs would result in a mismatch in the independent and dependent variables in the forecast model.

For this reason, it is better to produce a forecast of loads from historical actual loads that have had the energy efficiency impacts from historical programs added back to the loads, and then deduct from this forecast the projected impacts of the historical programs on future loads.

Thus in the 2012 IRP Update, this "reconstituted" load dataset was used to produce a load forecast excluding energy efficiency. Then a "net" load forecast was produced by deducting from it the future impacts associated with historical energy efficiency programs.

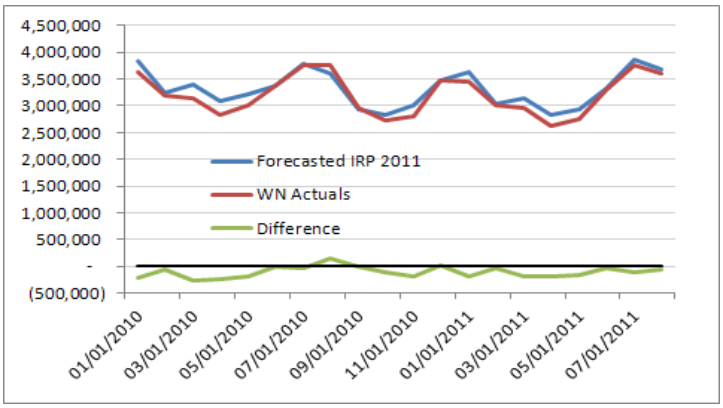
Newly Available Actual Loads

The work on the load forecast for the 2011 IRP was performed in early 2010. In that analysis, data for December 2009 was the most recent month of actual loads used to build the relationships between historical actual loads and the driver variables. However, with analysis for the 2012 IRP Annual Update taking place in late 2011, actual loads to build the relationships and coefficients in the 2012 Update's models were available up to August, 2011. So while the endpoint for both analyses remained year 2030, the number of actual values used in the estimation process was increased.

Another issue with having newly available actual values for a portion of the forecast horizon from the 2011 IRP is that the actuals have come in lower than forecasted in the 2011 IRP, necessitating some adjustments to the models. These lower actuals are at least partly a reflection of the economic conditions in 2010 and 2011 not living up to the expectations for economic recovery that existed when the 2011 IRP analysis was being performed.

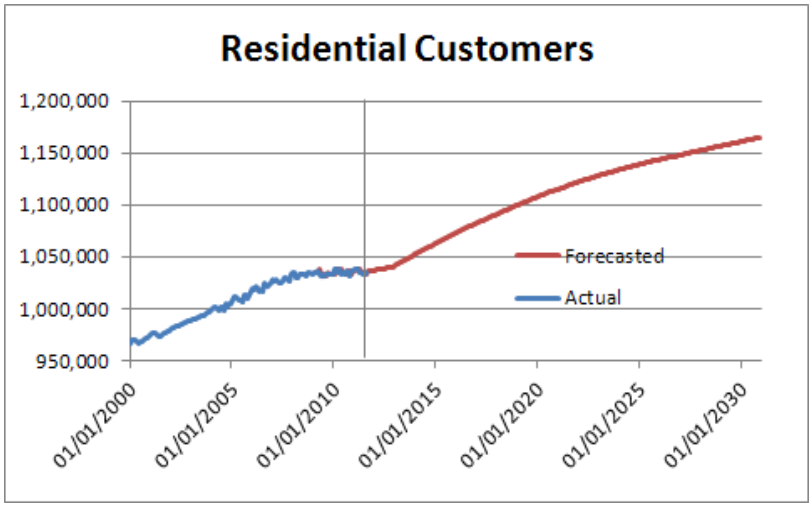
In the early portion of the 2011 IRP filing's load forecast, where some actual values have now replaced forecasted values due to the passage of time, actual monthly loads were on average 100,000 MWH's lower than forecasted, or 3.3% lower, as shown in Figure 3.14. This means that various adjustments were necessary to improve the fit of these models to the newly available actuals. If no adjustments were made, the early months of the updated forecast would not be consistent with the newly available actuals.

Figure 3.14 Actuals Below Prior Forecasted Loads



An example of how adjustments allowed a forecast of residential customers to better align to the newly available actuals that were lower than the prior trend is shown in Figure 3.15. For this forecast, an autoregressive model was used to predict the customer counts in the first year of the forecast horizon. Beyond that point, the model was blended with an econometric forecast that is based on the Moody's Analytics projections of service territory households. The chart demonstrates that this methodology was successful in making a smooth link between the trends exhibited by the last few actual values (blue line) and the driver-based forecasted values (red line).

Figure 3.15 Alignment of Actual and Forecast



One of the model parameters of the energy models that was adjusted to achieve better consistency and better fit was the elasticity parameter, since this helps define customer class reactions to various changes in prices and other economic variables. The elasticity values used in the Residential, Commercial, and Industrial models are shown in Table 3.10. These values are similar to the base case elasticity values used in the 2011 IRP.

However, the earlier analysis reflected different elasticities for low, base, and high cases for each of the revenue classes, and it represented a different set of scenarios than those in this update.

Table 3.10 Updated Elasticity Values

Elasticity			
	Residential	Commercial	Industrial
Elec_Price	-0.15		
HH_Size	0.3		
Income	0.15		
LGS_Output		0.6	0.8
LGS_Price		-0.15	-0.2
LPS_Output		0.75	0.5
LPS_Price		-0.15	-0.2
SGS_Output		0.15	0.7
SGS_Price		-0.1	-0.2
SPS_Output		0.2	0.9
SPS_Price		-0.1	-0.2
LGS=Large general service; P=Primary, S=Small			

For the 2012 IRP Update, this single set of planning case elasticities was used for each respective revenue and rate class combination. Additionally, the Commercial class output elasticities for the Large Primary and Large General Service classes were gradually stepped down over time. This is because the economic output variables for these classes were growing significantly and the

attendant increases in load with the high (relative to other Commercial rate class) elasticities were producing long term growth rates that appeared to be unrealistically high. The step down in the elasticities over time helped reign in the very high growth rates and represents the likelihood that these classes will necessarily become less energy intensive in order to maintain high rates of increase in economic output.

3.7.2 Forecasts

Energy Forecast

As mentioned in the prior section, after a variety of updates and adjustments to the model inputs and parameters, this 2012 IRP Annual Update used the same energy and peak models and processes as were used for analysis in the 2011 IRP. More complete details on those models and processes can be found in the 2011 IRP's report in "Chapter 3 Load Analysis and Forecasting."

To summarize, the 2012 IRP Annual Update's forecast of Ameren Missouri energy sales was developed with traditional econometric forecasting techniques, as well as a functional form called Statistically Adjusted End-Use ("SAE"). The SAE framework was used to forecast energy sales in our residential general service rate class, and for all four of our commercial rate classes.

The four industrial rate classes were forecasted without including estimates of appliance saturation or efficiency that distinguish the SAE models from more traditional econometric models. The four industrial rate classes lack the homogeneity necessary to make the SAE approach useful.

There are four other classes of energy sales which fell into neither the SAE nor econometric form of forecasting. Those four were Noranda, Street Lighting and Public Authority ("SLPA"), Dusk to Dawn lighting ("DTD"),

Table 3.11 Energy Sales by Class

Energy sales by class, GWHs							
Year	Residential	Commercial	Industrial	Noranda	Lighting	Wholesale	Total
2011	13,326	14,518	4,535	4,135	224	195	36,932
2012	13,512	14,565	4,670	4,103	235	59	37,145
2013	13,560	14,812	4,778	4,092	235	33	37,510
2014	13,738	14,957	4,822	4,092	236	2	37,847
2015	13,833	15,164	4,821	4,092	236	0	38,146
2016	13,985	15,391	4,837	4,103	237	0	38,553
2017	14,012	15,595	4,840	4,092	237	0	38,776
2018	14,146	15,905	4,880	4,092	238	0	39,260
2019	14,262	16,202	4,915	4,092	238	0	39,709
2020	14,345	16,445	4,931	4,103	239	0	40,062
2021	14,339	16,697	4,936	4,092	239	0	40,303
2022	14,431	16,935	4,964	4,092	240	0	40,662
2023	14,510	17,193	4,986	4,092	240	0	41,020
2024	14,683	17,483	5,033	4,103	241	0	41,543
2025	14,670	17,613	5,038	4,092	241	0	41,654
2026	14,720	17,816	5,058	4,092	241	0	41,927
2027	14,805	18,065	5,099	4,092	242	0	42,303
2028	14,960	18,331	5,149	4,103	243	0	42,786
2029	14,909	18,431	5,139	4,092	243	0	42,813
2030	14,924	18,593	5,148	4,092	243	0	42,999

and wholesale sales to cities and partial requirements customers. These were handled in the same manner for this update as was done for the 2011 IRP filing.

A summary of the energy forecast by class is shown in Table 3.11. These results are for the planning case, whose compound annual growth rate 2010/2011 to 2030 is around 0.75%.

Peak Forecast

The development of peak forecasts for the 2012 IRP Annual Update also used the same processes and models as those used in analysis for the 2011 IRP filing, although with updated data and parameters as described in the prior sections.

Essentially, this step uses the energy forecast as an input, and converts that data from a monthly basis into an hourly basis so that the peak hour value for each month can be extracted as the peak forecast.

The monthly energy forecast by class was used with the appropriate hourly load shapes by class and/or by end use to produce an hourly energy forecast by class. That hourly energy forecast by class was adjusted for demand loss rates, and the classes were totaled to produce the total system. The peak hour value for the total system for each month then comprised the peak forecast.

A summary of the peak forecast is shown in Table 3.12 for the planning case, consistent with the planning case energy forecast shown in the prior section.

Table 3.12
Peak Forecast

Year	Peak, MWs
2011	8,350
2012	8,056
2013	8,165
2014	8,228
2015	8,280
2016	8,322
2017	8,388
2018	8,484
2019	8,570
2020	8,608
2021	8,691
2022	8,765
2023	8,843
2024	8,926
2025	8,981
2026	9,043
2027	9,127
2028	9,203
2029	9,245
2030	9,291

Hourly System Load Forecast

Since the integration stage of the IRP analysis requires an hourly version of the energy forecast, the peak forecast process described in the prior section provides the starting point for the hourly system load forecast that is used in that stage of the IRP analysis.

However, while the peak load forecast applied the demand loss rate to the result of using hourly load shapes against monthly energy numbers, the system load forecast for this other purpose needs to reflect energy loss rates. The reason is that energy loss rates reflect the losses that are incurred across the entire year, while demand loss rates reflect the losses at the time of peak load.

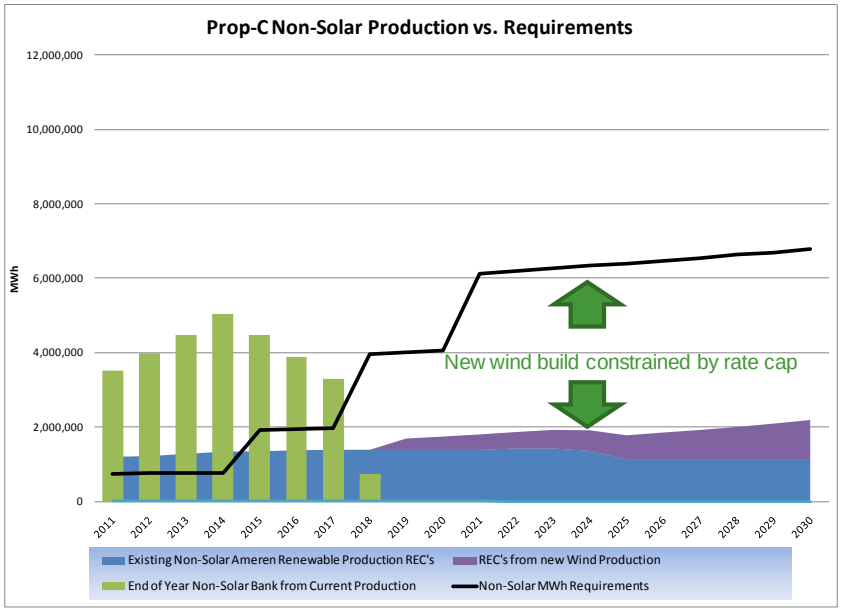
4. Renewable Energy Standard Analysis

4.1 Compliance with Existing RES

Compliance with Missouri's RES was reevaluated in light of changes in assumptions and changes in the results for revenue requirement, which affects the calculation of the 1% rate impact cap.

Ameren Missouri performed its RES compliance analysis with an updated version of the same spreadsheet model used for the 2011 IRP. The spreadsheet model first determines the quantity of renewable energy needed to meet both the primary standard and the 2% solar carve-out absent any rate impact constraints. The model then evaluates the rate impact of meeting the standard with the revenue requirement limit imposed by the 1% rate impact cap, reducing the amount of renewable energy, both solar and non-solar to stay within the 1% limit. The Company's expected REC position in meeting the standard subject to the 1% rate impact cap is presented in Figure 4.1.

Figure 4.1 Missouri RES REC Position



The chart shows that Ameren Missouri expects to meet the standard through 2018, including purchases of Solar Renewable Energy Credits ("S-REC's") to meet the 2% solar requirement, without being constrained by the 1% rate impact limitation. Ameren Missouri is able to meet the non-solar standard through 2018 using REC's generated by its existing qualifying resources, including hydro, wind and landfill gas, banking excess REC's in the initial years, and using the banked REC's when the RES requirement increases from 2% to 5%.

Once the standard increases to 10% in 2018, Ameren Missouri first exhausts its remaining REC bank then places new wind generation into service starting in 2019. Incremental solar resources are added at the same time to meet the 2% solar requirement. Table 4.1 shows the amounts of new wind and solar resources added to meet the standard subject to the 1% rate impact cap.

Table 4.1 Missouri RES New Wind/Solar Build

Year	Adjusted New Wind Build	Cumulative Adjusted New Wind Build	Adjusted New Solar Build	Cumulative Adjusted New Solar Build
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	0	0	0	0
2018	0	0	0	0
2019	93	93	5	5
2020	16	109	1	6
2021	17	126	1	7
2022	8	134	0	8
2023	17	151	1	9
2024	17	168	1	9
2025	27	195	1	11
2026	23	218	1	12
2027	21	238	1	13
2028	24	263	1	14
2029	27	290	1	15
2030	29	319	1	17

The table shows that new wind build reaches 319 MW by 2030 and new solar build reaches 17 MW. The solar build is substantially lower than that presented in the 2011 IRP (46 MW) due to a change in the assumption regarding solar compliance in early years. For the 2011 IRP, it was assumed that new solar resources were built during the period prior to need for new non-solar resources, thus using the available room under the 1% cap and limiting the future build of wind resources (224 MW by 2030 in the 2011 IRP).

For this update, we have assumed the purchase of S-REC's until there is a need for non-solar resources to meet the overall RES requirement and prorated the build of new wind and solar starting in 2019. This assumption serves as a placeholder for satisfaction of the solar requirement pending further evaluation of options and assessment of the longer term availability of SREC's. As the Company has indicated in its recently filed RES Compliance Plan, the construction of new solar generation at existing plant sites is being evaluated for potential implementation by late 2013.

The portfolio described above was included in all of the candidate resource plans for analysis. The analysis of candidate resource plans is discussed in Chapter 6.

4.2 Compliance with Alternative RES

In addition to the evaluation of the existing Missouri RES, and pursuant to the Commission's order on special contemporary issues, Ameren Missouri has also evaluated compliance with an alternative RES based largely on a current ballot initiative proposal in Missouri. This proposal would require amounts of renewable energy equal to 25% of retail sales, exclude certain resources from eligibility, such as the Company's Keokuk hydroelectric plant, and require that energy be produced by resources that are located in, or deliver energy to, the state of Missouri. Table 4.2 summarizes the requirements and assumptions used for modeling purposes. Table 4.3 summarizes the wind build and rate impacts for the alternative RES. The table shows that the average rate increase reaches nearly 22% during the planning horizon, absent rate caps to protect customers.

Table 4.2 Assumptions for Alternative RES

Requirement	Description
Renewable % of Retail Sales	5% by 2014, 10% by 2017, 15% by 2020, 20% by 2023, and 25% by 2026
Eligible Resources	Wind, solar, biomass, landfill gas, hydro under 10MW per site; Generator must be located in the state of Missouri or the energy must be delivered to Missouri customers
Solar Assumptions	Missouri capacity factor of 18%; MISO capacity credit of 20% of nameplate rating; $4,500/kw overnight capital cost; Annual capital cost escalation of 1%
Wind Assumptions	Missouri capacity factor of 31.2%; MISO capacity credit of 14.9% of nameplate rating; $2,000/kw overnight capital cost; $50/kw-year fixed O&M expense

Table 4.3 Alternative RES Impacts

Year	Incremental No Limit MW of Installed Wind Build Needed to Comply	No Limit Cumulative Additional Wind Built to Comply	Annual Revenue Requirement % Increase vs. 2012 Rates
2012	0	0	0.0%
2013	0	0	0.0%
2014	477	477	0.0%
2015	5	482	5.8%
2016	7	489	5.3%
2017	613	1,101	4.4%
2018	11	1,112	11.0%
2019	13	1,125	9.9%
2020	645	1,770	8.4%
2021	15	1,785	15.2%
2022	20	1,805	13.7%
2023	669	2,474	11.9%
2024	56	2,531	19.0%
2025	89	2,620	17.6%
2026	700	3,320	14.8%
2027	39	3,358	21.6%
2028	50	3,408	18.7%
2029	30	3,438	15.7%
2030	41	3,478	12.4%

4.3 Levelized Cost of Energy to Comply with Missouri RES

The Commission's order on special contemporary issues included a requirement for analyzing the levelized cost of energy needed to comply with the existing Missouri RES compared to a case with no new renewable resources.

Ameren Missouri has calculated several measures that address the difference in the levelized cost of energy and the cost-effectiveness of renewable resources, which are shown in Table 4.4. All measures reflect any costs and generation for the planning period (2012-2030). In addition to costs for wind and solar resources, costs for solar rebates, SREC's and administration of programs to comply with the RES are included in the total costs for all renewables. Wind resources make up approximately two-thirds of the total cost before energy and capacity benefits. The overall impact on levelized rates is $0.90/MWh, or a little less than 0.1 cents/kwh, which approximates 1% of overall rates. The levelized cost of energy to meet the standard, including all costs of compliance and all energy generated is $169/MWh. Finally, applying a Total Resource Cost ("TRC") test to the costs and benefits of compliance with the standard yields a TRC ratio (benefits divided by costs) of 0.42. As is the case with DSM programs, a TRC greater than one indicates that a program or resource is cost-effective. The fact that the renewable resources are not cost-effective indicates that a RES with a rate cap will fall short of its energy goals.

Table 4.4 RES Compliance Cost and Cost-Effectiveness Measures

Cost / Cost Effectiveness Measure (2012-2030)	All Renewables	Wind	Solar
Present Value Costs ($MM)	$653	$430	$43
Levelized Rate Impact ($/MWh)	$0.90	$0.52	$0.08
Net Resource Cost ($/MWh)	$99	$78	$468
Levelized Cost of Energy ($/MWh)	$169	$151	$575
TRC (Benefits/Costs)	0.42	0.48	0.19

5. Environmental Compliance Analysis

5.1 Scope and Assumptions

The scope of the environmental compliance analysis was based on the assessment of environmental regulations presented in Chapter 3 (section 3.2). Ameren Missouri has assumed compliance with the particulate emission standards portion of the MATS through upgrades of electrostatic precipitators at its existing coal-fired units. A more thorough identification and evaluation of options for compliance at Meramec is underway. As was mentioned previously in this report, while our analysis reflects compliance with current and some potential environmental regulations, further changes in environmental regulation are likely.

For this update, the Company has focused its attention on compliance with the CSAPR. Ameren Missouri's existing coal contracts provide the means for compliance with the CSAPR SO_2 limits through 2017, so the analysis focused on compliance starting in 2018. Table 5.1 outlines the planned mitigation for each coal plant for the current and pending environmental regulations other than CSAPR. Capital and O&M costs for each mitigation measure are summarized by plant in Table 5.2. Note that the table includes cost assumptions for an FGD at Rush Island. Installation of an FGD at Rush Island is one of several options considered for compliance with the CSAPR SO_2 limits. Costs for mitigation options for SO_2 to comply with the CSAPR are discussed further in section 5.2.

Table 5.1 Environmental Compliance Measures

Plant/Unit	SOFA Modification	ESP Upgrades	ACI (Mercury)	Fine Mesh Screens	Ash & Landfill	Cooling Tower	Wastewater Treatment Plant	Mercury/ Particulate CEMS
Labadie 1	2016	2015	2015	--	2019	2018	2019	2015
Labadie 2	2014	2013	2015	--	2019	2018	2019	2015
Labadie 3	2016	2014	2015	--	2019	2018	2019	2015
Labadie 4	2014	2015	2015	--	2019	2018	2019	2015
Meramec 1	--	2015	2015	2020	2019	--	2019	2015
Meramec 2	--	2014	2015	2020	2019	--	2019	2015
Meramec 3	--	2013	2015	2020	2019	--	2019	2015
Meramec 4	--	2013	2015	2020	2019	--	2019	2015
Rush Island 1	--	--	2015	2020	2019	--	2019	2015
Rush Island 2	--	--	2015	2020	2019	--	2019	2015
Sioux 1	--	--	2015	2020	2019	--	2019	2015
Sioux 2	--	--	2015	2020	2019	--	2019	2015

Table 5.2 Environmental Compliance Measure Costs

Plant	Control Technology	2012 $MM	2012 $/kW	Fixed O&M ($/kW-Year)	Variable O&M ($/MWh)
Labadie					
	FGD (Scrubber)	--	--	--	--
	ESP Upgrades	138	57	--	--
	ACI (Mercury)	12	5	0.01	1.43
	Fine Mesh Screens	--	--	--	--
	Ash & Landfill	214	89	1.34	0.41
	Cooling Tower	371	154	0.59	0.72
	Wastewater Plant	133	55	0.16	--
Meramec					
	FGD (Scrubber)	--	--	--	--
	ESP Upgrades	53	63	--	--
	ACI (Mercury)	11	13	0.04	1.59
	Fine Mesh Screens	14	17	0.16	--
	Ash & Landfill	136	162	2.2	0.56
	Cooling Tower	--	--	--	--
	Wastewater Plant	80	95	0.27	--
Rush Island					
	FGD (Scrubber)	691	585	10.28	1.35
	ESP Upgrades	--	--	--	--
	ACI (Mercury)	6	5	0.01	1.47
	Fine Mesh Screens	17	14	0.14	--
	Ash & Landfill	130	110	1.36	0.25
	Cooling Tower	--	--	--	--
	Wastewater Plant	106	90	0.26	--
Sioux					
	FGD (Scrubber)	--	--	--	--
	ESP Upgrades	--	--	--	--
	ACI (Mercury)	6	6	0.02	1.79
	Fine Mesh Screens	14	14	0.16	--
	Ash & Landfill	186	189	3.48	1.08
	Cooling Tower	--	--	--	--
	Wastewater Plant	106	108	0.38	--

5.2 Compliance Options

5.2.1 SO_2 Technology Options Screening

To simplify the evaluation of environmental compliance, a screening analysis was performed on two major technologies –FGD, or "Scrubber", technology and Dry Sorbent Injection ("DSI") with a fabric filter – based on assumptions for installation at Ameren Missouri's Rush Island plant. FGD is characterized by a higher capital cost but lower overall operating cost compared to DSI. The levelized cost per ton of SO_2 removed was calculated for FGD with 92% removal and for DSI at two levels of removal, 85% and 50%. The assumptions used for the analysis and the levelized cost results for each technology are summarized in Table 5.3. On this basis, FGD was passed on for full evaluation as the technology-based removal option.

Table 5.3 SO2 Removal Technologies Cost and Performance

	Rush Island FGD	Rush Island DSI (85% Removal)	Rush Island DSI (50% Removal)
2012 Capital Cost ($MM)	691	363	351
2012 Fixed O&M Cost ($MM)	12.6	4.1	4.1
2012 Variable O&M Cost ($MM)	11.8	58.1	25.2
Average Annual Tons Removed	9,618	8,886	5,227
Levelized Cost of Removal ($/ton of SO2)	$5,742	$6,882	$7,310

5.2.2 SO_2 Compliance Options Evaluated

In addition to the Rush Island FGD option, two other options were evaluated. First, compliance through continued use of ultra-low sulfur coal at all coal-fired plants without FGD technology installed was evaluated. Second, natural gas conversion of the existing coal-fired units at Meramec was evaluated based on the same assumptions used for the 2011 IRP. The capital costs for each option were subjected to an uncertainty range as part of the project cost uncertain factor, as described in section 3.3.4. Compliance through retirement of the existing Meramec units was considered as part of the plan analysis, discussed in Chapter 6. Coal prices for ultra-low sulfur coal at both base and high values are used for the option of continuing to burn this coal for compliance. The price ranges are presented in section 3.3.5.

5.3 Compliance Analysis Conclusions

The three options evaluated at this stage were modeled in MIDAS and subjected to the full range of uncertainty used for the plan analysis. That is, each plan was analyzed under each of the 972 possible futures represented by combinations of the scenario variables and independent uncertain factors outlined in section 3.3. Based on the results of our analysis, the low-sulfur coal and natural gas conversion options were evaluated as part of the resource plan analysis. Resource plan evaluation is discussed in Chapter 6.

6. Resource Plan Analysis

Ameren Missouri's updated plan analysis focused on modified versions of key plans developed as part of the 2011 IRP analysis. For this update, further analysis of plans with the RAP DSM portfolio was not conducted due to the pending MEEIA filing. Should that filing result in changes in ratemaking treatment for DSM programs that properly align the Company's and the customers' incentives, the Company will reevaluate its plans and make the proper notification to the Commission regarding changes in its preferred resource plan.

6.1 Resource Plans Evaluated

The environmental compliance analysis discussed in Chapter 5 indicated that conversion of Meramec to natural gas fired operation and continued use of ultra-low sulfur coal remain viable options. These two options were carried forward into the resource plan analysis. In addition, retirement of the existing Meramec coal units was evaluated in combination with the four major supply side resource types identified in the 2011 IRP as the most attractive options for new supply side generation. Those supply side resource types are:

- Simple Cycle Gas Turbines – 692 MW total capacity
- Combined Cycle Gas Turbines – 600 MW
- Nuclear (SMR) – 480 MW
- Wind coupled with Simple Cycle Gas Turbines – 800 MW (nameplate) wind, 346 MW simple cycle gas turbines; total planning capacity of 465 MW

While the 2011 IRP included evaluation of new nuclear generation based on assumptions for a large single-unit technology, for purposes of this annual update, the nuclear resource characterization is based specifically on SMR technologies. The operating cost and performance characteristics of a single-unit nuclear plant were assumed to also be generally applicable to a range of small modular technologies under development. Therefore, the same fixed and variable O&M costs and forced outage rate used in the 2011 IRP were utilized in the 2012 IRP Update. The refueling outage assumption was changed to 12 days/2-years for the SMR as opposed to 24 days/18-months for the conventional nuclear unit used in the 2011 IRP. The other technologies remain the same as they were in the 2011 IRP. All resource plans include Ameren Missouri's Bridge DSM portfolio, described in the Company's October, 2011, Notification of Change in Preferred Resource Plan. All resource plans include a portfolio of renewable resources to comply with the existing Missouri RES, described in Chapter 4.

Because the analysis of long-term environmental compliance is focused on compliance with CSAPR after 2017, retirement of Meramec as of January 1, 2018, was assumed for the retirement-based plans for comparison with the natural gas conversion and ultra-low sulfur coal plans. If Meramec were to be retired a new resource would be needed, with a further need for new supply in the 2021-2030 timeframe. For the initial resource need, a combined cycle plant was used, just as it was for the plans with aggressive environmental regulation in the 2011 IRP. The subsequent need for new supply was met with one of the four supply side resource types described earlier. This brought the number of plans evaluated to six.

6.2 Analysis Observations

Each of the six plans described in section 6.1 was evaluated under the critical uncertain factors described in Chapter 3. Those critical uncertain factors include the combinations of dependent uncertain factors represented by the scenarios shown in Figure 3.1 as well as the independent uncertain factors – project costs, financing costs, DSM program cost and performance, and coal prices. The combinations of scenarios and independent uncertain factors yield 972 unique potential futures, or endpoints, under which each plan was analyzed.

Based on the results of our analysis, it is prudent to continue to preserve the unique option for new nuclear generation in response to possible changes in market conditions. Based on these same results, continued consideration of cost effective wind resources is also prudent. Both nuclear and wind resources would be further advantaged with the adoption of a federal clean energy standard of the type proposed by the Obama administration and leaders in the U.S. Senate.

6.3 Preferred Plan Implications

The results of the plan analysis show that conversion of Meramec to natural gas operation may be another viable solution for compliance with existing and pending environmental regulations. The Company continues to identify and evaluate potential options for broad-based environmental compliance at Meramec, including compliance with the recently published MATS rule. This evaluation necessarily involves a more in-depth analysis of compliance at the generating unit level, with explicit cost estimates for capital investment required to maintain reliable operation at Meramec, supply gas to the site, and resolve potential transmission issues associated with unit shutdowns or changes in operation. This analysis may eventually lead to a decision to change the Company's preferred resource plan; however, this analysis is not complete and no change is being made at this time.

6.4 Implications of Pending MEEIA Filing

In addition to the environmental compliance considerations and analysis discussed above, Commission action on Ameren Missouri's pending MEEIA filing also could impact the Company's preferred resource plan. Further analysis will be conducted subsequent to the issuance of the Commission's final order in this matter.

6.5 Implications of Application to DOE for SMR Technology Funding

Recent developments associated with the agreement between Westinghouse and Ameren Missouri, combined with statewide efforts to support Westinghouse's application to the DOE for funding associated with the development of SMR technology in Missouri and the resultant economic development opportunities, could impact the Company's preferred resource plan. Further analysis will be conducted after the DOE's decision on Westinghouse's application.

6.6 Implementation of Current Preferred Resource Plan

The 2011 IRP (section 10.3.3) included an implementation plan that focused on implementation of DSM programs, action to enable or preserve key resource options, further evaluation of the costs and feasibility of resource options, and monitoring of critical uncertain factors. While it was not listed as an implementation step in the IRP filing, Ameren Missouri also continues to monitor the development of environmental regulations that may impact the Company's operations. The Company's assumptions for environmental regulations and compliance are presented in Chapter 3 and Chapter 5 of this report. Following is an item by item status on the implementation steps listed in the 2011 IRP, as adjusted for the notification filed with the Commission in October, 2011, regarding the Company's change in preferred resource plan.

Demand-Side Resources Implementation

Ameren Missouri notified the Commission on October 25, 2011, that it had determined that the preferred plan included in the Company's 2011 IRP filing was no longer appropriate. In that same notification, the Company indicated its new preferred resource plan includes a lower level of spending on DSM programs, roughly $10 million annually. Implementation of that level of spending is being executed through the Company's new tariffs for its "Bridge" DSM portfolio, which is designed to fill the gap in time between the expiration of the previous DSM program tariffs and resolution of

financial incentives through a MEEIA filing. Those tariffs were approved by the Commission in December (residential tariff) and January (business tariff). Through March of 2012, the Company has spent approximately $1.5 million, and customers have achieved annualized energy savings of approximately 3,700 MWh. Program implementation is expected to accelerate as projects under the business tariff are implemented. The current tariffs are set to expire June 30, 2012. Ameren Missouri has filed a request with the Commission to extend the tariffs through September 30, 2012.

Demand-Side Resources Financing

On January 20, 2012, Ameren Missouri filed with the Commission for approval of demand side programs and a demand side investment mechanism ("DSIM") to enable the implementation of a three-year portfolio of programs at the Realistic Achievable Potential, or "RAP", level of energy savings. Hearings in that case (Docket EO-2012-0142) are set for May 24-25, 2012, with a Commission decision expected later in 2012.

Combined Cycle Evaluation

The 2011 IRP indicated that if environmental regulations are expected to result in significantly higher costs of compliance than those currently assumed, retirement of Meramec may be preferred and replacement with a new combined cycle would be a preferred option. The Company continues to evaluate the potential for new generation resources, including the cost updates discussed in section 3 of this report.

Nuclear Option Preservation

Because the unique opportunity for new nuclear generation continues to be attractive under certain conditions, preserving the option for new nuclear generation at the Company's Callaway site remains a priority. An important step toward preserving this option was taken on April 19th. Ameren Missouri and Westinghouse Electric Company announced an alliance to apply for DOE SMR investment funds of up to $452 million. The investment funding, announced by the DOE on March 22, 2012, will support first-of-its-kind engineering, design certifications and operating licenses for up to two SMR designs over five years.

The objectives of the DOE program are to support efforts for the United States to become the global leader in the design, engineering, manufacturing and sale of American-made SMRs around the world, as well as expand our nation's options for nuclear power. Westinghouse expects to submit the investment fund application by mid-May. A final decision on awarding the investment funds is expected in the summer of 2012.

This DOE program comes with a tremendous opportunity to save customers millions of dollars associated with operating license development cost. It also comes with a transformational economic development opportunity which includes becoming the hub for the engineering design, development, manufacturing and construction of American-made SMR technology in Missouri, in the United States and around the world.

Large Investment Financing

Ameren Missouri plans to continue evaluating the financial feasibility of all resource options, including those which require significantly large investments of capital, such as a baseload power plant.

Renewable Energy Standard Compliance

Ameren Missouri does not expect to need new resources to meet the non-solar renewable energy requirement of the existing Missouri RES through 2018. However, the Company must acquire SREC's to comply with the solar requirements, whether through market purchases or through installation of new company-owned solar generation resources. Ameren Missouri filed its required annual report and compliance plan with the Commission on April 16, 2012.

Meramec Long-run Costs

Ameren Missouri continues to evaluate the long-run costs of operation of the Meramec plant in the context of its ongoing environmental compliance analysis. As mentioned in this report, the Company is currently conducting a broad evaluation of options to comply with all current and pending environmental regulations at the Meramec plant.

Refinement of Environmental Retrofit Costs

The Company continues to refine its estimates for environmental controls as part of its ongoing environmental compliance analysis. This includes the refined cost estimates presented in Chapter 5 of this report.

7. Other Items

7.1 Fuel Subsidies

Pursuant to the Commission's order on special contemporary issues in Docket EO-2012-0039, Ameren Missouri has identified the federal and state subsidies for sources of fuel it expects to use during the resource planning study period (2012-2030). No federal subsidies for sources of fuel are expected to be used during the planning study period.

While it is unclear whether a statutory exemption is within the definition of a "subsidy" for the purposes of the Commission's order on special contemporary issues, we are referencing, for purposes of this report, a Missouri sales and use tax exemption that is available for fuel purchased and used for generation of electricity in Missouri. This exemption results in a cost savings using the use tax rate per applicable generation facility location (4.225% to 5.725%), multiplied by the cost of the fuel, less any separately stated transportation.

At this time, Ameren Missouri has not established the fuel assumptions for the next triennial compliance filing scheduled for 2014. As a result, there are no known state or federal subsidies (other than arguably the one listed above) that Ameren Missouri expects to receive with regard to fuel sources at this time. To the extent that state or federal subsidies are utilized in the next IRP, they will be discussed in the 2014 IRP report.