1. Executive Summary

Highlights

- *Ameren Missouri has conducted a thorough evaluation of options to meet future customer demand in a safe and reliable manner at a reasonable cost*
- *Future environmental regulation is expected to be a significant driver of the need for new resources*
- *There are several potentially viable paths that Ameren Missouri could pursue, each of which presents unique opportunities and challenges*
- *Ameren Missouri has developed a complete decision roadmap to detail the Preferred Resource Plan and its relationship to several contingency options.*

Ameren Missouri's Integrated Resource Plan (IRP) serves as the basis for the utility's resource acquisition strategy over the next three years and the overall direction of resource procurements for the remainder of the 20-year planning horizon. The IRP provides a snapshot of the Company's resources and loads, and provides guidance regarding resource needs and acquisitions. Since the filing of Ameren Missouri's 2008 IRP there have been several key changes that have impacted Ameren Missouri's long-term planning. Those changes include adoption of a state Renewable Energy Standard (RES), the passage of the Missouri Energy Efficiency Investment Act (MEEIA), the prospect for more stringent environmental regulations, and a severe recession. The current Missouri resource planning rules make it clear that regulators are to evaluate the *process* Ameren Missouri follows to arrive at its Preferred Resource Plan. However, Ameren Missouri believes the importance of resource planning rises above simple rule compliance and includes the need to discuss the *plan*. It is clear based on the analysis included in this IRP that Ameren Missouri and the entire state will be facing some serious challenges in the planning horizon.

The immediate challenges are largely driven by emerging environmental policies. Although activity has recently cooled with respect to greenhouse gas legislation, general activity around more stringent environmental regulations affecting coal plants has increased substantially. New regulations governing air emissions, use of water, and disposal of coal ash are likely to require significant investment in control equipment for coal-fired plants. Given Ameren Missouri's strong reliance on coal (75% today), there could be a substantial impact to Ameren Missouri customers. Ameren Missouri's Preferred Resource Plan balances low cost, reliable service at reasonable rates by including a mix of renewable resources, demand-side resources, upgrades at existing facilities, and new gas-fired generation. This plan is optimal for our customers should existing environmental regulations remain largely unchanged over our planning horizon.

Should environmental regulations become more stringent, which we expect to be the case, Ameren Missouri has developed a robust set of contingency options to consider.

Stakeholder Involvement

Throughout the IRP planning process Ameren Missouri has hosted several meetings of key stakeholders with the purpose of providing a status update and an opportunity to provide feedback at a time when the feedback is most useful. The discussions ranged from conceptual to technical depending on the stage of the analysis. In limited cases offline discussions were held to answer questions. Ameren Missouri also posted meeting materials, transcripts, and supporting studies online to facilitate information sharing. Below is a list of the meetings with a summary of the topics that were discussed.

- January 9th, 2009 – Renewables study conducted by Black & Veatch
- April 2nd, 2009 – Waivers requested by Ameren Missouri for certain requirements of the IRP rules
- August 26th, 2009 – Renewables Follow-up, Coal and Gas Resource Options study conducted by Black & Veatch
- November 20th, 2009 -- 2008 IRP Implementation Plan update, Overview of Planning Process
- January 26th, 2010 – Conference Call on Financing Analysis Plan
- March 8th, 2010 – Scenarios, Uncertain Factors, Load Analysis and Forecasting, EPRI End-to-End Efficiency Study, Initial Supply-Side Screening Results
- April 16th, 2010 – Conference Call on Financing Analysis Plan
- May 25th, 2010 – Forecasting Results, DSM Analysis, Alternative Resource Plan Development, Scenario Modeling Results
- September 14th, 2010 – Integration Analysis, Sensitivity Analysis, Critical Independent Uncertain Factors, Decision Framework
- February 22nd, 2011 – Risk Analysis, Environmental Scenarios and Strategy Selection

Drivers of Resource Needs

In determining our future resource needs we must first understand what the future demand for electricity is likely to be. Then, we must consider factors that may impact the ability of our existing power plants to meet those needs. Here are some of the critical drivers we analyze:

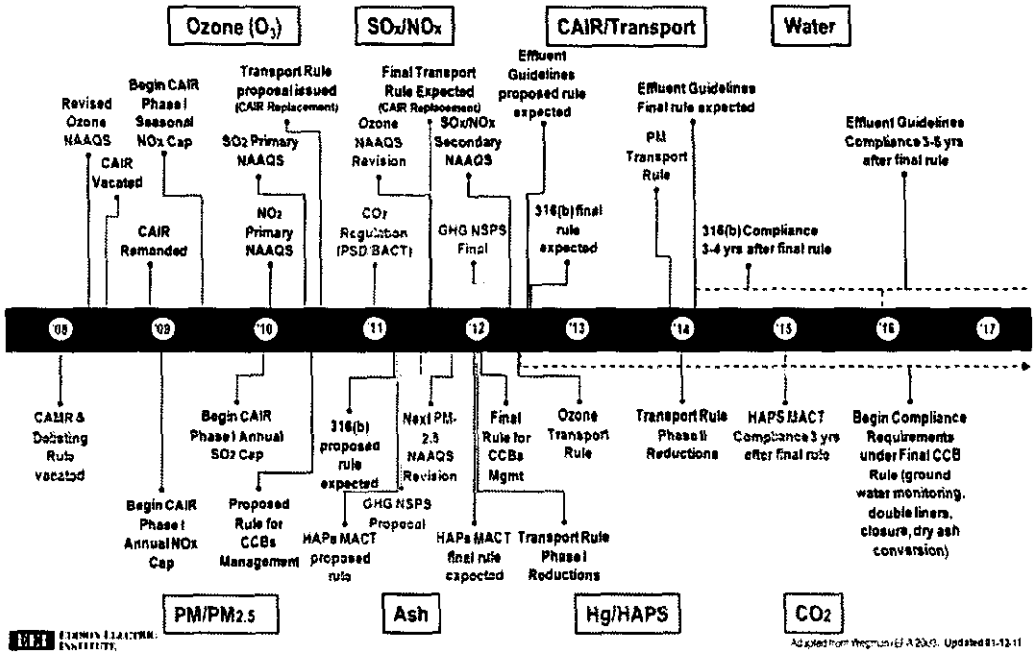
Customer Demand: Missouri's population has grown about 7 percent in the last decade, and this growth has also contributed to the rising demand for power. In the last 20 years, demand for electricity increased by 50% among Ameren Missouri customers.

In the next 20 years, our forecasts show demand for power rising almost another 20% in the Ameren Missouri service area alone.

Customer Expectations: Customers increasingly expect to have near-perfect service reliability. Customers believe that our product provides essential comfort and convenience and is critical to providing health care, personal security, recreation and many other services, so our customers expect us to have an abundant supply of electricity available when they want it.

Environmental Regulations: An area that has received a great deal of focus and attention over the last several years has been environmental regulations. In particular, the U.S. Environmental Protection Agency (EPA) is expected to issue new environmental regulations in the next 12 to 24 months related to air emissions, ash waste and water. Figure 1.1 highlights some of the regulations under consideration.

Figure 1.1 Potential Environmental Regulations



Source: Edison Electric Institute

These new regulations will likely require the installation of expensive environmental control equipment on our coal-fired plants over the next several years. The cost to comply with these regulations will be in the billions of dollars for Ameren Missouri and billions more for the rest of Missouri and the Midwest. These environmental regulations, along with potential legislation limiting the emission of greenhouse gases, will have a significant impact on electric rates and on our state's energy future because coal currently accounts for about 80% of the energy supplied in Missouri. As a result, we are

diligently working with legislators, regulators and other key stakeholders to find solutions that balance the need to address environmental concerns with the need to protect our state's economy, energy security and our customers' costs.

Aging Infrastructure: Across the nation and our region, large coal-fired plants that provide most of our power are growing older. The average age of Missouri's large plants is 40 years, and that's at least middle age for a power plant. These plants will not operate forever. In addition, the need to install billions of dollars of environmental controls may not be prudent on some of the older, less efficient plants and may force Ameren Missouri and other generators across the region, state and nation to shutter such plants. Not only does this have economic consequences, but the closing of some of these plants could impact the reliability of our power grid.

These plants won't be quickly or easily replaced. Planning for new generation must be done years in advance. That's why we need clear state and federal energy policies and regulation, as well as a reasonable transition period to implement these regulations so that we can plan effectively for the need to meet our customers' future energy needs in the most prudent and affordable fashion.

Future Resource Options

Meeting existing power demand requires a vast network of different types of power plants, big and small, connected by a network of power lines. For a sense of scale, we can consider how many power plants of a given type would be required to generate the same amount of electricity. One single-unit nuclear power plant or two coal-fired units, for example, produce enough electricity to meet the annual needs of one million households. To meet the needs of the same number of consumers, it could take 1.6 million solar energy panels, 2,000 wind turbines, or three natural gas-fired plants. As the U.S. and other countries seek to ramp up renewable energy production, land use is becoming a more contentious issue; wind and solar energy farms may require 70 – 80 times more land than what is typically needed for traditional energy sources.

Clearly, it takes a combination of resources to reliably supply electricity. What we strive for is a number of power generation options working together within and across regions—so we aren't dependent on any single generation source. Each technology has distinct advantages and disadvantages.

Coal-fired power plants have been our state's energy workhorses for decades and are important energy resources for our state. Today they generate large quantities of low-cost electricity around the clock, but they emit greenhouse gases and other pollutants and release coal combustion byproducts that present waste disposal issues. Due to the potential new environmental regulations discussed previously, future coal plants will likely have to meet more stringent environmental standards in the future. New

technologies are under development to meet these standards, including those to capture and sequester carbon dioxide (CO_2). These offer promise as long-term solutions to climate change, but they are still mostly experimental.

Nuclear energy is by far the world's largest source of carbon-free generation. The U.S. is the largest nuclear energy producer with 104 nuclear plants in 31 states, generating about 20% of the nation's electricity. For Ameren Missouri, nuclear energy accounts for approximately 20% of our total generating capacity. U.S. energy providers recently began exploring development of new nuclear plants after decades with no new nuclear units constructed in the nation. Building a new nuclear plant can be a boost to local and regional economies—adding jobs in the tens of thousands during construction and hundreds of permanent jobs. Since 2001, nuclear power plants have achieved the lowest production costs when compared to plants fired with coal, natural gas and oil. However, due to their complexity and the significant regulation controlling nuclear energy, nuclear power plants can be more challenging to build, finance and operate than plants fueled by other sources.

Natural gas-fired generation is generally simpler to build and produces lower greenhouse gas emissions (about half the CO_2 emissions of a coal-fired power plant), but it too presents price uncertainty because natural gas costs have historically been very volatile. However, new uses of existing technologies have opened new domestic sources of natural gas, driving down prices. The current low prices for natural gas have encouraged some electric generators to substitute gas for coal. Environmental concerns about the use of these technologies have surfaced recently and could impact natural gas prices in the future.

Renewable power – solar and wind energy resources don't produce harmful greenhouse gases that contribute to climate change. However, the wind does not always blow, and the sun does not always shine, so you can't depend on these resources for predictable electricity production. Renewable energy also requires development of additional transmission lines to move wind and solar energy to the urban areas where it is needed from windy rural areas, or sunny environments, where it is often generated. That said, the cost of installing wind and solar energy systems has dropped with improvements in renewable technology, attracting customer interest in renewable energy.

To help our customers evaluate various solar power systems, we recently installed five solar power systems at our downtown headquarters building. The project will provide customers with practical information on the effectiveness of solar energy in our area. In the spring of 2011, we will open a viewing area and classroom where visitors will be able to see the rooftop solar systems along with monitors showing how much energy the units are generating.

Hydroelectric generation is environmentally friendly, but it relies on available water supplies and is very time-consuming to permit and costly to build. Largely financed through insurance proceeds, Ameren Missouri's newly rebuilt 440-megawatt Taum Sauk Hydroelectric Plant, which returned to service in 2010, is proving to be a valuable hydroelectric storage resource that can be quickly started during times of high demand for electricity. Taum Sauk Plant stores energy in the form of water, pumped from a lower elevation reservoir to a higher elevation. Low-cost off-peak electric power is used to run the pumps. During periods of high electrical demand, the stored water is released through turbines to create electricity.

Biomass – Common examples of biomass include food crops, crops for energy (e.g., switchgrass or prairie perennials), crop residues, wood waste and byproducts, and animal manure. Biomass can be burned directly in boilers to provide heat or in high-pressure boilers to generate electricity and then provide heat. Biomass can be used to generate electricity 24 hours a day. Coal-fired plants can be modified to burn biomass with coal, a process called "co-firing." Nationwide, biomass fuels less than 1% of the nation's electricity. Power generated from biomass is classified as "renewable" by the current Missouri Renewable Energy Standard, and may qualify as a renewable resource in potential federal legislation. However, biomass has seen limited use as an energy source thus far because it is not readily available as a year-round feedstock, can be expensive to transport and requires costly technology to convert to energy. Ameren Missouri is supporting research on biomass fuel resources, feed systems, storage facilities, and transportation options.

Landfill gas-to-energy projects can generate enough energy to power thousands of homes every day, reducing emissions of greenhouse gases in the process. The Ameren Missouri Methane to Megawatts project, slated to be up and running in 2012, will be the largest landfill gas-electric facility in the state and among the largest in the nation. It will generate enough electricity to meet the demands of about 10,000 homes. But this energy option requires the right kind of landfill and the right kind of technology to be installed, as well as lots of land to obtain meaningful scale.

Energy efficiency – Using energy more efficiently can defer the need for new generation resources. The following section discusses Ameren Missouri's experience to date and the potential for additional energy saving opportunities.

Demand-Side Resources

Demand-Side Management ("DSM") entails actions by the utility that influence the quantity or patterns of energy consumption. DSM can further be divided into energy efficiency and demand response programs. Energy efficiency programs are designed to reduce overall consumption of electricity; whereas, demand response programs are designed to reduce electricity consumption during the few periods of highest demand.

Ameren Missouri has been implementing full-scale energy efficiency programs since 2009 and has several programs for both residential and business customers. Below is a brief description of the existing energy efficiency programs, all of which are scheduled to end September 2011. The future level of investment in these programs is highly dependent on the regulatory framework applied to DSM.

Residential Programs

- Lighting and Appliance Program – Provides an instant rebate or manufacturer buy-downs on Compact Fluorescent Lights (CFLs) and mail-in rebates on new ENERGY STAR®-qualified appliances.
- Social Marketing Distribution Program – Reduces energy use in residential lighting by leveraging the distribution and education capabilities of organizations to distribute CFLs and educational material at no charge to their residential constituents.
- Multi-Family Income Qualified Program – Partners with multi-family building owners and managers to remove energy inefficient lighting and appliances and install program-specified energy efficiency measures (EEMs) in income qualified building units.
- Refrigerator Recycling Program – Prevents the continued use of inefficient, working refrigerators and freezers by taking the units out of homes and recycling them in an environmentally safe manner.
- HVAC CheckMe!® Program – Encourages residential customers to have existing cooling systems evaluated and if feasible, brought back to factory specifications (re-commissioned), or replace less efficient, working central cooling systems with high efficiency central cooling systems.

Business Programs

- Standard Incentive Program – Provides pre-set incentives for energy efficient products that are readily available in the marketplace and will target measures for which energy savings can be reliably deemed, or calculated using simple threshold criteria. Incentives are available for lighting, motor, heating, ventilation and air conditioning (HVAC) and refrigeration projects.
- Custom Incentive Program – The Custom Incentive Program is for projects that save electricity, but are not on the Standard Incentive list. The incentive is $.05 per kWh saved during the first year of operation, with program incentives not to exceed 50 percent of the overall energy efficiency measure costs.
- New Construction Program – Provides financial incentives and technical assistance for energy efficient building design and construction. Eligible facilities include new facilities built from the ground up, additions to existing facilities, or major renovation of existing facilities requiring significant mechanical and/or electrical equipment alteration.

- Retro-Commissioning Program – Provides incentives for energy and demand reduction opportunities achievable through optimizing building control systems.

In January 2010, Ameren Missouri published the results of a major research study aimed at understanding the potential for energy efficiency improvements on the customer side of the meter. To understand customer energy efficiency plans and future needs, a third-party vendor surveyed more than 4,000 residential and commercial customers using both online and onsite surveys. Ultimately the customer research was integrated with cost and performance data of end uses to estimate potential demand and energy savings. Ameren Missouri also developed several portfolios that represent a wide range of energy savings and cost. Figure 1.2 shows the annual energy efficiency budgets for the portfolios while Figure 1.3 shows the potential annual savings.

Figure 1.2 Annual Budgets

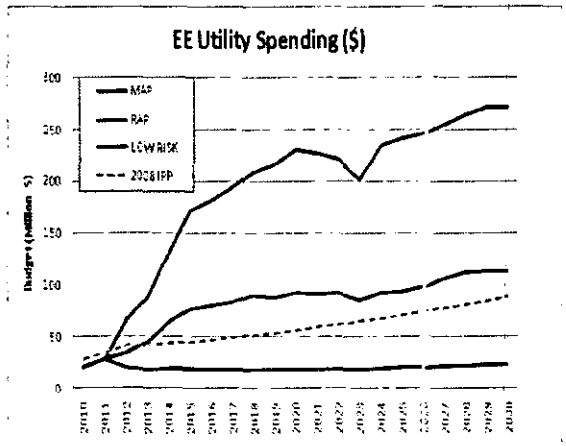
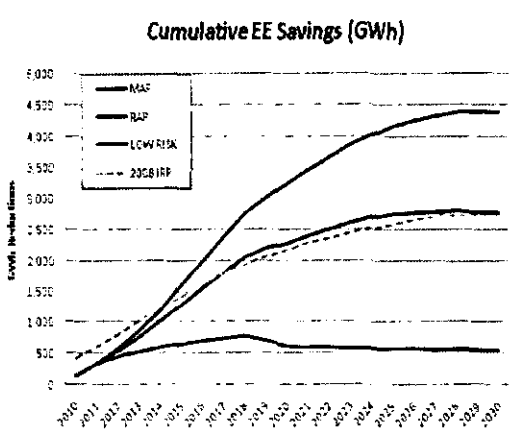


Figure 1.3 Annual Savings



*RAP-Realistic Achievable Potential, MAP-Maximum Achievable Potential

A DSM portfolio is initially measured by its cost-effectiveness. The Total Resource Cost (TRC) test, which measures benefits and costs from the perspective of the utility's customers and society as a whole, is a commonly used measure of cost-effectiveness. In short, if the benefits outweigh the costs then the ratio will be greater than one. It should be noted that the TRC is a screening-level assessment that does not reflect risk and that the results of integration and risk analysis determine cost-effectiveness on a risk-adjusted basis. With a levelized cost of energy near 4 cents/kwh, energy efficiency is less expensive than the supply-side alternatives. Ameren Missouri's analysis has also quantified some of the unique risks associated with implementing demand-side programs.

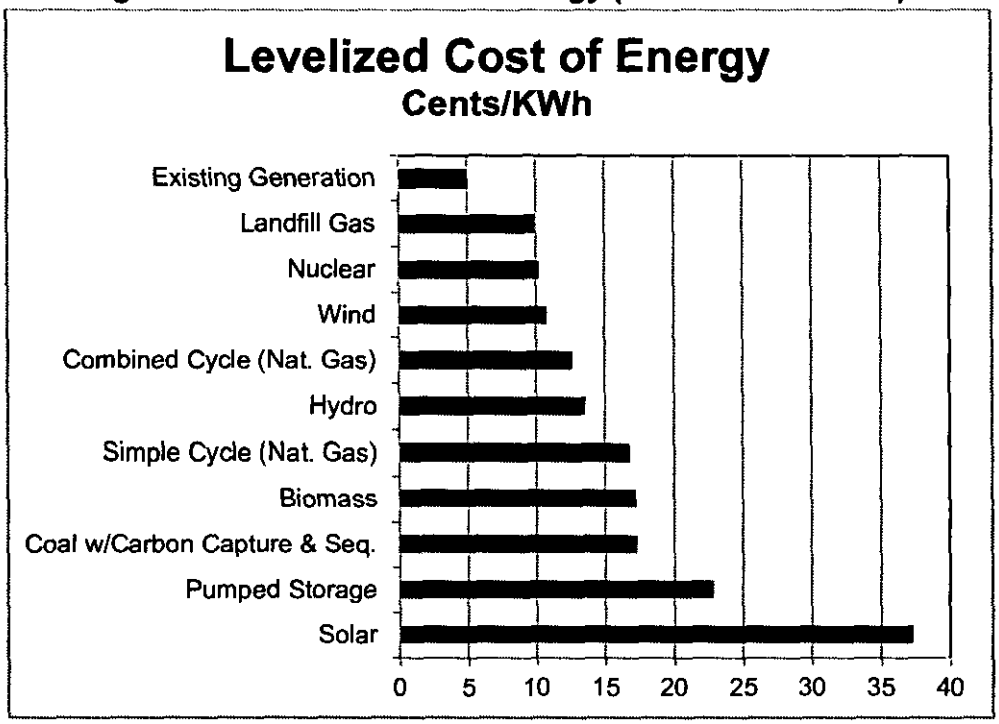
Relative Costs of Future Resource Options

Some generation technologies cost a lot more to construct and then have much lower operating costs. Others cost a lot less to construct but have higher operating costs. The

expected lifetime of generation assets also varies by technology. One way to compare the relative costs of different generation technologies is to calculate a levelized cost of energy. To do this, we calculate the total costs of production - construction and operating costs, including environmental and fuel costs - over the expected life of the plant. Then we divide that by the amount of energy the plant produces over its lifetime. Coal traditionally has been an economically attractive fuel for generating power because it is so abundant.

As shown in Figure 1.4, the levelized cost of energy produced by Ameren Missouri's existing generation fleet (mainly electricity generated by coal and nuclear facilities) is much lower than any new generation resource we might add in future years to meet our customers' rising need for power.

Figure 1.4 Levelized Cost of Energy (Without Incentives)



With potential mandates requiring the reduction of CO_2 and other air emissions and potentially more stringent environmental regulations on water quality and ash disposal, coal becomes more expensive as a future generation source unless technological advances drive these costs down.

Natural gas is also a strong choice, particularly with efficient, smaller gas-fired facilities that are less expensive to build than coal or nuclear plants. But fuel costs for natural gas are about double the price of coal right now, and natural gas prices have traditionally been volatile, meaning that they can change rapidly.

Since 2001, nuclear power plants have achieved the lowest production costs when compared to plants fired with coal, natural gas and oil. In addition, nuclear power produces virtually no air emissions and is a great choice to address future environmental regulations. However, due to their large scale and the significant regulation controlling nuclear energy, nuclear power plants can be more challenging to build, finance and operate than plants fueled by other sources.

It is clear that all new supply-side options are more expensive than Ameren Missouri's existing resources and thus would likely result in increased rates when implemented. This is not unexpected given the age of existing units, some of which were constructed in the 1950's, and the less stringent environmental regulations at the time they were built. It is also why Ameren Missouri has and will continue to evaluate options to extend the life of its existing fleet and increase the production capabilities of existing plants.

Finally, energy efficiency might seem to be a good choice. While not typically considered a traditional generation option, an energy efficiency program that is significantly embraced by customers could be the cheapest choice (that is, similar to our existing generation costs) to meet our customers' future energy needs. However, there are meaningful expenses related to offering customer rebates and discounts on energy efficient appliances, providing weatherization services and energy audits, installing energy efficient equipment, and promoting the efficient use of electricity. In addition, proper incentives and customer acceptance are key drivers.

Key Factors Influencing Resource Choices

Costs alone do not dictate which energy resources offer the greatest development potential. In our planning process, we looked at a range of factors in analyzing possible resources. They include:

Portfolio Diversity: Consistent with other electric energy providers in our state, Ameren Missouri's generation portfolio is heavily weighted toward coal. We must thoughtfully transition our portfolio of generation to other sources, including potentially cleaner coal.

Environmental Regulation: We must assess the current and potential long-term impacts of expected environmental regulations on our power plants.

Costs to Customers: We must be mindful of the impact that our future energy choices will have on our customers' rates and future energy bills.

Ability to Finance Future Energy Sources: In determining the right energy resource, we analyze our ability to finance its construction and the long-term costs to our customers.

Economic Development Impact: We evaluate the economic impact of any decision to add new energy resource projects – the number of jobs, tax revenues, and other

economic benefits a project is expected to bring can be very important to the communities we serve and the entire state of Missouri.

Regulatory and Legislative Matters: We need to assess how well the current or future regulatory and legislative frameworks enable our ability to move forward on certain energy resource options. In particular, those frameworks need to provide timely recovery of, and fair returns on, these significant investments, as well as provide appropriate safeguards for our customers.

One example in this arena is the mechanism (or lack thereof) to finance a large new generating plant during construction. Under current Missouri law, costs associated with building a new generating plant cannot be reimbursed through customer rates until construction is completed and the plant is serving customers. Projects of this magnitude take several years to plan and complete and cost hundreds of millions of dollars and in some cases several billion dollars. This framework creates significant challenges to finance and move large scale projects forward and will be a factor in choosing energy resource options in the future.

Another example is the issue of utility incentives for promoting energy efficiency. Because the existing regulatory framework provides an incentive for utilities to maximize sales of electricity, shifting utility incentives in favor of energy efficiency require the use of alternative ratemaking approaches. Rate treatment related to utility energy efficiency programs can be separated into three categories – program cost recovery, lost revenue, and performance incentives. Of these, lost revenue represents the greatest hurdle which must be overcome to align utility incentives with promotion of energy efficiency. The reason for this, simply put, is that for each kwh of reduced sales the utility loses revenue for that kwh until it is reflected in the development of rates in the utility's next general rate case. Until this significant disincentive is addressed, utilities will be reluctant to pursue aggressive energy efficiency goals.

In order to support a more transparent discussion of the trade-offs between cost and other factors, Ameren Missouri used a scorecard approach to screen alternative resource plans and ultimately select its Preferred Resource Plan. Table 1.1 shows the six major categories that represent Ameren Missouri's policy objectives and the various measures used to evaluate plans in each category, reflecting our

Table 1.1 Policy Objectives

Policy Objective Category(ies)	Measure(s)
Environmental & Resource Diversity	Resource Diversity, Carbon Emissions, SO2 Emissions, NOx Emissions
Energy Efficiency	Energy Savings
Financial/Regulatory	ROE, ROIC, EPS, Free Cash Flow, Stranded Cost Risk, Transaction Risk, Recovery
Customer Satisfaction	Average Rates Single-Year Rate Increase
Economic Development	Primary Job Growth (FTE-years)
Cost	PV Revenue Requirement

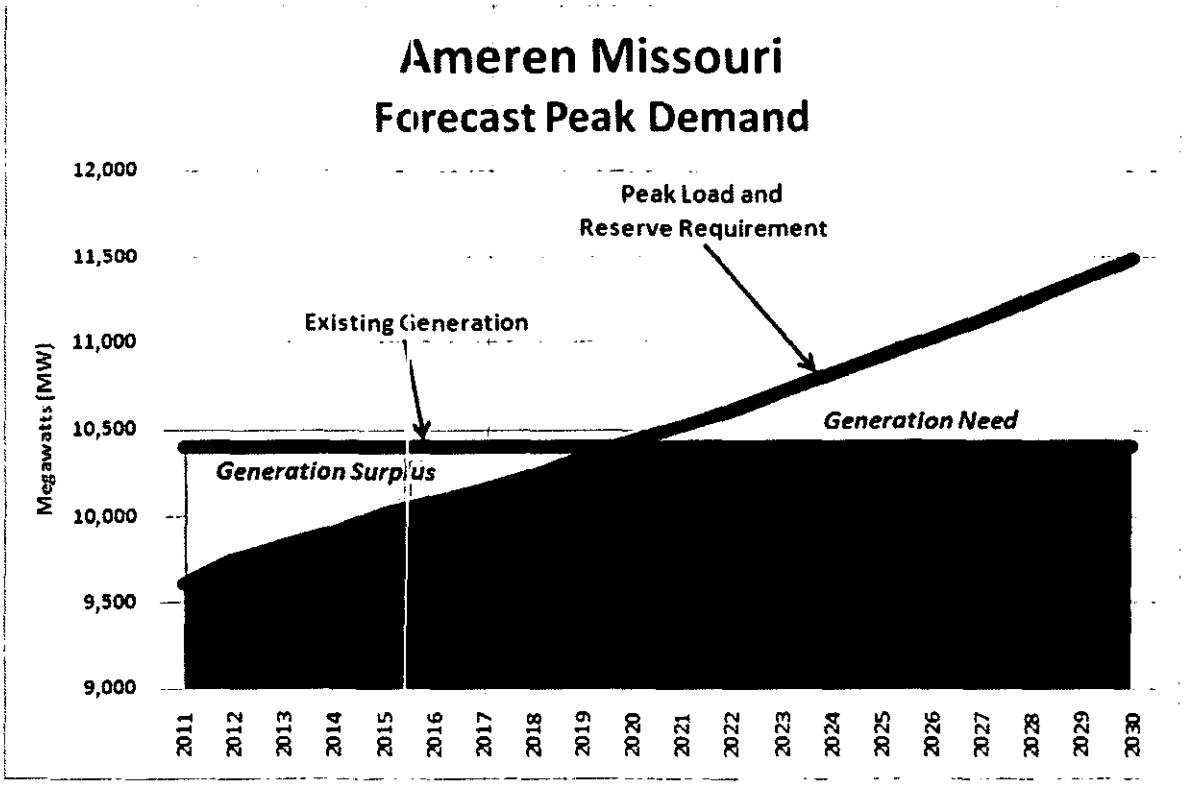
consideration of the factors listed above. Initially, as described in Chapter 9, the 216 alternative resource plans were all screened using this scorecard. At that time only one measure was used per category since there were so many plans being analyzed. Once there were only a few plans remaining, more measures (including qualitative measures) were included to support a richer discussion and differentiation of each plan. While cost remained the primary driver, the other factors weighed heavily into the decision making.

Resource Needs

As stated earlier, we believe the demand for power will continue to grow—in fact, we forecast demand will increase about 20% in our service territory over the next two decades.

As shown in the chart in Figure 1.5, Ameren Missouri currently has about 10,400 megawatts of electric generation capability. The chart also indicates that by 2020, with expected load growth and existing environmental regulations, Ameren Missouri will need additional resources to meet expected customer demand and reliability reserve requirements.

Figure 1.5 Ameren Missouri Resource Position

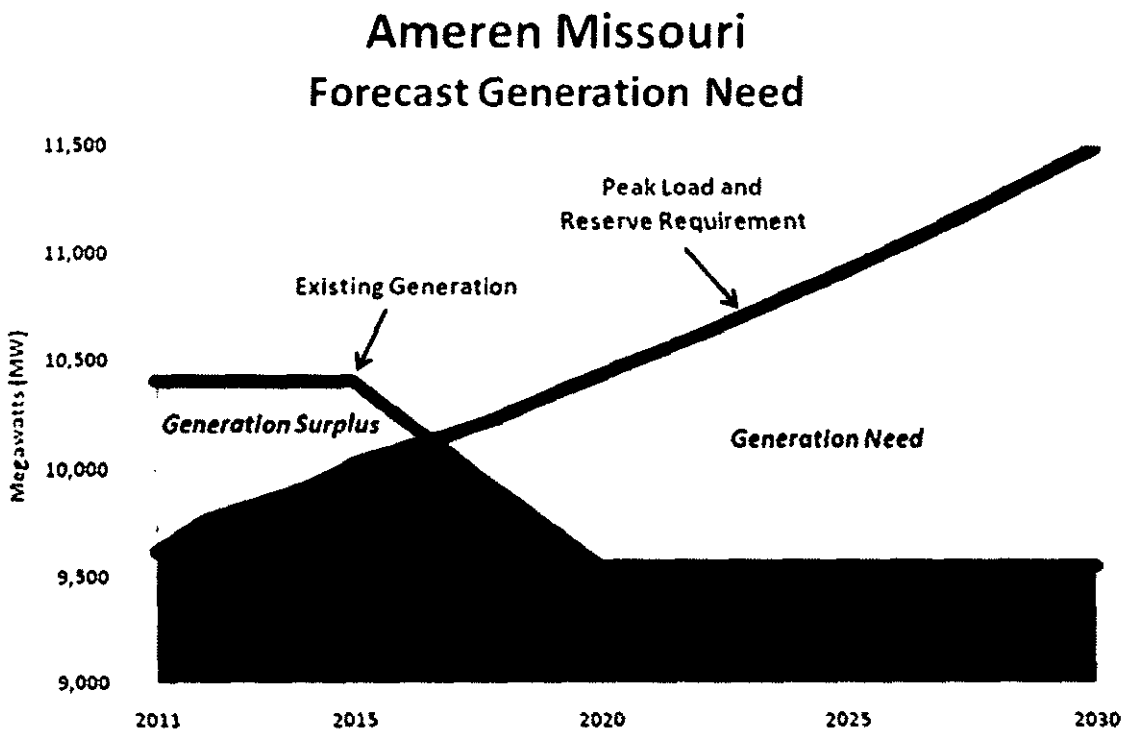


The previous chart identifies a need for more generation by 2030 should no new environmental regulation be mandated. As stated previously, while there is a great deal of uncertainty in the area of environmental regulation, we do believe that more stringent

regulations on air emissions, water and waste will be in place between 2015 and 2020. The costs to meet those regulations are expected to be significant, will drive up energy costs, and are likely to cause older, less efficient coal-fired plants to shut down, including our Meramec Power Plant.

Rising customer demand, when coupled with the shutdown of Meramec Plant, will result in a meaningful shortfall of generation available to meet our customers' needs – about 1000 megawatts by 2020. That shortfall continues to grow through 2030. The chart in Figure 1.6 illustrates the need for resources under such circumstances. The chart presents the resource position in five-year steps to recognize the uncertain nature of the timing of new environmental rules and the potential need for retirement of Meramec.

Figure 1.6 Ameren Missouri Resource Position with Meramec Retired



The adoption by Missouri voters of a state Renewable Electricity Standard ("RES") in 2008 has introduced a new layer into the planning process. Not only does Ameren Missouri need to meet future capacity needs but it also needs to do so while meeting the RES requirements. The state RES has both a solar and non-solar requirement. Ameren Missouri recently installed solar panels at its St. Louis General Office Building, but must acquire additional solar resources to comply in 2011. Table 1.2 shows

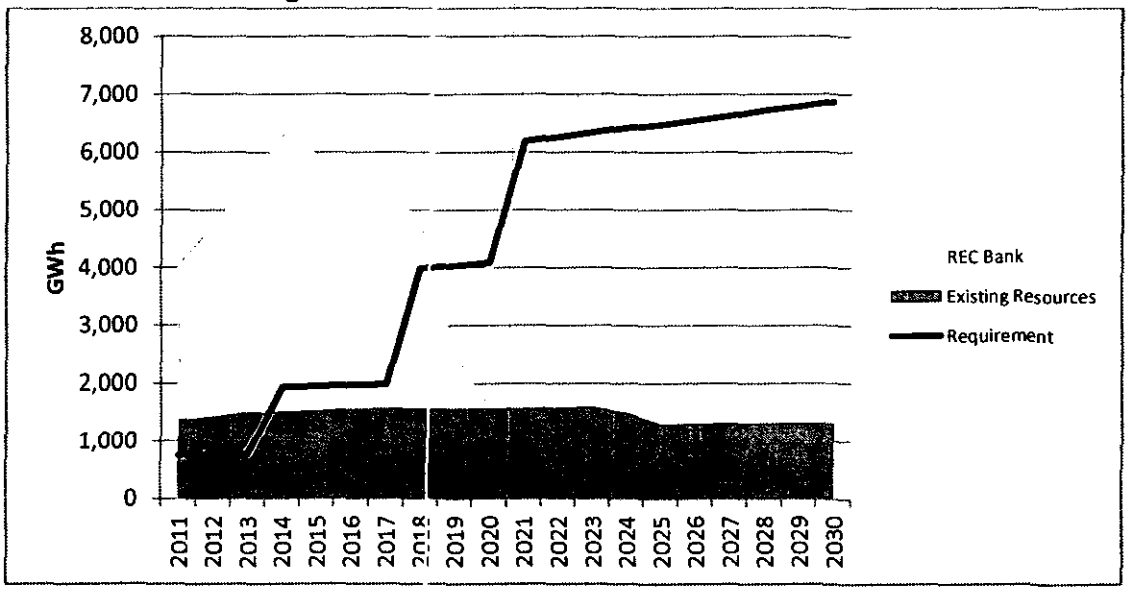
Table 1.2 Solar Energy Needs (MWh)

Year	Solar Requirement
2011	15,049
2012	15,312
2013	15,387
2014	38,718

the megawatt-hour solar requirements over the next several years while Figure 1.7 depicts how Ameren Missouri's existing renewables resource compare to the non-solar RES requirements once banking of credits is considered. It is evident that no additional non-solar resources are needed until 2019.

With the resource needs outlined above in mind, Ameren Missouri has evaluated a range of options to meet these needs. Both supply side options, such as power plants, and demand side options, such as energy efficiency programs, were considered.

Figure 1.7 Ameren Missouri Renewable Position



Alternative Resource Plans

Developing alternative resource plans includes the combination of various demand-side and supply-side resources to meet future capacity needs. However, there are other factors that could cause dramatic changes in the capacity position that need to be considered when developing plans. Figure 1.8 includes the five dimensions considered during the development of resource plans. The permutations of these five dimensions would create 416 plans. However, some combinations may create duplicate resource plans or plans that do not make sense. For example, the Meramec combined cycle option is contingent on Meramec's retirement so the interaction of Meramec continuing and the Meramec combined cycle option would produce an infeasible plan. Ultimately there were 216 plans to be analyzed.

Figure 1.8 Five Attributes of Alternative Resource Plans

Supply-Side Types
- Coal with Carbon Capture
- Combined Cycle (Greenfield)
- Combined Cycle (Meramec)
- Combined Cycle (Venice)
- Simple Cycle (Greenfield)
- Pumped Storage
- Nuke 30% (Partial Ownership)
- Nuke 50% (Partial Ownership)
- Wind with Simple Cycle

Renewable Portfolios
- Federal
- Missouri

Demand-Side Portfolios
- Maximum Achievable Potential
- Realistic Achievable Potential
- Low Risk
- None

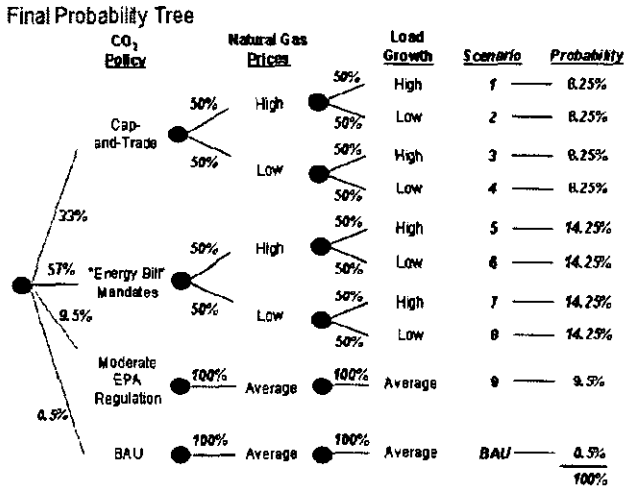
Meramec Status
- Meramec Retired 2015
- Meramec Retired 2022
- Meramec Continues As-Is

Noranda Status
-Noranda Continues
-Noranda Contract Expires 2020

Planning Scenarios

There are various uncertainties that can influence future resource decisions. Some of these uncertainties are highly interactive. That is, a change in one variable may cause a substantial change in another. For this reason it is useful to develop internally consistent scenarios of these uncertain variables. To develop its scenarios Ameren Missouri concluded the three factors with the largest influence on future resource decisions are carbon policy, natural gas prices, and economy-wide load growth. A third party interviewed Ameren Missouri experts to determine the likelihood of different future outcomes of each of those important factors. Figure 1.9 represents the end result those interviews, which culminated in the creation of 10 unique scenarios and associated probabilities. Each scenario is internally consistent with respect to the range of uncertain variables analyzed. This was achieved by using a model that simulates interactions in fuel and energy markets, electricity generation system operation, non-electricity sector outcomes, macroeconomic activity levels, and sector-specific responses to emissions limits. These scenarios and probabilities together comprise a probability tree and allow Ameren Missouri to test potential resource plans under a range of potential futures.

Figure 1.9 Scenario Probability Tree



Environmental Regulation

Coal-fired and other fossil-fired generating resources are subject to an ever-increasing range of environmental regulation. In particular, efforts by the U.S. Environmental Protection Agency in recent years indicate the desire to further limit power plant emissions and environmental impacts. Considering the gamut of potential environmental regulation, Ameren Missouri developed two scenarios, Moderate and Aggressive, to describe combinations of more stringent regulations and then translated those into expected requirements for equipment retrofits for its existing coal fleet. Table 1.3 contains the retrofit timing by scenario and power plant for each category of regulation.

Table 1.3
Plant Retrofit Timing by Scenario

Plant/Unit	Scenario	FGD (Scrubber)	ACI (Mercury)	Mesh Screens	Ash & Landfill	Cooling Tower	Water Plant
Labadie 1&2	Moderate	2020	2015	2017			
	Aggressive	2016	2015		2017	2017	2017
Labadie 3&4	Moderate	2024	2015	2017			
	Aggressive	2016	2015		2017	2017	2017
Meramec 1-4	Moderate		2015	2017			
	Aggressive	2016	2015	2017	2017		2017
Rush Island 1&2	Moderate	2016	2015	2017			
	Aggressive	2016	2015	2017	2017		2017
Sioux 1&2	Moderate	*2010*	2015	2017			
	Aggressive	*2010*	2015	2017	2017		2017

The characterization of environmental scenarios was used in the Meramec retirement analysis which considered the retirement of Meramec versus adding environmental controls or converting to a natural gas boiler. The comparisons ultimately indicated, under aggressive environmental regulations, it would be better to retire Meramec.

Financial Analysis

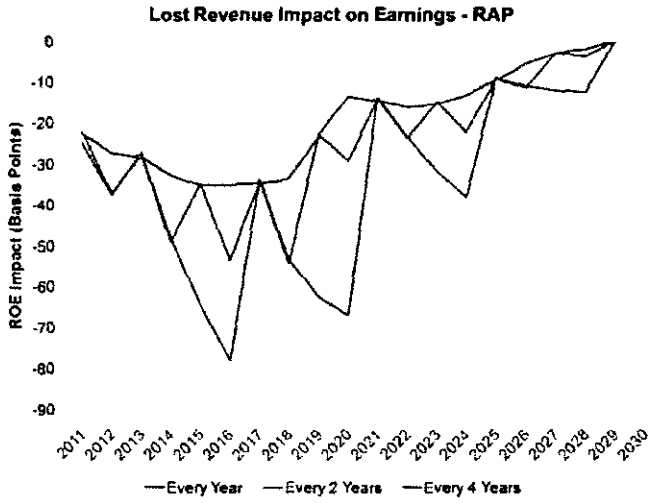
In a perfect world resources and plans can be evaluated assuming perfect ratemaking, unlimited access to capital markets, and perfect knowledge of the future. To accommodate the imperfections of forecasting and general market conditions Ameren Missouri has expanded its analysis to include a more realistic representation of the ratemaking environment and the realities of financial markets. Assuming a rate case every other year and a 6-month lag between the cost period on which rates are set and when they go into effect helps better emulate the financial effects of implementing aggressive energy efficiency programs and large plant capital investments.

The large investment financial analysis indicated compliance with more stringent environmental regulations or construction of large baseload generation assets could strain Ameren Missouri's ability to finance such investments at reasonable rates. It was evident that non-traditional ratemaking treatment may be needed to preserve Ameren Missouri's access to low-cost sources of capital.

The DSM financing analysis highlighted the substantial negative financial impacts to the Company from the implementation of energy efficiency under traditional Missouri regulation. The issue of "Lost Revenue" presents the greatest potential financial impact.

Lost Revenue is revenue the utility is not able to collect, because of reduced sales from energy efficiency gains, between the time energy savings begin to occur and the time customer rates reflect the reduction in sales. Figure 1.10 shows the impact to utility earnings due to lost revenue associated with implementation of the RAP DSM portfolio under varying assumptions for rate case frequency. It will be imperative to Ameren Missouri's DSM expansion plans to properly align utility financial incentives with efforts to help customers use energy more efficiently.

Figure 1.10 Lost Revenue Impact on ROE



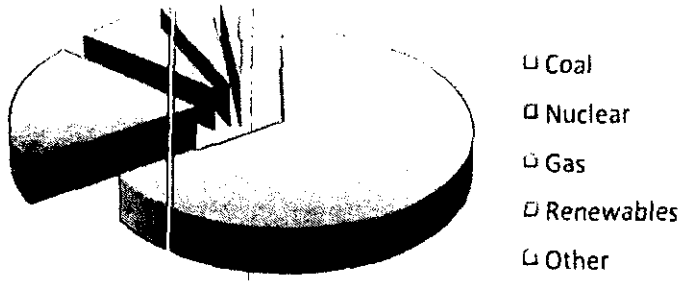
Resource Acquisition Strategy – Preferred Plan and Contingency Options

Considering all the factors that we discussed earlier in this report, a few alternatives rise to the top—from business as usual, to relying heavily on natural gas-fired power, to a combination of natural gas and nuclear energy to a heavy reliance on energy efficiency. Under each of these options, we believe our customers' future energy rates could rise meaningfully from current levels. Here is a summary of our options:

The Preferred Resource Plan

Among the top alternatives, the lowest cost resource plan for our customers under Missouri's current regulatory framework would occur should the environmental regulations for air, ash and water that are in place today remain largely unchanged for the next 20 years. Under this scenario, our current generation portfolio would not change significantly until 2030, when we would add combined cycle natural gas generation to our portfolio. At that time, coal would drop to 66% from its current level of 75%; natural gas would grow to 7% from 1% currently; renewable energy would grow to 5% in compliance with the renewable energy standard in Missouri; and nuclear would remain at about 20%. We would employ a modest program offering incentives to customers to use energy efficiently. Figure 1.11 shows the generation mix for the Preferred Resource Plan.

Figure 1.11 Generation Mix – Preferred Resource Plan

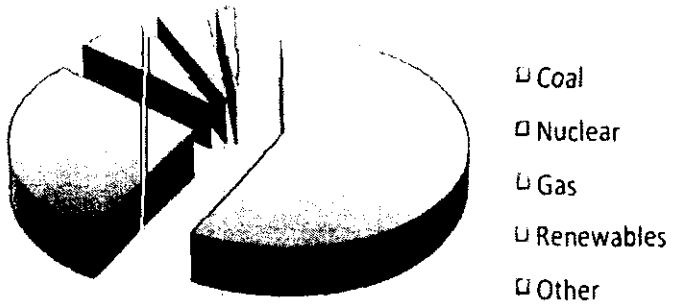


While this is the lowest cost resource plan, it is not likely to be sufficient in light of expected new regulations to be issued by the EPA. As stated previously, we expect those new regulations could be significant and will drive us to consider other resource options in the future. Each of these options will drive customer rates higher to address these new environmental regulations and to meet future customer energy needs. We currently believe the following three options are the best to consider for the future.

The Natural Gas / Nuclear Plan

Under this plan, new environmental regulations in the 2015 to 2020 time frame would cause us to replace Meramec with a combined cycle natural gas plant. As demand continues to grow in the future, those needs would be met with new nuclear generation. With this plan, by 2030 coal's percentage of the total portfolio would drop to 58% with the closing of our oldest coal-fired power plant. Our use of nuclear energy would rise from a current level of 18% to 28%. With the addition of combined cycle units in the 2016 to 2020 timeframe, natural gas-fired generation would grow to around 7%. Figure 1.12 shows the generation mix for the Natural Gas / Nuclear Plan.

Figure 1.12 Generation Mix – Natural Gas / Nuclear Plan

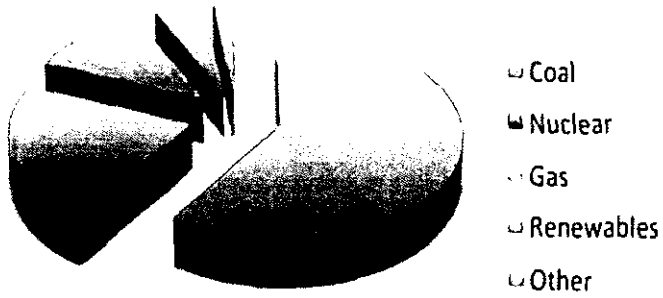


This approach to meeting our future energy needs has several important advantages. First, it would allow us to effectively comply with tougher environmental regulations on a timely basis and better position our future generation portfolio to address more stringent environmental regulations down the road. Second, building a new nuclear plant would create significant jobs and strong economic development opportunities for the state. However, moving forward on a nuclear plant presents construction, financing and operating challenges.

The Natural Gas Only Plan

This plan calls for natural gas to meet the vast majority of our new energy needs. This plan would result in natural gas growing to 12% of the total portfolio, twelve times its current level, while coal-fired generation would drop to 60%. Meramec would be closed between 2016 and 2020, while highly efficient natural gas-fired units were built. The percentage produced by nuclear energy rises slightly to 22% as a result of dispatch changes due to expected future market conditions. Figure 1.13 shows the generation mix for the Natural Gas Only Plan.

Figure 1.13 Generation Mix – Natural Gas Only Plan

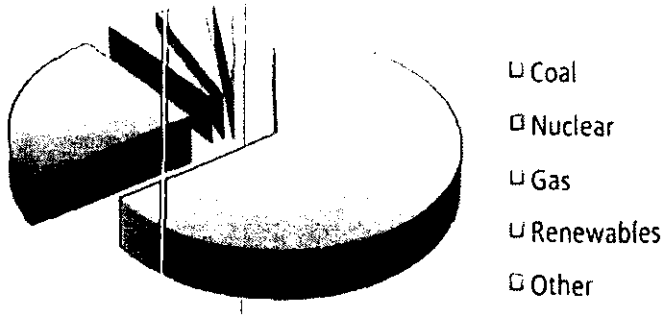


This plan helps us reduce carbon emissions, but natural gas fired plants would still emit half the carbon dioxide of coal-fired units. In addition, as mentioned earlier, natural gas prices have historically been very volatile. Not as many jobs would be created with this option, but construction and operating risks would be lower.

The Energy Efficiency Plan

Under this plan, our future energy needs would be met solely through greater energy efficiency. With this plan, we would aggressively expand our portfolio of energy efficiency programs, with the hope that customers would embrace these programs and realize energy savings. Our oldest coal-fired plant would be retired in the 2016 to 2020 timeframe. This plan calls for nuclear energy's percentage of the total to rise slightly to 24% as a result of dispatch changes due to expected future market conditions. Figure 1.14 shows the generation mix for the Energy Efficiency Plan.

Figure 1.14 Generation Mix – Energy Efficiency Plan



This plan helps us reduce overall emissions with less total generation required. Some jobs would be created as well, through energy efficiency projects completed by our customers at their homes and businesses. The success of this approach depends on a state regulatory framework that encourages utility investment in energy efficiency programs and the willingness of customers to embrace energy efficiency programs and work with us to save energy.

Resource Acquisition Strategy – Decision Roadmap

Each of these plans represents a viable approach that meets our customers' future energy needs and creates different opportunities for our state. Each also has its share of challenges, including cost, construction and financing risks.

The IRP analysis indicated that retiring Meramec is preferred if future environmental regulations require significant capital investment. Until we have an accurate picture of new regulations and the implications to our existing fleet, Meramec will continue operating without the addition of expensive environmental controls. While both nuclear and aggressive DSM plans are potentially viable alternatives to the natural gas combined cycle plan, both face significant regulatory and financial barriers.

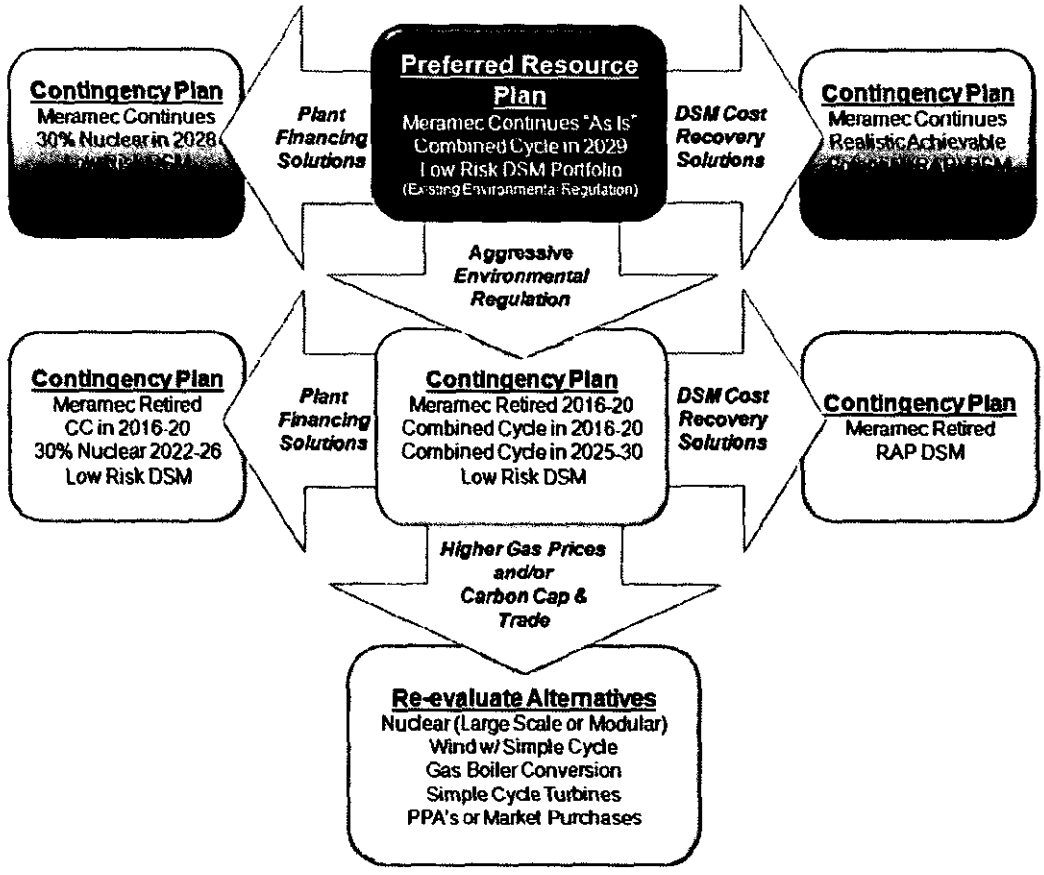
The IRP analysis showed aggressive DSM plans are likely to result in the lowest cost to customers over the planning horizon, so if regulatory barriers to implementation are removed the aggressive DSM plan could become the preferred plan. Although the MAP portfolio was more cost-effective from a TRC perspective, once the additional risk of portfolio energy savings and cost was considered RAP emerged as the dominant DSM portfolio. The significant uncertainty around achieving targeted energy savings levels necessitates that Ameren Missouri preserve viable supply-side resource options and pursue ratemaking options that enable them.

The IRP analysis showed that significant investment in new resources could necessitate the use of alternative ratemaking or financing methods to ensure access to low-cost

sources of capital. If alternative ratemaking structures are enabled, then the financial hurdles for those options could be easier to overcome

Figure 1.15 shows Ameren Missouri's Preferred Plan as well as a robust set of contingency options that reflect the alternative paths described above, both with existing environmental regulation and more aggressive environmental regulation. This "Decision Roadmap" highlights the paths that could be taken should regulation change to a degree that causes Ameren Missouri's management to select a different course of action from that represented in the Preferred Plan. Such changes represent seismic shifts in the resource planning landscape that go beyond the capabilities of analyzing uncertainty with ranges and probabilities. However, by considering such important decision factors we can better prepare ourselves to change course when appropriate.

Figure 1.15 Decision Roadmap



Resource Acquisition Strategy - Implementation Plan

Over the next three years Ameren Missouri will be engaging in several activities to implement the Preferred Resource Plan and to keep contingency options open. Although the Preferred Resource Plan does not show the need for a supply-side resource until the latter portion of the planning horizon, the contingency options call for

a combined cycle plant as early as 2016 if more stringent environmental regulations result in the retirement of Meramec. Ameren Missouri will start investigating viable sites for combined cycle generation and begin engineering studies in the case environmental regulations become more aggressive and accelerate the need for new resources.

To preserve the nuclear option, Ameren Missouri and a coalition of other utilities will be seeking an Early Site Permit for a second nuclear unit at Ameren Missouri's Callaway site, should appropriate legislation be passed. Furthermore, the cost to continue operations at a plant of Meramec's vintage will impact that retirement decision, so Ameren Missouri will continue to study the ongoing costs to keep Meramec operating safely and reliably.

Ameren Missouri will continue to advocate for better alignment of utility financial incentives to ultimately support the state's goal of achieving all cost-effective DSM. Ameren Missouri will continue pursuing a modest energy efficiency portfolio, which helps to preserve the option to switch to a more aggressive path. To comply with renewable energy mandates in the short term, Ameren Missouri is purchasing solar renewable energy credits to supplement the production from its recently installed solar panels at its St. Louis Headquarters. Some additional solar support will come from Ameren Missouri's existing tariff to procure solar credits through customer-owned generation.

Because the consideration of uncertainty and risk is an important aspect of the IRP process, Ameren Missouri will continue to monitor those factors that may cause it to consider pursuing a different plan than the Preferred Plan. Ameren Missouri considered 22 uncertain factors and concluded several are critical to future resource decisions. Below is a list of factors Ameren Missouri will be watching closely to determine whether changes to its plan are necessary.

- Carbon Policy
- Natural Gas Prices
- Project Costs
- Environmental Regulations
- DSM Impacts and Costs
- Load Growth
- Interest Rates and Financial Metrics

While Ameren Missouri believes it has conducted a thorough analysis of resource needs, options and uncertainties, it is important to note that this IRP represents a snapshot of the Company's expected resources and loads, and provides guidance regarding potential resource needs and acquisitions. Ameren Missouri is continuously planning and adapting to market conditions. In doing so, there will be opportunities for interested parties to engage in discussions on every topic analyzed in this IRP. For that reason the value of the IRP transcends simple compliance with PSC rules and serves as an analytical backdrop to discussions that can shape constructive Missouri energy policies.