



FOCUSED

ON PLANNING FOR A **Secure Energy Future**



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A MESSAGE FROM AMEREN MISSOURI'S CHIEF EXECUTIVE OFFICER

As the State of Missouri's largest electric energy provider, we focus our energy on planning for Missouri's energy future. We recognize that having an abundant, reliable and affordable supply of energy provides more than comfort — it is essential to our state's economy, energy security and our way of life.

Every three years, we are committed to providing the Missouri Public Service Commission with our Integrated Resource Plan. It reflects our analysis of our customers' future energy needs and how we might meet those needs. By optimizing day-to-day operations, while planning strategically for the long-term, we ensure that the energy needed to power our lives and economy is there — not just for today, but for generations to come. That is our promise.

The purpose of this document is to share with you some of the analysis in our Integrated Resource Plan, along with our key observations on the future energy issues facing our state. We hope this process will also spur discussion across the state about the best solutions for our energy challenges.

Planning for Missouri's future energy needs is challenging. Today, there is a great deal of uncertainty surrounding future environmental regulations related to air emissions, ash waste and water use at power plants. These regulations would raise the cost of operating our state's coal-fired plants, which today supply about 80% of our state's electricity needs. This uncertainty, when coupled with a coal-fired generating fleet that is — on average — 40 years old, creates questions about the long-term viability of certain coal plants. Of course, our state, region and country are also facing significant economic challenges, which clearly affect long-term energy resource planning.

While the lack of clarity on both economic and environmental issues is very real and meaningful, several things are certain:

- > When planning to keep electric rates as low as possible, it is in the best interest of our customers and the state to preserve all possible options for generation. The decisions we make over the next several years will impact many future generations of families and businesses, just as they did back in the late 1960s and early 1970s when the last cycle of new plants was built to provide power to our current generation of energy users. Simply put, we must get it right!
- > Getting it right will include the need for a public/private partnership, where Missouri's utilities, consumers and state leaders discuss, debate and successfully address these complex matters, including establishing a sustainable long-term energy policy for Missouri.

As I stated at the outset of this letter, we take seriously our role in planning for our customers' and our state's future energy needs. That role includes offering our analysis and potential solutions to these complex issues to our key stakeholders and engaging in meaningful dialogue around these matters. We welcome your input and engagement on these issues for the benefit of our state.

Sincerely,



Warner Baxter

What is an Integrated Resource Plan?

An Integrated Resource Plan reflects our current assessment of our customers' electricity needs over at least the next 20 years, as well as an assessment of how we might meet those needs with future generation resources. Filed every three years with the Missouri Public Service Commission, the plan complies with all regulatory requirements and contains a thorough analysis of economic data and trends, commodity prices and potential generation options. This plan was developed with input from many stakeholders and will be discussed further in proceedings before the Missouri Public Service Commission and likely in other forums.

What Are the Critical Drivers that Determine Future Energy Resource Needs?

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

Customer Demand: We may not realize it, but our homes are filled with appliances and gadgets that generally would not have been found in homes 20 years ago — energy-intensive large screen televisions, multiple personal computers, video games, wireless routers, cell phone chargers — the list is long. Missouri's population has grown about 7% in the last decade, and this growth has also contributed to the rising demand for power. Add to this, the preference industrial and commercial operations have for using electricity to keep their equipment running, and you will see that the demand for electricity is growing.

The statistics tell the story. 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: When we asked you what you wanted from your utility company, you told us you wanted reliable, affordable energy. And that's what we are focused on delivering. You realize that energy is essential to maintaining our way of life and critical to our state's economic future — so do we.

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. The chart shown in figure 1 highlights some of the regulations under consideration.

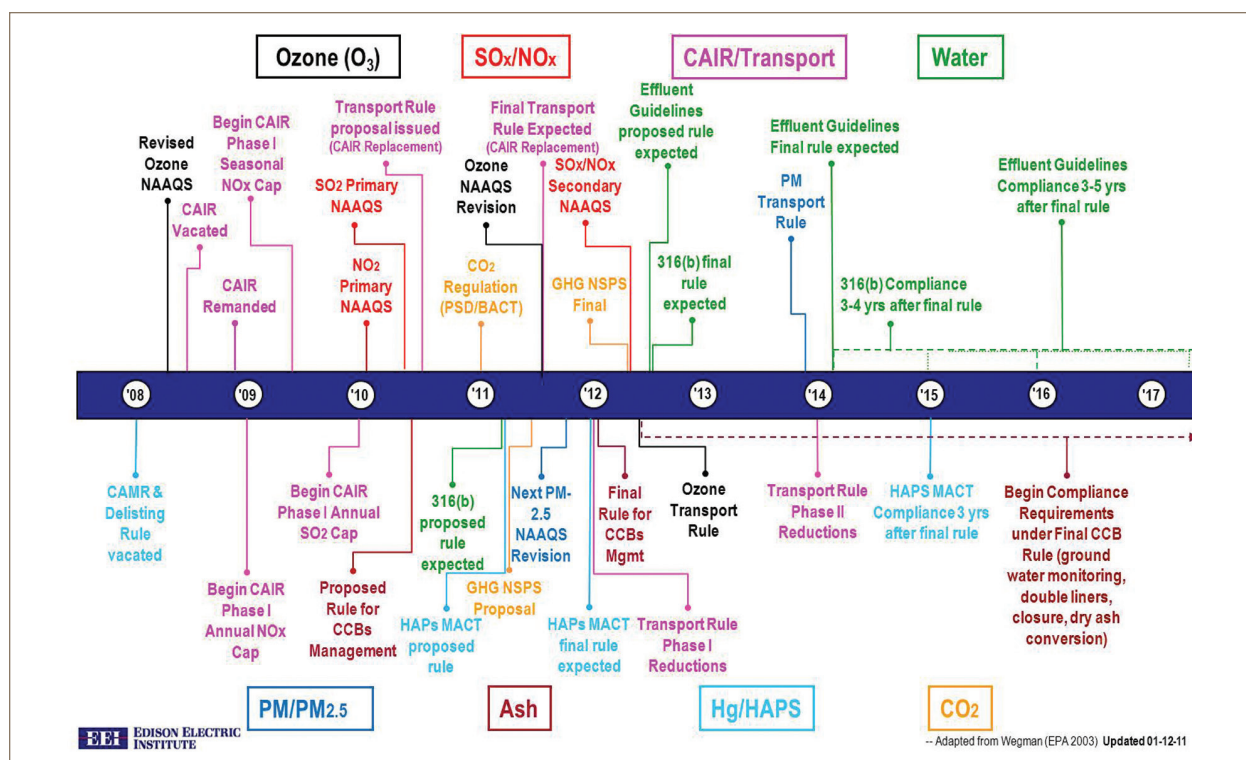


figure 1 - Source: Edison Electric Institute

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, its 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 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.

What are our 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, let's look at 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 would 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 require 70 – 80 times more land than what is typically needed for traditional energy sources.

So 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** 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 have to meet more stringent environmental standards in the future. New technologies are under development to meet these standards, including those to capture and bury carbon dioxide (CO₂). These offer promise as a long-term solution to climate change, but they are still mostly experimental.

Ameren is supporting this research in a number of ways. Through FutureGen 2.0, Ameren is working with the U.S. Department of Energy (DOE) to build the world's first full-scale oxy-combustion generating unit at its Meredosia Plant, near Jacksonville, Ill. If this project gets the green light to move forward, it would create as many as 1,000 temporary and 150 permanent jobs for Central Illinois. Ameren has also joined with other Missouri utilities in the Missouri Carbon Sequestration Research Project to test carbon storage over a 1,500-acre site in Springfield. In addition, Ameren has contributed \$2 million to support the Consortium for Clean Coal technology at Washington University in St. Louis.



- > **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 plants have achieved the lowest production costs when compared to plants fired with coal, natural gas and oil. However, due to the complexity and the significant regulation controlling nuclear energy, nuclear 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 CO₂ emissions of a coal-fired plant), but it, too, offers price uncertainty because natural gas costs have historically been very volatile, meaning that they can change rapidly. 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 that 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 consistent electricity. 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. With 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. Information about how solar energy technologies work and a program to calculate costs versus benefits associated with solar installations will also be available online in the spring of 2011 through **Ameren.com/Solar**.



- > **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. In fact, greenfield pumped-storage hydroelectricity, while relatively expensive, currently provides one of the most commercially important means of large-scale

energy storage available, thereby increasing the viability of intermittent renewable energy sources. 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 Portfolio Standard, in addition to qualifying as a renewable resource in pending 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. 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 technology installed, as well as lots of land to obtain meaningful scale.



- > **Energy efficiency.** The resource plan we filed in early 2008 called for reducing demand and energy growth through a range of programs that encourage saving energy. We have implemented a range of energy efficiency programs to help our customers manage the impact of rate increases and, at the same time, protect the environment. These range from financial assistance for home and business improvements to energy audits and appliance rebates. Customers participating

in our programs have saved enough energy to power over 15,000 homes for a year. However, the effectiveness of all energy efficiency programs depends on customer acceptance. We need to provide the right set of regulations and incentives for both providers and consumers to drive more programs and increase customer acceptance. For more on energy efficiency, visit ActOnEnergy.com.

What are the Relative Costs of each Option?

Assessing the relative costs of generating power from plants using different technologies is complex. 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. For example, the expected life of a large baseload plant may be twice that of some other technologies.

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 2, the levelized cost of energy produced by Ameren Missouri's existing generation (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. With expected mandates requiring the reduction of CO₂ 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.

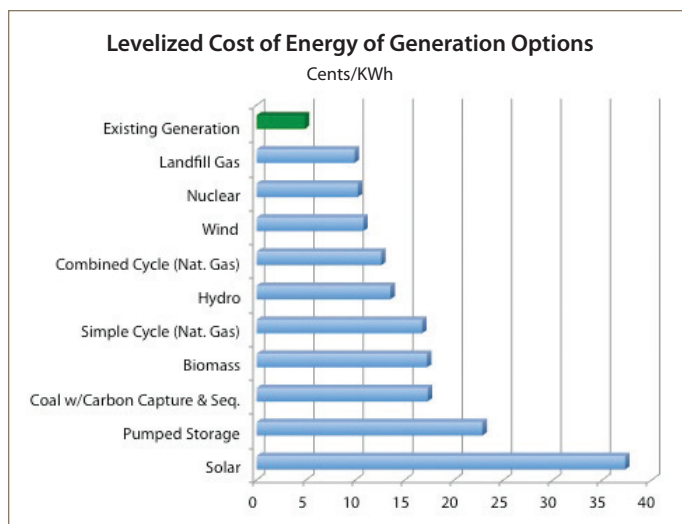


figure 2

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. Since 2001, nuclear 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 the large scale and the significant regulation controlling nuclear energy, nuclear plants can be more challenging to build, finance and operate than plants fueled by other sources.

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.

What are the Key Factors We Consider in Making our 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.
- > **The 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.

Renewable energy development in Missouri is an example where regulatory and legislative matters

must be considered. In November of 2008, voters approved Proposition C, also known as the Clean Energy Initiative. The idea behind this initiative was a good one — to accelerate development of renewable resources. Unfortunately, Proposition C contained two conflicting goals. On one hand, it set a goal of getting 15% of our electricity from renewable resources by 2021. On the other hand, it limited rate increases supporting new renewables to 1% or less. Based on current costs for renewable energy, both goals cannot be met at the same time. Ameren Missouri is working with the Missouri Public Service Commission and stakeholders across the political spectrum to continue developing new renewable resources while limiting any rate increases needed to support them consistent with Missouri law.

Another example in this arena – one that has received a lot of attention in the past — 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.

What is Ameren Missouri's Point of View on These Factors?

So what is Ameren Missouri's perspective on some of the key factors driving our energy needs and resource options?

- > 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.

- > Environmental Regulation: While, as we have stated, there is a great deal of uncertainty in this area, 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 Plant.
- > The Bottom Line: Rising customer demand, when coupled with the likely shutdown of Meramec Plant, will result in a shortfall of generation available to meet our customers' needs — about 1,000 megawatts in 2020. That shortfall continues to grow through 2030. The chart below tells the story:

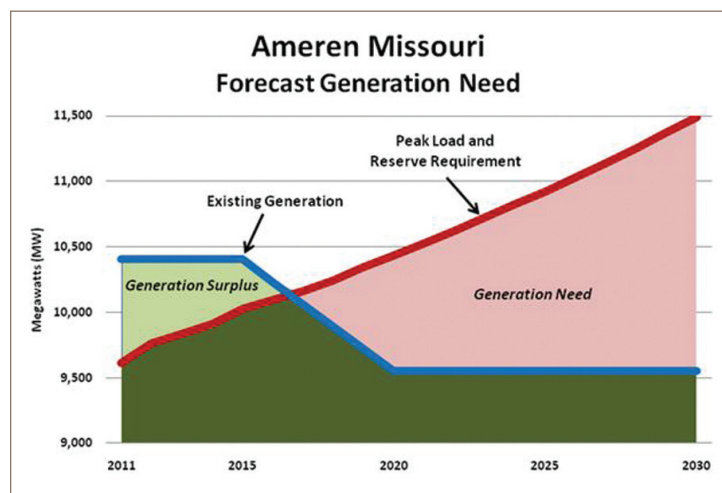


figure 3

What is our Best View of Future Generation Alternatives?

Today, we are not committed to a single path to meet our future energy needs. We have literally analyzed hundreds of different approaches. 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 Top Alternatives

Our Current Generation Mix



75% Coal • 20% Nuclear • 4% Renewable

The Lowest Cost Resource Plan

The lowest cost resource plan for our customers under Missouri's current regulatory framework would occur if 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 to replace our Meramec plant, which will then be 75 years old. 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.

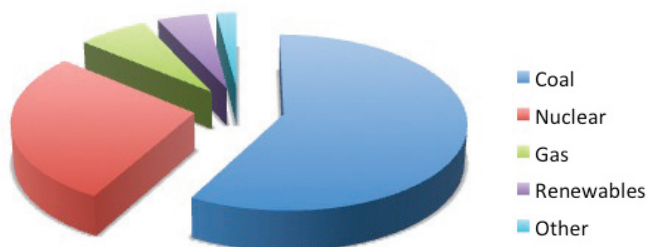


66% Coal • 20% Nuclear • 7% Natural Gas • 5% Renewable

With Expected Additional, Stringent Environmental Regulations, There are Three Options:

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 will 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.

1) The Natural Gas/Nuclear Plan

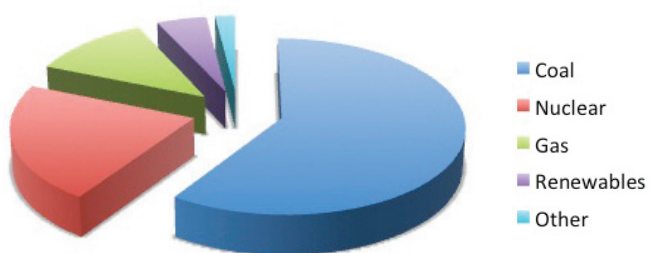


58% Coal • 28% Nuclear • 7% Natural Gas • 5% Renewable

Under this plan, new environmental regulations in the 2015 to 2020 time frame would cause us to replace our oldest coal-fired unit 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 plant. Our use of nuclear energy would rise from a current level of 20% to 28%. With the addition of combined cycle units in the 2016 to 2020 timeframe, natural gas-fired generation would grow to around 7%.

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 creates construction financing and operating challenges.

2) The Natural Gas-Only Plan

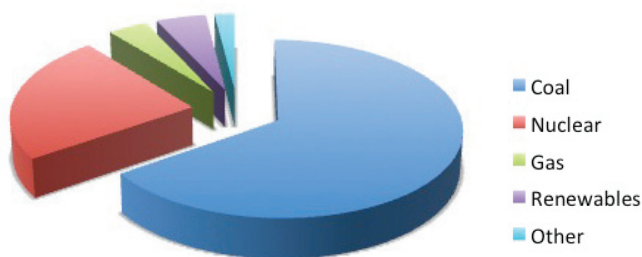


60% Coal • 22% Nuclear • 12% Natural Gas • 5% Renewable

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%. Our oldest coal plant would be closed between 2016 and 2020, while highly efficient natural gas-fired units would be built. The percentage produced by nuclear energy rises slightly to 22% as a result of expected future market conditions.

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.

3) The Energy Efficiency Plan



66% Coal • 24% Nuclear • 4% Natural Gas • 5% Renewable

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 expected future market conditions.

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.

From this brief summary of the options we are considering, you can get a glimpse of the journey we have taken and some of the key issues that must be considered. Each of these plans is 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.



From left; Michael Butler, building service mechanic; Peggy Muckensturm, managing supervisor, Finance; Yvette Hamilton, supervisor, Customer Service; Lance Green, cable splicer; Matthew Pasley, financial specialist; Tom Voss, president and chief executive officer, Ameren Corporation; and Kelly Foster, customer contact representative.

Where do We Go from Here?

Now is the time to engage in meaningful dialogue around the energy issues we raised in this document, as well as the options we presented. Now is the time to take actions that create greater flexibility to meet our future energy needs and open up ways to address the wide range of uncertainties we face in the future. And now is the time for key stakeholders to come together to focus on public/private partnerships, to successfully work together and to address the important energy matters for our state and all of its constituents.

As you can see, securing Missouri's energy future depends on understanding the choices, facing the challenges and engaging key stakeholders and policymakers in supporting the best possible decisions. We need your participation in these important energy policy discussions as we move forward in what is a continuous initiative to plan and select the best path forward for our state. Together, we can invest in the right mix of generation. We can make sure that safe, abundant, affordable, reliable and environmentally responsible power is available for all of us today and for our children tomorrow. But we need people, like you, who are our state's opinion leaders, to understand this issue completely and to become engaged in dialogue about energy policy in Missouri.

So What can You do?

Share your thoughts with us.

Learn more by visiting the Environment page at
AmerenMissouri.com.

Email Ameren Missouri at
EnergyFuture@Ameren.com.

Write us at
Ameren Missouri
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Thank you.
We look forward to hearing from you.

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