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Integrated Resource Plan

Executive Summary

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EXECUTIVE SUMMARY

The purpose of the Executive Summary of AmerenUE's 2005 Integrated Resource Plan ("IRP") filing is to provide a high level overview of a filing that contains 29 separate volumes of documentation containing over 3,000 pages of information. The main components of the filing are organized as follows:

1. **Filing Requirements** - In this document, AmerenUE cites each provision of Chapter 22 of the Electric Utility Resource Planning rules and states how it either responded directly to the rule or indirectly to the rule in those circumstances where the rule requirements no longer represent standard resource planning practices.
2. **Integrated Resource Analysis** - This is a summary document that condenses the information contained in all 29 volumes of documentation filed. The document starts with a flowchart of the IRP process and proceeds to discuss every aspect of the flowchart.
3. **Load Forecast Data And Methodology** - This is a summary document of the AmerenUE sales and peak demand forecasts including detailed discussions of forecast models and techniques.
4. **Demand-Side Management Briefing** - This document contains AmerenUE's analysis of best practices for demand response and energy efficiency programs across the nation. It also includes a listing of both past and present pilot programs offered by AmerenUE.
5. **Risk & Uncertainty Briefing** - This document contains detailed descriptions of the process and parameters used by AmerenUE to assess risk and uncertainty in its resource planning.
6. **Generation Technology Assessment** - This set of documents contains detailed descriptions of the capital and operating cost assumptions and design parameters underlying the supply side resources analyzed by AmerenUE.

History of AmerenUE IRP Filings

This is AmerenUE's first IRP filing since 1993. The rules requiring Missouri investor owned electric utilities (IOUs) to prepare IRP filings were tabled in 1999 and were replaced by semi-annual resource planning briefing sessions with the Missouri Public Service Commission Staff ("Staff") and the Office of Public Counsel ("OPC"). In May 2005, Staff convened a Roundtable to discuss the need to change Missouri's dated integrated resource planning rules to fit contemporary resource planning advances and practices. AmerenUE's December 2005 filing is in accordance with the 1999 Commission Order. AmerenUE developed its 2005 integrated resource plan in accordance with both the spirit of the Missouri IRP rules and the letter of the rules where practical.

Comparison of AmerenUE's 1993 IRP Filing To Its 2005 IRP Filing

The issues involved in resource planning today are more dynamic and complex than in 1993. In 1993 resource planning focused inwardly on the AmerenUE load characteristics and the supply and demand side options that could meet the load in the least-cost manner. In 1993 there was no liquid market for wholesale electric transactions. If an electric utility made an economy energy transaction, usually with an adjacent utility, that transaction usually took place at cost plus 10 percent.

Today there is a liquid, robust market for wholesale electricity and a visible forward near-term market. Regional transmission organizations like the Midwest Independent Transmission System Operator (MISO) now control the dispatch of generators and are responsible for market development initiatives. There are evolving emissions regulations that impact the operation of generators. There are significant numbers of unregulated independent power production (IPP) generators in addition to the vertically integrated generators in the market.

Recent issues including record high natural gas prices, emission allowance market prices, coal transportation constraints and rising coal transportation costs, and eastern as well as western coal pricing that shadow gas pricing are impacting the wholesale market price of electricity. There are issues related to renewable portfolio standards and factoring renewable energy into resource planning. There are issues related to new or next-generation supply technologies that have not reached full commercial implementation. Finally, there are issues in maximizing the use of cost beneficial demand response and energy efficiency programs in the long-term resource plan.

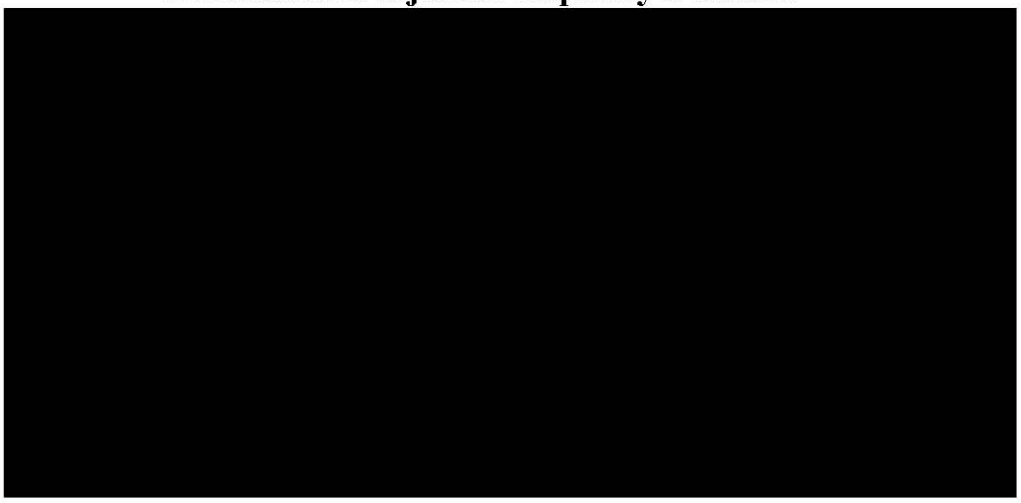
AmerenUE committed significant time and resources to develop new analysis capabilities and up-to-date information on supply as well as demand side resources. Significant resources were also committed to the development and analysis of emissions compliance options. We acquired new state-of-the-art market and portfolio analysis software and databases and engaged external expertise in the development of risk and uncertainty parameters that provide the basis for the integrated resource plan analyses. We also developed generation technology capital and operating cost estimates for state-of-the-art technologies including supercritical coal technology, simple cycle peaking technologies, combined cycle technologies, and integrated gasification combined cycle technology, pumped storage technology, wind energy and the next generation nuclear technology. Lastly, AmerenUE engaged external expertise to analyze demand response and energy efficiency opportunities at AmerenUE that underlie AmerenUE's commitment to the collaborative development of sustainable demand response and energy efficiency programs in Missouri.

AmerenUE's Generation Mix

A factor underlying the development of the AmerenUE integrated resource plan is the recognition that AmerenUE has sufficient base load energy to serve its native load

requirements for the majority of the hours in each year. AmerenUE has a need for approximately [redacted] MW of additional capacity beginning in [redacted] and growing to [redacted] MW by [redacted] The following graph shows AmerenUE's capacity needs through 2014. Peak demand is forecast to grow at a rate of close to [redacted] MW per year from [redacted] through [redacted] As noted in this graph, AmerenUE has to address some near term capacity needs due largely to the addition of Noranda Aluminum in 2005 (approximately 500 MW).

AmerenUE Projected Capacity Position



The following graph shows the AmerenUE projected load duration curves for 2006, 2015, and 2025. The salient feature of this graph is the amount of AmerenUE base load energy above the AmerenUE native load requirements. This factor is an important consideration for AmerenUE in its assessment of how it should meet the capacity needs described in the preceding graph. Another important factor is the role that opportunities for off system transactions play in the economic analysis of adding new base load generation relative to adding new peaking capacity. The opportunities are significantly impacted by the level of wholesale electric prices which are driven in turn by, among other things, emission allowance market prices and future natural gas and coal prices.

AmerenUE Load Duration Curve

AmerenUE Request for Proposal ("RFP") To Buy Existing Peaking Plants

In June 2005, AmerenUE issued a RFP to the owners of 19 natural-gas-fired peaking plants to buy 500 to 800 MW of existing peaking plants within the MISO footprint with an ownership transfer date of no later than June 2006. The need for additional peaking capacity was due to load growth – most notably the acquisition of the approximate 500 MW load at the Noranda Aluminum Smelting plant in New Madrid, Missouri, effective June 2005. A total of [redacted] bidders responded to the RFP. [redacted] of the [redacted] bids were rejected due to deliverability issues. The remaining two bids were for a total of 1,350 MW of CTGs at three different plant sites – one in Missouri and two in Illinois. The average price of the total 1,350 MW bid for all three plant sites was in the $215/kW range.

AmerenUE Preferred Resource Plan

When the option of buying 1,350 MW of CTGs at a cost of $215/kW is factored into the AmerenUE integrated resource plan analysis, the analysis indicates that this option is AmerenUE's least cost and lowest risk resource option across all scenarios. The acquisition of the CTGs will enable AmerenUE to maintain sufficient planning reserve margins through approximately [redacted]

To further address risk assessments relative to the addition of peaking technology such as combustion turbine generators (CTGs), CTGs are not impacted as significantly as base load plants by wholesale electric price volatility or by natural gas price volatility because CTGs operate only a relatively small number of hours each year in the planning period. For example, CTGs are projected to supply [redacted]% of AmerenUE's energy needs in 2006, [redacted]% in 2015, and [redacted]% in 2025. Under a relatively infrequent operational scenario, CTGs are not as exposed to the elements of market risk that would affect a capacity resource operating over a significant number of hours each year.

Base Load Technology Issues for AmerenUE in Its Preferred Plan Beyond [redacted]

If base load capacity is determined to be the AmerenUE least cost resource option to meet post [redacted] capacity and energy needs, an optimally sized supercritical coal unit would likely be in the 800 MW range. AmerenUE would consider buying short-term peaking capacity beginning in [redacted] and adding an 800 MW unit between [redacted] and [redacted] A [redacted] in-service date would require that decisions pertaining to technology, siting and permitting be made anywhere from as early as [redacted] to as late as [redacted] under the assumption that the minimum time required to secure all necessary operating permits to commercial operation for base load technology will be seven years. From [redacted] through [redacted] AmerenUE will continue to study technology developments, demand response and energy efficiency options, renewable energy options, MISO market developments, and emission rules and regulations in order to recommend the least cost resources to meet AmerenUE's capacity needs after [redacted]

AmerenUE is concerned with both the state of base load supply technology and the state of emissions regulations as both exist today. Certain environmental scenarios have the potential to completely reorder the economic ranking of different technologies. The possibility of greenhouse gas legislation will impact coal economics and nuclear economics in opposite directions. Supercritical pulverized coal units are the most widely applied commercial technology, but it is likely that in the near future it may be replaced by integrated gasification combined cycle (IGCC) and/or next generation nuclear technology. Today, both IGCC and next generation nuclear technology are insufficiently advanced for AmerenUE to consider for prompt installation. AmerenUE believes that CTGs can provide a bridge to a point in time where the commercial viability of the next generation technologies has been demonstrated and is more clearly understood.

AmerenUE Alternative Preferred Plan

If the acquisition of the 1,350 MW of existing CTG plants is not successful, AmerenUE's alternative plan of action is to pursue both short-term strategies to acquire peaking capacity and long-term strategies to further consider base load capacity. The immediate objective would be to buy peaking capacity from the market to meet AmerenUE's projected 2006 planning reserve margin requirements. Concurrently, AmerenUE would reconsider options to mitigate deliverability issues associated with unsuccessful bidders from its June 2005 RFP to buy an existing peaking plant(s).

AmerenUE would also consider building new peaking plants at greenfield sites to meet its capacity needs through at least [redacted] AmerenUE's long-term strategy would be to begin siting, permitting and preliminary engineering work to form the basis to make decisions about building a base load plant or a pumped storage plant with commercial operation dates as early as [redacted] or [redacted]

Timing Issues Associated with Making Decisions to Add Base Load Capacity

Assuming the acquisition of 1,350 MW of CTG plants is successful, there are other factors that could extend a base load capacity decision date beyond the [redacted] timeframe. One of the factors is the amount of demand response that AmerenUE customers are willing to provide. AmerenUE engaged external expertise to model the amount of demand response potential in the AmerenUE service territory through the 2025 timeframe. The high-level screening analysis identified a maximum technical potential of 350 MW of demand response which represents almost [redacted] years of AmerenUE peak demand load growth. The acquisition of 350 MW of demand response capability from AmerenUE native load customers could defer the need to make a decision to add additional capacity at AmerenUE by almost [redacted] years.

Role of Sustainable Energy Initiatives in AmerenUE's Preferred Plans

Developing cost effective, sustainable, long-term demand response, energy efficiency and renewable energy programs requires vision, commitment, and investment on the part of all stakeholders. AmerenUE proposes that stakeholder collaborative processes be

established to create the vision and strategies, evaluate opportunities, identify barriers, and develop action and implementation plans to achieve meaningful levels of cost effective demand response, energy efficiency and renewable energy. AmerenUE also encourages the state of Missouri to consider the development of a Missouri sustainable energy plan to further encourage the development of energy resource options.

Developing sustainable energy efficiency and demand response initiatives call for a regulatory compact. Section 139 of the Energy Policy Act of 2005 lends support to the notion of a regulatory compact as it directs the Secretary of Energy, in association with the National Association of Regulatory Utility Commissioners (NARUC) and the state energy offices, to study the impact of state policies that encourage energy efficiency including:

1. performance standards for achieving energy use and demand reduction targets;
2. funding sources, including rate surcharges;
3. infrastructure planning approaches (including energy efficiency programs) and infrastructure improvements;
4. the costs and benefits of consumer education programs conducted by State and local governments and local utilities to increase consumer awareness of energy efficiency technologies
5. and measures; and
6. methods of:
    a. removing disincentives for utilities to implement energy efficiency programs;
    b. encouraging utilities to undertake voluntary energy efficiency programs; and
    c. ensuring appropriate returns on energy efficiency programs.

An important element of AmerenUE's integrated resource plan is to implement a sustainable energy component consisting of the addition of renewable energy sources as early as 2009. AmerenUE's integrated resource plan includes a capacity expansion portfolio option where [redacted] may be added at AmerenUE as early as 2009. The plan includes other capacity expansion portfolio options with meaningful levels of potential new demand response and energy efficiency initiatives to supplement AmerenUE's substantial base of existing sustainable energy initiatives. The sustainable energy plan requires a systemic approach to developing and executing renewable energy, energy efficiency and demand response strategies that are aligned with the program goals set by all stakeholders. A critical success factor in the development of a sustainable energy plan for AmerenUE, and for the entire state of Missouri, should involve a regulatory compact where AmerenUE, the Missouri Public Service Commission and all stakeholders collaborate to design program parameters and agree on cost recovery mechanisms.

Conclusions

AmerenUE's preferred resource plan is to purchase 1,350 MW of peaking plants bid in response to the AmerenUE June 2005 RFP. As stated previously, this option is the least cost and lowest risk option for AmerenUE. The acquisition of this capacity will keep AmerenUE at a [redacted] percent planning reserve margin through [redacted] The acquisition will increase the AmerenUE fuel diversity among its generation fleet. Natural gas fired CTGs are projected to account for approximately [redacted]% of the AmerenUE energy mix through [redacted] as compared to approximately [redacted]% prior to the acquisition. The acquisition of the CTGs will give AmerenUE additional time to monitor advances in new, unproven technologies like IGCC and provide additional time for AmerenUE to better understand potential greenhouse gas emission rules and impacts before having to make decisions on the least cost resource(s). It will also give AmerenUE time to understand how the new MISO marketplace will evolve, particularly in the areas of capacity markets, ancillary services, and off-system transaction opportunities.

AmerenUE's preferred plan includes a significant component to implement meaningful levels of renewable energy resources and sustainable cost-effective demand response and energy efficiency initiatives. The timing of the implementation of new sustainable energy initiatives includes a component for stakeholder collaborative processes where sustainable energy visions and strategies for the entire state of Missouri are defined and evaluation parameters and cost recovery mechanisms are identified.

In regards to Chapter 22 – Electric Utility Resource Planning rules, AmerenUE recommends opening a working docket as soon as possible in Missouri to revise Missouri's integrated resource planning rules. AmerenUE acknowledges the importance of resource planning guidelines in Missouri. However, the dated, burdensome, prescriptive rules developed in the early 1990's are not appropriate today.