BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of	)	
Ameren Missouri's 2013 Integrated Resource	)	File No. EO-2013-0424
Plan Annual Update Report	)	

COMMENTS OF SIERRA CLUB

Intervenor Sierra Club hereby submits these comments on Ameren Missouri's 2013 Integrated Resource Plan ("IRP") Annual Update Report. Ameren's report was filed with the Commission pursuant to 4 C.S.R. 240-22.080(3)(B), which provides that "[t]he depth and detail of the annual update report shall generally be commensurate with the magnitude and significance of the changing conditions since the last filed triennial compliance filing or annual update filing." Ameren's report fails to live up to this standard. Despite a major change in Ameren's preferred resource plan to increase investment in demand-side management ("DSM") programs pursuant to the Missouri Energy Efficiency Investment Act ("MEEIA"), as well as significant ongoing changes in energy markets such as further declines in current and projected natural gas prices (and relatedly, Ameren's revenue from off-system sales ("OSS") on the wholesale power market), Ameren's 2013 annual update report fails to grapple seriously with changing conditions and fails to address unresolved issues from the company's 2011 IRP. Ameren's 2013 annual update report is thus an "update" in name only, as the company has punted to its 2014 IRP any re-evaluation of its aging fleet of coal-fired generating units at a time when those units are generating fewer OSS and changing market conditions are leading to a growing number of decisions by utilities to retire decades-old coal units that would need significant pollution control investments to continue long-term operations. Ameren's delay in re-evaluating the wisdom of investing billions of dollars in continuing to operate its aging coal fleet in its 2013 annual update

report raises the risk that over the next year the company will throw good ratepayer money after bad by continuing to invest in coal-fired units that would be more economical to retire.

As set forth below, the Commission should require Ameren to address a number of issues in its 2014 IRP and in any future IRP analysis. Ameren must fully incorporate its decision to expand its DSM investments into its load forecast, and the company must allow demand-side resources to compete on an equal basis with its coal plants and other supply-side resources in its resource planning analysis. Ameren must also complete a new DSM potential study that fixes the flawed assumptions in its previous study, including by comprehensively evaluating the potential for demand response programs to "shave" its peak load and render its excess capacity unnecessary. Further, in light of the sharp recent declines in Ameren's ability to generate revenue through OSS in the wholesale power market, Ameren must identify OSS as a critical uncertain factor in its 2014 IRP and any future IRP analysis and track it explicitly in its modeling. In addition, Ameren must incorporate transparent, up-to-date, and more accurate information into its analysis regarding projected natural gas and carbon prices, and the costs of wind and nuclear resources.

A. Ameren Has Failed to Account for the Fact that Its New Preferred Resource Plan Will Reduce Its Load Growth and Its Need for Supply-Side Resources.

On February 8, 2013, Ameren notified the Commission that it was changing its preferred resource plan to incorporate DSM investments that it had agreed to undertake pursuant to MEEIA in Case No. EO-2012-0142. (Ameren Notice of Change in Preferred Plan, Dkt. No. 1, Case No. EO-2013-0492 ("Notice").) Ameren's new preferred resource plan calls for DSM expenditures of $147 million between 2013 and 2015 and continued investment in DSM at the Reasonable Achievable Potential ("RAP") level each year after that through the 2030 planning horizon. (Notice at 4.) Ameren projects that these changes to its preferred resource plan will

result in savings of over 793,100 MWh annually by 2016 (for a total of 33,149 GWh between 2012 and 2030), produce a net benefit to ratepayers of over $1.9 billion between 2012 and 2039, and reduce the amount of renewable energy that it will need to acquire by 2030 to comply with the Missouri Renewable Energy Standard.[1] (*Id.* at 4, Attachment A.)

In its 2013 annual update report, however, Ameren fails to evaluate the impact that such a major increase in DSM investment in its new preferred resource plan will have on its future load. (Ameren 2013 IRP Update Post-Workshop Summary Report at 2.) Rather, in discussing load forecasting in the annual update report, Ameren merely recycles projections from its 2012 annual update report that its long-term annual load growth will average between 0.5% and 1% per year. (Ameren 2013 Annual Update Report at 15-16.) This assumption is completely unsupported, however, in the absence of a new analysis of the impact that Ameren's major increase in DSM investment will have on its load growth (and, by extension, its need for supply-side resources). By definition, a significant increase in DSM investments, if successful, will cause a significant reduction in load growth.

The Commission should require Ameren to quantify the reduction in load growth that its new preferred resource plan will have over the planning horizon and to evaluate the impact that such a reduction will have on its need for supply-side resources. As noted above, Ameren purports to have already done a similar analysis with respect to its resource acquisition needs to comply with the Missouri Renewable Energy Standard, but the company has not done an equivalent analysis of its existing supply-side resources, such as its aging coal-fired generating units.

[1] Under its new preferred resource plan, Ameren projects that it will add 290 MW of wind generation and 16 MW of solar resources by 2030 to comply with the Missouri Renewable Energy Standard. (Notice at 4.) This is a decrease of 29 MW of wind and 1 MW of solar from its previous preferred resource plan. (*Id.* at 2.) As noted below, however, Ameren's assumptions in its 2013 annual update report about the cost of wind energy are inflated (as Ameren's assumptions concerning solar likely are as well), distorting its Renewable Energy Standard Analysis.

At a minimum, Ameren's 2013 annual update report should have addressed the impact that the company's change in its preferred resource plan has on the company's analysis from its 2011 IRP of whether to retire the Meramec Power Station. Now that Ameren has changed its preferred resource plan to one that incorporates DSM investments at RAP levels through 2030, according to the company's own analysis in its 2011 IRP, the Meramec plant can be cost-effectively retired without any need for new supply-side resources through the 2030 planning horizon. (Ameren 2011 IRP, Dkt. No. 3, Case No. EO-2011-0271, at 10-17.) Moreover, in the 2011 IRP, Ameren's base case assumed annual load growth of 1%, whereas in the 2013 report Ameren notes that "recent data suggests that current economic conditions and efficiency have slowed load growth somewhat" since that time. (Ameren 2013 Annual Update Report at 6.) Yet in its 2013 annual update report, Ameren fails to refresh its analysis of Meramec to reflect lower load growth due to its expanded DSM investments and changing economic conditions. (*See id.*) Instead, Ameren repeats in the 2013 report its claim that if the company were to retire the Meramec plant by 2020, it may have a need for additional supply-side resources in the 2021-2025 timeframe. (*Id.*) This was Ameren's finding under the preferred resource plan in its 2011 IRP, however – not its new preferred resource plan. (Ameren 2011 IRP at 10-17.) Now that Ameren has adopted a new preferred resource plan that expands its DSM investments, Ameren should acknowledge that under its own 2011 IRP analysis, retirement of the Meramec plant would be beneficial to ratepayers. (*Id.*)

B. Ameren Must Treat Demand- and Supply-Side Resources Equivalently by Analyzing Whether Expanded DSM Investments Will Allow It To Retire Any of Its Existing Coal-Fired Generating Units.

Similarly, one of the major unresolved deficiencies from Ameren's 2011 IRP is that the company failed to consider DSM measures on an equivalent basis with supply-side alternatives,

as required by the Commission's IRP rules. (*See* Report and Order, Dkt. No. 209, Case No. EO-2011-0271, at 11-12 (Mar. 28, 2012).) As the Commission found,

> "Ameren Missouri did not evaluate whether existing supply-side resources could be replaced with less costly demand-side resources. . . . That is an important distinction because Ameren Missouri is considering the possible retirement of part of its coal-fired generation fleet and is considering very expensive environmental upgrades to the portion of its fleet that is not retired. If it would be more effective to retire those plants and replace them with cheaper demand-side resources, that possibility should be considered in the planning process."

(*Id.* at 12.) Finding that this was a violation of IRP rules, the Commission directed Ameren to correct this and other deficiencies "in its 2014 triennial integrated resource planning filing and in upcoming annual updates as appropriate." (*Id.* at 30.)

Despite this directive from the Commission, Ameren did not attempt to correct this deficiency in its 2012 annual update report, nor does the company attempt to do so in this year's report. In its 2012 report, Ameren stated that because the Commission's decision on its 2011 IRP was "was only recently issued, the Company has not yet identified actions to remedy" this deficiency. (Ameren 2012 Annual Update Report, Dkt. No. 1, Case No. EO-2012-0357, at 13.) However, Ameren promised in its 2012 report to "provide an update on its plans and progress toward resolving these issues at its 2013 IRP Annual Update workshop." (*Id.*)

Not only has Ameren not yet presented any analysis in its 2013 report to correct this deficiency, Ameren has not even provided a substantive update on its "progress" as it promised it would last year. Instead, Ameren's 2013 report simply states that the company will include in its 2014 IRP an "economic evaluation of all of its existing coal resources and has begun to develop long-range cost estimates for each coal-fired plant." (Ameren 2013 Annual Update Report at 9.) In making this statement, Ameren carefully avoids committing to correct the deficiency that the Commission identified with its 2011 IRP analysis: that in evaluating the economics of its existing coal resources, the company must allow demand-side resources to compete directly

against them (and other supply-side resources) and, to the extent that the demand-side resources are less costly, Ameren must incorporate them into its preferred resource plan to maximize benefits to ratepayers.

At a time when Ameren is rightly ramping up its DSM investments in its preferred resource plan because it offers a net benefit to ratepayers, there is no excuse for the company not to examine critically the impact of these DSM investments (and any additional DSM investments identified in the company's forthcoming DSM potential study) on the economics of investing substantial additional ratepayer resources to continue to operate not only its Meramec plant, but also its other aging coal-fired power plants. The Commission should thus reaffirm its order on Ameren's 2011 IRP directing the company to analyze whether expanded DSM investments render any of its coal-fired units uneconomic. Ameren has avoided correcting this deficiency in its two subsequent annual update filings. At a minimum, the Commission should make clear that it will not tolerate Ameren failing to correct this deficiency in its 2014 IRP.

C. Ameren Must Complete A New DSM Potential Study that Fixes the Flawed Assumptions in Its Previous Study.

In order for Ameren to determine the full achievable potential for DSM to reduce its load and need for supply-side resources, the company must also complete a new DSM potential study, consistent with the requirements of 4 CSR 240-3.164(2), that fixes the flawed assumptions of its previous DSM potential study.[2] In its 2012 MEEIA docket, Ameren agreed to complete such a study in preparation for its 2014 IRP filing. (Unanimous Stipulation and Agreement Resolving Ameren's MEEIA Filing, Dkt. No. 119, Case No. EO-2012-0142, at 19.) In its last DSM potential study, Ameren failed to substantiate several assumptions that caused it to underestimate

[2] In addition, Sierra Club strongly recommends that Ameren rely on the 2007 National Action Plan for Energy Efficiency *Guide for Conducting Energy Efficiency Potential Studies* for further guidance on how to conduct a valid and comprehensive DSM potential study. *See* http://www.epa.gov/eeactionplan.

the potential for cost savings from DSM investments. (Comments of NRDC, et al. on Ameren's 2011 IRP, Dkt. No. 62, Case No. EO-2011-0271, at 4.) These unsupported assumptions included assuming that what the study determined to be Maximum Achievable Potential ("MAP") was in fact impossible to achieve in practice, as well as several related methodological problems with the study's determination of MAP and RAP:

- using an unrealistically slow ramp-up of customer awareness;
- employing "budget constraints" that precluded any comparison of DSM and supply-side options on equivalent terms;
- using a 1-year payback period to estimate participation rates for MAP in defiance of standard industry practice of using instant payback assumptions for the purposes of determining MAP;
- using different payback timeframes for purposes of participation levels versus those used for purposes of incentive levels;
- assuming that no more than 70% of respondents would participate regardless of actual survey results; and
- using entirely unfounded estimates of the number of customers eligible for opting out of the program who do so.

(*Id.* at 5, Att. 1.) Ameren must address each of these flaws with its previous DSM potential study, which were left unaddressed in the 2012 MEEIA docket in favor of allowing the company to do a new study by 2014. If Ameren completes a new DSM potential study that fixes these flaws, the company would likely identify substantial additional savings that are achievable through further DSM investments. This further underscores the importance of Ameren both re-

evaluating its load forecast and allowing demand-side resources to compete on an equivalent basis with supply-side resources, as set forth above.

In addition, as Ameren agreed to do in its stipulation resolving its MEEIA filing, the company must include a comprehensive analysis of demand response programs in its 2014 IRP and include cost-effective demand response programs in at least one candidate resource plan. (Unanimous Stipulation and Agreement Resolving Ameren's MEEIA Filing, at 19.) In 2009, the Federal Energy Regulatory Commission's ("FERC") *National Assessment of Demand Response Potential* found if demand response efforts in Missouri were expanded statewide to a level defined by the study as "achievable participation," then by 2019 demand response could cost-effectively reduce Missouri's peak load by over 14% (2,982 MW).[3] The FERC study further found that, even if the only changes to demand response efforts made in Missouri were to take then-existing programs in some parts of the country and implement them in Missouri – which the study defined as an "expanded business-as-usual" scenario – the result would be a cost-effective reduction in Missouri's peak load of 9% (1,899 MW) by 2019.[4]

By contrast, Ameren's current preferred resource plan includes no company-sponsored demand response programs. (Ameren 2013 Annual Update Report at 13.) In the past, Ameren has argued that demand response programs are not cost-effective for ratepayers in the short-term due to significant excess capacity in both the Ameren Missouri system and in MISO more broadly. (*See* Ameren 2013-2015 Energy Efficiency Plan, Dkt. No. 4, Case No. EO-2012-0142, at 100.) This is not a persuasive argument, however, in the absence of Ameren completing a new DSM potential study that determines the full potential of demand response programs to "shave" peak demand and then allowing those demand response programs to compete on an equivalent

[3] Federal Energy Regulatory Commission, *National Assessment of Demand Response Potential*, 134 (2009), *available at* http://www.ferc.gov/industries/electric/indus-act/demand-response/dr-potential/assessment.asp.
[4] *Id.* at xi, 134.

basis in Ameren's analysis with its existing resources. To the extent that demand response programs (like other demand-side resources) are cheaper for ratepayers than continued investments in excess capacity in Ameren Missouri's system, Ameren should be retiring its excess capacity rather than seeking to pass the costs of maintaining it on to Missouri ratepayers.

D. In Light of Sharp Declines in Off-System Sales Revenue, Ameren Must Begin Identifying It as a Critical Uncertain Factor in Its IRP Analysis.

Ameren's need to evaluate retiring its excess coal-fired capacity is especially true in light of the fact that Ameren's ability to generate additional revenue through OSS from its aging coal fleet has declined markedly in recent years as the plants have become less competitive on the wholesale market. As the Commission found in December in Ameren's most recent rate case, "annual average wholesale prices decreased approximately $3 per megawatt-hour (MWh), or approximately 10 percent since February 2011 . . . caus[ing] a $30 million decrease in annual off-system sales revenues despite comparable sales volumes." (Report and Order, Dkt. No. 553, Case No. ER-2012-0166 (Dec. 12, 2012), at 76.) These declines in OSS revenue have become even more pronounced in recent months, so that in Ameren's most recent Fuel Adjustment Clause filing in March 2013, the company sought over $51 million in additional cost recovery from Missouri ratepayers. (Direct Testimony of Jesse Francis, Dkt. 1, Case No. ER-2013-0433 (Mar. 22, 2013).) Ameren has stated publicly that this additional rate increase request "is mostly the product of slumping wholesale power prices, which have led to lower off-system sales." (Jeffrey Tomich, "Ameren Asks For $51 Million Rate Increase," *St. Louis Post-Dispatch* (Mar. 23, 2013), *available at* http://www.stltoday.com/business/local/ameren-asks-for-million-electric-rate-increase/article_0001665c-d022-536e-8b80-e32b1c906fe3.html.)

Although the Commission has approved Ameren's requested recovery of additional costs due to declining OSS revenue as authorized under its Fuel Adjustment Clause, from a resource

planning perspective this steep decline in the competitiveness of the company's aging coal-fired power plants on the wholesale power market raises serious questions that Ameren has not addressed in the IRP process to date. Ameren's 2013 annual update report does not mention OSS at all, let alone evaluate how the sharp decline in OSS revenue that Ameren has seen in the last 2 years should impact Ameren's resource planning decisions. In light of the critical role that OSS revenue is playing in the performance of Ameren's current resource plan, in Ameren's 2014 IRP and in any future IRP analysis, the company should identify OSS revenue as a critical uncertain factor under 4 CSR 240-22.060(5) and track it explicitly in its modeling runs. This would then require Ameren to "describe and document its assessment of the impacts and interrelationships of [OSS revenue] on the expected performance of each of [its] alternative resource plans . . . and analyze the risks associated with [OSS revenue under different] alternative resource plans." 4 CSR 240-22.060(6). In light of the major shifts in energy markets in recent years – due largely to a substantial decrease in current and projected future natural gas prices – Ameren cannot continue to assume that its aging coal-fired power plants will return to the levels of profitability through OSS that the company may have enjoyed in previous years. The company must instead begin explicitly evaluating OSS revenue as an uncertain factor in the performance of its alternative resource plans in order to address in the IRP process its declining ability to generate OSS revenue from its aging coal-fired power plants.

E. Ameren Must Include Up-to-Date Natural Gas Price Projections in Its Analysis.

Ameren's 2013 annual update report also fails to update the company's projections for future natural gas prices, despite the fact that current and projected future natural gas prices have continued their sharp downward movement over the last year. Instead, as Ameren clarified in its recent stakeholder workshop report, the company recycled its 2012 natural gas price projections for its 2013 annual update report; the only change that the company made to the natural gas price

projections that it used in its 2012 annual update report was to convert them from 2009 to 2012 dollars for the purpose of presenting them in the 2013 report. (Ameren 2013 IRP Update Post-Workshop Summary Report at 2.) Ameren did not update its natural gas price projections for its 2013 report despite acknowledging in the report that "this is an issue that will need to be closely monitored." (Ameren 2013 Annual Update Report at 4.)

While Ameren's natural gas price projections have not changed in the last year, the natural gas price projections of the U.S. Energy Information Administration ("EIA") – a benchmark against which Ameren compared its own 2012 projections (*see* Ameren 2012 Annual Update Report at 14) – have continued to change significantly. The table below presents natural gas price projections from the EIA's last three editions of the *Annual Energy Outlook* through the 2030 planning horizon, demonstrating the continuing downward price movement in natural gas price projections over the last two years that Ameren's 2013 annual update report has failed to capture.

Natural Gas Price Projections at Henry Hub, in nominal dollars per mmBtu[5]

	EIA 2011	**EIA 2012**	**EIA 2013**
2012	4.65	3.70	2.66
2013	4.79	4.24	3.36
2014	4.89	4.41	3.28
2015	5.09	4.62	3.32
2016	5.27	4.67	3.86
2017	5.41	4.79	4.06
2018	5.58	4.93	4.42
2019	5.77	5.16	4.59
2020	6.10	5.39	4.77
2021	6.45	5.77	5.00
2022	6.76	6.22	5.35
2023	7.12	6.58	5.68
2024	7.53	6.88	5.93

[5] The EIA's *Annual Energy Outlook* natural gas price projections can be viewed on the EIA's web site at http://www.eia.gov/oiaf/aeo/tablebrowser/.

2025	7.90	7.23	6.14
2026	8.21	7.56	6.44
2027	8.56	7.93	6.65
2028	8.82	8.22	6.94
2029	9.04	8.57	7.18
2030	9.28	8.95	7.45

The EIA's 2013 natural gas price projections are considerably lower than those Ameren used in its 2012 annual update report and recycled this year. (*See* 2012 Annual Update Report at 24 (charting "low," "middle," and "high" projections of natural gas prices in nominal dollars beginning at approximately $4/mmBtu in 2014 and rising to a range of over $9/mmBtu in 2030 in the low scenario to $11/mmBtu in 2030 in both the middle and high scenarios). Given that the economic viability of Ameren's aging coal-fired power plants, and Ameren's ability to generate additional revenue through selling excess power through OSS, depends largely on the ability of Ameren's aging coal-fired power plants to compete with natural gas generation in the open market, such a decline in natural gas prices tends to favor Ameren choosing to retire not only its Meramec plant but possibly additional coal-fired units as well. By failing to analyze in this year's update filing whether its aging coal-fired power plants remain economically viable in light of the continued decline in current and projected natural gas prices, Ameren is putting ratepayers at risk. The company should update its resource plan to reflect the continued decline of current and projected natural gas prices that has occurred since the 2012 gas price forecasts that Ameren relies on.

F. Ameren Must Incorporate More Accurate Wind Cost Information in Its Analysis, as Directed by the Commission.

Ameren also failed to incorporate accurate, up-to-date wind costs in its 2013 annual update report. Ameren assumes that the levelized cost of energy ("LCOE") for wind is approximately 9 cents per kWh ($90 per MWh). (Ameren 2013 Annual Update Report at 3.)

Ameren also used this same assumption in its 2012 annual update report. (Ameren 2012 Annual Update Report at 3.) However, Ameren's assumed LCOE for wind is significantly higher than that used by a number of other utilities, including Kansas City Power & Light, that have done recent Requests for Proposals for the purchase of wind power on the open market. Although much of this information is considered confidential and not publicly available, where such cost data is publicly available it shows that utilities are purchasing wind power on the open market at much lower costs than Ameren assumes. For example, DTE Energy in Michigan recently negotiated a Power Purchase Agreement ("PPA") with a projected LCOE for wind ranging between $47 and $49 per MWh. (DTE Energy, Application for Approval of Renewable Energy Contracts, Case No. U-16582-PRW (Mich. P.S.C. Apr. 17, 2013), *available at* http://efile.mpsc.state.mi.us/efile/docs/16582/0136.pdf.) According to a recent report from the Michigan Public Service Commission, "the average levelized costs of [wind PPAs] continue to decline," with other "recent contracts approved by the Commission for new wind capacity have levelized costs in the $52 per MWh range which is about 10 percent less than the cheapest levelized contract prices from a year ago and half of the levelized cost of the first renewable energy contracts approved in 2009 and 2010." (Michigan Public Service Commission, *Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards* (Feb. 15, 2013), at 17, 27, *available at* http://www.michigan.gov/documents/mpsc/implementation_of_PA295_renewable_energy_411615_7.pdf.) A recent report from the U.S. Department of Energy's Lawrence Berkeley National Laboratory confirms that this downward price trend is national in scope, finding that over the last year the LCOE in wind PPAs has averaged between $40 and $55 per MWh. (Mark Bolinger, Lawrence Berkeley National Laboratory, *Revisiting the Long-Term Hedge Value of Wind Power*

in an Era of Low Natural Gas Prices (Mar. 2013), at 9, *available at* http://emp.lbl.gov/publications/revisiting-long-term-hedge-value-wind-power-era-low-natural-gas-prices.) Ameren's 2013 annual update report does not at all capture this significant downward price movement in wind PPAs, let alone evaluate the possible benefits that it offers to Missouri ratepayers.

One likely reason why Ameren's wind cost assumptions in its 2013 annual update report are unreasonably high is that the company has yet to correct a longstanding deficiency in its IRP analysis. Ameren agreed in a stipulation with the Missouri Department of Natural Resources ("MDNR") in Case No. EO-2007-0409 to perform a new analysis of wind resources to replace an analysis that the Commission has found to be "overly generic" and the MDNR has argued "prevents Ameren Missouri from reliably analyzing all available wind resources." (Report and Order, Dkt. No. 209, Case No. EO-2011-0271 (Mar. 28, 2012), at 23.) Specifically, as the Commission found, Ameren "modeled a single, average estimate of wind resource costs and capacity factors, resulting in a limited analysis of wind resource potential that may not optimize that potential" and failed to focus on "the best commercially available wind sites." (*Id.* at 21, 23.)

Yet despite the fact that Ameren agreed to fix this deficiency in a stipulation with MDNR in the docket of its 2008 IRP, and that the Commission ordered Ameren to fix this deficiency after Ameren failed to do so in its 2011 IRP, Ameren still has not corrected this deficiency in its 2013 annual update report and thus continues to rely on inflated cost numbers for wind. (*See* Ameren 2013 Annual Update Report at 9-10.)

Ameren does state, however, that it has now retained Black & Veatch to complete the study that it first agreed to do in Case No. EO-2007-0409 and that it will incorporate the study

into its 2014 IRP. (*Id.*) This study involves identifying multi-county areas in 11 states, each of which "represents a highly desirable location for development of wind resources," and then developing its own cost estimates for development of new wind resources at each of those sites. (*Id.*) Although this study could yield useful information – and is likely to find that the LCOE for wind is significantly lower than Ameren's inflated estimate in the 2013 annual update report – the Commission should also require Ameren to incorporate into its IRP analysis actual market data on the price of wind PPAs. If Ameren had done such a "market test" of its assumptions regarding the LCOE of wind for its 2013 report, it would have developed a significantly lower cost estimate that could have had implications for the company's resource planning decisions. With lower-cost wind energy now widely available, there is no excuse for Ameren not to incorporate such data about the wind market and pursue all cost-effective wind options that are available to maximize the benefit to ratepayers.

G. Ameren Must Fully Account for the Costs and Risks of Nuclear Resources in Its Analysis.

At the same time that Ameren is overestimating the LCOE of wind, the company also appears to be underestimating the costs and risks of nuclear resources. Ameren assumes that the levelized cost of energy ("LCOE") for nuclear is approximately 8 cents per kWh ($80 per MWh). (Ameren 2013 Annual Update Report at 3.) Ameren also used this same assumption in its 2012 annual update report. (Ameren 2012 Annual Update Report at 3.) However, as the Commission found with respect to Ameren's analysis of constructing a new nuclear unit in its 2011 IRP,

> "The problem with Ameren Missouri's assumptions is that there is no reliable track record by which Ameren Missouri, or any utility, can estimate the cost to construct a nuclear unit with any assurance of accuracy. . . . Without such experience to draw upon, the estimated cost to construct a new nuclear unit is highly uncertain. Furthermore, the history of cost overruns associated with the construction of nuclear power plants is not reassuring. . . . This is not just a

> disagreement about how much a new nuclear plant will cost, the question is whether Ameren Missouri has properly evaluated the degree of risk that costs will soar far above current estimates."

(Report and Order, Dkt. No. 209, Case No. EO-2011-0271, at 24 (Mar. 28, 2012).)

Since its 2011 IRP, Ameren has shifted the focus of its interest in nuclear resources to evaluating the potential for constructing Small Modular Reactors ("SMRs") instead of conventional nuclear units. (Ameren 2013 Annual Update Report at 3-4.) Ameren claims that the "significant savings" associated with the "shorter lead-times and construction schedules" for SMR technology give it a lower LCOE than any other resource. (*Id.*) What Ameren fails to mention, however, is that the estimated cost of SMR technology is at least as uncertain as a conventional nuclear unit. As MDNR pointed out in its comments on Ameren's 2012 annual update report, "relatively little [is] known about the costs and benefits of SMR technology." (MDNR Comments to the 2012 Annual Update Report and Workshop, Dkt. No. 7, Case No. EO-2012-0357, at 5.)

Ameren's LCOE for nuclear SMRs is entirely unsupported. The Commission should require Ameren to develop a robust and fully supported cost analysis for SMRs that fully accounts for all costs and risks of the technology prior to including SMRs in any candidate resource plans in its 2014 IRP or any future IRP analysis.

H. Ameren Must Use Reasonable and Transparent Assumptions for Modeling Carbon Prices in Its Analysis and Run Multiple Sensitivities to Test Those Assumptions.

Ameren should also have incorporated reasonable, transparent assumptions in its 2013 annual update report regarding the projected future cost of carbon emissions from its aging coal-fired power plants. Ameren's 2012 and 2013 annual update reports both incorporated an assumed carbon price into their analysis, but Ameren assumed that a carbon pricing system would not take effect until 2025. (Ameren 2013 Annual Update Report at 15.) In the 2013

report, Ameren attempted to justify this assumption by stating that, "[u]ntil recently, there has been little further serious discussion regarding federal climate policy action." (*Id.*)

Ameren's assumption that no federal climate policy will take effect until 2025 is not a prudent one. Regardless of whether Congress acts on federal climate legislation, the U.S. Environmental Protection Agency ("EPA") is legally required to adopt regulations on carbon dioxide emissions from existing power plants under the federal Clean Air Act in the near future, likely much sooner than the 2025 timeframe assumed by Ameren. EPA proposed regulations to address carbon dioxide emissions from new power plants in April 2012, and in so doing, the Agency noted that once those new source performance standards are finalized, Section 111(d) of the Act requires EPA to address carbon dioxide emissions from existing power plants as well. (*See* 77 Fed. Reg. 22,392, 22,424 (Apr. 13, 2012); *see also* 42 U.S.C. § 7411(d) (the EPA Administrator "shall prescribe regulations which shall establish a procedure" for states to submit proposed "standards of performance for any existing source for any air pollutant," such as CO_2, "for which air quality criteria have not been issued" but for which new source performance standards have been established)). EPA Acting Administrator Robert Perciasepe recently stated that he expects that the Agency will develop these standards of performance for carbon dioxide emissions from existing power plants during fiscal year 2014. (Jean Chemnick, "EPA official: Carbon rules for existing power plants 'on the table' in 2014," *Environment & Energy Daily* (Apr. 12, 2013), *available at* http://www.midwestenergynews.com/2013/04/12/epa-official-carbon-rules-for-existing-power-plants-on-the-table-in-2014/.) In light of the likelihood that EPA will be issuing regulations addressing carbon dioxide emissions from existing coal-fired power plants in the next 2-3 years, Ameren's assumption that its aging coal-fired power plants will not be subject to any price for their carbon dioxide emissions until 2025 is not justified.

In addition, although Ameren does claim that it has built a carbon price starting in 2025 into its analysis, the company does not disclose in either its 2013 or 2012 annual update reports the assumed starting price, rate of increase, and other salient details that would be critical to understanding the impact that a carbon price would have on the economic viability of Ameren's aging coal-fired power plants. Nor does Ameren appear to have considered multiple sensitivities to test the possible impact that higher carbon prices than Ameren is assuming would have on the economic viability of their plants. In its 2014 IRP and in any future IRP analysis, the Commission should require Ameren to transparently identify all of its assumptions about future carbon prices and their impact on Ameren's plants. Further, the Commission should require Ameren to run multiple sensitivities to test its assumptions against different possible futures.

I. Conclusion

Sierra Club respectfully requests that the Commission require Ameren to address the issues identified above in its 2014 IRP and any future IRP analysis.

Respectfully submitted,

/s/ Thomas Cmar
Thomas Cmar
Staff Attorney
Earthjustice
5042 N. Leavitt St., Ste. 1
Chicago, IL 60625
(312) 257-9338
tcmar@earthjustice.org

Shannon Fisk
Earthjustice
1617 John F. Kennedy Blvd., Suite 1675
Philadelphia, PA 19103
(215) 717-4522
sfisk@earthjustice.org

Henry B. Robertson
Great Rivers Environmental Law Center

705 Olive Street, Suite 614
St. Louis, Missouri 63101
(314) 231-4181
hrobertson@greatriverslaw.org

Attorneys for Sierra Club

CERTIFICATE OF SERVICE

I hereby certify that a true and correct PDF version of the foregoing was filed on EFIS and sent by email on this 15th day of May, 2013, to all counsel of record.

/s/ Thomas Cmar
Thomas Cmar