Exhibit A

KCP&L - Greater Missouri Operations Company
Integrated Resource Plan
Case No. EE-2009-0237
Analysis of Renewable Energy Generation Screening and Integration
Final Report

Prepared for

The Missouri Department of Natural Resources

by:

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PUBLIC VERSION

** ** denotes highly confidential information

KCP&L-GMO has not complied with all renewable-energy-related provisions of the Missouri Department of Economic Development Electric Utility Resource Planning rule (chapter 22) in its 2009 IRP filing. Deficiencies and proposed remedies are identified in the following section. First, summary comments are provided.

Summary Comments

The Synapse analysis did not consider renewable energy supply integration in KCP&L-GMO's IRP in isolation from the effect on load of DSM activity. As noted in Optimal Energy's comments for the MDNR, KCP&L-GMO fails to properly address and include DSM resources in its IRP. Thus, all resulting supply-side analysis is predicated on exaggerated load requirements – both energy (MWh) and peak demand (MW). As such, in order to properly gauge the validity of renewable supply integration, KCP&L-GMO must first incorporate updated assumptions for DSM activity and then re-analyze the integration of renewable energy supply resources.

The set of 24 alternative development plans identified by KCP&L-GMO excludes consideration of retirement options beyond the Sibley 1 and 2 (108 MW total) plant options in plans 7 through 11. The Life Assessment Management Program (LAMP) and environmental retrofit investment needed for Sibley 3 and Lake Road 4-6 is very high **** and when combined with reduced energy and capacity needs that would arise from proper consideration of cost-effective DSM initiatives, and reduced costs likely available for wind resources, it would appear that plans with Sibley 3 and/or Lake Road 4-6 retirement should be explicitly defined and evaluated. This is required to meet the minimum requirements that specify the design of alternative plans with "appropriate" combinations of candidate resources. This would allow a test of the NPVRR in comparison with other plans. Such a plan, or set of plans, should be established and modeled as part of the current 2009 IRP requirement.

The screening of renewable supply resources includes the use of grid-scale wind resource costs based on the results of the June 2007 RFP for wind, and an escalation factor based on a 4th quarter industry construction cost metric. The dramatic change in the national economy has impacted the supply/demand balance for wind turbine installation and it has been reported that costs have come down considerably. While the screening already puts wind resources close to the top (i.e., least expensive on a per MWh basis) of the supply side list, KCP&L-GMO's use of outdated values in its 2009 IRP is a deficiency that must be corrected for the integrated supply results to be credible. While the IRP is notable in that the preferred plan includes provision for 900 MW of new wind, the timing of

installation of such new wind may be overly distant. It is possible that the overall magnitude of new wind during the planning period may be too low, because the modeled costs are too high and when also considering the possibility of additional (relative) energy supply needs arising from the potential for cost-effective retirement of older coal plants.

The costs reported for residential solar photovoltaic (PV) installation are based on outdated values from EPRI TAG. 2009 has seen a dramatic drop in PV wafer and module prices. Combined with the revisions to the federal tax code that allows for a 30% investment tax credit, the overall cost-effectiveness of residential solar PV has increased considerably since 2008, and is projected to continue to increase (somewhat dramatically, based on US DOE solar PV publications). In KCP&L-GMO's next IRP filing, these changed attributes of the solar PV market must be taken into account, and given solar PV contributions to meeting peak load demands KCP&L-GMO should not prevent solar PV from moving to the integration portion of the analysis.

Deficiencies and Remedies

The deficiencies associated with the DSM component of the resource plan have been described in the Optimal report. The following focuses on remaining and related deficiencies that impact consideration of renewable supply-side alternatives.

1. Incomplete Alternative Resource Plan Development. The relevant rule is:

4 CSR 240-22.060 Integrated Resource Analysis
(3) Development of Alternative Resource Plans. The utility shall use appropriate combinations of candidate demand-side and supply-side resources to develop a set of alternative resource plans, each of which is designed to achieve one (1) or more of the planning objectives identified in 4 CSR 240-22.010(2). The alternative resource plans developed at this stage of the analysis shall not include load-building programs, which shall be analyzed as required by section (5) of this rule.

Deficiency

KCP&L-GMO is deficient in this section of the rule because it has limited the specification of alternative resource plans by excluding candidate resource options that include retirement of either or both of Sibley 3 and Lake Road 4-6, even though they both will need significant capital investment to remain operational. Combined, **** will be required to keep these plants operational through 2023. The table below summarizes the LAMP and environmental retrofit costs faced by these plants:

Table 1. Summary of LAMP and Environmental Retrofit Costs for Sibley 1&2, Sibley 3, and Lake Road 4-6
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**
Source: KCP&L-GMO October 1, 2009 supply-side presentation (slides 31, 32); Vol. 4, tables 22 through 27. Conversion to $2009 for LAMP using 5% discount factor on tables 22 through 27 cost streams.

KCP&L-GMO has considerable discretion in development of alternative resource plans to which further analysis is then applied. However, there is no guidance available in the rules as to how KCP&L-GMO should go about specifying permutations of alternative resource plans, and in particular no guidance on the extent to which retirement of older plants should be comprehensively addressed. KCP&L-GMO should consider resource plans that specifically include the analysis of retirement of their oldest and dirtiest plants, and especially those that will require very significant capital investment for environmental compliance and to renew older components and sub-systems of the plant (such as seen with the LAMP costs).

It is also unclear that the values in the table above, as reported by KCP&L-GMO, represent the maximum level of expenditures that will be required to maintain compliance with relevant environmental regulations. It is Synapse's understanding that both NOx and SO2 emissions limits will be significantly more stringent than is in place under current CAIR rules.

Three points are noteworthy in further support of these comments. We use Sibley 3 as an example, but the issue is applicable to both plants:

1. The per kW capital cost of environmental retrofit of Sibley 3 (Option 2) is **** (mid case), per KCP&L-GMO. In addition, LAMP expenditures totaling **** (nominal) are also required. As seen in the table above, when adjusted for the time value of money, LAMP combined with environmental retrofits leads to total costs of ****, significantly more than the costs of capacity from new gas-fired plant.
2. Once complete, a retrofitted Sibley 3 will face variable costs of operation that will reach many times the variable costs seen today, since the effect of greenhouse gas (GHG) regulation (assumed by KCP&L-GMO to be 100% certain) is to incur costs reaching **** of CO2 by 2029 (mid-case), which translates to marginal costs (without fuel and O&M) of roughly **** for coal units, which is greater than the all-in costs for some new

wind[1] when production tax credits are included, using the April 2007 wind RFP cost data. An update to the analysis of wind costs would likely show lower all-in costs; and including fuel and O&M with the GHG costs for Sibley 3 would likely show all-in wind costs lower than Sibley 3 marginal costs.

3. All told, it is likely that in aggregate less expensive energy and capacity are available from combinations of energy efficiency, demand response, gas-fired peaking resources, and wind energy, compared to costs of providing energy and capacity from retrofitted Sibley 3 and/or Lake Road 4-6. The specification of additional "alternative resource plans" and the computation of their NPVRR (as suggested in the remedy), and the analysis of these alternatives through the risk analysis and strategic assessment process is the only way to comprehensively ascertain this possibility.

Remedy

KCP&L-GMO should specify alternative resource plans that include 1) the retirement of Sibley 3; 2) the retirement of Lake Road 4-6; and 3) the retirement of both Sibley 3 and Lake Road 4-6 combined. These plans should be analyzed in the same manner as all of the other alternative resource plans. Additionally, permutations involving Sibley 1 and 2 retirements should also be considered.

The alternative specification must also include updated information on the level of DSM, the costs of wind resources, and an updated fuel price forecast.

2. Wind Resource Costs Are Outdated. The relevant rule is:

4 CSR 240-22.040 Supply-Side Resource Analysis
(1) The utility shall collect generic cost and performance information for each of these potential resource options which shall include at least the following attributes where applicable:
…
(E) Capital cost per kilowatt;

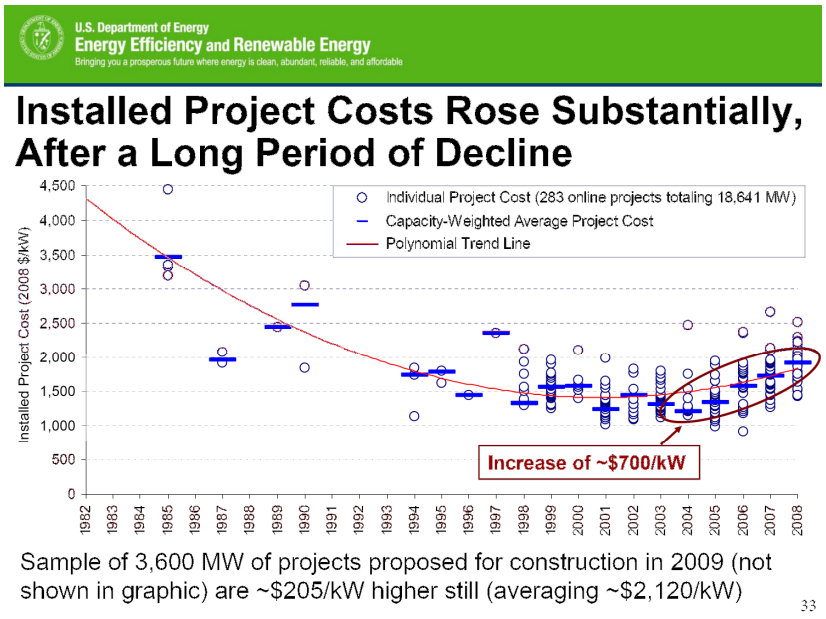
Deficiency

[1] KCP&L-GMO, "Wind Construction Cost Development", slide no. 28, October 1, 2009 presentation "GMO IRP Supply-Side Analysis" (highly confidential).

The capital costs for the wind resource options are out of date, and were out of date at the time the IRP filing was made. No accommodation is made in the analysis for the effect of fundamental economic supply/demand forces on the prices for a wind resource, and no accounting is made of predicted declines in real cost trends for wind resources. The capital costs are based on June, 2007 market prices for wind resources.

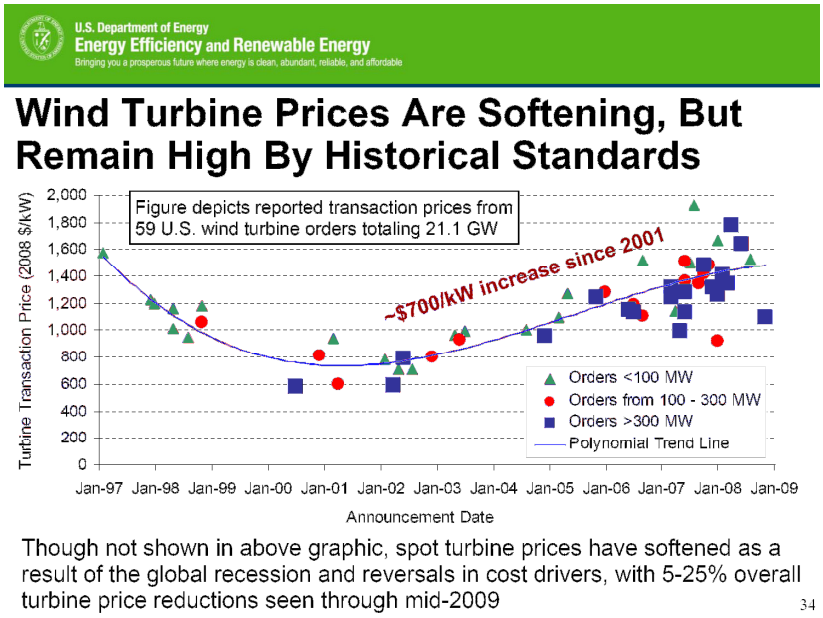
Wind resource costs were escalated based on bids from June 2007 and an escalation factor sourced from HIS Global Insight, energy construction cost escalation, 4th quarter 2008 north central region.

In July of 2009, the Lawrence Berkeley National Laboratory (LBL, part of the US Department of Energy, Energy Efficiency and Renewable Energy division) released the third of an annual series of reports on wind resources in the US. The report, entitled "2008 Wind Technologies Market Report"[2] contains information on wind resource trends in the US through 2008. On July 30, 2009, a "webinar" was held with the report authors to explain the content of the report. Included in that webinar was a presentation of materials in the report, and a text of the webinar was made available.[3] Two figures from that report are reproduced below that illustrate the primary trends



[2] Available at http://eetd.lbl.gov/ea/ems/reports/2008-wind-technologies.pdf.

[3] http://www.windpoweringamerica.gov/pdfs/workshops/2009/webinar_wind_technologies_market_report.pdf and http://www.windpoweringamerica.gov/pdfs/workshops/2009/webinar_wind_technologies_market_report_presentation.pdf.



These figures illustrate that wind resource prices indeed began rising around 2005, but also reference the fact that "spot turbine prices have softened as a result of the global recession and reversals in cost drivers, with 5-25% overall turbine price reductions seen through mid-2009". The "text" material available from the presentation contains the following description, made by the authors, of the relevant material in these presentation slides:

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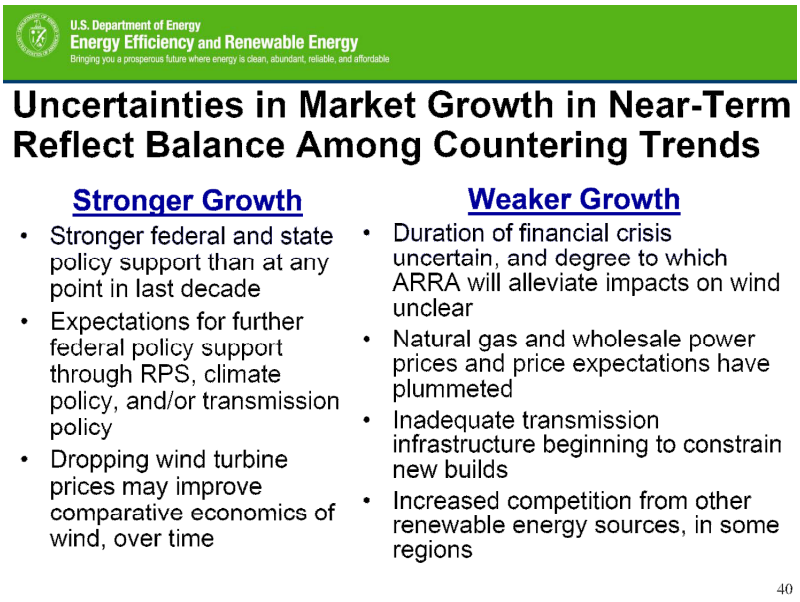
> "In addition, we anticipate at LBL that those costs may increase a little bit further for projects built in the year 2009 as developers continue to work their way through their earlier turbine orders, at what now we can see in retrospect were pretty high prices.
>
> This next slide for example shows wind turbine transaction pricing over time. A variety of sources were used for this particular figure as well as the previous one. I wouldn't focus too much on individual transaction or any individual project, it's really just the overall trends that are perhaps the most salient here given the challenges in collecting accurate and consistent data in this respect.
>
> But we certainly have seen a softening in wind turbine pricing over the last several months, since late 2008. There's evidence of price decreases of even as much as 25% in turbines that are being sold in the U.S. market and internationally now relative to their peak in mid 2008." [emphasis added]

Source: Page 19, Webcast Addressing 2008 Wind Technologies Market Report (contact for material: Sue Hinnen, National Renewable Energy Laboratory). As noted on the website: "Dr. Ryan Wiser, principle author, presented via Webinar

the Annual Wind Market report. The information in the market report is critical for representing wind information accurately to stakeholders."

The material from the report also includes the following slide:



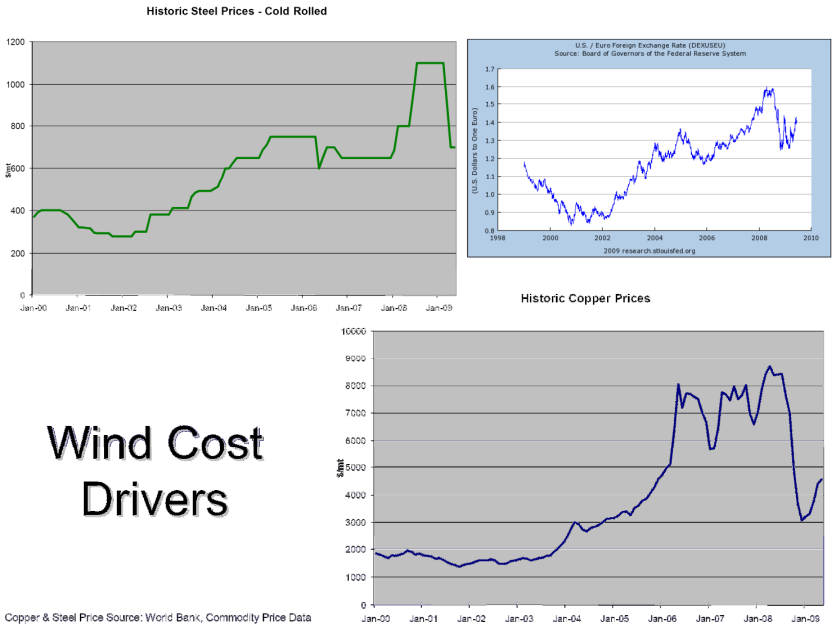
In reference to that information, the report authors state:

> "There are expectations by many in the wind industry for further federal policy support whether that's through a renewables portfolio standard, through climate policy or through transmission policy.
>
> There are strong expectations that one or more of these kinds of programs will be enacted in the coming years during this administration. And finally we have dropping wind turbine prices. Prices have dropped perhaps as much as 25%, maybe a little less than that but on that order, over the last year or so.
> And though those dropping turbine prices may not alleviate the price increase or the cost increase we'll see for installed projects built in 2009. Certainly those decreasing prices will flow through to project costs in 2010 and in future years." [emphasis added]

Source: Page 25, Webcast Addressing 2008 Wind Technologies Market Report.

The "cost drivers" being referenced in the page 34 slide above include the raw materials used to make wind turbines. The fairly dramatic drop in such prices was

summarized in material presented by the US DOE in their regular "Wind Powering America" updates, reproduced below. In this slide, prices for cold rolled steel and copper, and the exchange rate for the US $ / Euro is shown.



Source: Wind Powering America update, slide 18, August 20, 2009. Available at http://www.windpoweringamerica.gov/pdfs/wpa/wpa_update.pdf

In summary, the remedy proposed below takes into account the following considerations: April 2007 wind solicitation responses no longer represent the market costs for wind resources. In particular, the current period of market-depressed prices represents an opportunity for KCP&L-GMO to lock in greater levels of wind resources in the near-term periods at relatively lower costs. At the time of KCP&L-GMO's filing, updated information was available concerning the market trends for wind resource costs, yet KCP&L-GMO did not incorporate these market changes into their assumptions. Since KCP&L-GMO should be undertaking a revised analysis to address demand-side issues, at that time updated wind resource information should be used.

Remedy

When revising its IRP analysis, KCP&L-GMO should re-analyze the supply options using up-to-date wind resource prices and should take into account opportunities offered by the current period of market-depressed prices.

3. Residential Solar PV and Thin Film PV Costs Too High. The relevant rule is:

4 CSR 240-22.040 Supply-Side Resource Analysis
(1) The utility shall collect generic cost and performance information for each of these potential resource options which shall include at least the following attributes where applicable:
…
(E) Capital cost per kilowatt;

Deficiency

We identify two related deficiencies associated with solar PV resource costs.

First, the capital costs for the Residential Photovoltaic (PV) Utility-Owned and the Central Solar PV Flat Plate Thin Film resources do not reflect the downward price trends that have been occurring in the industry throughout 2009, and take no account of projected continuing downward trends in PV costs. Those trends arise in large part due to fundamental supply/demand forces. Second, the residential PV option excludes the effect of the federal investment tax credit (ITC) at the prescreening stage and thus somewhat dramatically overstates the per MWh cost.[4]

The residential solar PV capital cost is modeled at ***, based on EPRI TAG information[5]. The most recently available US DOE report on photovoltaic installed costs[6] indicates three pertinent characteristics of solar PV costs and illustrates why the EPRI TAG values are outdated:

- Module costs declined in 2008 relative to 2007, and drive a reduction in installed costs, to under $8/watt (i.e., $8,000/kW);[7]
- Preliminary information for 2009 indicates continuing decline in installed costs, to less than $7/watt (i.e., $7,000/kW)[8]; and
- Net installed costs, after accounting for tax credit effects including the federal ITC, is to lower installed costs to under $6/watt for residential, and to just above $4/watt for commercial PV systems.[9]

[4] KCP&L-GMO states in Vol. 4 (page 30) that applicable tax credits for solar technologies were considered, but the computation of Prescreen costs does not include the 30% Investment Tax Credit (ITC) effect in the worksheet computations from which the per MWh values in Tables 19 and 20 were drawn.
[5] Response to MDNR 51.
[6] Wiser, Ryan, et al., Lawrence Berkeley National Laboratory, *Tracking the Sun II: The Installed Cost of Photovoltaics in the US from 1998-2008*, October 2009. Available at http://eetd.lbl.gov/ea/ems/reports/lbnl-2674e.pdf.
[7] Ibid., Figure 4, page 10.
[8] Ibid., Text Box 1, page 11.
[9] Ibid., Figures 21 and 22, page 29.

While the report did not seem to differentiate the cost difference between 2008 and earlier year Thin Film PV costs, the trends depicted in the report likely apply to Thin Film resources also, making the prices associated with the October 2008 RFP response for Thin Film also outdated. This is the source for the Thin Film prices modeled.

The result of these deficiencies is to rank these two solar PV technologies lower than they should be ranked, and to not allow the residential solar PV technology to move from the prescreening phase to the integrated analysis phase. Given the significant decline in net installed costs arising from the combination of accounting for the ITC, and the lower module costs, a more careful assessment of solar PV costs is recommended.

Lastly, KCP&L-GMO screens out the residential PV resource from the integrated analysis, but by limiting this test to per-unit MWH costs based on capital costs, it does not consider both the capacity and environmental value the solar PV resource provides. Also, KCP&L-GMO inexplicably includes a significantly high fixed O&M cost for the Residential Solar PV resource (i.e, ****, per the prescreened excel file).

Remedy

With respect to solar pricing, in the next IRP cycle, KCP&L-GMO should more carefully consider the current cost trends in the industry, explicitly account for the investment tax credit (ITC) at the screening stage, explain in detail the source and reasoning behind all O&M costs, and prior to screening out options from the integrated analysis stage, recognize the ability of the resource to provide more than just an energy (MWH) benefit.

KCP&L-GMO should allow mature residential solar PV technologies to move to the integrated analysis part of the IRP. At that stage, careful consideration should be given to accommodating long-term financing approaches that can help to attain much lower levelized-cost-of-energy (LCOE) for the resource than KCP&L-GMO's prescreen results otherwise seem to indicate.[10]

[10] For example, the target levelized costs for residential solar technologies in 2015 are under 10 cents/kWh ($100/MWh), according to the US DOE Solar Energy Technologies Program "Multi-Year Program Plan, 2008-2012" (page 22). Available at http://www1.eere.energy.gov/solar/pdfs/solar_program_mypp_2008-2012.pdf.