Comments on Ameren's 2017 IRP, EO-2018-0038
Submitted by Natural Resources Defense Council
February 28, 2018

Thank you for this opportunity to comment on Ameren's 2018 IRP. It has been heartening to have witnessed the recent success of Ameren's demand-side resource programs. NRDC is grateful for the hard work of Ameren and all stakeholders that have made these programs an indisputable success and looks forward to continuing to work toward the expansion of demand-side efficiency programs as a core component of Ameren's service. These comments are meant to support and assist Ameren in strengthening the IRP and ultimately its next MEEIA Plan with that intention in mind.

Introduction

NRDC understands the purpose of the IRP process to be ensuring that utilities objectively and systematically analyze all potential resources to meet future customer electricity needs and determine the optimal mix of resources that would result in the lowest present value of revenue requirements (PVRR) over the next 20 years.[1] These potential resources include both supply-side and demand-side resources, which should be analyzed and treated on an equal footing.[2] Ultimately, the intent of the IRP process is to determine the optimal resource mix and a preferred plan designed to attain that mix.

NRDC submits that Ameren's IRP sub-optimally analyzes and recognizes demand-side resources. Specifically, it appears that Ameren first created a limited portfolio of efficiency programs it was interested in implementing, and focused the analysis to justify the predetermined portfolio as the "preferred plan." This is evidenced by: 1) biased risk factors used to adjust the RAP and MAP scenarios; 2) Artificially penalizing the MAP scenario so that RAP is chosen as the preferred plan, despite a lower net present value of revenue requirements (NPVRR) from MAP; 3) Not looking at realistic costs for the mid-level scenario; and 4) limiting the amount of scenarios run with MAP levels of DSM.

Finally, we commend Ameren for taking a serious look at inclining block rates, and urge them to actively consider time-of-use rates in the near term.

Potential Study Underestimates Savings and Overestimates Costs

The RAP and MAP Scenarios are taken from the 2016 GDS Potential Study. In the Maximum Achievable Potential (MAP) scenario, GDS assumes that incentives cover 100% of the incremental cost of the measure, resulting in 16.2% savings in an 18-year period, or about 0.9%

[1] 240 CSR 240-22.010.
[2] Id.

of sales per year. In this scenario, the cost of the program is about $479 per first year MWh saved. The idea that a maximum achievable potential scenario would save as little as 0.9% of sales per year and would cost as high as $479 per MWh flies in the face of all available evidence. Dozens of utilities run efficiency programs achieving significantly more savings at a significantly lower cost. Ameren Missouri itself achieved 0.6% of sales for $175/MWh. Further, in Illinois, Ameren has recently adopted a new 4-year plan to achieve 1.3% of sales each year for $284/MWh. Leading states have achieved approximately 3% per year of sales while providing significantly less than 100% of the incremental costs in incentives.[3] In short, the MAP scenario identified in the potential study does not appear plausible in light of achieved results in all parts of the US, and as a result the scenario looks far worse in the IRP plan than it would with reasonable savings and cost numbers included.

Risk Analysis: Biased Risk Factors Used

Ameren used downwards-biased risk factors associated with the RAP and MAP scenarios. In total, Ameren assumes that, in an unfavorable scenario, they would achieve 18.3% fewer savings, while in a favorable scenario they would only achieve 10.8% additional savings. However, these risks should be symmetric, as there is at least an equal chance of exceeding RAP and MAP estimates as there is falling short of them. The risk analysis performed looked in detail at several specific risk factors, such as attribution, take rate, and opt-out. However we believe that several of the analyses looking at specific risk factors were biased downward, leading to the asymmetric overall risk factors discussed above. For example:

- Attribution uncertainty assumes a potential 50% drop in the current NTG ratios, but only a 15% possible upside. However, even if more customers would adopt efficiency on their own than was assumed, this would simply lower Ameren's forecast and still provide the reduction in PVRR.
- Take rate uncertainty is biased downward, despite the evidence that Ameren's potential study is likely a very conservative study given that many utilities including Ameren are or plan to significantly exceed MAP at far lower costs.
- Opt-out uncertainty assumes that 100% of eligible customers opt out in the unfavorable case, but does not make the symmetrical assumption that 100% of eligible customers opt in in the favorable case.
- The contribution of combined heat and power (CHP) to the upside scenario does not even come close to reaching the potential for CHP found in the potential study.

,

[3] See, for example, Massachusetts and Rhode Island utility program experience.

Analysis unreasonably penalizes MAP and then chooses RAP despite its higher PVRR

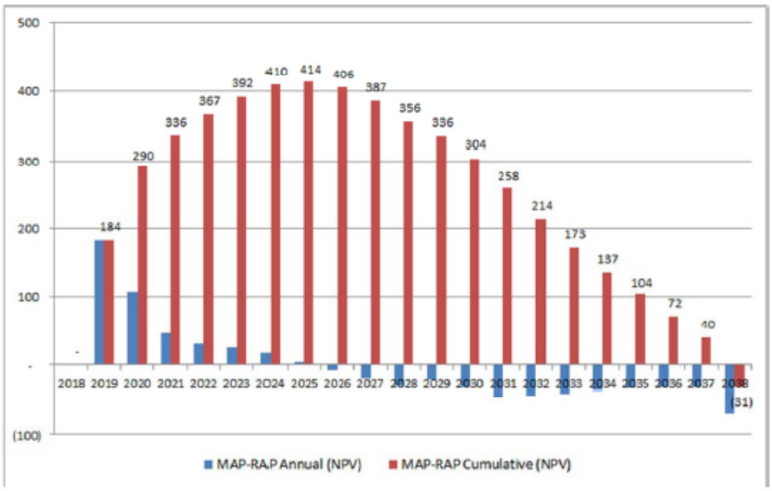
Despite the biased risk factors, the MAP scenario still achieves the lowest PVRR of all the scenarios modelled. However, RAP is still chosen as the preferred plan, based on other qualitative scoring categories that seem arbitrary and designed to give Ameren flexibility to ensure that the plan they wanted to use as the preferred plan came out with the best score. For example:

- MAP was given a worse score for environmental/resource diversity than the "no DSM with combined cycle" and the "no DSM with nuclear" scenarios.
- MAP was given a bad score in the financial/regulatory category, due to "implementation of overly aggressive energy efficiency programs." In fact the MAP levels of savings are eminently achievable, and are currently planned or being achieved by Ameren in Illinois.
- MAP gets a large penalty for customer satisfaction due to the initial rate impacts. At MAP levels of efficiency activity, however, the vast majority of the customer base will participate in the programs enough to see bills go down — not to mention getting energy-saving devices for free. Indeed, virtually all program evaluations for aggressive efficiency programs show very high levels of satisfaction, and utilities have come to see efficiency programs as important opportunities to improve relations with their customers.

Yearly PVRR Requirements for MAP are exaggerated

On page 7 of Chapter 10 of the IRP, Ameren gives a detailed explanation of why it chose RAP over MAP despite MAP's lower PVRR. In summary, the argument is that the MAP scenario has higher revenue requirements until the very last year of the analysis period, and is therefore not worth the risk or the rate impacts. Ameren includes the following chart:

Figure 10.1 Year-by-Year PVRR Differences for RAP and MAP Plans



As seen, according to this chart, net benefits aren't positive until 2038. Ameren goes on to say that "the greater net benefits of MAP relative to RAP increase significantly after the end of the planning horizon."

This is a fundamentally unfair way to examine efficiency, which by its nature incurs large Year 1 expenses to produce benefits for an average of 10-15 years down the road. This is evidenced by the fact that after 2038 spending stops, but "the greater net benefits of MAP relative to RAP increase significantly." In order to look at efficiency on an equal footing with supply side options, Ameren should amortize the cost of efficiency over the average measure life of the efficiency programs. This is in fact how efficiency programs are financed in some jurisdictions, including how Ameren Illinois now funds efficiency programs in its neighboring Illinois territory. Using amortization as is done for new supply-side resources would significantly lower the Year 1 rate impact, and would show lower PVRR from MAP for the full planning horizon.

The Cost and Savings Assumptions for the Mid DSM Scenario are Inappropriate

Ameren makes the point that program costs rise significantly more than savings between RAP and MAP. This is because in order to truly capture all cost-effective savings, incentives need to be raised for everyone, including people who would have participated under the lower incentive amount. For this reason, program costs per kWh saved are significantly higher in MAP than they are in RAP. However, Ameren estimated the mid DSM scenario by simply "interpolating between the costs and savings associated with the MAP and RAP portfolios." By using a simple interpolation for the costs in the mid-DSM scenario, Ameren misses the above effect where costs for all measures in the portfolio decrease as 100% of the cost need not be paid. Accordingly, the costs to achieve a level of savings midway between RAP and MAP will be significantly lower than half the additional costs associated with the full MAP scenario. NRDC urges Ameren to review the mid-DSM scenario using more appropriate cost assumptions.

Limited Scenarios Modeled

While Ameren modeled scenarios with RAP, various coal plant retirements, and additional wind and solar, it does not appear to have modeled scenarios combining these various elements – for example MAP with early coal retirements. Further, even though Ameren developed a mid-level DSM scenario, they do not seem to have included it in the modeling. We believe that it is important, indeed required by 4 CSR 240-22.060(3), for an IRP to examine how various resource options perform both individually and as a group, and urge Ameren to look at models that combine DSM with early coal retirements, as well as look at accurate mid-level DSM scenarios between RAP and MAP (with costs that do not simply interpolate). Ideally, Ameren should model the supply curve of energy efficiency, as even with 100% incentives they could likely cut out the most expensive measures and still capture the large majority of MAP at lower cost.

Demand-side Rate Structures

Ameren went into far more detail examining rate structures in this IRP than in past ones. For example, it presents convincing arguments that the 4% savings found by the original Brattle study from residential inclining block rates significantly overstate the potential. This is mostly because residential customers respond more to their total bills rather than marginal rates, and since IBR would not change the average bill much, usage is not likely to decrease significantly. However, while this is most likely true for residential customers, it would not apply to large commercial and industrial customers, whose bills are far higher and who are far more sophisticated on how their electric use impacts their bottom line. We strongly encourage Ameren to explore inclining block rates for this customer segment.

More importantly, Ameren's analysis of time of use rates and critical peak pricing includes the assumption that the rate structures would be opt-in. However, experience in other jurisdictions indicates that participation significantly increases for opt-out rate structures. For example, a survey of existing programs found that opt-in programs achieve average participation of 20%, while opt-out programs achieve average participation of 86%.[4] California has now mandated time of use rates for residential customers, and this approach is certainly possible in Missouri as well, and could significantly increase the peak-period savings.

Conclusion

NRDC is concerned that Ameren's IRP process once again does not allow the full cost-effective achievable demand-side resource potential to effectively compete on an equal footing with supply-side resources. This lack of resource competition is evidenced by a recitation of the steps Ameren took in arriving at its preferred plan:

1) Ameren based RAP and MAP levels on a potential study which significantly underestimated savings while overestimating costs;
2) Ameren improperly used the program potential rather than the measure level potential;
3) Ameren used biased and unrealistic uncertainty factors for the efficiency scenarios, despite the fact that all Ameren history under MEEIA has been to exceed goals rather than fall short of them;
4) Ameren appeared to use qualitative scoring factors to arbitrarily penalize the MAP scenario;
5) Though MAP still resulted in the lowest PVRR, Ameren arbitrarily rejected the MAP plan, and chose the reduced RAP potential as its preferred plan;
6) Ameren justified this selection by using an analysis methodology that unreasonably compares the full costs of efficiency to only one year of benefits.

[4] Demand Side Analytics LLC and Optimal Energy, Inc. Economic Potential for Peak Demand Reduction in Michigan. February 16, 2017.

To correct these missteps, NRDC urges Ameren to:

1. Model the MAP scenario using realistic costs as reflected in the achieved results of other jurisdictions.
2. Change the uncertainty factors used for RAP and MAP so that the scenario has, at a minimum, equal upside and downside risks. Given how much lower MAP is than what is being achieved by leading utilities, if anything the uncertainty should be biased on the high side.
3. Modify the mid-DSM scenario to reflect the appropriate costs, amortized over the lifetime of the benefits.
4. Include additional DSM scenarios in the scenario analysis, based on a supply curve of efficiency that assumes pursuit of the lowest cost resources first and then includes all resources that can provide additional reductions to PVRR as compared to any supply-side alternative.