

IEC, ELPC, and Sierra Club appreciate the opportunity to participate in the MidAmerican Resource Planning process and to provide comments in response to the March 7th meeting and materials that MidAmerican shared as part of that meeting. We write to share some recommendations to make this collaborative process work effectively and efficiently going forward.

I. MidAmerican should consider all reasonable resource options and ensure that its modeling reflects optimal deployment options for each.

During the March 7th stakeholder meeting, MidAmerican outlined the resource options that it was modeling. The resource options it is considering include combustion turbines and combined cycle gas plants, utility-scale wind and solar, 4-hour BESS, and small modular nuclear reactors (SMRs). We have several concerns with the Company's resource options.

First, we understand that MidAmerican modeled the investment tax credit (ITC) and production tax credit (PTC). We are unclear on whether additional tax credits for domestic content and energy communities have been considered. This is critical, as the additional energy communities adder can reduce the cost of clean energy resources even more than MidAmerican is currently modeling. Any resources that are located at the site of existing or retiring generation assets would qualify for the energy communities bonus.

Second, MidAmerican is only modeling 4-hour BESS. It does not consider any other duration of storage, including 2- and 8-hour battery energy storage systems (BESS), or long-duration BESS. Shorter and longer duration storage have different economics and provide different grid services that may match better with the Company's needs. It's also not clear how the Company plans to model hybrid solar + BESS projects.

On long-duration BESS (LDES), which is BESS with 10-100+ hour ratings, MidAmerican discussed challenges with modeling and deploying long-duration BESS several times during the March 7 stakeholder meeting. There are more than half a dozen LDES pilot projects around the country. For example, Form Energy has 100-hour BESS pilots proposed or underway in the states of Georgia, Virginia, New York, Colorado, and Minnesota (there are two in MN). Some of these pilots are already demonstrating several critical advancements that were identified as necessary by the U.S. Department of Energy report for LDES to become commercially available as soon as the 2030's. Additionally, other utilities, including Xcel, have started to model LDES as a resource option in their planning processes. Half a dozen utilities and resource authorities have found the LDES technology to be mature and commercially developed enough to deploy pilots as part of their grid. MidAmerican should also allow the model to select long-duration BESS as part of its resource portfolio by at least 2030. Further, modeling LDES would be consistent with MidAmerican's approach to modeling SMRs, another nascent technology that currently lacks commercial deployments at scale.

Third, it is our understanding that MidAmerican could locate at least some of its new resources at the sites of existing assets, particularly assets that are candidates for retirement. Co-locating new resources at the site of existing resources can offer numerous benefits. By utilizing the same interconnection as an existing resource, MidAmerican should be able to reduce costs by utilizing existing infrastructure already present at the plant. These projects should also be eligible for the energy communities adders (i.e. bonus tax credits) under the Inflation Reduction Act (IRA), as they are located at the site of an existing coal plant and are therefore located in an energy community.

Fourth, MidAmerican models no demand side management (DSM) above what was included in load historically. This means that MidAmerican assumes that it will not deploy any new DSM incremental to what it invested historically (or only incremental DSM sufficient to replace expiring measures). Demand-side resources are a critical component of a least-cost resource mix. The optimal level of cost-effective DSM investment for MidAmerican should be determined based on its load, its current supply side resource mix, and its current DSM programs – it should not be based on historical investment levels. And given that MidAmerican has historically underinvested in DSM, there should naturally be substantial cost-effective DSM opportunities available to it. There are two approaches that MidAmerican could take to evaluating how much cost-effective DSM is available to the Company:

1. MidAmerican could perform a robust DSM potential study that identifies the cost-effectiveness of different DSM measures, evaluate how each cost effective DSM measure would impact load, and develop a load profile that incorporates all cost-effective DSM resources.
2. The Company could identify cost-effective demand-side measures, evaluate the cost and potential savings associated with each, and model specific DSM measures as selectable resources in its capacity expansion model.

Fifth, MidAmerican is assuming that the costs of new resources stay flat and do not decline (on a real basis) over the study period. This means that the Company assumes no technology or maturity cost declines, and instead assumes that new resource costs will increase at the rate of inflation. It's reasonable to model flat resource costs over the near term to account for the continued impacts of supply chain constraints and inflation, but over the longer term, there is no evidence to support the assumption that costs for solar, wind, and battery storage will stay flat.

Recommendations:

1. MidAmerican should model all relevant bonus tax credits available under the IRA for new clean energy resources.
2. MidAmerican should model additional short-duration storage, including 2- and 8- hour BESS as replacement resource options.
3. MidAmerican should model LDES as a resource option available in the 2030's.
4. MidAmerican should outline its assumptions for modeling hybrid BESS + solar PV resources including operational characteristics, costs, and ITC/PTC benefits.

5. MidAmerican should outline its assumptions for modeling new resources located at the site of retiring assets.
6. MidAmerican should perform a robust DSM potential study and model all reasonable cost-effective DSM as either as part of its load forecast or as selectable individual DSM resources.
7. MidAmerican should model new resource cost assumptions that reflect industry standard cost decline trajectories.

II. MidAmerican should remove unnecessary constraints in the model and allow the Aurora model to identify an optimized resource portfolio

The Aurora model, which MidAmerican is using for the current resource planning exercise, has two main functions: a capacity expansion function, which is designed to optimize resource portfolio decisions, and a production cost function, which is designed to optimize the dispatch and operation of the selected resource portfolio. In past proceedings, MidAmerican has focused on the production cost functions. In this proceeding, it is utilizing the capacity expansion functions as well.

The capacity expansion model identifies the most economic resource portfolio available to meet system load and demand, subject to reliability, operational, and environmental constraints. It does this by looking at the economics of all existing and potential new resources and identifying unit retirements and resource additions that minimize system costs.

1. For unit retirements, the model should look at the full forward-going costs required to operate each unit, system needs, and new resource options. The model should then determine whether the most economic way to meet system needs is for the utility to continue relying on the unit or retiring it and replacing it with alternatives.
2. For new resource options, the model should look at the cost to build and operate a new resource relative to the cost of other new resources, as well as the avoidable cost of continuing to rely on existing resources.

The Aurora model can only make optimized retirement and resource build decisions if it is allowed to do so. Yet, MidAmerican is not letting the model do so. Instead, MidAmerican has programmed a limited number of retirement dates for existing legacy resources and constrained the model's ability to identify the most economic retirement dates for its existing resources. Instead of just preselecting retirement dates, MidAmerican should let the model optimize retirement dates to generate the lowest-cost, lowest-risk plan.

While it is reasonable for a utility to model scenarios with specific retirement dates programmed in, it is best (and standard) practice in an IRP for a utility to also run a fully optimized scenario where the model is allowed to select economic retirement dates for its existing resources and be relatively unconstrained with its new resource additions. While the optimized portfolio often deviates from the Company's ultimately selected Preferred Portfolio, modeling an optimized portfolio provides essential information on the resource procurement decisions the Company should be pursuing. For example:

1. If the model deploys 1 GW of new solar in 2026, that is telling MidAmerican that it is economic to procure a large quantity of solar PV as soon as possible. While there may be logistical reasons why it's challenging to deploy that quantity over that timeframe, the Company now knows that limiting solar deployment, below 1GW in 2026 in this example, is an uneconomic, suboptimal path to portfolio expansion.
2. If the model retires a coal plant in 2026, that is telling MidAmerican that this plant is not economic, and the Company should prioritize the procurement of replacement resources to retire the plant as soon as possible. Even if the Company cannot bring replacement resources by 2026, it at least knows that its lowest cost option is near-term replacement.

Recommendations:

1. Model a fully optimized scenario where the Aurora model is allowed to select plant retirement dates based on the full forward-going costs of continuing to operate each unit relative to alternatives.
2. Program in the full, avoidable, forward-going costs required to operate existing units, inclusive of sustaining capital costs, projected environmental capital costs, fixed O&M, variable O&M, fuel, and all other non-avoidable costs.
3. Model specific retirement scenarios separately from the fully optimized model runs, including the scenarios suggested below.

III. MidAmerican's early retirement scenario should evaluate retirement of all units identified as uneconomic in other analyses and more robustly evaluate the economics of its existing resources through the modeling of more early retirement scenarios

MidAmerican presented its Planned Scenarios in the March 7th Stakeholder meeting. While we appreciate that the Company is evaluating early retirement of two units in one of its scenarios, as required by a settlement, we are concerned that this scenario provides an extremely limited view on the economics of continued reliance on the Company's coal fleet. In our view, this scenario represents the bare minimum required to meet the letter of the settlement terms, and it does not meet the spirit of the settlement or help the Company understand the optimal resource mix for ratepayers. We recommend that MidAmerican expand its evaluation of early retirement scenarios.

Scenario 2, which evaluates the retirement of Neal 3 at the end of 2029 and Louisa at the end of 2031, is fairly limited. MidAmerican stated that it selected these retirement dates to align with the next major overhaul scheduled at each unit, and to allow time for interconnection queue studies and construction of replacement resources. But the limits placed on the retirement dates for these units is unnecessarily restrictive and presumes that the timing of these external factors are certain and known to an extent that is unsupported by current data. These retirement assumptions also assume a long timeline for a replacement resource without considering whether co-locating resources at the site of retiring assets can streamline the interconnection and construction process, and provide a lower-cost solution (as we discussed above).

While we have concerns about unnecessarily restrictive scenarios, we also recognize that a robust and representative set of retirement scenarios can offer a valuable supplement to optimized modeling. It can simplify the modeling process by reducing decision points, leading to a smaller problem size and quicker solutions. Additionally, scenario modeling can show how hand-crafted resource plans deviate from the optimal portfolio. In other words, a specific retirement scenario might be less economic than the optimized portfolio, but the cost difference may be marginal and not significant. Such a finding would elude the resource evaluation process if specific scenarios are not considered.

If MidAmerican doesn't perform its own comprehensive retirement analysis as part of the IRP, then it falls to intervenors and stakeholders to do the modeling. This modeling is work that MidAmerican is obligated to do and should do, as a regulated monopoly. MidAmerican's own 2019 internal study identified two units as uneconomic, as did a separate study conducted on its behalf, which provides a strong justification for pushing the Company to re-evaluate these dates.

In evaluating retirement and replacement of its existing fossil units, MidAmerican should consider how existing programs and regulations could impact retirement. The Department of Energy's Energy Infrastructure Reinvestment (EIR) loan program could help finance the transmission, generation, and other infrastructure needed to retire its coal plants. The EIR will provide up to \$250 billion in loans for companies to invest in infrastructure that reduces emissions. MidAmerican should thus include a discussion of the potential benefits to customers from EIR loans, especially those that help replace uneconomic thermal plants with non-emitting energy. In addition, the proposed greenhouse gas rules under section 111 of the Clean Air Act will impact the cost and viability of operating the Company's coal units beyond 2030. These are factors that MidAmerican needs to consider in conducting its resource planning and retirement analysis,

Recommendations:

1. Evaluate the retirement of Neal 3 and Louisa no later than 2027.
2. Evaluate the retirement of Neal 3, Louisa, and the Company's share of Ottumwa no later than 2027/2028 or another similar year under a staggered retirement schedule.
3. Model the retirement of Neal 3 by the end of 2027, Louisa prior to the end of 2029, and Neal 4 by the end of 2030.
4. Evaluate how existing rules, such as the proposed greenhouse gas rules under section 111 of the clean air act impact retirement analysis.
5. MidAmerican should evaluate whether the EIR program provides value and benefits to ratepayers in retiring its existing coal plants, and include those benefits in its modeling.

IV. MidAmerican should evaluate the economics of the co-owned Ottumwa unit and incorporate it into its Aurora modeling

MidAmerican operates and has a majority ownership share at the Neal 3, Neal 4, Louisa, and Walter Scott coal plants. These units are all included in the Aurora modeling, and MidAmerican proposed modeling early retirement of two of them, Neal 3 and Louisa, in one of its scenarios.

The Company is also a majority co-owner of the Ottumwa coal plant, which is operated by Interstate Power and Light (IPL). For this plant, MidAmerican posits that it has no obligation to examine the cost effectiveness of Ottumwa in its fleet because IPL is already doing its own analysis of the plant. While it's reasonable for MidAmerican to be informed by IPL's data and analysis on Ottumwa, IPL has a different system than MidAmerican, therefore the economics of the plant for IPL are likely much different than the economics for MidAmerican. MidAmerican must examine how well Ottumwa fits with its own resource mix and justify its decision to continue relying on Ottumwa to serve its native load.

While the Company and its shareholders may have an obligation to the other plant owners, MidAmerican's ratepayers do not. From a resource planning perspective, a resource that is co-owned must be modeled to understand how it fits with the rest of the Company's portfolio. If a co-owned resource is uneconomic, MidAmerican should work with the co-owners to develop a retirement or transition plan. If the co-owners are unwilling to retire the plant, MidAmerican should consider selling its share or transferring it to an unregulated arm to remove the economic burden from ratepayers. If there are barriers to retirement, such as an undepreciated balance, MidAmerican should be working to understand if there are ways to address that barrier. This includes evaluating whether programs like the EIR could provide benefits at Ottumwa.

Recommendations:

1. MidAmerican should model its share of the Ottumwa plant in the Aurora model. It should obtain from IPL all necessary cost data on capital and fixed costs, variable costs, operational parameters, etc.
2. MidAmerican should evaluate whether the EIR program provides value and benefits to ratepayers in retiring Ottumwa, and include those benefits in its modeling.

V. MidAmerican must provide access to its Aurora modeling files as soon as possible

During the March 7th RES meeting, MidAmerican indicated that the Aurora model files (Aurora Archive) would be available to stakeholders on April 26th. MidAmerican is waiting to finalize all input data files before sharing the Archive.

MidAmerican should share the current version of the Aurora Archive as soon as possible. If the Archive is not delivered until April 26th, as suggested by MidAmerican, the utility should give stakeholders at least 6 weeks of time prior to the next stakeholder meeting to evaluate the modeling files and conduct our own analysis. Access will enable our parties to effectively participate in the resource planning stakeholder process. Sharing preliminary, or working, versions of the Aurora Archive with stakeholders will accelerate our modeling development, testing, and accuracy. With access to a preliminary Aurora Archive, stakeholders can familiarize themselves with key components of the model, prepare post-processing procedures, and test the development of alternative portfolio scenarios.

Recommendations:

1. MidAmerican should share the current version of the Aurora Archive at least six weeks prior to the next stakeholder meeting.

VI. MidAmerican should ensure the stakeholder process is truly collaborative.

We appreciate the steps that MidAmerican took to make the March 7th meeting collaborative. This included advance notice of the meeting date, facilitating remote participation, and sharing materials before the meeting.

Moving forward, it is important for stakeholders to have input on meeting times. To be effective participants, we must coordinate multiple team members' schedules, and we cannot do that if we have no calendaring input. Additionally, all parties benefit from hearing each other's perspectives, so having meetings at times that work for as many participants as possible is important. We recognize that the number of stakeholders means there will be some scheduling conflicts, but coordination with stakeholders can limit that and facilitate every stakeholder having critical team members available.

It is essential that all meetings have a remote participation option, as our non-local members are not always able to travel. Remote participation enables each party to maximize its expertise by bringing together essential, non-local team members.

Finally, we recommend that stakeholders have an opportunity to identify specific meeting topics. We recognize that this process concerns MidAmerican's resource plan, and participants can suggest agenda items to ensure that the full range of topics will be addressed collaboratively.

Recommendations:

1. MidAmerican should work with participants on a more detailed outline of the process and timeline for the entire RES, including rough estimates of when meetings will happen and anticipated comment and response periods similar to the comment deadlines and response timelines after the first meeting.
2. MidAmerican should obtain stakeholder feedback on specific meeting dates and times *before* scheduling the meetings.
3. MidAmerican should facilitate remote participation for all RES meetings.
4. MidAmerican should ask participants for agenda items.

Respectfully submitted this 29th day of March 2024.

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