EPE Response to PAG Input Templates

First and foremost, EPE would like to convey its appreciation of the PAG participation in the IRP process. The participants' involvement in the meetings and research of resource options is greatly appreciated. We have reviewed the templates and have identified those which are viable, including several that are viable with modifications.

Additionally, the responses to the below templates also serve as EPE's feedback to the PAG October 20, 2017 meeting when these proposals were presented by the PAG.

1. **Template(s):**

AD Swamp Cooler Motors submitted 10-26-17

It is understood in discussion with the submitter of the proposal that the product as it is described in the submitted template is not in production or available for purchase To model the proposal, at a minimum, would require some product development in the form of package configuration for swamp cooler application, configuration for US power system and software control programming development. EPE, as a regulated utility, does not have a business model for investing in product development. EPE evaluates the implementation of technology and products that are available for the market. Therefore, EPE will not model this particular template recommendation.

2. **Template(s):**

AD Customer Generation Resource submitted 10-26-17

EPE does not view this program as a viable option as a regular resource to be used for meeting peak load on a regular basis. As mentioned by the PAG submitter on the form, customer sited combustion generators are typically limited in hours of operation due to environmental emission controls. This is the case because they are not equipped with optimal emission control equipment, such as Selective Catalytic Reduction, which are installed on utility scale generators. EPE will not model this particular template recommendation because the option presented is not viable.

3. **Template(s):**

AD TOU Resource Template submitted 10-30-17

As required by the IRP rule, EPE discussed how rate design would be reflected in customer demand sensitivities as a component of modeling in the IRP in a PAG meeting presentation. TOU rates themselves, including this resource template, will not be modeled as a resource in the Strategist model. However, EPE will be modeling low demand and high demand sensitivities which provide a reference for a reduction if demand growth due to TOU impacts.

4. **Template(s):**

PBS IRP Resource Options - Demand Response (enhanced eSmart) submitted 10-22-17

EPE's demand response option is modeled based on the eSmart pilot program. However, EPE is not forcing in selection of the demand response option, rather the demand response option will be included in the portfolio of resource options for analysis. EPE will model at least 5 MW in the initial portfolio analysis, and EPE will consider the 16.9 MW recommendation when assessing whether to increase the amount above 5 MW. To clarify, EPE had already committed to increase the DR amount available if the model selected DR. It needs to be re-iterated that the challenge with some DR programs are the availability for repetitive deployment which limits their availability to serve load. EPE will model the Demand Response template recommendation with some modifications.

5. **Template(s):**

PBS Option 1 IRP Resource Options - Demand Response submitted 10-22-17

EPE appreciates the demand response proposal and associated documentation provided from the NWPCC. They are beneficial in reviewing their efforts and results. EPE requires more time to review the demand response options presented with this template. EPE will investigate further viable programs for EPE's service territory and expected levels of adoption for further consideration in the IRP. Review of viable options would be more specific to our region, for instance space heating conservation would be less impactful and the levels of irrigation pumping may be different than those in the NWPCC.

6. **Template(s):**

MLS Purchase Power Spot Buy Template submitted 10-23-17

It should first be noted that EPE already contemplates utilizing up to 125 MW of purchase power spot buys in order to address load growth in the years between resource additions. It is not the norm in resource planning to assume that large amounts of power will be available at time of peak in order to meet load requirements. If everyone was to plan in this manner, there wouldn't be adequate capacity to meet the system's load requirements. Each entity has to ensure and plan for the acquisition of resources either through ownership or purchase power agreements that secure identified resources for the serving of load. Additionally, the planning of any resources remote to EPE requires consideration for firm transmission capacity to import the power to EPE's service territory. As such, EPE Resource Planning believes that planning for 125 MW of purchase power spot buys is a manageable risk and do not believe higher amounts would be appropriate. It is also necessary to clarify that EPE's RFP process allows for entities to bid in purchase power proposals for any existing resources which EPE would evaluate. Therefore, EPE will not model this particular template recommendation.

7. **Template(s):**

MLS Wind with Declining Costs Template submitted 10-23-17

EPE has researched the topic of forecasts for future wind capital costs and will incorporate some price drops for pricing in the 2022 to 2024 range. Beyond 2024 it will hold the capital costs for wind flat given that the declines appear to be tapering off. EPE subsequent IRP is planned for 2021 per the current rule schedule and pricing beyond 2024 may be adjusted at that time. Please reference page 18 of NREL (National Renewable Energy Laboratory). 2016. *2016 Annual Technology Baseline*. Golden, CO: National Renewable Energy Laboratory. http://www.nrel.gov/analysis/data_tech_baseline.html. EPE will model this proposal with some modifications.

8. **Template(s):**

MLS Solar with Declining Costs Template submitted 10-23-17

EPE has researched the topic of forecasts for future solar photovoltaic capital costs and will incorporate some price drops for pricing in the 2022 to 2024 range. Beyond 2024 it will hold the capital costs for solar PV flat given that the declines appear to be tapering off. Additionally, there are presently discussions related to the elimination of the ITC and the potential for tariffs in the near term. EPE subsequent IRP is planned for 2021 per the current rule schedule and pricing beyond 2024 may be adjusted at that time. Please reference page 34 of NREL (National Renewable Energy Laboratory). 2016. *2016 Annual Technology Baseline*. Golden, CO: National Renewable Energy Laboratory. http://www.nrel.gov/analysis/data_tech_baseline.html. EPE will model this proposal with some modifications.

9. **Template(s):**

MLS Energy Efficiency - Texas Template submitted 10-23-17

EPE will model energy efficiency as a resource option. The recommended inputs from this template will be taken into consideration but initial review indicate some adjustments may be required. As stated, the template recommended cost per kW is referenced as the average cost numbers for the Texas energy efficiency programs. EPE understands the referenced sources but EPE will need to review costs for energy efficiency options which will be in addition to the already existing programs. The already existing programs were selected with respect to existing energy efficiency rules and requirements. EPE's current estimates indicate $1,500 to $1,750 per kW may be more appropriate for additional energy efficiency programs, but will investigate further. EPE will also review reasonable adoption and implementation rates. Energy efficiency programs build up over time, and a 10 MW assumption in year one may be too optimistic.

10. Template(s):

MLS Solar with storage PPA Template submitted 10-23-17

EPE will model the solar with storage proposal with modifications. EPE agrees it is appropriate to model a solar project with storage and will run an option with a PPA price of $0.039/kWh which is recommended in the template as the 2023 price projection. EPE will hold the $0.039/kWh price flat for future years beyond 2023. As mentioned in other responses, future price reductions beyond 2023 will be re-evaluated in EPE's 2021 IRP.

11. Template(s):

MLS Distributed Generation Template submitted 10-23-17

EPE does not agree that the recommended template is an option that offers the best benefit for ratepayers and believes it is not a viable option to model. The distributed generation template is recommending the subsidizing of solar DG, which is less optimal than utility scale solar, for customers at a cost to all customers. Solar DG is less optimal with regard to solar production given topics discussed during the PAG meetings highlighting their orientation is fixed and typically not optimal. This is the case due to the fact that building construction and rooflines constrain the orientation of the panels. Considering that DG provides a contribution to peak that is below 50% versus utility scale that is at 70% on average, it does not make sense for ratepayers to subsidize DG installations, especially at the $80/MWh value recommended by the template. The $80/MWh is greater than current utility scale PPA prices.

12. Template(s):

AD 171220 Stranded Scenario submitted 12-20-17.docx

EPE does not agree that the recommended template is an option that offers the best benefit for ratepayers and believes it is not a viable option to model. Currently, there is no regulatory or legislative requirement that would drive the scenario being proposed. While there may be proposals that would promote or potentially mandate higher renewable energy targets, none have been passed. Renewables have become more cost competitive and are considered appropriately within the IRP framework. Therefore, EPE will not model this particular template recommendation.

13. Template(s):

AD 180107InterptTempl submitted 1-16-18.xlsx

EPE will explore the possibility of modeling a demand response option of this type; however, the amount of capacity that may be attainable and reasonable will be considered. EPE does already have a demand response modeled based on the demand response pilot program approved in New Mexico. The rates topic will be a separate discussion to be included in the IRP report.

14. **Template(s):**

14 CLC 2018 EPE IRP PV3 Replacement Resource Template v2 submitted 3-12-18.pdf

EPE is currently reviewing this request to determine the best modeling approach to fully capture the intricacies of this type of analysis.

15. **Template(s):**

PBS EE like APS submitted 2-2-18.xlsx

EPE has agreed to model EE programs in excess of the goal if they are viable and result in a least cost option. EPE reviewed the most recent IRP filed by Arizona Public Service (APS) in relation to their Energy Efficiency programs and forecasts. Based on this review, there are several key considerations to keep in mind when comparing to EPE's Energy Efficiency forecasts. The Arizona Corporation Commission (ACC) Energy Efficiency Standard (EES) requires a 22% cumulative energy savings by 2020. This varies greatly to New Mexico's goal which is 8% by 2020. This difference, which is driven by regulatory initiatives is a cause of the higher EE penetration forecast from APS. APS is forecasting its energy efficiency to grow to 534MW to meet the 22% goal based on the ACC regulations. EPE has already met its 2020 EE goal of 8% for New Mexico.

16. **Template(s):**

PBS Solar with Storage V11 Template submitted 2-2-18.xlsx

EPE has committed to run a resource option based on solar generation coupled with battery scenario. This scenario is being considered based on PAG input and template submittal(s). EPE is modeling this resource as a PPA with input derived from publically available information. The PPA price for this resource is $39/MWh. EPE is introducing a 100MW solar project coupled with a 30MW battery.