Integrated Resource Plan
Public Advisory Group: Public Input and Requests
Meeting Date: July 19, 2018

Follow-Up Items for the August 2nd meeting

Item 1: Read responses for promised results

EPE Response: EPE has reviewed PAG submittals and confirmed that EPE has provided responses on everything received up to the last meeting in February. Some of those responses to questions or requests indicate that the information (such as model inputs and outputs) would be provided in the IRP Report. As Omar stated during his presentation, the report provided on Thursday was the first draft, and additional information and data would be added in subsequent versions. If there is a specific request that you feel we have not provided a response to, please let us know.

Item 2: Send template response file

EPE Response: Responses on the resource template requests submitted by the PAG are posted to the IRP website, under the October 2017 meeting information. An e-mail was sent on April 25, 2018 from Maritza Perez to the group, with a link, indicating that those responses had been posted.

Item 3: Community Solar effects on bills

EPE Response: Based on the actual output of the facility (which is provided on the Community Solar page of our website) and the actual base rate and fuel credits for the period of June 2017 through May 2018, a customer subscribing for 1 kW for the year would have paid an additional $21.31, or $1.78 a month. The Community Solar bill impact ranged from an additional charge of $9.68 in December (when solar output was lowest) to a credit of $5.14 in May (when solar output was highest).

Item 4: Force in Strategist EE or DR with no limit

EPE Response: EPE will not force EE or DR resources into the Strategist optimization. This is consistent with how EPE modeled all resource options. No resource options were forced in, thus allowing Strategist to select an optimal portfolio.

Item 5: Burns and McDonnell Study and how used

EPE Response: The B&M study has been finalized and will be posted on EPE's website. EPE utilized the B&M estimates for capital expenditures to extend the lives (5 or 15 years) and estimated fixed and variable O&M. EPE utilized this information along with unit operating characteristics to model each retirement extension as a resource option in Strategist.

Item 6: Details of inputs modeled in Strategist

EPE Response: Details of inputs are listed in the tables included in the report along with the different options. IRP Report Tables 11-14, Attachments that will be in the final report, as well as existing transmission capabilities as defined in Section III.F.

Item 7: Why is solar at 75MW? What happens if remove constraint?

EPE Response: The model was given three different sizes of solar projects to select from in the amounts of 25 MW, 75 MW and 100 MW. Additionally, the model also had the option of 100 MW of solar coupled with battery storage. The sizes were selected in a manner to allow the model flexibility of mixing and matching solar capacities and optimally integrate them into the portfolio analysis. The fact that all three 75 MW solar options were selected in the Base Case (Plan Rank 1) does not imply that the model was limited in picking more solar. As a matter of fact, within the same optimal portfolio it also selected the 100 MW of solar coupled with battery. Plan Rank 2 (the second lowest cost portfolio) selected one 25 MW solar, three 75 MW solar, and one 100 MW solar projects. This illustrates the fact that the model was not constrained in taking additional solar simply due to the three 75 MW options.

The more relevant modeling assumption is the contribution to peak and the inability of solar to contribute to the new evening peak, as described in the presentation.

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                    PROVIEW LEAST COST OPTIMIZATION SYSTEM
                         PLANNING PERIOD PLAN COMPARISON
                       2018 IRP BASE CASE STRATEGIST OUTPUT


    PLAN RANK           1           2           3           4           5           6           7           8
-------------------------------------------------------------------------------------------------------------------
       2018
       2019
       2020
       2021
       2022        75S ( 3)    25S ( 1)    25S ( 1)    25S ( 1)    25S ( 1)    25S ( 1)    25S ( 1)    25S ( 1)
                   PVBS( 1)    75S ( 3)    75S ( 3)    75S ( 3)    75S ( 3)    75S ( 3)    75S ( 3)    75S ( 3)
                               100S( 1)    100S( 1)    100S( 1)    100S( 1)    100S( 1)    100S( 1)    100S( 1)
                               STOR( 1)    STOR( 1)    STOR( 1)    STOR( 1)    STOR( 1)    STOR( 1)    STOR( 1)
       2023        CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)
       2024
       2025
       2026
       2027        CC_M( 1)    27PV( 1)    27PV( 1)    27PV( 1)    27PV( 1)    27PV( 1)    27PV( 1)    27PV( 1)
                               CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)
                               RCP1( 1)    RCP2( 2)    RCP1( 1)    RCP2( 2)    RCP1( 1)    RCP2( 2)    RCP1( 1)
                               BS1G( 1)    BS1G( 1)    BS1G( 1)    BS1G( 1)    BS1G( 1)    BS1G( 1)    BS1G( 1)
       2028        CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)
       2029
       2030
       2031        CT_L( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)    CC_M( 1)
                   BS1G( 2)
       2032
       2033        RCP1( 1)
       2034        CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)    CT_L( 1)
                   RCP1( 1)    RCP1( 1)    RCP1( 1)    RCP1( 1)    RCP1( 1)    RCP1( 1)    RCP1( 1)    RCP1( 1)
       2035                    BS1G( 1)    BS1G( 1)    PVS ( 1)    PVS ( 1)    BS1G( 1)    BS1G( 1)    PVS ( 1)
       2036        PVS ( 1)    PVS ( 1)    PVS ( 1)    BS1G( 1)    BS1G( 1)    PVS ( 1)    PVS ( 1)    BS1G( 1)
       2037        BIO1( 1)    BIO1( 1)    BIO1( 1)    BIO1( 1)    BIO1( 1)    GEO1( 1)    GEO1( 1)    GEO1( 1)
                   GEO1( 1)
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 P.V. UTILITY COST:
 PLANNING PERIOD  3247443.5   3248019.5   3248019.8   3248141.8   3248141.8   3248264.8   3248265.0   3248387.0
     % DIFFERENCE    0.00%       0.02%       0.02%       0.02%       0.02%       0.03%       0.03%       0.03%
 STUDY PERIOD RANK     1           2           3           4           5           6           7           8
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Item 8: Load forecast bounds

EPE Response: Please see Section IV.F for a detailed description of the upper and lower (high and low) scenarios used by EPE.

In general, EPE produced both upper and lower (high and low) scenarios for both native system energy and native system peak demand to account for future uncertainty. The figure that was shown at the Integrated Resource Plan on July 19, 2018 had two types of upper and lower scenarios. One type was based on extreme weather and the other was created using confidence intervals.

These weather based scenarios pulled the most extreme historical weather months over a 10 year historical period, both on the high and low side, and combine them to form a calendar year of the most extreme monthly weather. This weather is then applied to future years to produce energy and peak demand estimate bands around the expected case.

The confidence intervals scenarios are built using a 95% confidence level. EPE uses confidence intervals with a high confidence level as the preferred method for building upper and lower bands because it captures more uncertainty in future periods.