Arizona Public Service Co.

Resource Sufficiency & Reliability

Regional Issues Forum

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RESOURCE SUFFICIENCY AND RELIABILITY

Resource Sufficiency:
Coming up with a good resource plan “Base Schedule” that balance between supply and demand to ensure resource sufficiency

Inputs:
- Load Forecast
- Flexible Generation Profile
- Ancillary (Spin/non-Spin) services
- Inter-tie Schedules, Transactions
- Schedules, losses and 3rd party resource schedules

RESOURCE SUFFICIENCY AND RELIABILITY

Steps Taken to Improve Results of Resource Sufficiency in EIM

Load Forecast:

- CAISO's load forecasts could fluctuate as much as 200-300 MW from T-75 to T-40. APS volunteered to work with the CAISO to come up with better solutions to over-come this problem:

  1. Earlier this year, the CAISO agreed to freeze the T-55 forecasts and apply the same for the T-40 to avoid any last minute unit commitment/dispatch decisions. **Status**; Date to be determined

  2. To assist the CAISO's with training of their models, APS is providing hourly load forecasts (started June 2017) on a continuous basis. CAISO's systems won't be able to start taking this information until the Fall Release (November 1st).

RESOURCE SUFFICIENCY AND RELIABILITY

Generation Profile and Ancillary Services:

- Changed the status of several VER resources from being non-participating to participating in EIM,

    1. Adding solar and wind resources to the participating resource mix, gives us the ability to bid these resources in and improve the results for the Sufficiency Tests (Capacity/Balancing/Flex up/Flex down),
    2. APS is currently working with our EMS vendor to enable several solar facilities to receive market DOT's and automatically respond,
    3. As a general rule, the more resources bid into the EIM, the better chance of passing the Capacity and Flex Ramp tests.

- APS adopted several in-house processes to better position system resources across peak and trough conditions to pass Flex Up/Down Sufficiency Tests.

RESOURCE SUFFICIENCY AND RELIABILITY

Inter-Tie Schedules:

- Pseudo tied 3rd party resources from the BA and in the process of doing more,
  1. To pass certain Sufficiency tests, the CAISO's system applies margin of error to the sudden change of schedules across the BA boundary. The system learns from historical data and applies these margins to the uncertainty of these schedules.

  2. APS manages approximately 3,300MW (Palo Verde and Four Corners plants) of 3rd party resources in its BA. Any sudden change of these schedules that are not balanced (Net zero), will put APS at a disadvantage with the resource sufficiency,

  3. Having these resources pseudo tied out of the BA, will alleviate these burdens.