



SPP Strategic Market Roadmap Process

Initiative #37 Resource Ramp Rate Interaction

Presentation by:

Richard Owen Jr., OG&E Supervisor Market Operations

What is Initiative #37 proposing

- Proposal – Provide more Operating Reserve(regulation) by changing product interaction and/or applying the Turn-Around Ramp Rate to Regulation
- Purpose – By creating Operating Reserve(regulation) opportunities, we can help minimize the instances of shortage pricing in the market
- Problem – The MMU has stated in their State of the Market Reports about increased operating reserve scarcity intervals
 - Operating reserve scarcity intervals increased significantly from 17 in summer 2017, to 49 in 2018, and then to 113 in 2019. The average scarcity price increased from \$330/MW in summer 2018 to \$415/MW in 2019. (*State Of The Market Summer 2019*)

Current Protocol Language affecting Initiative

4.2.2.1.1 Resource Ramp Rate Interaction – Energy and Operating Reserve

(1)(A) For example, assuming in the RTBM that Resource A has a single Ramp-Rate-Up value that is equal to 5 MW/Min, a single Contingency Reserve Ramp Rate value of 8 MW/Min, and the previous RTBM Energy dispatch target was upward, the maximum amount of positive change in Energy clearing/dispatch is 25 MW (5 MW/Min times 5 minutes) and the maximum amount of Contingency Reserve that can clear on that Resource is 80 MW (8 MW/Min times 10 minutes). If we assume that the change in Energy clearing/dispatch on that Resource is 25 MW, then a maximum of 30 MWs of Contingency Reserve could be cleared on that Resource. Alternatively, if we assume that the change in Energy clearing/dispatch on that Resource is 0 MW, then a maximum of 80 MW of Contingency Reserve could be cleared on that Resource.

Current Protocol Language affecting Initiative

4.2.2.1 Resource Offer Parameters

(48) **Turn-Around Ramp Rate Factor** (a value between 0.01 and 1.00). A Resource's ramping direction in the next Dispatch Interval is compared against its ramping direction in the current Dispatch Interval. If these two ramping directions are different, then the Turn-Around Ramp Rate Factor is applied to the Dispatch Instruction in the next Dispatch Interval, ***except in circumstances where the Resource is selected as available to be cleared for Regulation*** or the Resource is being sent an OOME instruction.

The ramping direction in the current Dispatch Interval is based on the actual output at the beginning of the current Dispatch Interval compared to the Dispatch Instruction at the end of the current Dispatch Interval. The direction of the next Dispatch Interval is determined by considering the actual output and ramp capability of the Resource at the time of the solution and comparing it to the next Dispatch Instruction;

Current Protocol Language affecting Initiative

4.2.2.1 Resource Offer Parameters

(49) Regulation Ramp Rate (curve, MW/Minute - *for use when the Resource is selected for Regulation-Up Service and/or Regulation-Down Service clearing*). ...

Why implement this initiative

Resource A ramp rate parameters

Energy up/down

8mw/min

Regulation up/down

4mw/min

TARR factor

.5

1. If Resource A is not cleared for regulation, it can provide 40mw of energy in either direction knowing it has the TARR factor to protect it against extreme swings that could damage or possibly trip the unit.
2. If they are regulating, the regulation ramp rate applies and limits them to 20mw. The unit utilizes 4mw/min because in regulation the TARR factor doesn't apply.
3. There is no interaction between Energy and Regulation as there is for Energy and Contingency. So while regulating, the market loses out on an additional 20mw of energy per interval

Solution #1

- Apply the TARR to Regulation Ramp Rate
 - In the example, it would double the amount of regulation
 - Though it limits the change in direction to 50%, the 4mw/min is still the same that would have been available before the change
 - The larger ramp rate allows other products to share the ramp capabilities

Solution #2

- No TARR factor change and allow interaction between Energy and Regulation
 - If resource cleared 20mw of regulation, reg would use only half of the energy ramp rate and another 20mw of energy could be dispatched possibly clearing up more regulation available from another unit
 - Currently this can't happen because if cleared for regulation, only the regulation ramp rate applies and there is no ramp available for any other product

Potential Impacts – SPP Assessment

- **Potential System / Process Impacts**
 - DA, MCE, RUC, RTBM
- **Potential MCE Performance Impact**
 - Low
- **Potential Complexity**
 - Design: Low
 - Implementation: High
- **Market Philosophy Impacts:**
 - Market Efficiency

Questions?

Thank you!

Rich Owen
OG&E Market Operations
405.553.3718 owenrg@oge.com