

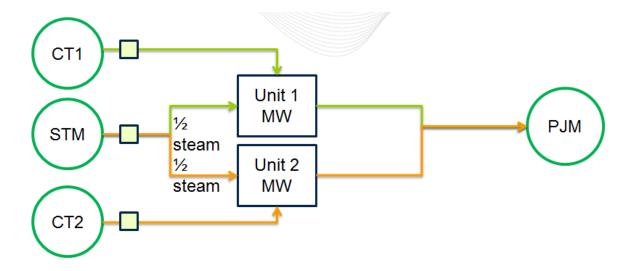
MGSTF Short Term Solution Update and Peaking Segment Proposal

Tom Hauske Sr. Lead Engineer Modeling Generation Senior Task Force April 8, 2019

www.pjm.com PJM©2019



- Formalize Duct Burner Commitment / Peaking Segment Day Ahead and Real Time rules and operation in manuals
- Hourly Ramp Rate Updates consistent with EPFSTF efforts
- Continue use of the existing Pseudo Model in the short term





- Goal is to encourage unit flexibility
- Peaking Segment MW offered into Day Ahead and Real Time are included in Economic Max
- No minimum commitment for peaking segment
- Units with inflexible or restrictive parameters must call PJM Dispatch for permission to enter and exit peaking segment
- Settlements remains unchanged
- The existing Pseudo Model for combined cycles is still allowed



- No proposed changes
 - Eco Max must include peaking segment output capability



- Eco Max includes peaking segment output capability
- Use segmented ramp rates to model resource output for entry and exit of peaking segments
- No requirement to model min load, base load, and peak segment as separate offer points
- PJM's Enhanced Price Formation in Reserve Markets filings includes the ability to change ramp rates hourly



Example of Segmented Ramp Rates

Starting and stopping a Duct Burner peaking segment

MW	Segments	Up Ramp	Down Ramp	
150	250	10 MW/Min		Eco Min to Base Load
250	252	0.1 MW/Min		20 min start hold
252	300	5 MW/Min		Duct Burner Range up
300	252		5 MW/Min	Duct Burner Range down
252	250		0.1 MW/Min	20 min shutdown hold
250	150		10 MW/Min	Base Load to Eco Min

www.pjm.com 6 PJM©2019



- No minimum commitment period for peaking segment
 - PJM looked at both manual and SCED commitment options. Neither was considered viable.
- Market Sellers with a flexible peaking segment can follow basepoints into and out of the peaking segment without contacting PJM Dispatch
- Market Sellers with inflexible peaking segment shall request PJM Dispatch permission to enter their peaking segment when following or outside of their SCED economic basepoint
 - If needed for reliability PJM Dispatch will allow the unit to enter the peaking segment
 - Otherwise, PJM Dispatch will log units as running for Company



- Existing rules remain unchanged for:
 - Make Whole
 - Lost Opportunity Cost
 - Deviations