Following Dispatch

EPFSTF

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Following Dispatch

- **PJM does not currently have the ability to automatically monitor, identify, and measure whether generators are following dispatch.**
- **As a result uplift eligibility is not properly enforced and generator deviations are inaccurately calculated.**
- **PJM's process for determining whether a resource follows dispatch is not an adequate or accurate basis for settling five minute reserves and five minute uplift.**

Following Dispatch Metric

- **The current metric is fundamentally flawed.**
  - **A unit is considered to be following dispatch if its defined %off dispatch <= 10 percent**

$$\%Off\ Dispatch_t = \frac{Unit\ Output_t - Ramp\ Limited\ Desired\ MW_t}{Ramp\ Limited\ Desired\ MW_t}$$

  - **Given the method for calculating Ramp Limited Desired MW, it is very difficult for a unit's %off dispatch to be >10%.**

Following Dispatch Metric

- **RL Desired MW is calculated as:**

$$Ramp\ Request\ _t = (UDS\ target_{t-1} - Output_{t-1})/UDSLATime_{t-1}$$

$$RL\ Desired\ MW_t = Output_{t-1} + (Ramp\ Request_t * Case\ EffTime_{t-1})$$

- **Two issues that cause Ramp Limited (RL) Desired MW to be ineffective:**
  1. **UDS target is DGP adjusted: SCED will adjust the dispatch to unit's performance**
     - If the unit does not perform, it is not requested to perform.
     - Flexible units that respond are more likely to be deemed off dispatch.
  2. **RL Desired MW is based on the previous interval's generation.**
     - The dispatch follows the unit.

For details see PJM OATT 3.2.3 (o)

Example

- %off dispatch always <= 10%
- Always considered to be following dispatch
- Example units do not incur any deviations
- More flexible units more likely to incur deviations

Ecomax: 800MW, Ramp Rate = 5 MW/Min, PJM requests unit to go to 800 MW but unit does not ramp up									
Interval	DA Gen	DA Reserves	RT Gen	RT Reserves	UDS Target MW	Ramp Request	Limited Desired MW	MW Deviation	% Off Dispatch
0:00	600.0	50.0	600.0	25.0	625.0			n/a	n/a
0:05	600.0	50.0	600.0	25.0	625.0	5.0	625.0	(25.0)	-4.0%
0:10	600.0	50.0	600.0	25.0	625.0	5.0	625.0	(25.0)	-4.0%
0:15	600.0	50.0	600.0	25.0	625.0	5.0	625.0	(25.0)	-4.0%
0:20	600.0	50.0	600.0	25.0	625.0	5.0	625.0	(25.0)	-4.0%
0:25	600.0	50.0	600.0	25.0	625.0	5.0	625.0	(25.0)	-4.0%
0:30	600.0	50.0	600.0	25.0	625.0	5.0	625.0	(25.0)	-4.0%
Ecomax: 800MW, Ramp Rate = 10 MW/Min, PJM requests unit to go to 800 MW but unit does not ramp up									
0:00	600.0	100.0	600.0	50.0	650.0			n/a	n/a
0:05	600.0	100.0	600.0	50.0	650.0	10.0	650.0	(50.0)	-7.7%
0:10	600.0	100.0	600.0	50.0	650.0	10.0	650.0	(50.0)	-7.7%
0:15	600.0	100.0	600.0	50.0	650.0	10.0	650.0	(50.0)	-7.7%
0:20	600.0	100.0	600.0	50.0	650.0	10.0	650.0	(50.0)	-7.7%
0:25	600.0	100.0	600.0	50.0	650.0	10.0	650.0	(50.0)	-7.7%
0:30	600.0	100.0	600.0	50.0	650.0	10.0	650.0	(50.0)	-7.7%

Following Dispatch. Fast Start Resources

- **Pool scheduled CTs and diesels cannot incur deviations and are always considered to be following dispatch.**

- **Manual 28, section 5.2.1 states:**

  "For Flexible Resources, operating at PJM direction, the actual five minute interval real-time output is used as the Operating Reserve Desired MW value."

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