Reforming the CSO to Reflect Reliability Needs

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Calpine's proposal to modify Market Rule 1, Section 13.6.1.1.1(a)

- Among other things, MR1 Section 13.6.1.1.1(a) states that all capacity supply obligations (CSOs) must meet the following:
  - the sum of the Generating Capacity Resource's Notification Time plus Start-Up Time plus Minimum Run Time plus Minimum Down Time is less than or equal to 72 hours; or
  - if the Generating Capacity Resource cannot meet the offer requirements in Section III.13.6.1.1.1(a)(i) due to physical design limits, then the resource shall be offered into the Day-Ahead Energy Market at a MW amount equal to or greater than its Economic Minimum Limit at a price of zero or shall be self-scheduled in the Day-Ahead Energy Market at a MW amount equal to or greater than the resource's Economic Minimum Limit.
- Calpine proposes the following change to MR1 Section 13.6.1.1.1(a)
  - the sum of the Generating Capacity Resource's Notification Time plus Start-Up Time plus Minimum Run Time plus Minimum Down Time is less than or equal to ~~72~~ 24 hours; or
  - if the Generating Capacity Resource cannot meet the offer requirements in Section III.13.6.1.1.1(a)(i) due to physical design limits, then the resource shall be offered into the Day-Ahead Energy Market at a MW amount equal to or greater than its Economic Minimum Limit at a price of zero or shall be self-scheduled in the Day-Ahead Energy Market at a MW amount equal to or greater than the resource's Economic Minimum Limit.

Reasoning behind the modification

- Regardless of what happens with MOPR, the rules for CSOs should be revised to better reflect the needs of the system

- This tariff provision is a legacy from the original FCM Settlement in 2005
  - ISO New England wanted to ensure that several ***very*** inflexible generation resources exited the market
  - The requirement is administrative in nature, and there was no analysis used to support the requirement
  - The second bullet was to exempt nuclear plants

- In the 2005 ISO New England wanted more flexible resources because more flexible resources are inherently more valuable to system operators' ability to address maintain

- **The need for flexible resources is even more pronounced now than in it was in 2005 and thus our view is that twenty-four hours is better for system reliability than seventy-two hours**

- The External Market Monitor reinforces similar resource reliability assessment of the resources that may be affected by this potential rule change in his *2020 State of the Market Report*[1]

1. *2020 Assessment of the ISO New England Electricity Markets*, June 18, 2021 pp. 78-79

PJM had similar cycling parameters until they changed expectations for their capacity performance resource product

Generation Capacity Resources Minimum Unit-Specific Operating Parameters:

Technology Classification[2]	Min Down Time Hrs	Min Run Time Hrs	Max Daily Starts	Max Weekly Starts	Start-up Time			Notification Time Cold/Warm/ Hot Hrs	Turn Down Ratio	Max Run Time
					Hot Hrs.	Warm Hrs.	Cold Hrs.			
Reciprocating Internal Combustion Units	0.6	1	12	84	0.1	0.1	0.1	0.1	1.0 or more	24 hrs.
AERO CT Units	1.1	1	6	42	0.1	0.1	0.1	0.1	1.0 or more	24 hrs.
Frame CT Units	1.25	2	4	28	0.25	0.25	0.25	0.1	1.5 or more	24 hrs.
Combined Cycle Units	3.5	4	3	21	0.5	0.5	0.5	1	1.5 or more	24 hrs.
Petroleum and Natural Gas Steam Units	6	4	2	14	2	3	4	1	2.0 or more	24 hrs.
Combined Cycle Based QF Units	4.5	4	3	21	0.5	0.5	0.5	1	1.5 or more	24 hrs.
Solid Fuel NUG Units	8	4	3	21	4	6	10	1	1.5 or more	24 hrs.
Sub-Critical Coal Units	8	8	2	14	4	6	10	1	2.0 or more	24 hrs.
Super-Critical Coal Units - Pre 2000	8	6	1	7	4	6	10	1	1.5 or more	24 hrs.
Super-Critical Coal Units - Post 2000	6	6	1	7	2	2.5	5	1	1.5 or more	24 hrs.
Capacity Storage Resource	Shall not exceed 1 hr.	1	12	84	Start Time + Notification Time shall not exceed 1 hr.				1.0 or more	24 hrs.

Source: PJM Memo - *Unit-Specific Minimum Operating Parameter for Generation Capacity Resources* (4/15/2020)

Additional Comments

- We are not proposing PJM's parameter values, we are just using them to demonstrate the possible
- Notably, such parameter changes typically do not require significant capital outlays, just changes in operation practices
  - They can impact longer-term O&M costs
  - Operators do not like to be rushed
- Importantly, the resource dispatch cycle would now efficiently mimic the ISO dispatch cycle – everything lines up with an efficient 24-hour cycle
- This change should fit nicely with upcoming capacity accreditation initiative, allowing for even more fine-tuning

1.