# Problem/Opportunity Statement

## FLEXIBLE RESOURCE DEFINITION

Detailed instructions and process steps are available in M34, Section 6

## PROBLEM / OPPORTUNITY STATEMENT

The tariff/OA defines a Flexible Resource as one with a minimum run time of two hours or less and a startup plus notification time (time to start) of two hours or less (i.e. 2x2 parameter criteria).

Flexible Resources that are eligible to be called on by PJM dispatch in real-time (traditionally CTs), and which clear the Day-Ahead Energy Market, are expected to remain offline in real time until committed by PJM or they decide to self-schedule, as opposed to following their day-ahead commitment. Because of this, these resources are eligible to receive lost opportunity cost (LOC) credits if PJM does not call them on in real time so they are compensated for buying out of their DA position and/or foregone real-time profits.

Conversely, all non-flexible resources (i.e. resources that do not meet the 2x2 parameter criteria) are expected to follow their day-ahead commitment in real time. PJM Dispatch will call the non-flexible CTs to coordinate their startup.

Flexible Resources are mainly committed in real-time by PJM dispatchers from recommendations provided by ITSCED. The latest target time of IT SCED solves for roughly 2 hours in the future and the duration applied to that solution interval is at least 2 hours. IT SCED is therefore able to assess the economics of units that require up to a 2-hour time to start and up to a 2-hour minimum run time. If a unit is less flexible than that, IT SCED is unable to recommend the commitment of that unit. Because of this, units are disqualified from eligibility for LOC credits if they are committed as a Flexible Resource and subsequently extend their time to start to more than 2 hours or extend their Minimum Run Time to more than 2 hours on their committed schedule.

However, Markets Gateway provides flexibility to specify different startup times, notification times and minimum run times per schedule. This means that a resource that meets the 2x2 parameter criteria may be flexible on one available schedule, but not on all available schedules. This presents challenges for resources that are flexible on their day-ahead committed schedule but have other available schedules that are not flexible.

Take for example a resource that is flexible on its cost schedule, but not on its price-based schedule. Assume the resource is committed in the day-ahead market on its flexible cost-based schedule because it failed the TPS test for an anticipated transmission constraint. The unit will not be expected to run in real-time unless it receives a real-time commitment. However, if the constraint doesn't materialize in real-time the unit will not be offer capped and will instead be evaluated based on its inflexible price-based schedule. Because the parameters on that schedule are beyond the 2x2 parameter criteria, IT SCED is unable to assess the economics of committing that resource and will not recommend it. The resource may therefore not receive a commitment because of this inflexibility on the price-based schedule and would therefore receive LOC credits based on its cost schedule.

The tariff/OA does not address how to handle resources that qualify as a Flexible Resource on one available schedule, but not on all available schedules. Opportunities exist to consider whether a resource should be considered Flexible for commitment and lost opportunity cost purposes if there are differences in startup time, notification time and min run time parameters amongst the available schedules.