Advanced Commitments Design Components

MIC

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Background

- **PJM has historically scheduled units in advance of the day-ahead energy market when steam units with long lead times are needed for reliability (typically related to transmission constraints, voltage but also during conservative operations).**
- **Post Winter Storm Elliott in 2022, PJM has increased the use of this process to address generation performance. Generation performance improves when units are:**
  - **Committed before the cold weather arrives.**
  - **Committed while gas trading is liquid.**

Background

- **In order to manage these risks, PJM is committing units in advance of the DAM.**
  - **For all thermal units using fossil fuels, these commitments are a day or days in advance. The goal is to have these units online before the cold temperatures arrive in order to avoid freezing or other unexpected issues.**
  - **For all gas units, these commitments are a day or days in advance, depending on how natural gas is trading (i.e. single day or weekend package). The goal is to have these units purchase natural gas when the market is liquid.**

RCSTF Recap

- The root problem is the lack of clear requirements on what it means to be a Capacity Performance resource.
  - Any resource can be CP by facing the financial consequences of bad performance, but only during a PAI.
- Today, a Capacity Performance resource can be:
  - A resource that only has interruptible gas
  - A resource that only provides energy when the sun is out
  - A resource, not base load, that takes 48 hours to start
  - A resource with a 96 hour minimum run time
  - A resource that cannot start when temperatures are below 10ºF

RCSTF Recap

- **Next Steps:**
  1. **Accept the reality that PJM will have to make advance, out of market, decisions during critical days to reduce generation performance risks.**

     and/or
  2. **Require capacity resources to be able to start within the DA market timeframe or to be online when alerts are in place.**
- **The advanced commitment problem statement / issue charge is step 1.**

Issues

- **The IMM has raised concerns about the lack of transparency regarding the process of scheduling resources prior to the Day-Ahead Energy Market. These concerns include communication process, offers used for commitment evaluation, use of operating parameters, and financial consequences of commitment.**
- **Generators have raised concerns about gas purchases that resulted in losses from unburned fuel.**

Goal

- **The goal is to have a transparent process in which units are committed economically based on the known constraints and given explicit commitment instructions.**
- **Areas of interest:**
  - **Communications**
  - **Offers and FCPs**
  - **Inputs and tools**
  - **Generator constraint modeling**
  - **Uplift**

Communications

- **There is no explicit notice or trigger that informs generators and the market that PJM will be making advanced commitments.**
- **Commitments are communicated via phone calls.**
  - **Generators are given start/end times.**
  - **Generators may be given a MW profile based on peak / off peak hours.**

Offers

- **Offers prior to the DAM are only binding if a resource has a start time or notification time greater than 24 hours.**
- **Resources with start times and notification times of 24 hours or less make nonbinding offers.**
- **If PJM wants to use unit offers, PJM can use the offers in the system (Markets Gateway) at the time of commitment.**

Offers

- The offers used for uplift are based on the committed offer.
- PJM's interpretation is that:
  - For units that clear DAM, the committed offer is the DA offer.
  - For units that do not clear the DAM, the committed offer is the offer at the time dispatch logs the unit.
- Area to explore:
  - Ability to reflect estimated costs prior to DAM for commitment decisions.

Fuel Cost Policies

- Fuel cost policies have no defined standard for commitments made prior to the DAM.
- There is no estimate of fuel costs prior to the DAM.
- The standard for DA and RT offers is to reflect actual costs or replacement costs, based on the market participant's choice in their FCP.
- Area to explore:
  - Need to describe in FCP the fuel cost development when units are committed prior to the DAM.

Inputs and Models

- **Advanced scheduling is a manual process based on transmission needs and uncertainty.**
- **Areas that need to be explored:**
  - **Look ahead model**
  - **Load assumptions**
  - **Interchange assumptions**
  - **Generator availability**
  - **Demand response availability**

Generator Constraints

- Operating parameter limits can be modified to reflect pipeline constraints:
  - Nomination cycles
  - Ratable takes
- Areas to explore:
  - Gas commodity illiquidity
  - Cold weather operating limits
  - Run hour limitations

Uplift

- Uplift is paid daily or segmented based on costs (offer) and revenues.
  - Different period if units clear the DAM (daily) or not (segmented)
- Cancellation credits apply when units are canceled before coming online. Credits are capped at start cost.
- Areas to explore:
  - Multiday uplift
  - Stranded gas costs.

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