



# Manual 28 Revisions for Startup Cost Offer Development

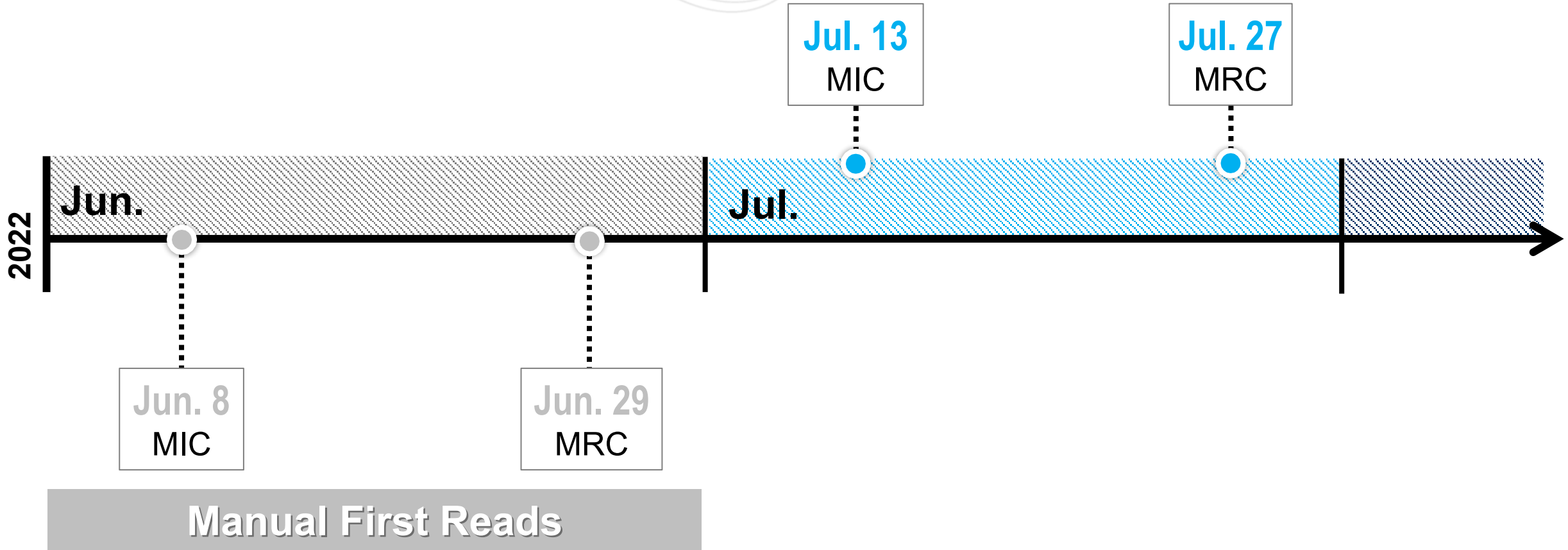
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Markets & Reliability Committee  
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- Under the Manual 15 revisions endorsed at the April MIC and May MRC, the cost associated with a resource’s initial ramping MW and soak costs can now be included in its start cost.
- The CDS proposal noted that units will not be made whole for MWh while ramping up to meet their commitment or while soaking in order to prevent double recovery of these costs.
  - Currently, those costs are recovered via operating reserve make whole credits for the MWs produced in the intervals preceding the start of the commitment when LMP doesn’t fully cover those costs.
- Manual 28 revisions are needed to implement the approved proposal.

Revised Manual 28 language to clarify that eligibility for the Balancing Operating Reserve credit calculation begins at the later of the first interval of the commitment or when the resource reaches economic minimum:

Balancing Operating Reserve credits are calculated by operating segment within an Operating Day. A resource will be made whole for the duration of the greater of the day-ahead schedule and minimum run time specified at the time of the commitment (minimum down time specified at the time of the commitment for Demand Resources) and made whole separately for the block of real-time five minute settlement intervals it is operated at PJM's direction in excess of the greater of the day-ahead schedule and minimum run time specified at the time of the commitment (minimum down time specified at the time of the commitment for demand resources). **All intervals from synchronization to the start of the commitment, which are used for initial ramping and soaking to meet the commitment, are excluded from both segments.** Startup costs (shut down costs for Demand Resources), **which are inclusive of initial ramping and soak costs, as applicable,** will be included in the segment represented by the longer of the day-ahead schedule and minimum run time specified at the time of the commitment (minimum down time specified at the time of the commitment for Demand Resources). **The start of the commitment of a resource is the later of 1) the first interval of the commitment or 2) the time at which the resource reaches its economic minimum.**

**Second Reads/ Endorsements**



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**Startup Cost Offer Development M-28 Revisions**



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## 1.7.2 Start-up Cost

It consist primarily of the cost of fuel, as determined by the unit's start heat input (adjusted by the performance factor) times the fuel cost. It also includes operating costs, maintenance adders, emissions allowances/adders, and station service power cost. Start Costs can vary with the unit offline time being categorized in three unit temperature conditions: hot, intermediate and cold. Units with a soak process include nuclear, steam, and combined cycle units. Units without a soak process include, engines, combustion turbines, Intermittent, and Energy Storage resources.

**For units with soak process:** Start Cost shall mean the net unit costs from PJM's notification to the level at which the unit can follow PJM's dispatch and from last breaker open to shutdown.

**For units without soak process:** Start Cost shall mean the unit costs from PJM's notification to first breaker close and from last breaker open to shutdown.

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