

Modeling of Transmission Outages for the CRR Allocation and Auction Process during Production

**Congestion Revenue Rights Stakeholder Meeting
February 27, 2007**

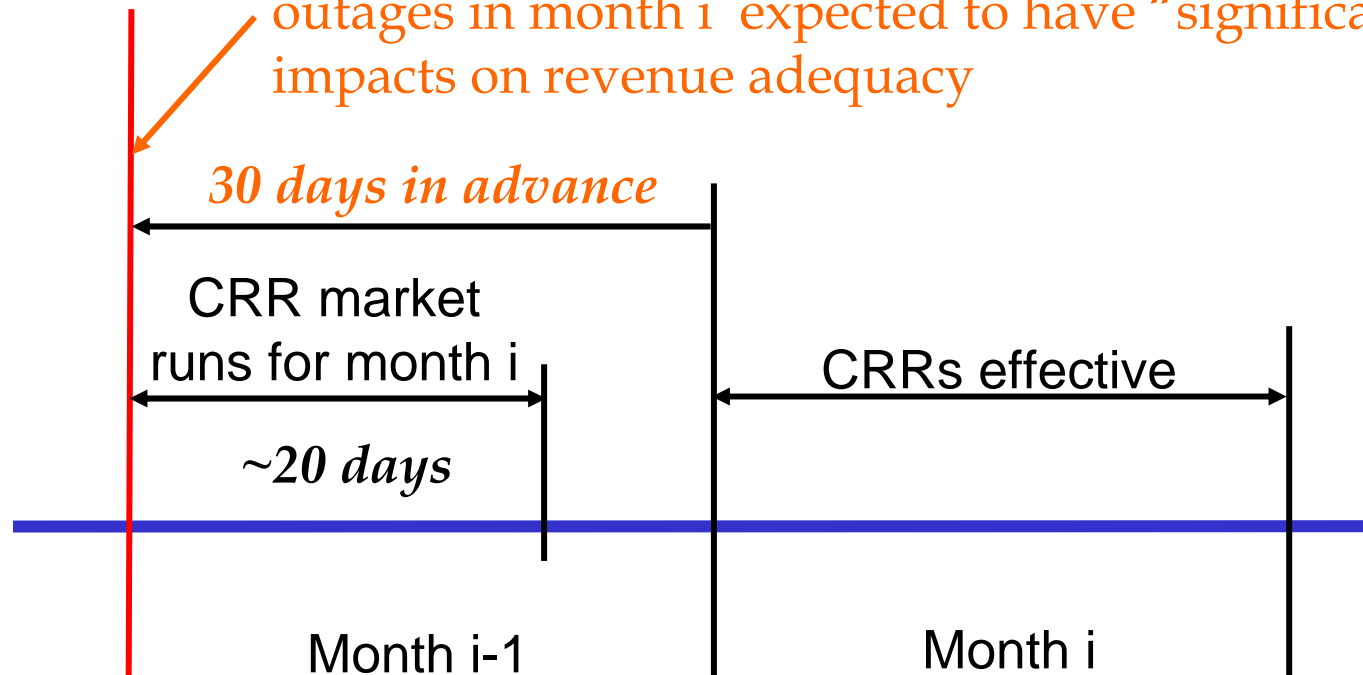
**Presented by
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Overview

- ISO needs to settle in on a transparent procedure for modeling outages in the CRR allocation and auction process
- Procedures to include modeling for the annual and monthly CRR process
- Annual process
 - Major planned outages known well in advance
- Monthly process
 - Planned outages reported per 30-day rule
 - Planned and unplanned outages less than 30 days before start of the month

Timeline for consideration of outages in the monthly CRR process

30 days advanced notice by PTOs of planned outages in month i expected to have “significant” impacts on revenue adequacy



Modeling of outages for CRR Study 2 and the CRR Dry Run

- **CRR Study 2**
 - Annual process – all lines assumed to be in service
 - Monthly process --Line taken out of FNM if line was out of service for 11 or more days of a month, based on historical records (i.e., 20-20 hindsight)
- **CRR Dry Run**
 - Annual process – all lines assumed to be in service
 - Monthly process – could not predict outages, as desired. So, derated all lines of a certain kV rating by a flat percentage, based upon a study (500 kV lines by 4% and 230 kV lines by 1%)

How do other ISOs handle outages?

PJM	MISO	ISO New England	New York ISO
<p>For the annual auction, lines taken out of model if an outage of two or more months is expected. For monthly auction, take lines out if outage is equal or greater than five days, unless line is one critical to revenue adequacy. In which case, it is taken out of the model regardless of the duration of the outage.</p>	<p>For annual process, lines taken out of model for the full season if , in one or more months of the season, a line outage is expected to last seven or more days and one of the days includes the 15th of the month. For monthly process, lines taken out of model if outage is expected to last seven or more days and one of the days includes the 15th of the month.</p>	<p>For 345 kV lines, will take lines of importance out of FNM for outages equal or greater than three days. Will derate constraint limits for outages less than three days.</p>	<p>If a line is scheduled to be out for more than half the term of the upcoming TCC auction, it is a candidate to be removed from the full network model. The NYISO then asks the transmission owner whether it should be taken out or remain in the model.</p>

Open Questions

- What planned outage will have a “significant” impact on revenue adequacy?
 - ISO planning a study to determine “significant” outages
 - ISO working with Transmission Maintenance Coordinating Committee to develop rules of thumb for what constitutes a significant outage and the timely reporting of these outages.
- How should planned and unplanned outages with short lead times be considered in the monthly CRR process?
 - Try to model outages we learn about prior to start of market runs, to the extent possible
 - Take lines out of service and/or reduce operating limits
 - Reduce operating limits a flat percentage by kV level