



Energy and Reserve Pricing & Interchange Volatility Sub-Group Update

Lisa Morelli

October 8, 2014

The proposed Energy and Reserve Pricing Solution is comprised of three parts

- Day-ahead resource commitment changes
- Day-ahead scheduling reserve requirement changes
- Synchronized Reserve and Primary Reserve requirement changes

Commit long lead resources scheduled for the next operating day in the DA market based on the schedule dictated by PJM operations

- Trigger: long lead resources have been scheduled and are still needed
- Daily checkpoint at 10am to decide which long lead time resources are still needed

Increase the Day Ahead Scheduling Reserve requirement on “peak” days by:

- Any additional reserves scheduled to specifically address operational uncertainty
- The hourly difference in forecasted RT load and adjusted fixed demand
 - Adjusted fixed demand = hourly fixed demand scaled up by the average percentage of additional demand that comes from the net of price sensitive demand, incs and decs during peak hours (conditional demand factor)
 - Conditional demand factor is used to scale up fixed demand for all 24 hours of the day
 - Separate conditional demand factors will be calculated for the winter and summer seasons

Trigger: Hot weather alert, cold weather alert or more significant emergency procedures

Cost Allocation: Additional DASR quantity reflecting the difference between DA demand and forecasted RT load will be allocated to demand that is underbid in the day-ahead market

- $DA \text{ Fixed Demand} + \text{Price Sensitive Demand} + \text{Decs} - \text{Incs}$ vs. RT Load

Changes to the calculation of eligible DASR capability

- Clear DASR MW up to resources' economic max rather than emergency max
- Adjust capability considered from offline units to recognize startup and notification times
- More accurately reflects the dispatch capability of resources if they are needed in real-time

These changes will apply all the time, rather than just during peak conditions

Synch and Primary Reserve Changes

The proposed real-time reserve changes are a more flexible version of the short-term solution

	Short-term Solution	Long-term Solution
Trigger	Emergency conditions plus significant additional reserves have been scheduled	Emergency conditions plus additional reserves were committed after the close of the DA market and RAC run
Increase in SR and PR requirements by:	1300 MW	Sum of additionally scheduled capacity
Shortage Pricing	Yes – when short the extended requirement	Yes – create second, lower step at \$300 on the SR and PR demand curves

Timing

- Notification of the potential for increased reserve requirements will be issued day ahead
- Notification of increased requirements will be made as soon as it is determined
 - Includes MW amount and hour(s) to which increase requirements apply
 - Will typically occur one to two hours in advance of the operating hour

Communication Method

- 'Special notification' message in Emergency Procedures
 - Emergency Procedure message will create an alert in eData
- Message in eMKT upon log in

- Energy and Reserve Pricing Solution (DA and RT reserve changes)
 - Implemented for Winter 2015, with the exception of changes requiring tariff revisions
 - Changes requiring tariff revisions to be implemented no later than Spring 2015
 - Cost allocation for additional DASR commitment
 - Additional lower step on SR / PR demand curves

Monitoring Analytics is generally supportive of PJM's proposals with a recommended change:

- Only increase the Primary Reserve requirement, rather than both the Synchronized Reserve and Primary Reserve requirements

- Implement the PJM/IMM DA commitment modifications
- Implement the PJM/IMM DASR modifications
 - However, increase to the DASR requirement to account for difference in forecasted RT load and adjusted fixed demand will not be implemented until FERC approves the allocation of such costs to load deviations
- Implement the PJM RT reserve modifications long-term
 - However, implement the IMM proposal to only increase the Primary Reserve requirement for this winter until FERC approves the additional step on the Synch Reserve and Primary Reserve demand curves

	PJM Proposal	MA Proposal	Transition Proposal
DA commitment changes	Commit long lead units in DA	Same as PJM	Same as PJM
DASR changes	Increase DASR req during HWA / CWA / Emerg Proc	Same as PJM	Do not increase DASR req by difference between forecasted RT load and adjusted fixed demand until cost allocation change is approved by FERC
RT reserve changes	Increase SR and PR reqs	Increase PR req only	Increase PR req only until FERC filing is approved, then increase PR and SR reqs
Implementation timeline	Implement all changes for the winter, except the following which will be implemented after FERC approval: DASR cost allocation 2 nd step on demand curves	Same as PJM	Same as PJM, except: <ul style="list-style-type: none"> - only PR requirement will be increased this winter until FERC filing is approved - DASR req increase is not implemented until cost allocation is approved

Implement an hourly interchange cap for the forecasted peak hour(s) and surrounding hours during emergency conditions

- Only used when operators have made firm resource commitments and anticipated interchange schedules are sufficient to meet projected load for the hour
- Typically calculated and implemented 1 – 2 hours prior to the operating hour
- Limits spot imports and hourly non-firm point-to-point transactions once net interchange reaches the cap
 - Schedules with firm or network designated transmission service will NOT be limited
 - Spot imports and hourly non-firm PTP transactions submitted prior to implementation of the cap will NOT be limited

The interchange cap will be calculated based on:

- Operator expectation of interchange for time T at the time the cap is calculated
- Additional margin
 - Set at half of largest unit on the system (700 MW)
 - Allows T-20 interchange to contribute to economically backfilling the loss of a unit or deviation between actual load and forecasted load

The cap will be bounded by the max sustainable interchange from reliability studies

Timing

- Notification of the potential for an interchange cap will be issued day ahead
- Notification of cap implementation will be made as soon as the cap is determined
 - Includes MW amount and hour(s) to which cap applies
 - Will typically occur one to two hours in advance of the operating hour

Communication Method

- ExSchedule banner notification plus 'special notification' message in Emergency Procedures
 - Emergency Procedure message will create an alert in eData

Same notification methods will be used if the cap is lifted

The Interchange Volatility proposal will be implemented in two phases:

- Winter 2015 via manual curtailment of transactions violating interchange cap
 - Operators will use a report highlighting hourly service that was scheduled after the implementation of the cap
 - Operators will curtail hourly service above the cap on a last in / first out basis
- Spring 2015 via automated denial of transactions violating interchange cap at time of submission

Generally supportive of PJM's proposal, with recommended changes:

- Cap determined by previously scheduled transactions, real-time with price transactions and margin only
- Real time with price transactions submission timing from 12:00 day ahead to any time up to 3 hours prior to schedule start time AND change minimum run time from 1 hour to 15 minutes
- Implement additional transaction scheduling rules to prevent market manipulation

	PJM Proposal	MA Proposal
Interchange cap calculation	Expected interchange @ time cap is implemented plus 700 MW margin	Existing interchange in ExSchedule @ time cap is implemented plus 700 MW margin
RT with Price transaction min run time	1 hour (status quo)	15 minutes
RT with Price transaction submission deadline	18:00 day ahead	3 hours prior to transaction start time
Additional market rules	None	Additional transaction scheduling rules to prevent market manipulation
Implementation Timeline	Implement all changes for this winter	Implement all changes for this winter, with possible exception of RT with price transaction deadline