



PJM ERPIV Proposal: Interchange Volatility

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- New OPTIONAL Real-Time transaction product that is economically evaluated
 - Available on peak days when certain Emergency Procedures are in effect
 - Limited to import transactions
 - T-20 min interchange may be limited when this new scheduling product is in effect
 - New transaction product will be compensated at the HIGHER of the transaction bid or RT LMP, if submitted prior to T-120 min

- Initial trigger is consistent with the RT OR market activation
 - Hot Weather Alerts
 - Cold Weather Alerts
 - Max Emergency Gen Alerts/Actions
 - Weather/Environmental Emergency conditions
 - Sabotage/Terrorism Emergency conditions
 - more severe Emergency Procedures are effective
- Re-evaluation period after Q1 2016 to see if expanding availability to non-emergency conditions is warranted

- Transactions will be cleared every 15 minutes in Real-Time
- Ramp reservation will be required
 - *Ramp will be accounted for upon transaction approval
- OASIS reservation needed at submittal
- Transactions need to be submitted by T-75 min (consistent with PJM-NY CTS)
- Transactions will be cleared by T-60 min
- Offer Curve for transactions can have up to 10 price/MW pairs

- T-20 minute interchange has routinely been difficult to forecast on peak days leading to inefficient decisions
- New transaction product will lock in interchange at the top of the hour which provides more certainty on interchange expectations
- PJM proposes implementing a maximum value of allowable interchange
 - set on an hourly basis
 - can be adjusted intra-hour for reliability reasons
 - Method of establishing the hourly interchange limit is still under discussion

- Transactions will be settled on an hourly basis consistent with the current PJM Energy Market settlements
- Transactions will be paid the higher of the bid of the transaction or the RT LMP
- Uplift will be allocated to RTO Deviations, consistent with the allocation for existing Operating Reserve Transaction Credits
- Uplift charge treatment for cleared transactions – **Defer to EMUSTF**

- Emergency Procedure Alerts/Actions Declared
- **Day Ahead through T-120+** Solicit Bids
 - Incentive to compensate at the HIGHER of the transaction bid or RT LMP in order to make best operating decisions and establish correct LMP signal.
- **T-120** DR, CTs, Interchange, Interchange Cap Decisions
 - Operating decision made for DR/CTs based on all known T-75 and traditional interchange to meet load and reserve objectives. Interchange cap **for time T** determined **and implemented**.
- **T-75** Bid Submission Deadline
 - Common business practice across all seams (NYISO CTS)
- **T-60** Bids evaluated and cleared
 - **Interchange cap adjusted to reflect interchange cleared, if needed**
- **T-20** Traditional interchange accepted as needed

- Transaction characteristics
 - Import: MISO to PJM
 - 100 MW for \$50
 - Scheduled from 9:00 to 9:15

- **Before 7:45 (T-75):**
 - OASIS reservation approved
 - RAMP reservation made but not included in overall ramp calculation until after clearing
 - eTag submitted
 - Submitted similar to dispatchable transactions
 - In ExSchedule the market participant enters an import (from MISO to PJM) transaction bid of 100 MW for \$50 from 9:00 to 9:15

- 7:00 (T-120):
 - Operators determine interchange limit for 9:00 to 9:15 based on system conditions
- 7:45 (T-75):
 - Requests for economically evaluated transactions for 9:00 will be denied
- 8:00 (T-60):
 - IT SCED evaluates transactions in conjunction with generation resources, economic DR, confirmed price taking transactions, and available ramp
 - IT SCED projects a MISO interface price of \$60/MWh
 - Since transaction bid price was \$50, the transaction clears for 100 MW scheduled to flow from 9:00 to 9:15
 - Interchange limit for 9:00 may be further adjusted if IT SCED clears less interchange than originally anticipated

- If the hourly integrated RT LMP = \$75
 - In this case, since the transaction bid, \$50, was less than the RT LMP, the transaction would be compensated at \$75
- If the hourly integrated RT LMP = \$45
 - In this case, since the RT LMP is less than the bid, \$50, of the transaction, the transaction would be compensated at \$50
 - \$45/MW settled through LMP
 - \$5/MW settled through Operating Reserve Transaction Credits