



Market Monitoring Issues NICA Integration

EMC
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NICA Market Analysis

- MMU Report on competitiveness of markets after NICA integration
 - Issued August 7
- Analysis of expected market conditions post integration
- Expected competitiveness of NICA markets post integration

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- Analysis
 - Energy Market
 - Capacity Market
 - Regulation Market
 - Spinning Reserves Market
 - Blackstart Market
 - Reactive Market

- Unconstrained Pathway
 - NICA and PJM areas jointly dispatched
 - Single energy market
 - Market results expected to be competitive
 - Simulation results
 - Pathway unconstrained 30% of hours under higher hurdle rate scenario
 - Pathway unconstrained 15% of hours under lower hurdle rate scenario

- Pathway Constrained: NICA to PJM – normal market conditions in PJM
 - Marginal generation cheaper in NICA than in PJM
 - Flows from NICA to PJM
 - Competitive constraint on NICA offers from PJM offers
 - Market results expected to be competitive under normal market conditions
 - Simulation results
 - Pathway constrained NICA to PJM 60% of hours under higher hurdle rate scenario
 - Pathway constrained NICA to PJM 80% of hours under lower hurdle rate scenario

- Pathway Constrained: NICA to PJM – extreme market conditions in PJM
 - Marginal generation cheaper in NICA than in PJM
 - Flows from NICA to PJM
 - Extreme demand conditions in PJM
 - Normal demand conditions in NICA
 - PJM offers do not provide competitive constraint on NICA offers
 - Market power concerns in NICA under extreme market conditions in PJM
 - Simulation Results/Historical analysis
 - PJM system prices >\$500/MWh for 0.19% of hours since April 1, 1999
 - Expected duration of this scenario is very short

- Pathway Constrained: PJM to NICA
 - Marginal generation cheaper in PJM than in NICA
 - Flows from PJM to NICA
 - No competitive constraint on NICA offers from PJM offers
 - Load in highly concentrated portions of NICA supply curve
 - Potential competition from non-pathway imports
 - Market power concerns in NICA
 - Simulation results
 - Pathway constrained PJM to NICA 10% of hours under higher hurdle rate scenario
 - Pathway constrained PJM to NICA 5% of hours under lower hurdle rate scenario

- Market Power Mitigation – NICA Energy Market
 - Unconstrained pathway
 - No mitigation necessary
 - Pathway constrained: NICA to PJM
 - No mitigation necessary during normal demand conditions in PJM
 - Mitigation necessary during extreme demand conditions in PJM but not in NICA
 - Expected hours less than 0.2 percent.
 - Pathway constrained PJM to NICA
 - Mitigation necessary
 - Expected hours from 5% to 10%

- **Market Power Mitigation – NICA Energy Market**
 - Pathway constrained: NICA to PJM
 - Extreme demand conditions in PJM but not in NICA
 - Less than 0.2% of the hours
 - No assurance of competitive constraint in NICA energy market
 - Cost capping of NICA units based on evaluation of market conditions
 - Market prices must be reflected
 - Location on supply curve – more diversity of ownership in peaking portion of supply curve
 - Ongoing discussions with participants

- **Market Power Mitigation – NICA Energy Market**
 - Pathway constrained: PJM to NICA
 - No assurance of competitive constraint in NICA energy market
 - From 5% to 10% of hours
 - Cost capping of NICA units based on evaluation of market conditions
 - Market prices must be reflected
 - Location on supply curve – more diversity of ownership in peaking portion of supply curve
 - Ongoing discussions with participants

- **Market Power Mitigation – NICA Energy Market**
 - Day ahead market cost capping
 - Limited to hours of PJM to NICA constraint
 - Limited to hours of NICA to PJM constraint, with extreme demand conditions threshold
 - If cost capped day ahead, no additional action in real time
 - Real time market cost capping limited to hours of PJM to NICA constraint

- **Market Power Mitigation – NICA Energy Market**
 - Local market power
 - Cost capping
 - All units with local market power included

- NICA Capacity Market
 - Concentrated ownership
 - Pivotal suppliers
 - Capacity market issues
 - Market power concern

- Market Power Mitigation – NICA Capacity Market
 - Offers limited to marginal cost
 - Definition of marginal cost is inclusive
 - Direct costs
 - Opportunity costs
 - Risk
 - Pricing during shortage periods
 - Monopsony issue

- NICA Regulation Market: Market Conditions
 - Relevant market: Internal to NICA
 - Highly concentrated ownership
- NICA Regulation Market: Market Power Mitigation
 - Cost based market
 - Market clearing price
 - Costs include opportunity costs
 - Reviewing overall offer cap as alternative

- NICA Spinning Reserves Market: Market Conditions
 - Relevant market: Internal to NICA
 - Highly concentrated ownership
- NICA Spinning Reserves Market: Market Power Mitigation
 - Structure market like that in PJM
 - Tier 1 price: LMP plus adder during spinning events
 - Tier 2 price: Availability price based on costs, plus a defined margin, plus opportunity costs