



# Market Monitoring Issues NICA Integration

Market Integration Stakeholders' Meeting  
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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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- NICA area analysis
  - Components
    - Unit details
    - Unit ownership
    - Bilateral contracts
    - Load data
    - Tie flow data
  - Results
    - Supply curves
    - HHIs
    - Pivotal analyses

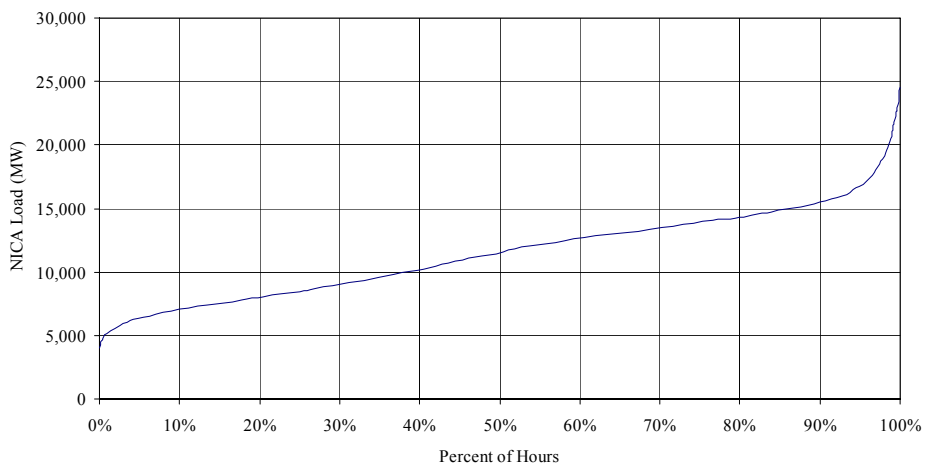
- Eastern Interconnection analysis
  - Components
    - Unit details
    - Transmission system
    - Economic dispatch
    - Hurdle rates
    - Pathway
  - Results
    - Flows on pathway
    - Dispatch

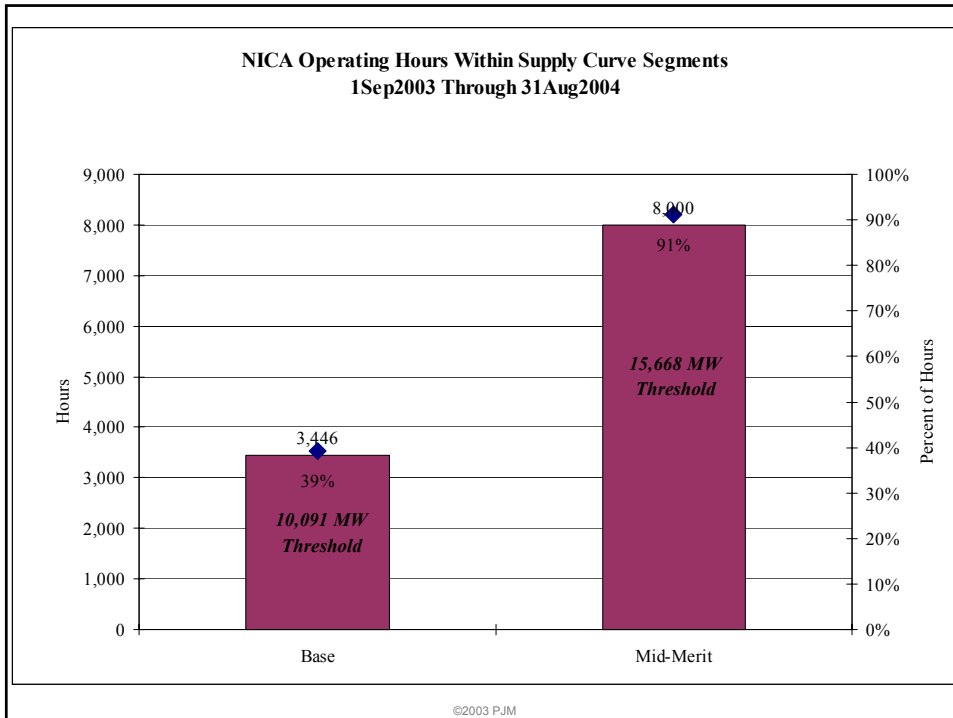
- Analysis
  - Energy Market
  - Capacity Market
  - Regulation Market
  - Spinning Reserves Market
  - Blackstart Market
  - Reactive Market

- Energy Market: Market Conditions
  - Relevant market
  - NICA market
  - PJM market
  - Surrounding control areas
  - Role of through and out transmission rates

- NICA Energy Market
  - Highly concentrated ownership in base load and mid-merit portion of the supply curve
  - Market power concern in absence of external competitive pressures
    - PJM area via pathway
    - External control areas via imports
- PJM Energy Market
  - Competitive results

**NICA Load Duration Curve  
01Sep03 Through 31Aug04**

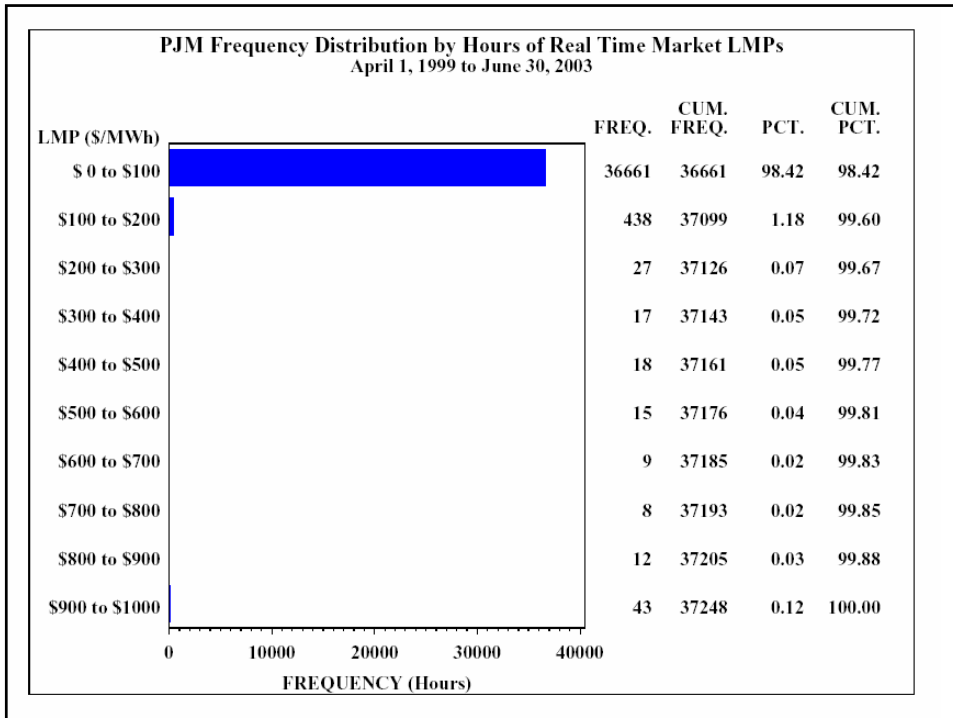




- **Unconstrained Pathway**
  - NICA and PJM areas jointly dispatched
  - Single energy market
  - Market results expected to be competitive
  - Simulation results
    - Pathway unconstrained 30% of hours under higher hurdle rate scenario
    - Pathway unconstrained 15% of hours under lower hurdle rate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

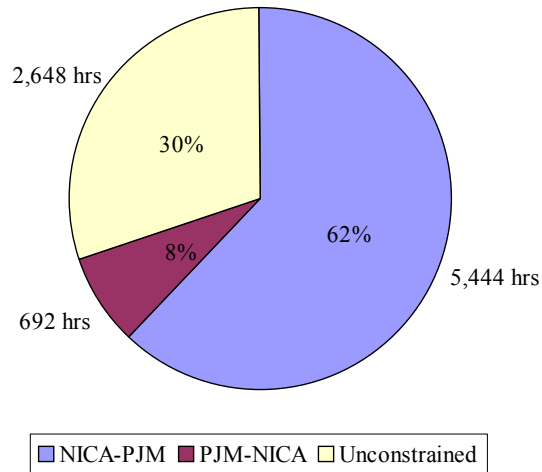
- Pathway Constrained: NICA to PJM – normal market conditions in PJM
  - Marginal generation cheaper in NICA than in PJM
  - Flows from NICA to PJM
  - Competitive constraint on NICA offers from PJM offers
  - Market results expected to be competitive under normal market conditions
  - Simulation results
    - 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
    - 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
    - PJM system prices >\$500/MWh for 0.19% of hours since April 1, 1999
    - Expected duration of this scenario is very short



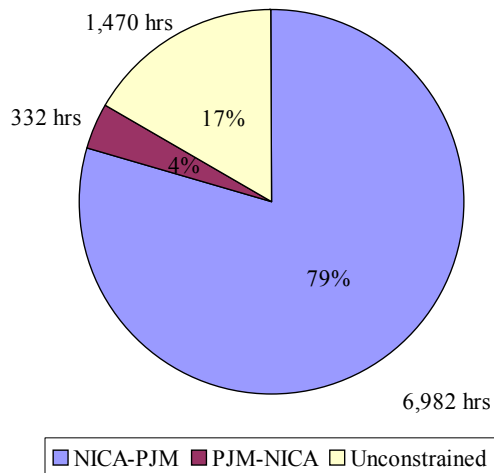
- **Pathway Constrained: PJM to NICA**
  - Marginal generation cheaper in PJM than in NICA
  - Flows from PJM to NICA
  - No competitive constraint on NICA offers from PJM offers
  - Load in highly concentrated portions of NICA supply curve
  - Potential competition from non-pathway imports
  - Market 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

**Pathway Congestion Hours  
15/9 Hurdle Rate  
Sept 1, 2003 through Aug 31, 2004**



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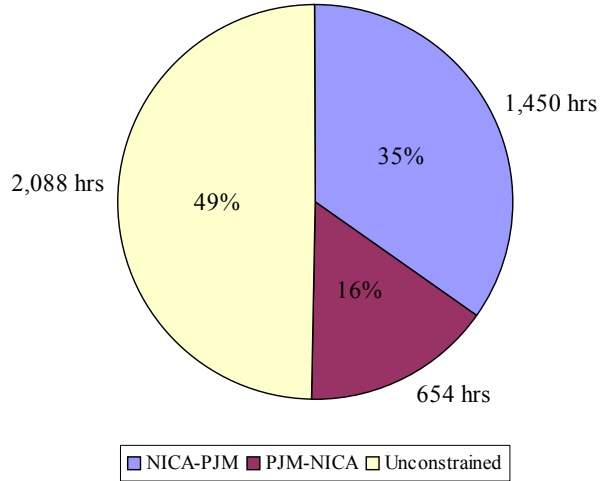
**Pathway Congestion Hours  
Variable Hurdle Rate  
Sept 1, 2003 through Aug 31, 2004**



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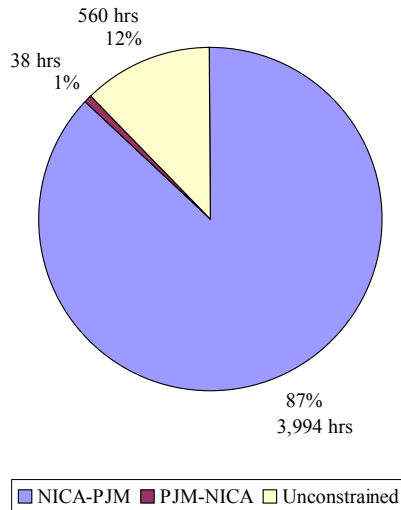


**Pathway Congestion During Peak Hours**  
**15/9 Hurdle Rate**  
**Sept 1, 2003 through Aug 31, 2004**

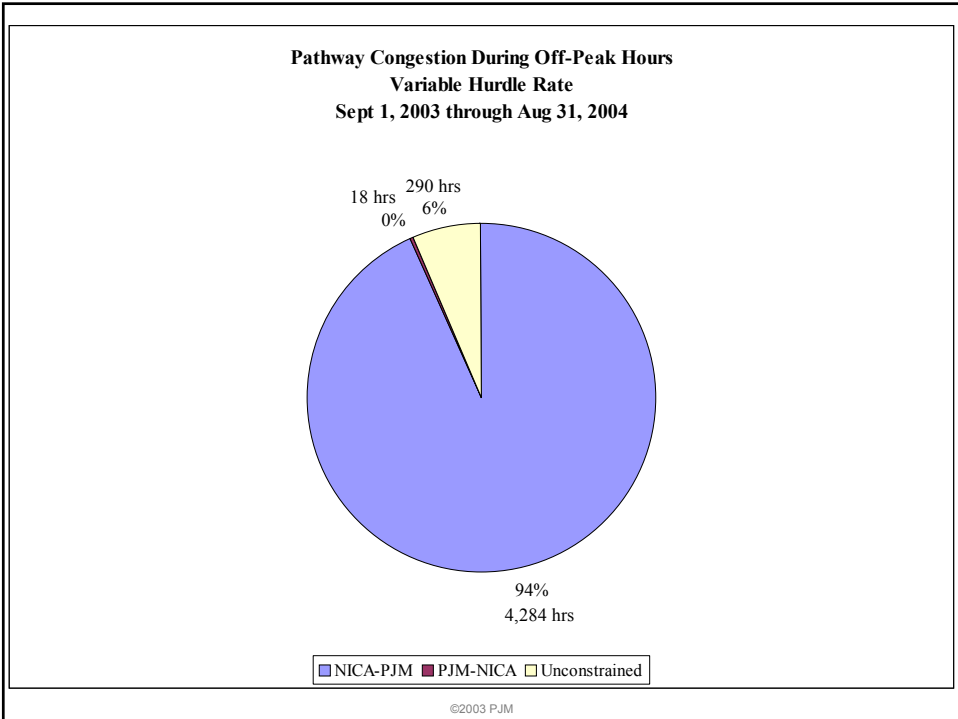
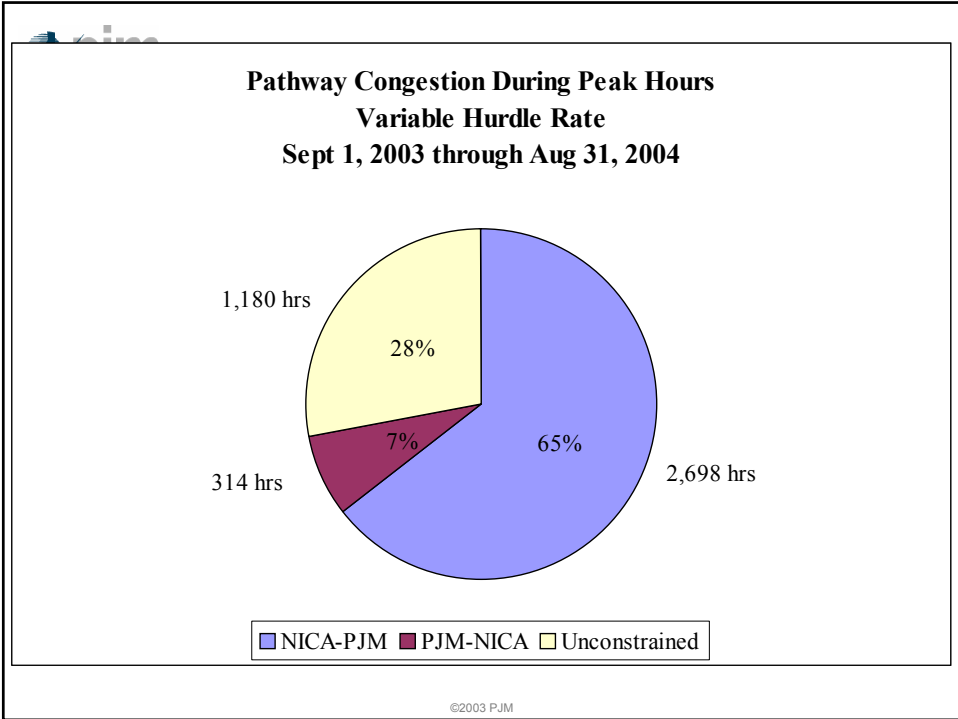


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**Pathway Congestion During Off-Peak Hours**  
**15/9 Hurdle Rate**  
**Sept 1, 2003 through Aug 31, 2004**



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- **Monopsony Market Power**
  - Single large buyer of energy
  - Potential concerns
- **Local Market Power**
  - Local market power issues may emerge in NICA
  - Inadequate data to evaluate expected frequency or duration
  - Ongoing analysis

- **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
  - Pathway constrained PJM to NICA
    - Mitigation necessary

- Market Power Mitigation – NICA Energy Market
  - Monopsony issue
    - No automated mitigation measures
  - Local market power
    - Cost capping
    - All units with local market power included

- Capacity Market: Transition mechanism
  - Through May 2004
- Capacity Market: Market Conditions post Transition
  - Relevant market
  - NICA market
  - PJM market

- 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

- 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

- **NICA Blackstart Market: Market Conditions**
  - Relevant market: Internal to NICA
  - Structural conditions do not support market solution
- **NICA Blackstart Market: Market Power Mitigation**
  - Structure like that in PJM
  - Blackstart services provided based on unit-specific costs per tariff

- **NICA Reactive Market: Market Conditions**
  - Relevant market: Internal to NICA
  - Structural conditions do not support market solution
- **NICA Reactive Market: Market Power Mitigation**
  - Structure like that in PJM
  - Reactive services provided based on unit-specific costs per FERC-approved rate

- Summary of MMU Conclusions
  - NICA energy market expected to be competitive under most conditions (90 to 95% of hours)
  - MMU will propose specific market power mitigation measures that would be applied to the aggregate energy market if required
  - Market power mitigation measures in the aggregate energy market must balance the prevention of market power and ensuring a competitive market price signal

- Summary of MMU Conclusions
  - NICA capacity market is not expected to be competitive
  - MMU will propose specific market power mitigation measures
  - Capacity market power mitigation measures must balance the prevention of market power and ensuring a competitive market price signal



- Summary of MMU Conclusions
  - NICA regulation market is not expected to be competitive
  - MMU proposes that the regulation market be cost based until conditions for competitive market evolve
  - NICA spinning reserves market is not expected to be competitive
  - MMU proposes that the spinning reserves market be structured as it is in the PJM Eastern Region

- Summary of MMU Conclusions
  - NICA blackstart services market is not expected to be competitive
  - MMU proposes that the blackstart services market be cost based per the PJM tariff
  - NICA reactive services market is not expected to be competitive
  - MMU proposes that the reactive services market be cost based per FERC approved rates