



Potential Areas for Market-Based Compensation for Reactive Power

Pallas LeeVanSchaick
Potomac Economics

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Reactive Supply Affects Transfer Capability

- Reactive supply from generators and other facilities can raise:
 - ✓ Voltage collapse interface transfer limits; and
 - ✓ Stability interface transfer limits.
- These interfaces can be important for:
 - ✓ Congestion management in the DA and RT markets, and/or
 - ✓ Locational installed capacity requirements.
- Reactive power can reduce the marginal cost of wholesale products that receive market based rates.
 - ✓ Ideally, market-based compensation could be made for real and reactive power on a comparable basis.
 - ✓ The lack of such compensation could lead to inefficient scheduling and investment decisions.



Example of Interface Sensitive to Reactive Supply

- Commitments at five plants (with total ICAP of 6.3 GW) affect the Central-East interface transfer limit.
- Sum of marginal effect of commitment at each plant is shown.
 - ✓ DA congestion revenue from the additional transfer capability was nearly \$50 million in 2015.
 - ✓ Higher MARS limits can reduce ICAP requirements.

| Plant | Type | Summer ICAP (MW) | Marginal Effect on Central-East Interface: | | |
|--------------|------|------------------------|--|-------------------|--------------------------------------|
| | | | MARS Limit (MW) | DAM Limit (MW) | DAM Congestion Revenue Collection |
| Independence | CC | 921 | 50 to 105 | 147 | \$17/kW-yr |
| Nine Mile | Nuke | 1916 | 110 to 220 | 198 | \$1.4/MWh |
| Fitzpatrick | Nuke | 853 | 50 to 105 | 106 | \$1.5/MWh |
| Oswego | ST | 1643 | 110 to 220 | 1 | \$0.1/kW-yr |
| Athens | CC | 979 | N/A | -25 | -\$2.3/kW-yr |



Reactive Supply Affects Transfer Capability

- Key interfaces that are affected by reactive supply include:
 - ✓ Central East interface in NYISO:
 - DAM congestion revenue totaled \$237M in 2015;
 - Little or no effect on ICAP requirements and prices.
 - ✓ MWEX (Minnesota-Wisconsin Export) interface in MISO:
 - RT congestion value totaled \$29M in 2014.
- Reactive power from generators near such interfaces can affect their transfer limits.
 - ✓ A portion of the value of this reactive power can be measured when the interface limit affects the procurement cost of a wholesale market product.