



2011 State of the Market Report for the NYISO Markets

David Patton
Pallas LeeVanSchaick

NYISO Market Monitoring Unit
Potomac Economics

May 15, 2012



List of Recommendations

RECOMMENDATION	IN 2012 PROJECT PLAN	HIGH PRIORITY/ BENEFIT
Capacity Market		
1. Better align the local capacity requirements with the Class Year Deliverability Test to allow the market to produce efficient price signals.		✓
2. Use the most economic new generating technology to establish the capacity demand curves.		✓
3. Clarify and improve the ICAP qualification requirements and supply-side mitigation measures.		✓
Real-Time Market		
4. Improve coordination of interface scheduling with neighboring markets.	✓	✓
5. Explore improvements in the operation certain PAR-controlled lines.		✓
6. Evaluate criteria for gas turbines to set LBMPs in the real-time market.		
7. Consider using graduated Transmission Shortage Cost (i.e., demand curve).	✓	
8. Modify the real-time market to allow DR to set prices when appropriate.	✓	
9. Identify and address causes of unnecessary real-time price volatility.		
Day-Ahead Market		
10. Modify mitigation rules for 10-minute reserves in day-ahead market.	✓	
11. Enable virtual trading at a disaggregated level.		

See Section X



Recommendation #1

1. Identify improvements to align the Class Year Deliverability Test and the locational capacity requirements in the Capacity Market.

(High Priority/ Value)

- The NYISO's application of its proposed criteria to create new capacity zones should result in the creation of a capacity zone for Southeast NY.
- The proposed criteria would likely fail to create new capacity zones when highway deliverability constraints are binding because new resources are ignored (i.e., to create a new zone, existing CRIS rights must be undeliverable).
- Failure to achieve consistency between the locational framework in the Capacity Market and the Class Year Deliverability Test will continue to:
 - ✓ Serve as an inefficient barrier to new entry and capacity imports,
 - ✓ Result in inefficient locational capacity price signals to govern investment in new resources (generation and demand-side) and transmission, and other decisions by existing resource owners and loads.

See Section X



Recommendation #1 – Discussion

- The NCZ test filed by NYISO on compliance is flawed because it requires that the system not be able to accommodate the existing rights.
- The NCZ test should trigger the creation of a new zone when the Class Year Deliverability Test determines that a new resource be assigned SDU costs for a Highway transmission facility.
 - ✓ When this occurs, the developer should have the option to:
 - Pay the SDUs and be assigned financial capacity transfer rights for its upgrade of the transmission capability; or
 - Not paying the SDUs and selling its capacity in its own zone.
 - ✓ The developer should also have the option to be assigned financial capacity transfer rights (or obligations) in lieu of SDUs for physical upgrades.
- The following conditions may be additional indicators that a NCZ is needed:
 - ✓ The Reliability Needs Assessment determines that a region of the bulk power system is within some tolerance of not satisfying the planning criteria.
 - ✓ The NYISO determines that a Gap Solution will be needed to address an imminent reliability issue on the bulk power system.



Recommendation #1 – Discussion

- Given the time and difficulty of creating a NCZ, we recommend the NYISO pre-define zones or highway deliverability constraints that would be modeled in each capacity auction.
 - ✓ If the interzonal constraints do not bind, the zones will collapse and a single price will be set for multiple zones.
 - ✓ This is the practice or the future direction of the other RTOs in the eastern interconnect.
- The NYISO and stakeholders should also consider whether local TO planning criteria can be reflected as capacity market requirements in order to provide efficient market-based signals for new investment.



Recommendation #2

2. Select the most economic generating technologies to establish the demand curves in the next demand curve reset process for the capacity market.

(High Priority/Value)

- The use of a new peaking unit in the demand curve reset process is likely to result in a demand curve that is set higher than the level necessary to satisfy New York state's planning criteria in the short run because it is not the most economic source of new capacity for most areas.
- Changing the technology of the demand curve unit would require a corresponding adjustment to the excess level assumption that is used in the demand curve reset process so that the excess level is appropriate for the size of the demand curve unit.

Discussion:

- Potomac Economics supports using the most realistic assumptions regarding unit costs, property taxes, and all other factors for determining which technology is the most economic and the level of the demand curve.

See Section X



Recommendation #3

3. Reform the following rules related to the ICAP qualification requirements and supply side mitigation measures for installed capacity suppliers. (High Priority/Value)

- ✓ Modify the pivotal supplier test in the Tariff to prevent a large supplier from circumventing the mitigation rules by selling capacity in the forward capacity auctions (i.e., the strip and monthly auctions) to avoid being designated as a pivotal supplier.
- ✓ Clarify/modify the existing rules (and modify the Tariff if necessary) related to the requirements a supplier must satisfy to remain qualified to sell installed capacity. The rules should prevent capacity sales from a generator that is out-of-service for an extended period or out-of service and not under-going the steps necessary to come back into service.
- ✓ Clarify/modify the existing rules (and modify the Tariff if necessary) related to the calculation of Going-Forward Costs (“GFCs”) to specify that GFCs include only costs a supplier must incur to remain qualified to sell capacity and can, therefore, only be avoided when it ceases to sell capacity.

See Section X



Recommendation #3 – Discussion Pivotal Supplier Test

- The current test is based only on the capacity available to sell into the monthly spot auction (excludes capacity previously sold).
- Hence, it allows a supplier with market power to circumvent the mitigation measures by selling capacity in the monthly and/or strip auctions.
- For example, a supplier controls 1,000 MW of capacity, the excess capacity in the zone is 400 MW, and supplier sells 601 MW in the monthly auctions.
 - ✓ The supplier would be able to withhold the remaining 399 MW and raise the spot auction clearing price to the level of the requirement.
 - ✓ Supplier can benefit because this should increase prices in subsequent strip and monthly auctions.



Recommendation #3 – Discussion Eligibility to Supply Capacity

- The eligibility rules imply that only operable units or units being repaired to be brought back into service should be eligible, but is not explicit. This undermines participants' investment incentives and distorts the capacity market outcomes.
 - ✓ For example, units that are effectively retired or mothballed may continue to sell capacity for up to two years, inflating the supply and depressing capacity prices.
- For example, a unit sustains major damage in November, is forced out, and repair work is expected to take two months. The units eligibility should be clear if:
 - a) Repairs start in December and it returns to service in February.
 - b) Repairs start in February and it returns to service in April because the delay reduces the repair cost, or a final decision has not been made to make the repairs.
 - c) Repairs start in September and it returns to service in November because the delay reduces the repair cost, or a final decision has not been made to make the repairs.
- We believe it would also be beneficial for a unit on an extended outage (e.g., longer than one year) to be ineligible until it returns to service. This would provide accurate prices while the unit is gone to those that may supply replacement capacity and more accurate prices when the unit returns (a more accurate EFORd).
- The majority of unsold capacity in New York City likely should not have been eligible to be sold during the recent period.



Recommendation #3 – Discussion Calculation of Going-Forward Costs

- The purpose of the GFC provisions is to provide relief from the supply-side mitigation measure by allowing a supplier to offer competitively.
 - ✓ Typically, the decision by a competitive supplier to mothball or retire is based on expected capacity and energy prices years into the future.
 - ✓ However, there are cases where it may be rational to offer a units GFC to allow the market to assist in determining whether and when to retire.
 - ✓ A competitive supplier would never forego capacity revenues unless doing so would result in cost savings that exceeded the foregone revenues.
- GFCs are costs that a generator would avoid by not selling capacity and mothballing or retiring.
 - ✓ The tariff does not allow a supplier to offer at its GFC unless it plans to mothball or retire if its offer is not accepted.
 - ✓ Hence, an avoidable cost should only be incorporated in the GFC if the generator would avoid the cost as a result of not clearing in the auction.
- For example, if a generator would lay-off ten employees as a result of not clearing in an auction and moving into a mothball state, the costs of keeping them on the payroll can be incorporated in the GFC.
 - ✓ However, if their employment contract forbids lay-offs until a future date that would not be sooner as a result of not clearing, the costs of keeping them on the payroll should not be incorporated in the GFC.



Recommendation #4

4. Continue to work with adjacent ISOs to implement rules that will better utilize the transfer capability between regions, ideally by directly coordinating the physical interchange and congestion management. (High Priority/Value)

- The NYISO is working with neighboring control areas on several proposals to improve the efficient use of the interfaces, including: Coordinated Transaction Scheduling (“CTS”) with ISO New England and Market-to-Market Congestion Management with PJM.
- We believe these are high-value improvements, and support extending the CTS to the NYISO’s other interfaces with other RTO markets.

2012 Project Plan:

- ✓ ITC Phase III: PJM Intra-hour Transaction Scheduling
- ✓ ITC Phase IV: ISO-NE Inter-Regional Interchange Scheduling (IRIS)
- ✓ ITC Phase V: PJM Coordinated Transaction Scheduling, and
- ✓ Market-to-Market Coordination: PJM.

See Section X



Recommendation #5

5. Explore options for improving the operation certain PAR-controlled lines more efficiently. (High Priority/Value)

- There may be opportunities to improve the operation of certain PAR-controlled lines.
- Particularly the lines between New York City and Long Island, which were scheduled in the inefficient direction (i.e., from the high-priced area to the low-priced area) nearly 90 percent of the time in 2011.
 - ✓ This raises both efficiency and price concerns to the extent that it restricts the output of in-City generation.
 - ✓ We are recommending that the NYISO work with the parties to the underlying wheeling agreement to explore potential changes to agreement, or to how the agreement is accommodated within the NYISO markets, to address the inefficient market outcomes.

See Section X



Recommendation #6

- 6. Evaluate improvements to the real-time pricing methodology to ensure that GTs are eligible to set the LBMP when they are economic (i.e., displacing output from more expensive resources).**
- The real-time pricing methodology (i.e., hybrid pricing) employs a step that causes some efficiently committed GTs to be deemed ineligible to set the LBMP. Hence, we recommend the NYISO identify and evaluate potential improvements to this step.

Discussion:

- ✓ We examined the GTs that were committed in economic merit order but that did not recoup their as-bid costs from the real-time LBMP in the initial commitment period.
 - These units were displacing more expensive resources, but still deemed ineligible to set LBMP in 21 percent of the intervals (during these commitments).
- ✓ We plan further analysis to quantify the effects of this issue on LBMPs and scheduling incentives.



Recommendation #7

7. Consider the feasibility and potential impacts on reliability from using a graduated Transmission Shortage Cost (or demand curve).

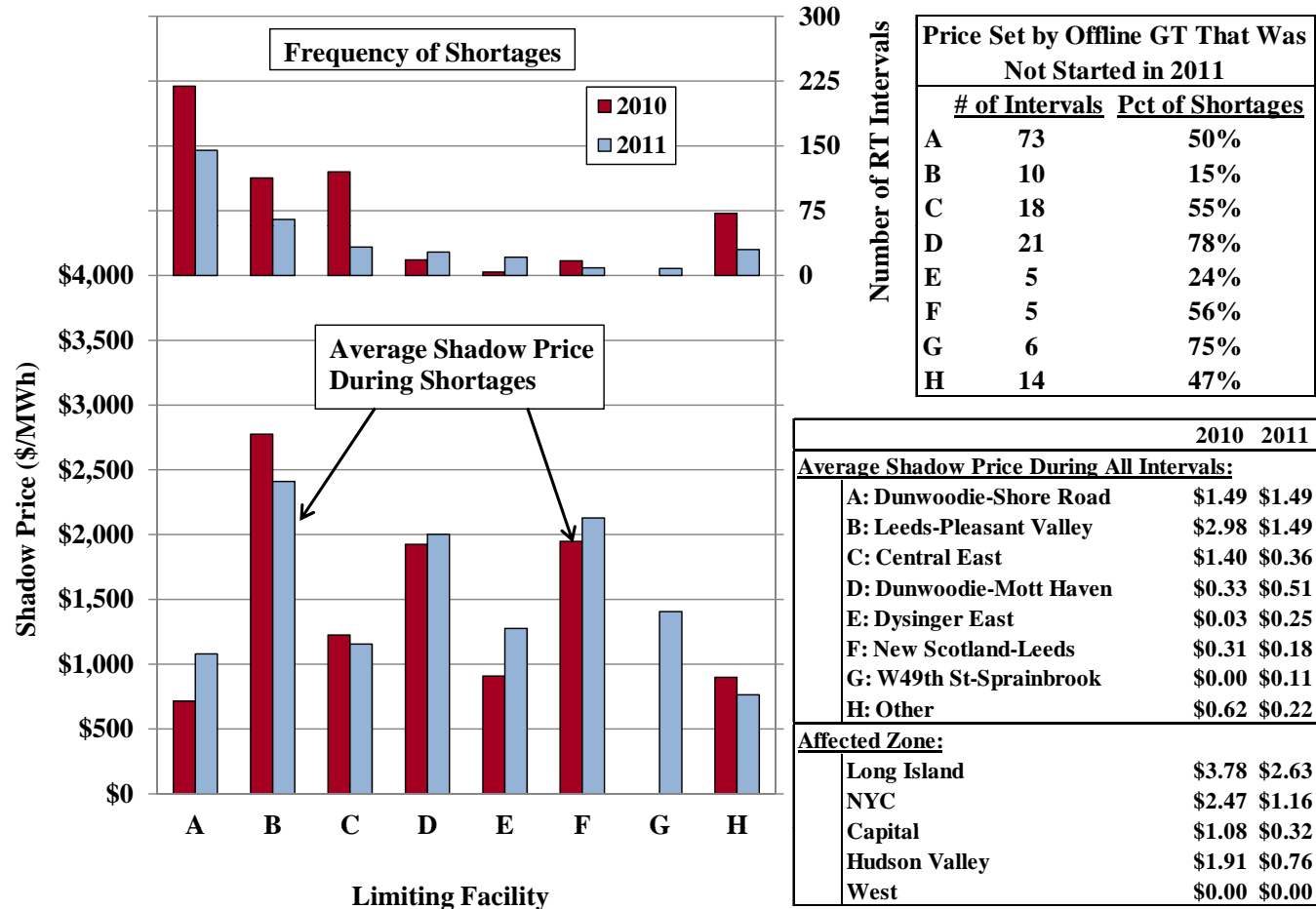
- RTD uses a “Transmission Shortage Cost” that limits the redispatch costs that may be incurred to \$4000 per MWh when managing congestion.
- Our analysis suggests that this level may be higher than the true value of certain shortages (typically those that are brief or small relative to the limit on the constraint).
- Improving the accuracy of the Transmission Shortage Cost by representing it as a demand curve may cause the NYISO markets to take more efficient dispatch and commitment actions, and set more efficient prices.

2012 Project Plan:

Scheduling & Pricing: Graduated Transmission Demand Curve



Real-Time Prices During Transmission Shortages



See Section VIII.D.2
Recommendation 7



Recommendation #8

8. Modify rules so demand response resources that have been activated are eligible to set LBMPs in the real-time pricing methodology.

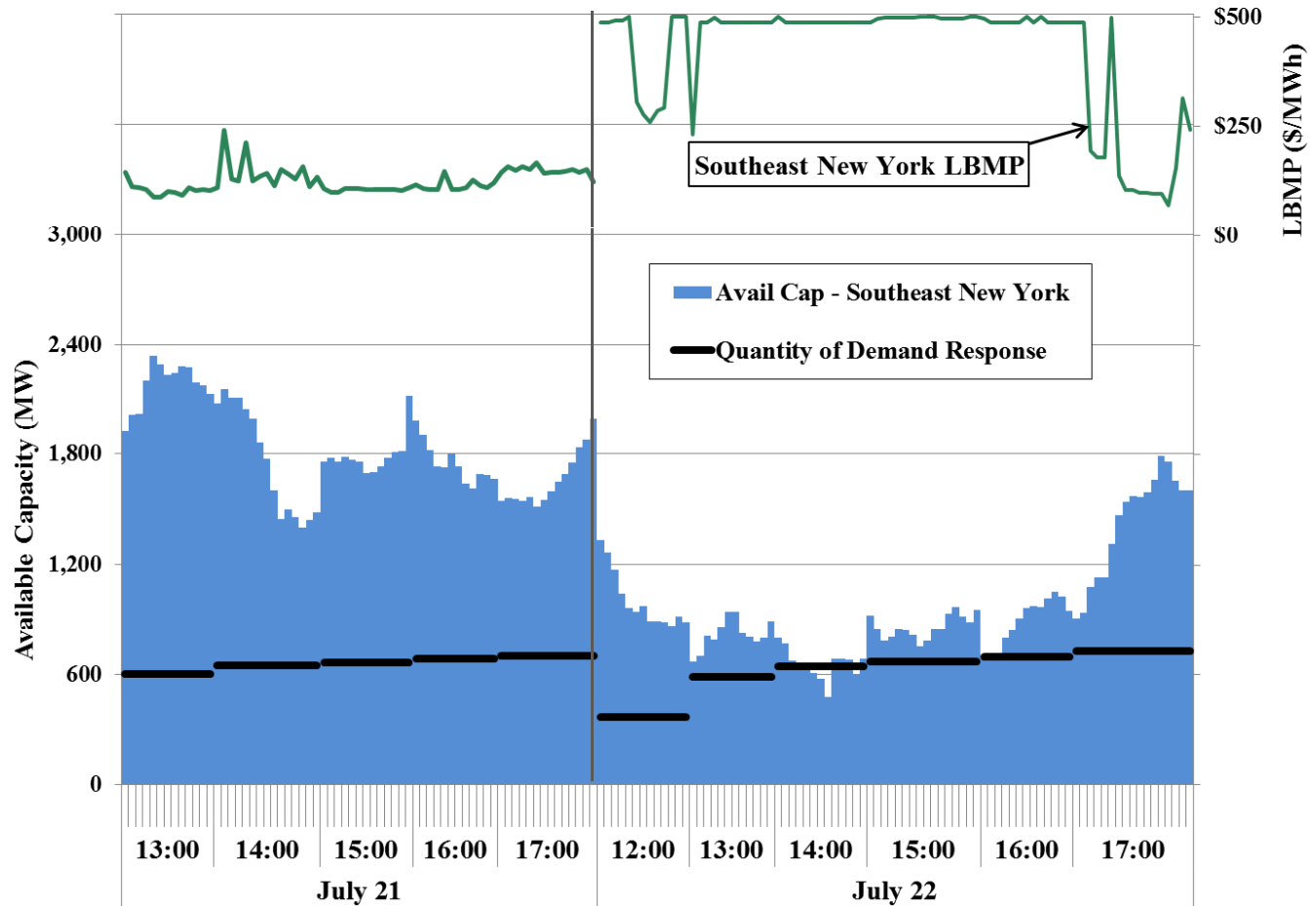
- Emergency demand response was activated twice in 2011, once in southeast New York and once NYCA-wide, except Zone D, but these activations may be more common in the future if supply margins fall.
- Hence, efficient price-setting when demand response resources are needed to satisfy reliability needs market-wide or in a local area will be increasingly important.

2012 Project Plan:

Scheduling & Pricing: Enhanced Scarcity Pricing



Prices & Available Supply During Emergency DR Activations July 21 & 22, 2011



See Section VIII.D.3
Recommendation 8



Recommendation #9

9. Conduct an evaluation to determine the causes of and potential solutions for unnecessary real-time price volatility.

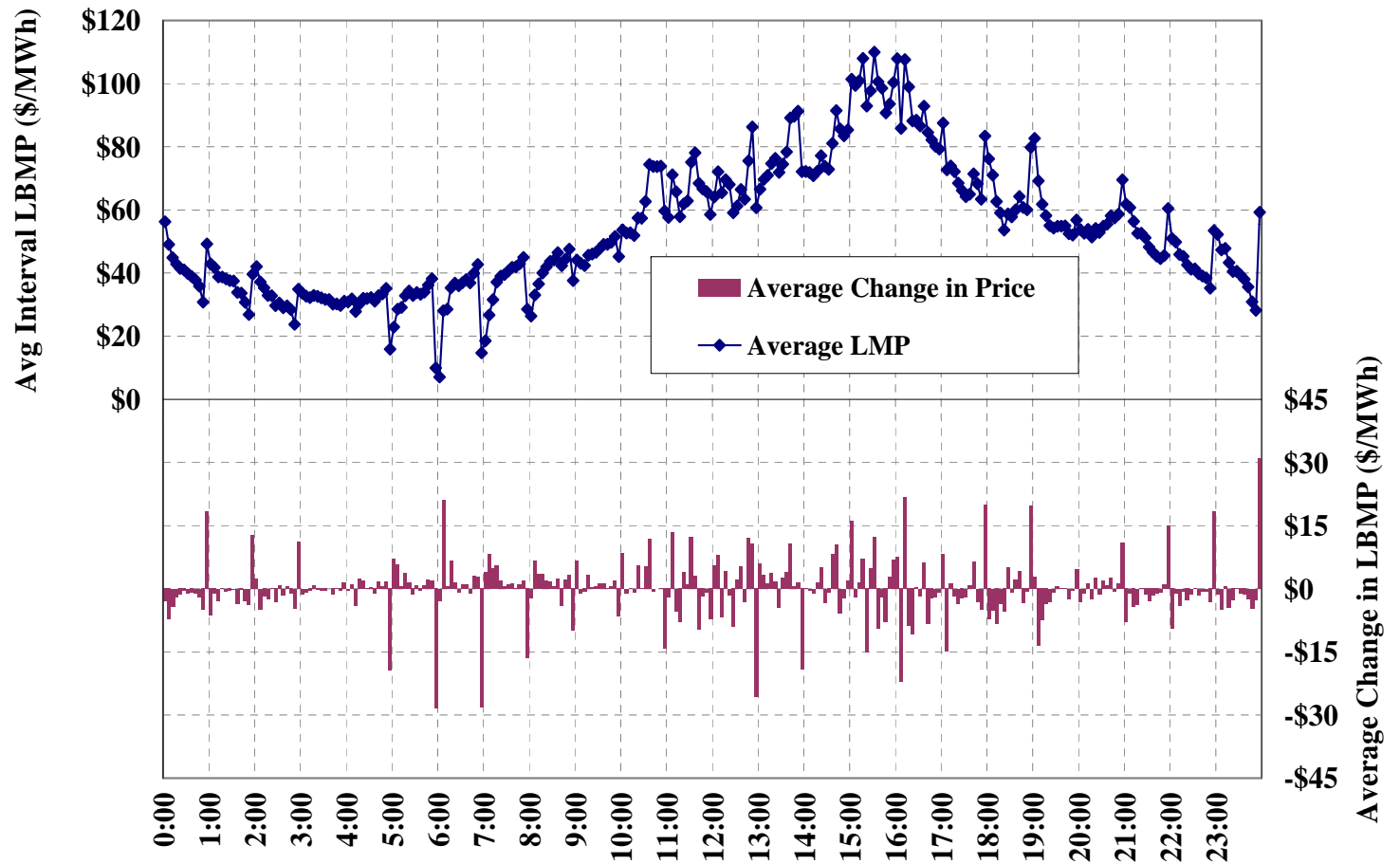
- The NYISO's initiatives to schedule external transactions with Quebec, PJM, and New England on a 15-minute (rather than hourly) basis should address some of the causes of price volatility.
- Nonetheless, we recommend the NYISO evaluate whether additional look ahead assessments in RTC and RTD would enable the market to respond more efficiently to changes in external interchange and other top-of-the-hour changes that may cause unnecessary real-time price volatility.

Discussion

- Hourly external transactions ramp from five minutes before the top of the hour to five minutes after, and 15-minute transactions are ramped-in in a similar manner.
- We recommend evaluating the pros and cons of adjusting the timing of the look-ahead evaluations in RTD to be more in-sync with the adjustments in the external interchange.



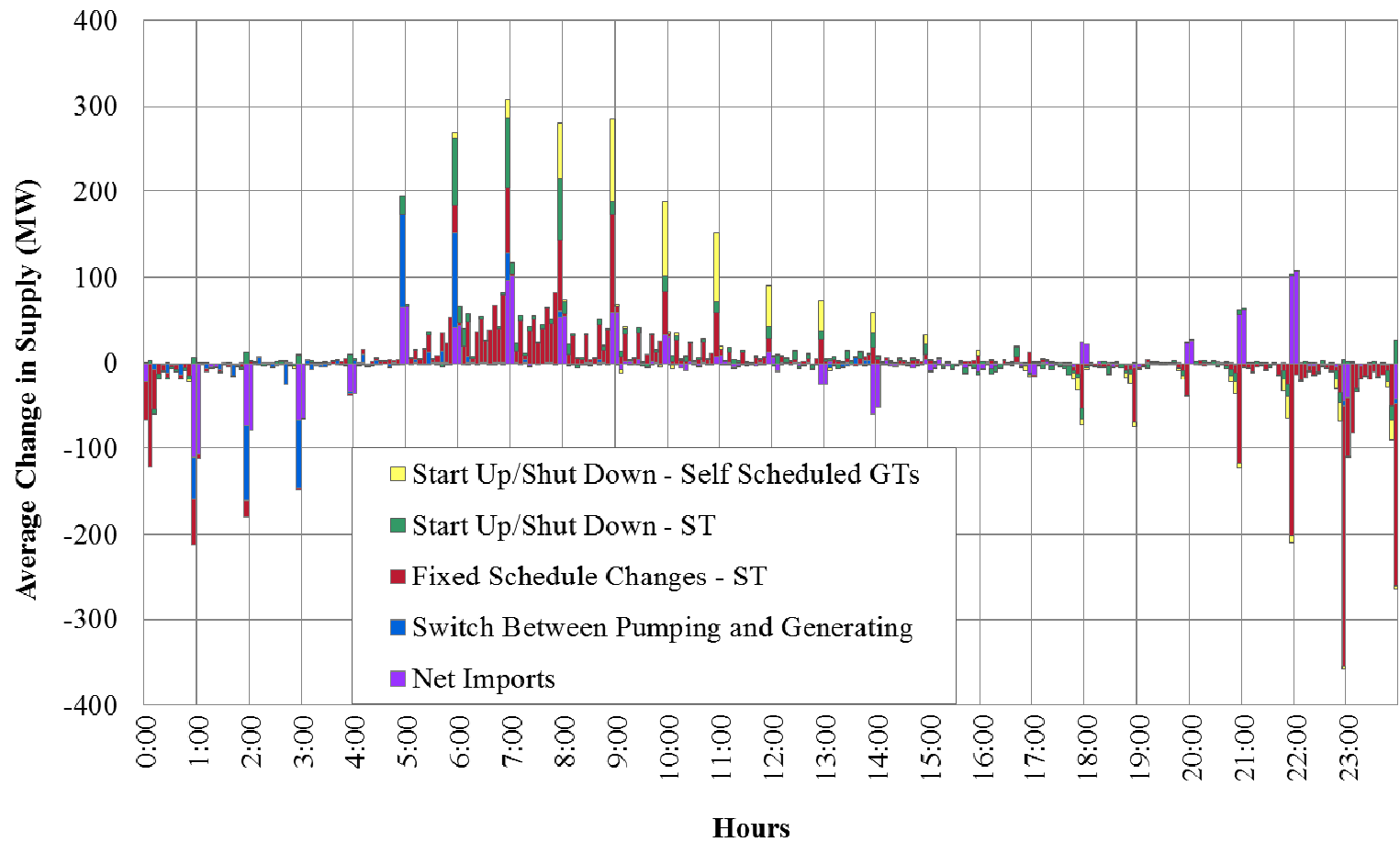
Statewide Average Five-Minute Prices by Time of Day June to August 2011



See Section VIII.C
 Recommendation 9



Statewide Average Five-Minute Prices by Time of Day June to August 2011



*See Section VIII.C
Recommendation 9*