Highlights from the Quarterly Report on the New York ISO Electricity Markets Second Quarter 2015

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August 20, 2015

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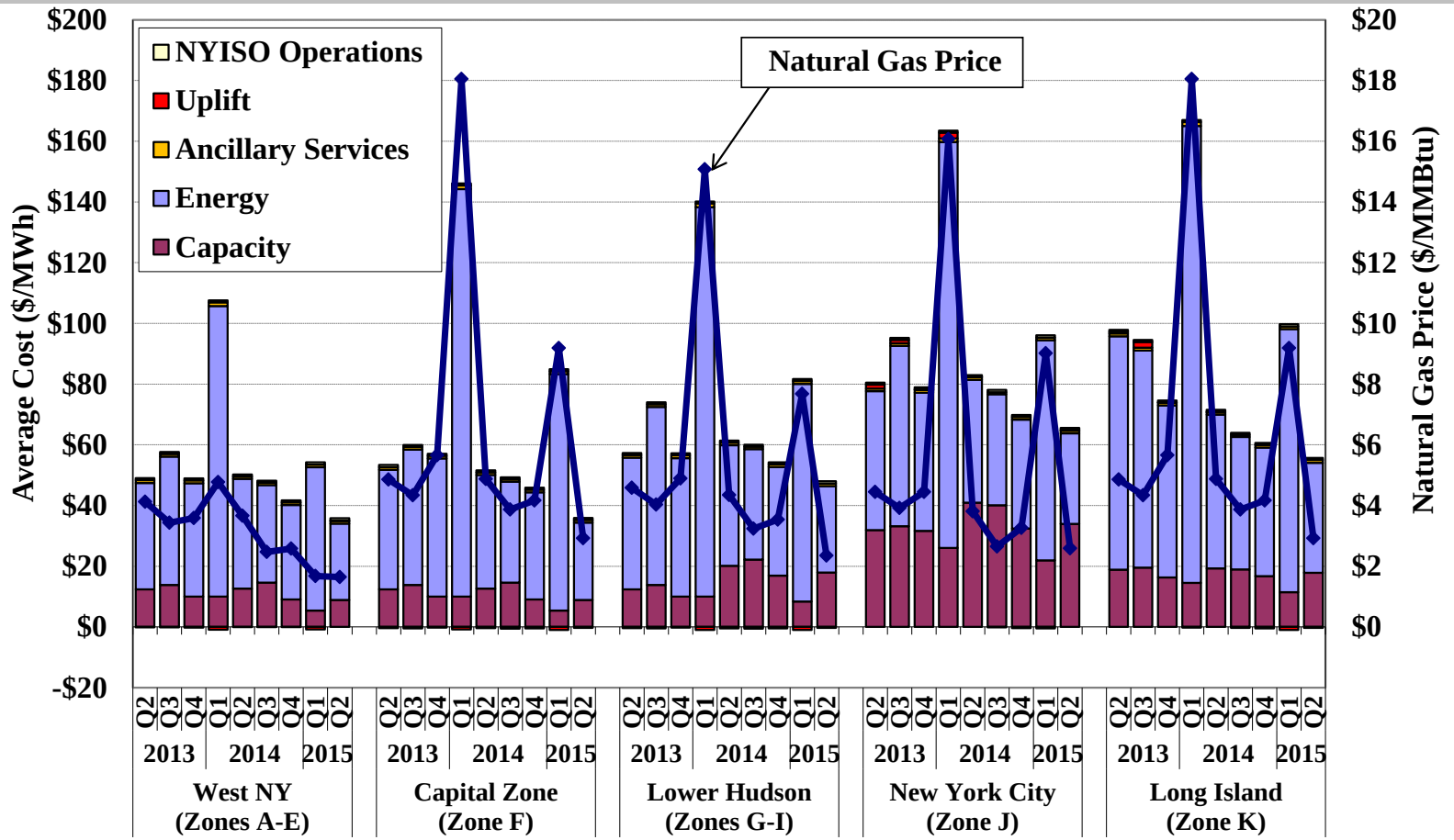
Highlights and Market Summary: Energy Market

- This report summarizes market outcomes in the second quarter of 2015.
- The energy markets performed competitively and variations in wholesale prices were driven primarily by changes in fuel prices, demand, and supply availability.
- Lower natural gas prices this quarter were the primary driver of variations in NYISO market outcomes from the same quarter last year.
- RT LBMPs averaged $29/MWh statewide, down 29 percent from a year ago.
  - ✓ Natural gas prices fell 34 to 58 percent across the system due to increased production from the Marcellus and Utica Shales (see slide 11).
  - ✓ Average nuclear generation rose 405 MW because of fewer outages, contributing to the decrease in LBMPs (see slide 14).
  - ✓ However, these LBMP reductions were partly offset by a decrease of 235 MW in average production from hydro units (see slide 14).
- Zonal price convergence between DA and RT was reasonably good in most areas in the second quarter of 2015.
  - ✓ However, in the West Zone, average RT prices were 11 percent higher than DA prices because of frequent acute intra-zonal RT congestion (see slides 19-20). These intra-zonal constraints led to poor price convergence at node-level.

All-In Energy Price by Region



Note: Natural Gas Price is based on the following gas indices (plus a transportation charge of $0.20/MMbtu): the Dominion North index for West NY, the Iroquois Zone 2 index for the Capital Zone, the average of Texas Eastern M3 and Iroquois Zone 2 for Lower Hudson, the Transco Zone 6 (NY) index for New York City, and the Iroquois Zone 2 index for Long Island.

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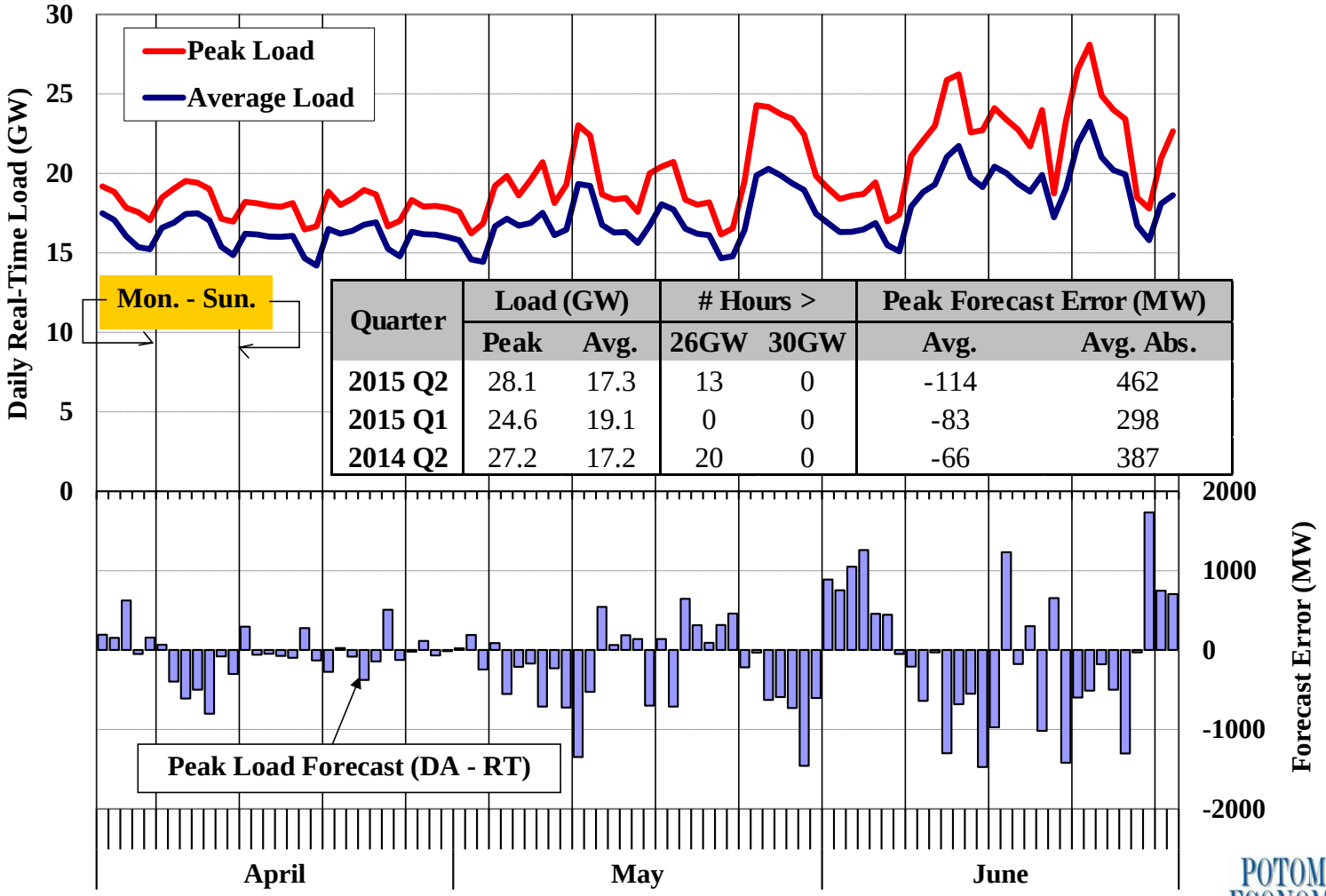
Load Forecast and Actual Load



Quarter	Load (GW)		# Hours >		Peak Forecast Error (MW)	
	Peak	Avg.	26GW	30GW	Avg.	Avg. Abs.
2015 Q2	28.1	17.3	13	0	-114	462
2015 Q1	24.6	19.1	0	0	-83	298
2014 Q2	27.2	17.2	20	0	-66	387

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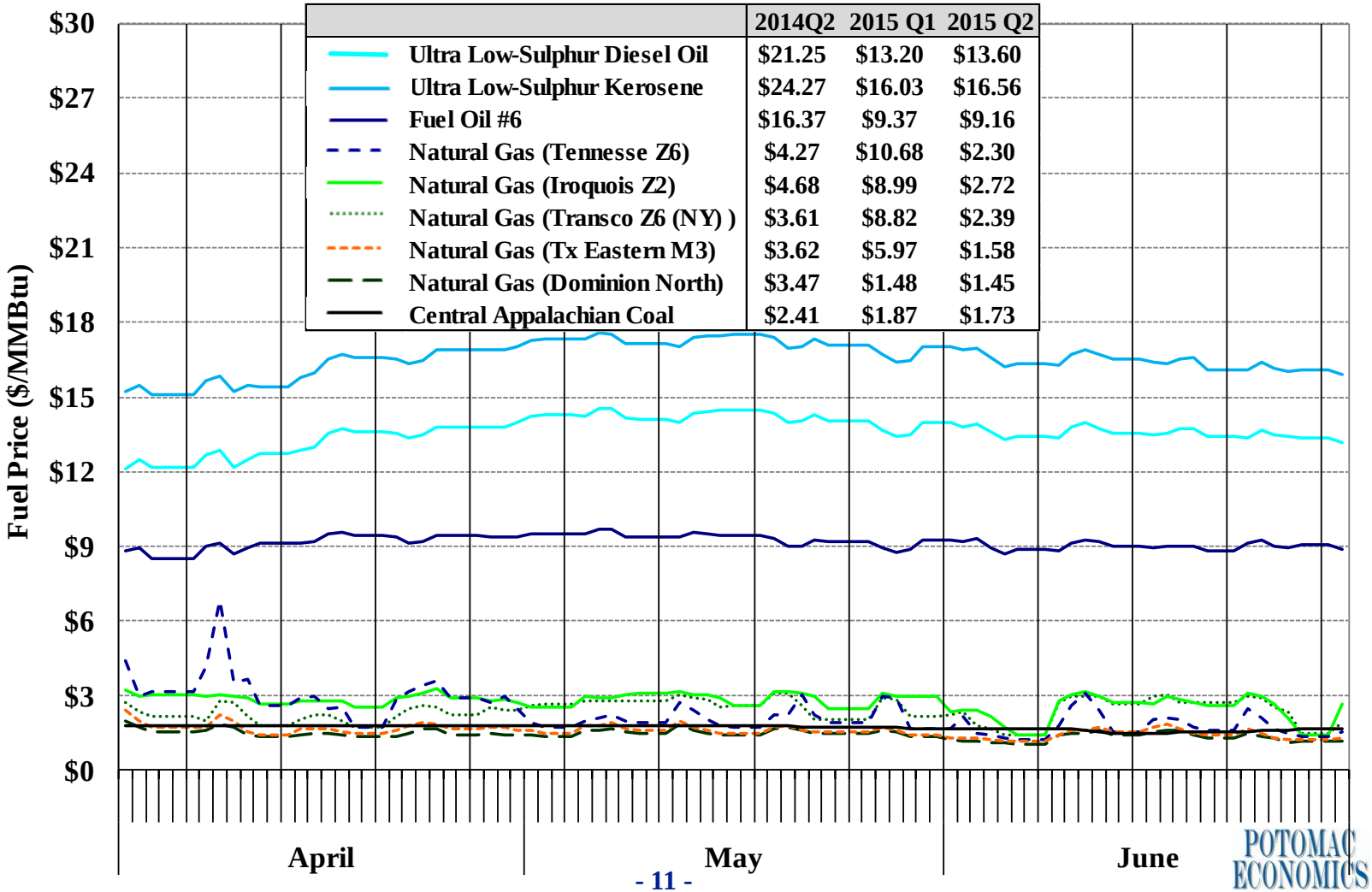
Coal, Natural Gas, and Fuel Oil Prices

	2014Q2	2015 Q1	2015 Q2
Ultra Low-Sulphur Diesel Oil	$21.25	$13.20	$13.60
Ultra Low-Sulphur Kerosene	$24.27	$16.03	$16.56
Fuel Oil #6	$16.37	$9.37	$9.16
Natural Gas (Tennesse Z6)	$4.27	$10.68	$2.30
Natural Gas (Iroquois Z2)	$4.68	$8.99	$2.72
Natural Gas (Transco Z6 (NY))	$3.61	$8.82	$2.39
Natural Gas (Tx Eastern M3)	$3.62	$5.97	$1.58
Natural Gas (Dominion North)	$3.47	$1.48	$1.45
Central Appalachian Coal	$2.41	$1.87	$1.73



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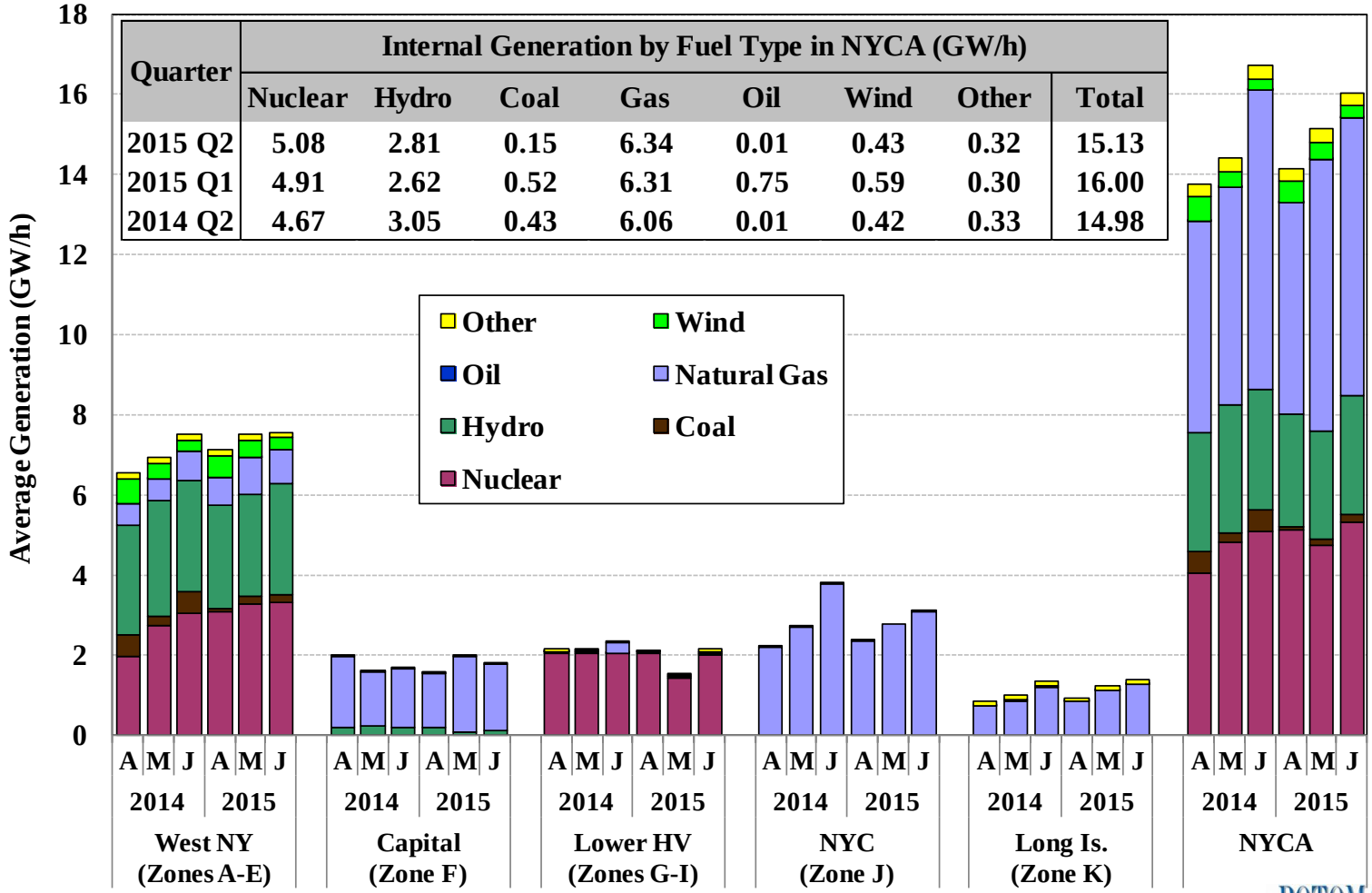
Real-Time Generation Output by Fuel Type

Quarter	Internal Generation by Fuel Type in NYCA (GW/h)							
	Nuclear	Hydro	Coal	Gas	Oil	Wind	Other	Total
2015 Q2	5.08	2.81	0.15	6.34	0.01	0.43	0.32	15.13
2015 Q1	4.91	2.62	0.52	6.31	0.75	0.59	0.30	16.00
2014 Q2	4.67	3.05	0.43	6.06	0.01	0.42	0.33	14.98



Notes: Pumped-storage resources in pumping mode are treated as negative generation. "Other" includes Methane, Refuse, Solar & Wood.

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Efficiency of Intra-Hour Scheduling Under CTS
Primary PJM Interface

			Export (NY to PJM)			Import (PJM to NY)			Average/ Total
			Apr-15	May-15	Jun-15	Apr-15	May-15	Jun-15	
% of All Intervals			35%	35%	27%	34%	41%	35%	**69%**
Average Flow Adjustment (MW)			-80	-87	-63	68	77	78	**3 (Net) / 76 (Gross)**
Production Cost Savings ($ Million)	Projected at Scheduling Time		$0.90	$1.08	$0.08	$0.11	$1.00	$0.55	**$3.7**
	Unrealized Savings Due to:	NY Fcst. Err.	-$0.05	-$0.26	-$0.05	-$0.07	-$0.80	-$0.34	**-$1.6**
		PJM Fcst. Err.	-$0.73	-$0.85	-$0.02	-$0.04	$0.08	$0.04	**-$1.5**
		Other	-$0.02	-$0.01	$0.00	$0.00	-$0.02	-$0.03	**-$0.1**
	Actual		$0.09	-$0.03	$0.02	-$0.01	$0.27	$0.23	**$0.6**
Interface Prices ($/MWh)	NY	Actual	$25.39	$30.96	$21.60	$23.39	$34.03	$30.28	**$28.03**
		Forecast	$23.83	$24.80	$19.14	$24.38	$47.27	$34.86	**$29.96**
	PJM	Actual	$29.51	$30.70	$24.04	$26.86	$30.28	$24.80	**$27.92**
		Forecast	$40.87	$47.62	$26.71	$25.62	$31.60	$26.28	**$33.35**
Price Forecast Errors ($/MWh)	NY	Fcst. - Act.	-$1.57	-$6.16	-$2.46	$0.99	$13.23	$4.58	**$1.93**
		Abs. Val.	$5.86	$15.17	$7.76	$7.12	$26.64	$14.34	**$13.42**
	PJM	Fcst. - Act.	$11.36	$16.92	$2.67	-$1.23	$1.33	$1.48	**$5.44**
		Abs. Val.	$18.75	$23.46	$8.31	$7.51	$10.12	$8.19	**$12.84**

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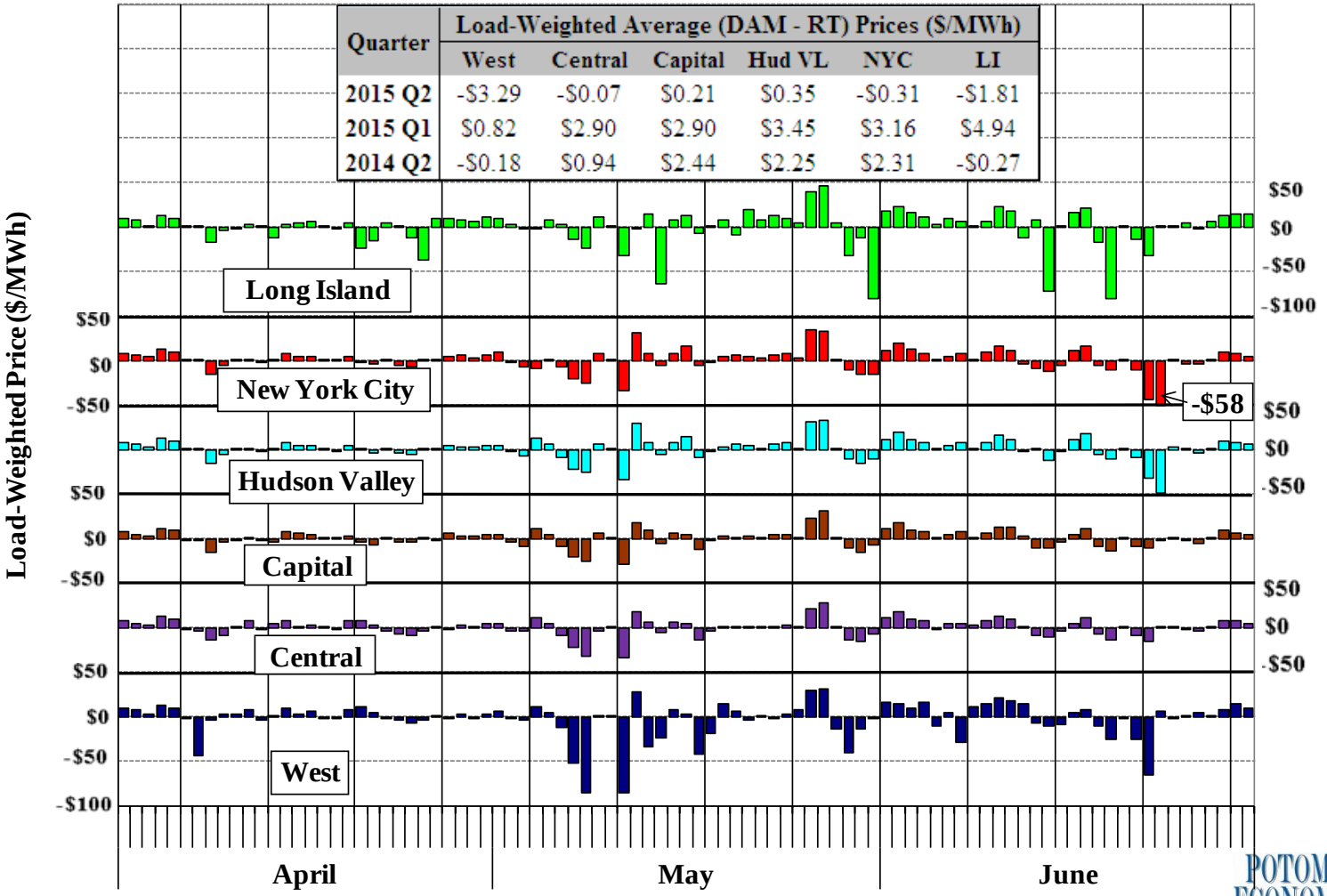
Convergence Between Day-Ahead and Real-Time Prices

Quarter	Load-Weighted Average (DAM - RT) Prices ($/MWh)					
	West	Central	Capital	Hud VL	NYC	LI
2015 Q2	-$3.29	-$0.07	$0.21	$0.35	-$0.31	-$1.81
2015 Q1	$0.82	$2.90	$2.90	$3.45	$3.16	$4.94
2014 Q2	-$0.18	$0.94	$2.44	$2.25	$2.31	-$0.27



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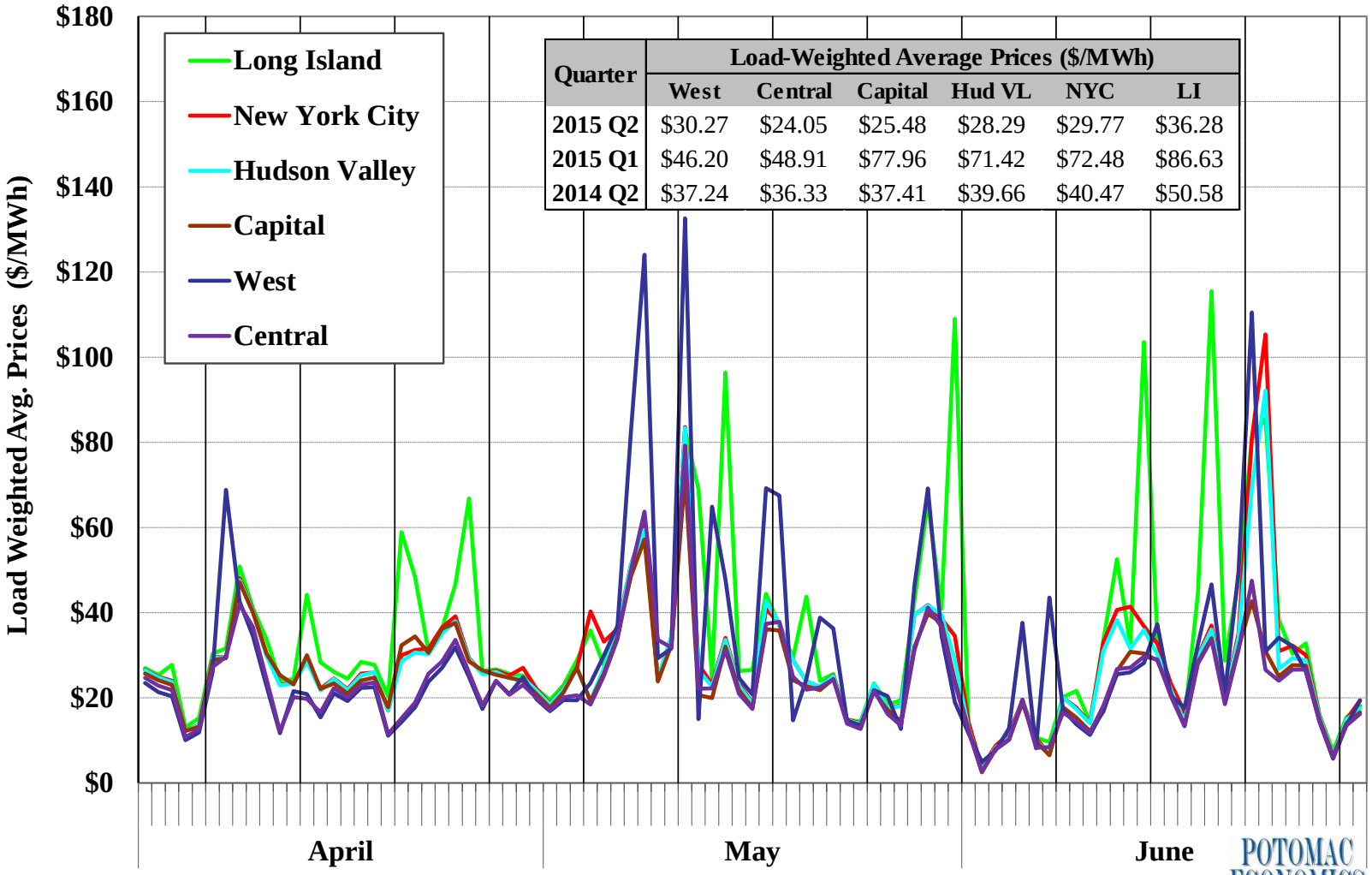
Highlights and Market Summary:
Congestion Patterns

- DAM congestion revenue rose 44 percent from a year ago to $73 million.
  - ✓ Larger gas spreads between East NY and West NY led to increased congestion on the Central-East interface and on transmission paths into SENY (see slide 48).
  - ✓ Congestion on the West Zone 230 kV lines increased from a year ago, accounting for nearly 40 percent of total congestion value this quarter (see slide 48).
    - The increase was partly attributable to lower coal-fired production in the West Zone (see slide 14) and decreased PJM imports (see slide 34).
- Congestion was much more severe in RT than in the DA in the West Zone.
  - ✓ 230 kV lines in the West Zone exhibited $43 million in RT congestion, 60 percent higher than in the DAM (see slides 44-50). This pattern resulted primarily from:
    - The effects of volatile RT Lake Erie loop flows;
    - Increased Ontario imports and renewable output in West NY from DAM to RT;
    - Incomplete utilization of parallel 115kV facilities (to unload 230kV constraints);
    - Additional flows on the West Zone constraints caused by the operation of the ABC, JK, and Ramapo PARs (to relieve Central-East and SENY congestion).
  - ✓ We estimate that optimizing the distribution of output among the units at the Niagara plant during periods of acute congestion (to fully utilize the parallel 115 kV facilities) would have: (a) reduced production costs by $2.1 million; and (b) allowed an additional 31 GWh of deliverable generation from Niagara. (see slides 54-56).

Real-Time Electricity Prices by Zone

Quarter	Load-Weighted Average Prices ($/MWh)					
	West	Central	Capital	Hud VL	NYC	LI
2015 Q2	$30.27	$24.05	$25.48	$28.29	$29.77	$36.28
2015 Q1	$46.20	$48.91	$77.96	$71.42	$72.48	$86.63
2014 Q2	$37.24	$36.33	$37.41	$39.66	$40.47	$50.58



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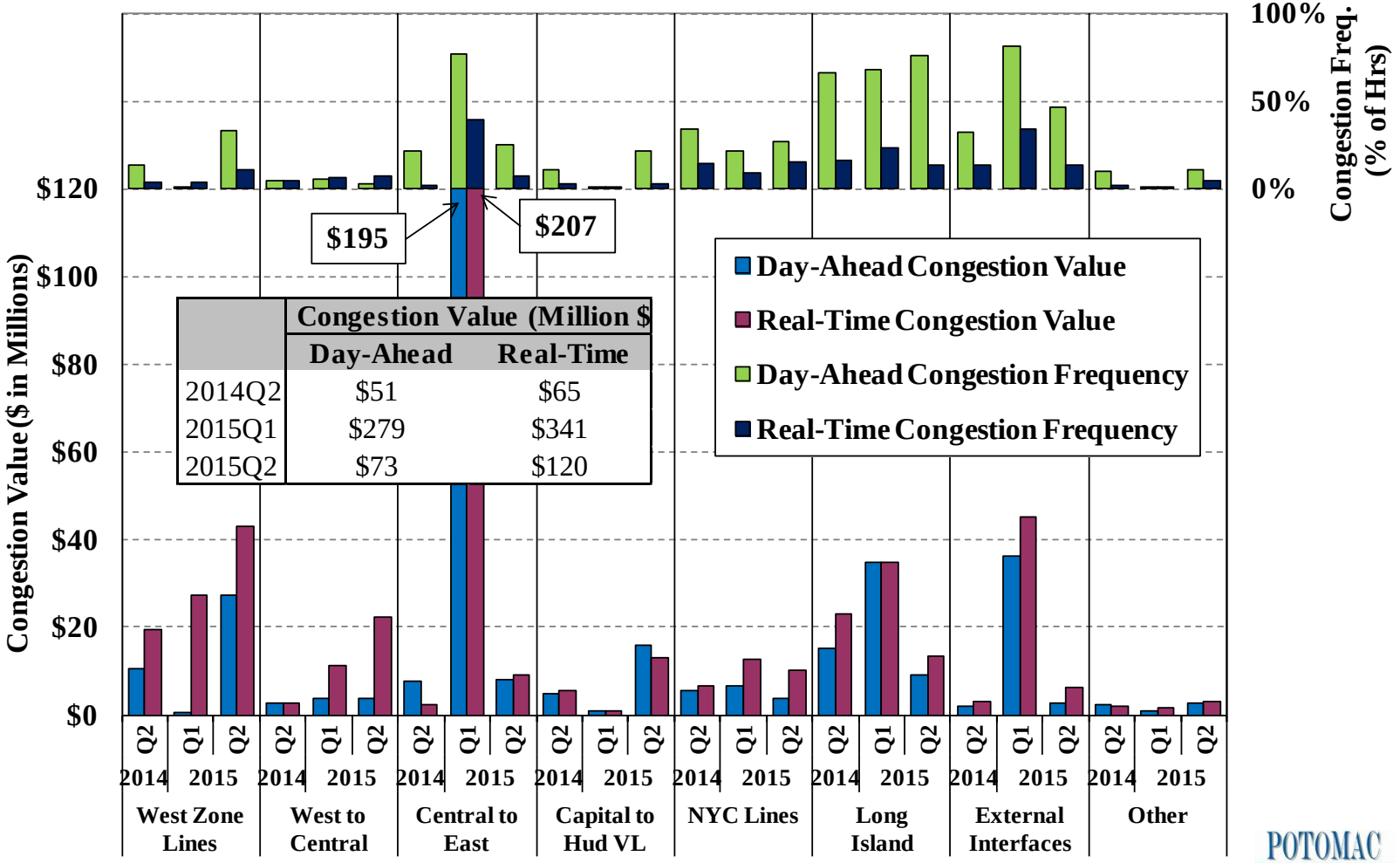
DA and RT Congestion Value and Frequency
by Transmission Path



	Congestion Value (Million $	
	Day-Ahead	Real-Time
2014Q2	$51	$65
2015Q1	$279	$341
2015Q2	$73	$120

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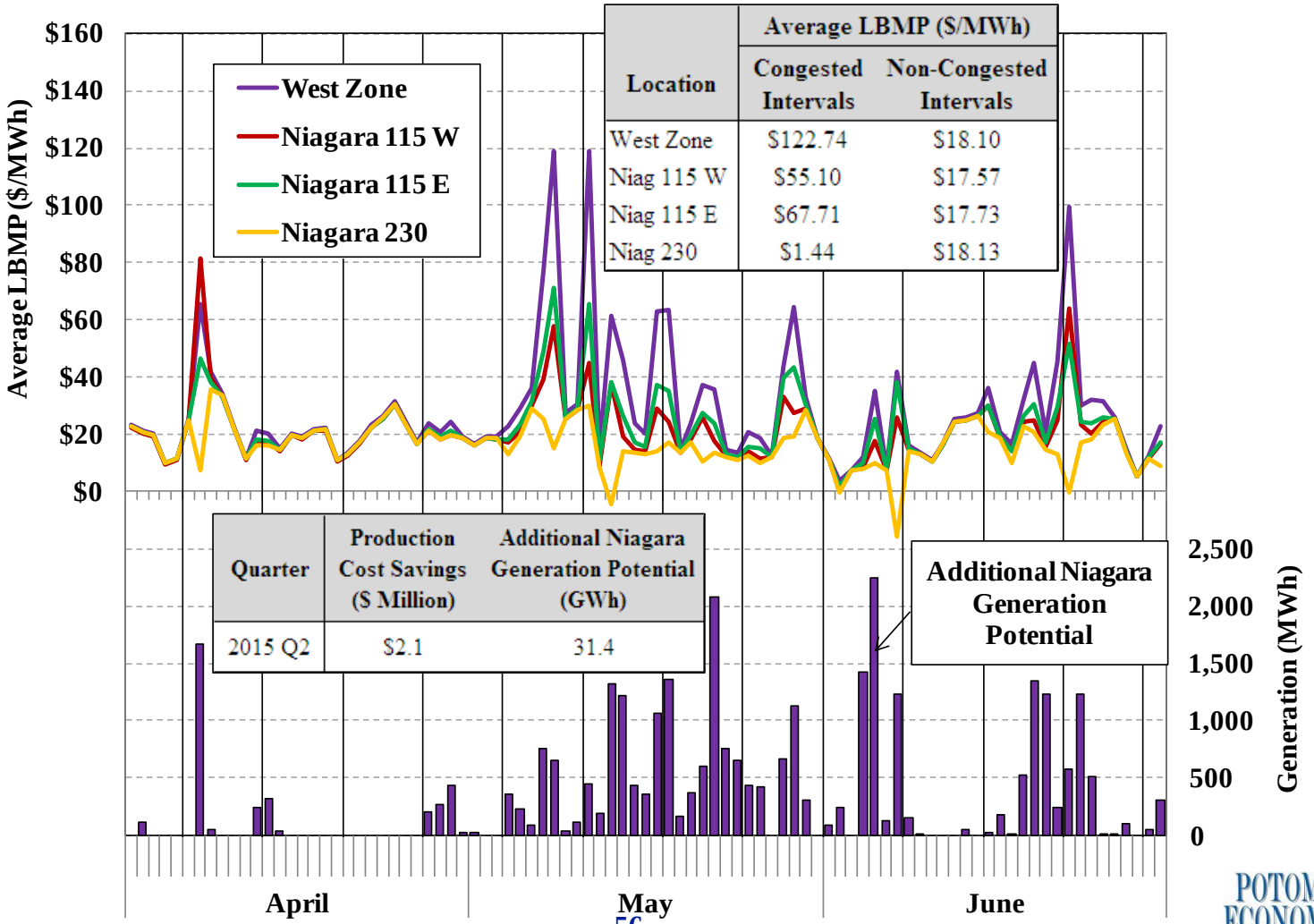
West Zone Congestion and Niagara Generation
Second Quarter of 2015



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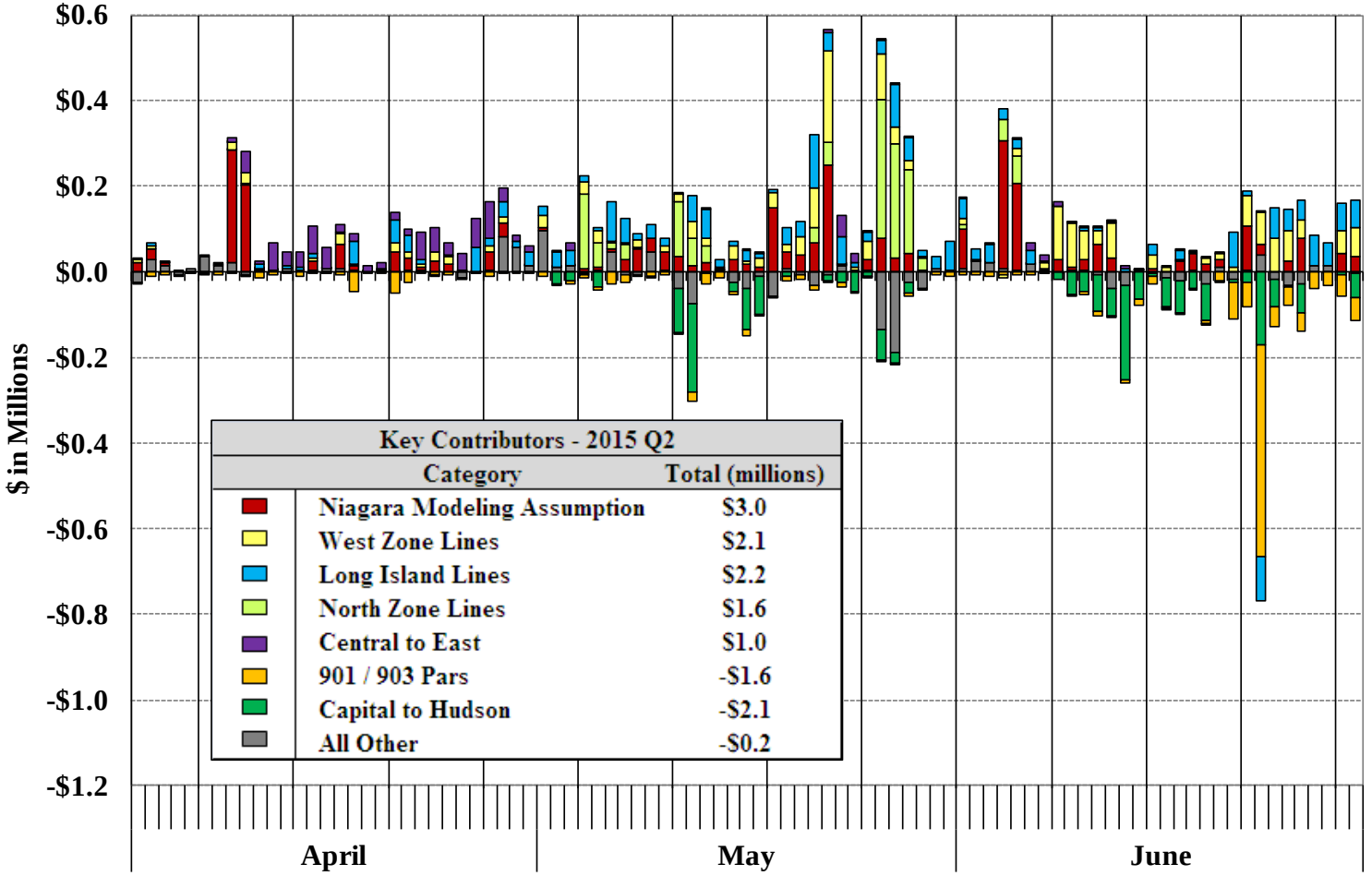
Highlights and Market Summary: Uplift and Revenue Shortfalls

- The uplift from guarantee payments totaled $16.5 million, down 7 percent from the second quarter of 2014. (see slides 67-69)
  - ✓ The reduction was consistent with lower natural gas prices, which decreased the commitment costs of gas-fired units.
  - ✓ However, the reduction was largely offset by increased reliability commitments and OOM dispatch, particularly in Western NY. (see slides 63 & 65)
    - Several coal-fired and gas-fired units were often DARUed and/or OOMed to manage post-contingency flows on 115kV facilities.
    - Guarantee payments to these units accounted for over 40 percent of total guarantee uplift this quarter.
- Day-ahead congestion shortfalls were $6 million, down 50 percent from a year ago. (see slides 45 & 49)
  - ✓ West Zone constraints accounted for the majority of shortfalls primarily because of transmission outages and Niagara modeling assumptions.
- Balancing congestion shortfalls totaled $14 million, up $8 million from the second quarter of 2014. (see slides 46 & 50)
  - ✓ Over $9 million of shortfalls were associated with congestion in the West Zone.

Day-Ahead Congestion Revenue Shortfalls
by Transmission Facility



Note: "Niagara Modeling Assumption" estimates the shortfalls resulted from differences in assumed generation at the Niagara 115 kV Buses between TCC and DAM (for DAMCR) and between DAM and RT actual (for BMCR).

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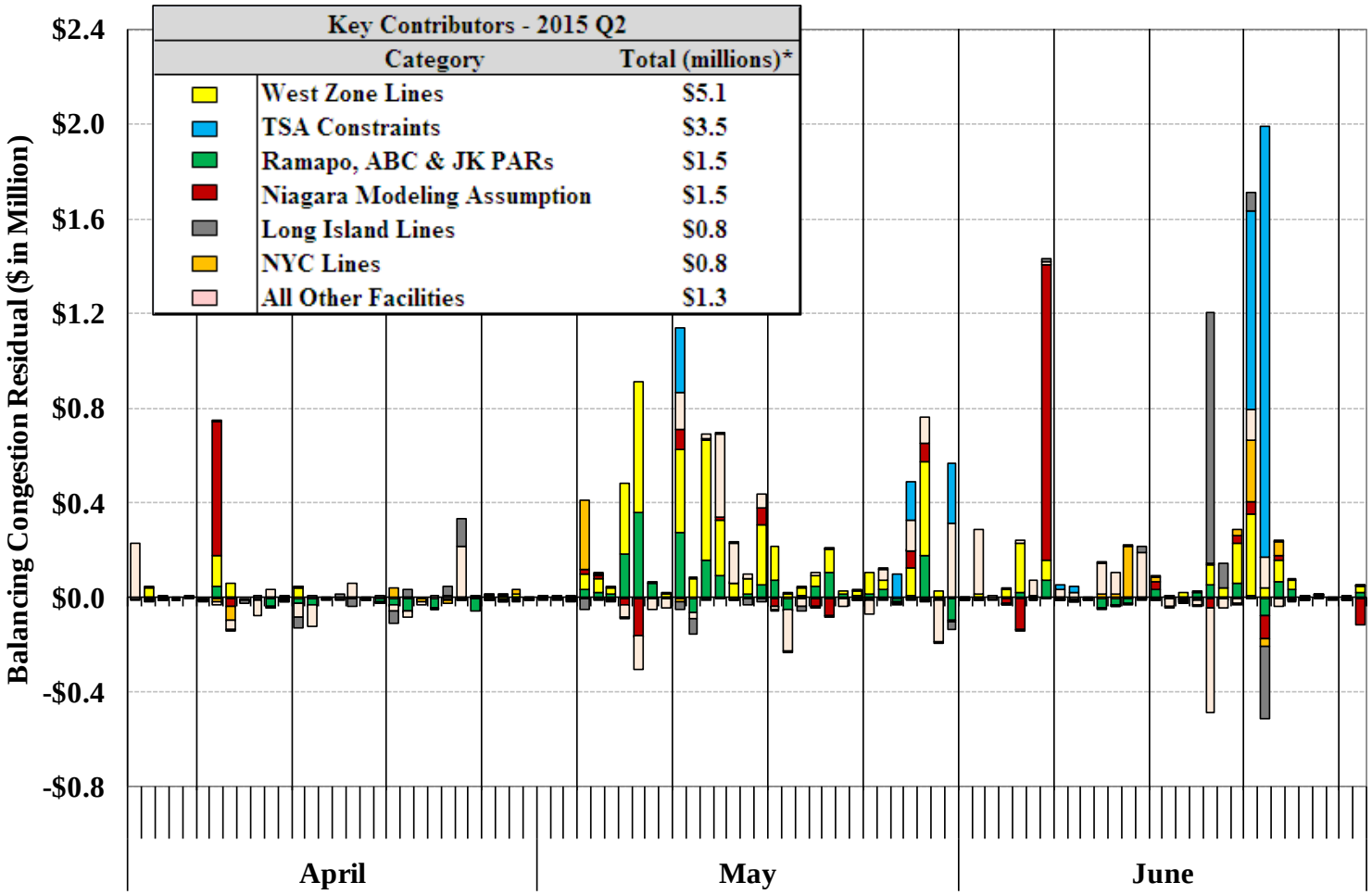
Balancing Congestion Shortfalls
by Transmission Facility



Note: The BMCR estimated above may differ from actual BMCR because the figure is partly based on real-time schedules rather than metered values.

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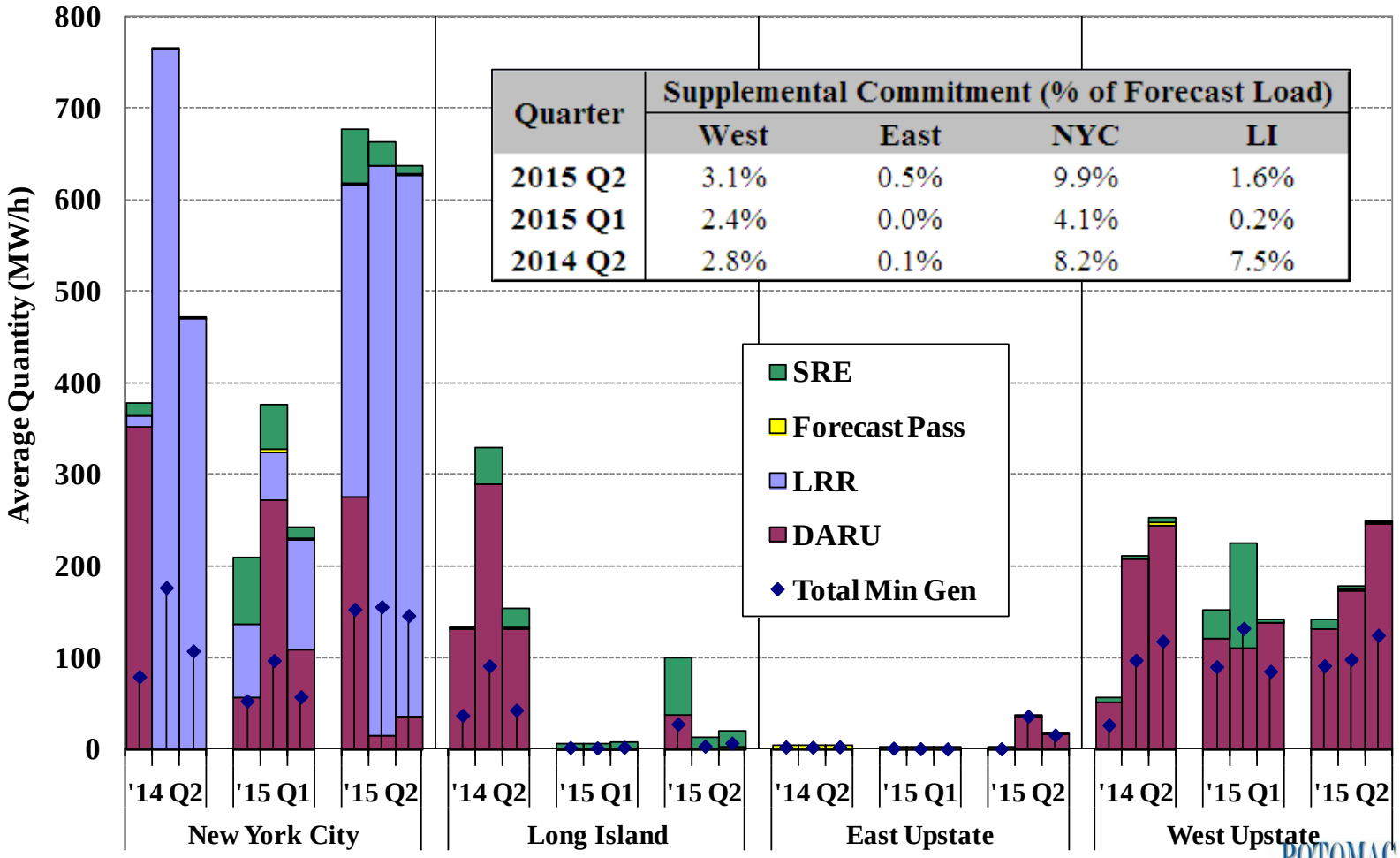
Supplemental Commitment for Reliability
by Category and Region

Quarter	Supplemental Commitment (% of Forecast Load)			
	West	East	NYC	LI
2015 Q2	3.1%	0.5%	9.9%	1.6%
2015 Q1	2.4%	0.0%	4.1%	0.2%
2014 Q2	2.8%	0.1%	8.2%	7.5%



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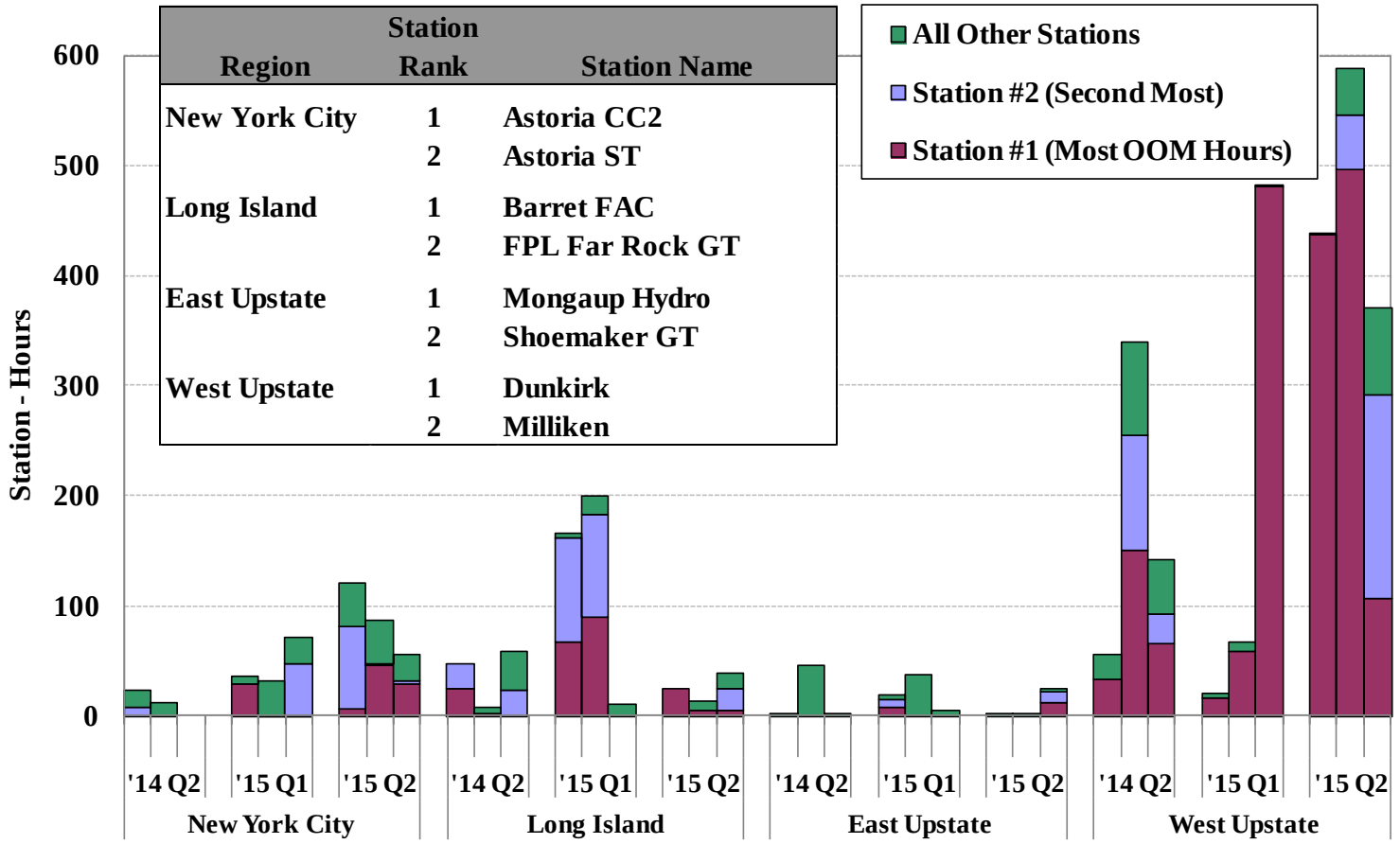
Frequency of Out-of-Merit Dispatch by Region by Month

Region	Station Rank	Station Name
New York City	1	Astoria CC2
	2	Astoria ST
Long Island	1	Barret FAC
	2	FPL Far Rock GT
East Upstate	1	Mongaup Hydro
	2	Shoemaker GT
West Upstate	1	Dunkirk
	2	Milliken



Note: The NYISO also instructed Niagara to shift output among the generators at the station in order to secure certain 115kV and/or 230kV transmission facilities in 358 hours in 2014-Q2, 383 hours in 2015-Q1, and 797 hours in 2015-Q2. However, these were not classified as Out-of-Merit in hours when the NYISO did not adjust the UOL or LOL of the Resource.

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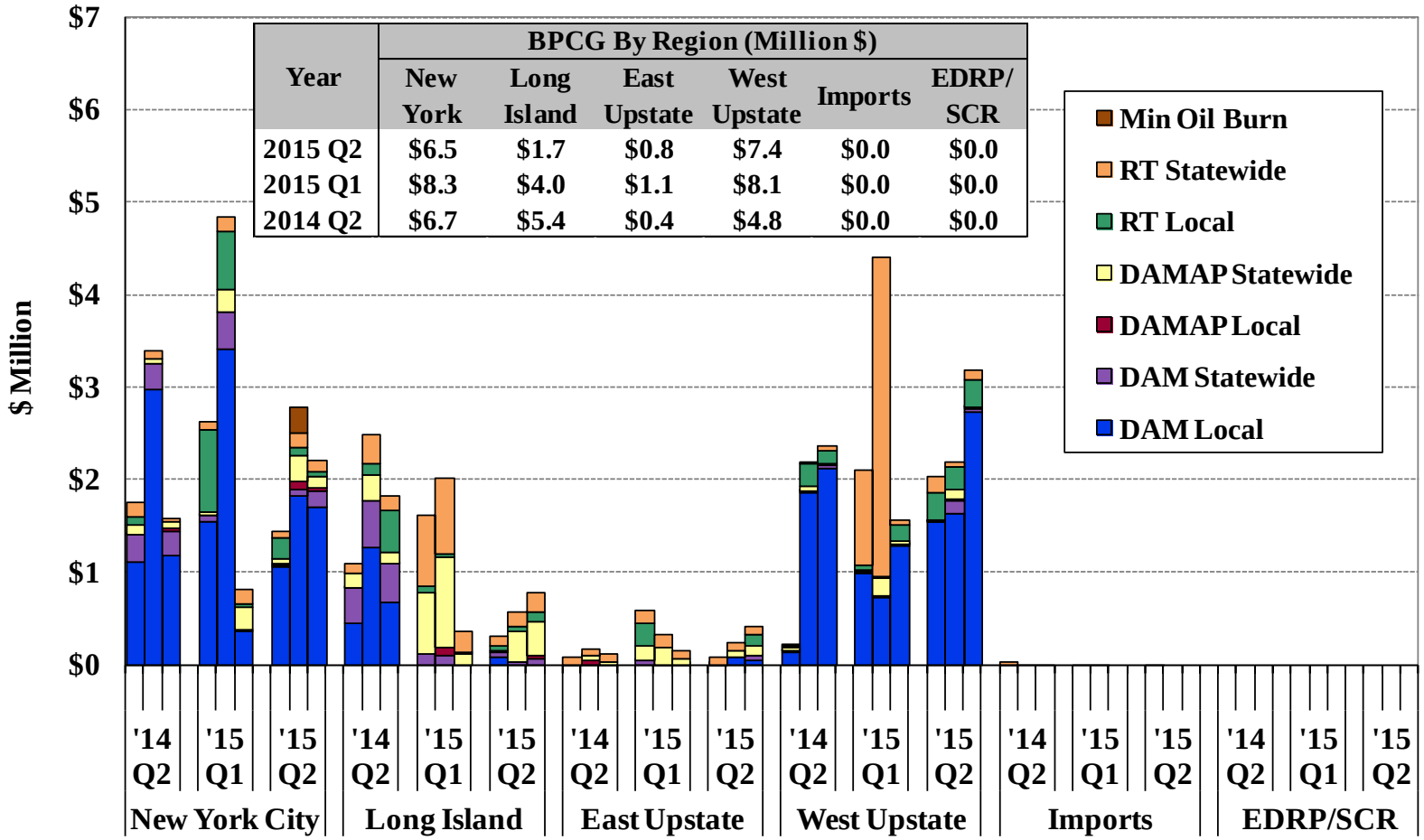
Uplift Costs from Guarantee Payments
By Category and Region

Year	BPCG By Region (Million $)					
	New York	Long Island	East Upstate	West Upstate	Imports	EDRP/ SCR
2015 Q2	$6.5	$1.7	$0.8	$7.4	$0.0	$0.0
2015 Q1	$8.3	$4.0	$1.1	$8.1	$0.0	$0.0
2014 Q2	$6.7	$5.4	$0.4	$4.8	$0.0	$0.0



Note: BPCG data are based on information available at the reporting time and do not include some manual adjustments to mitigation, so they can be different from final settlements.

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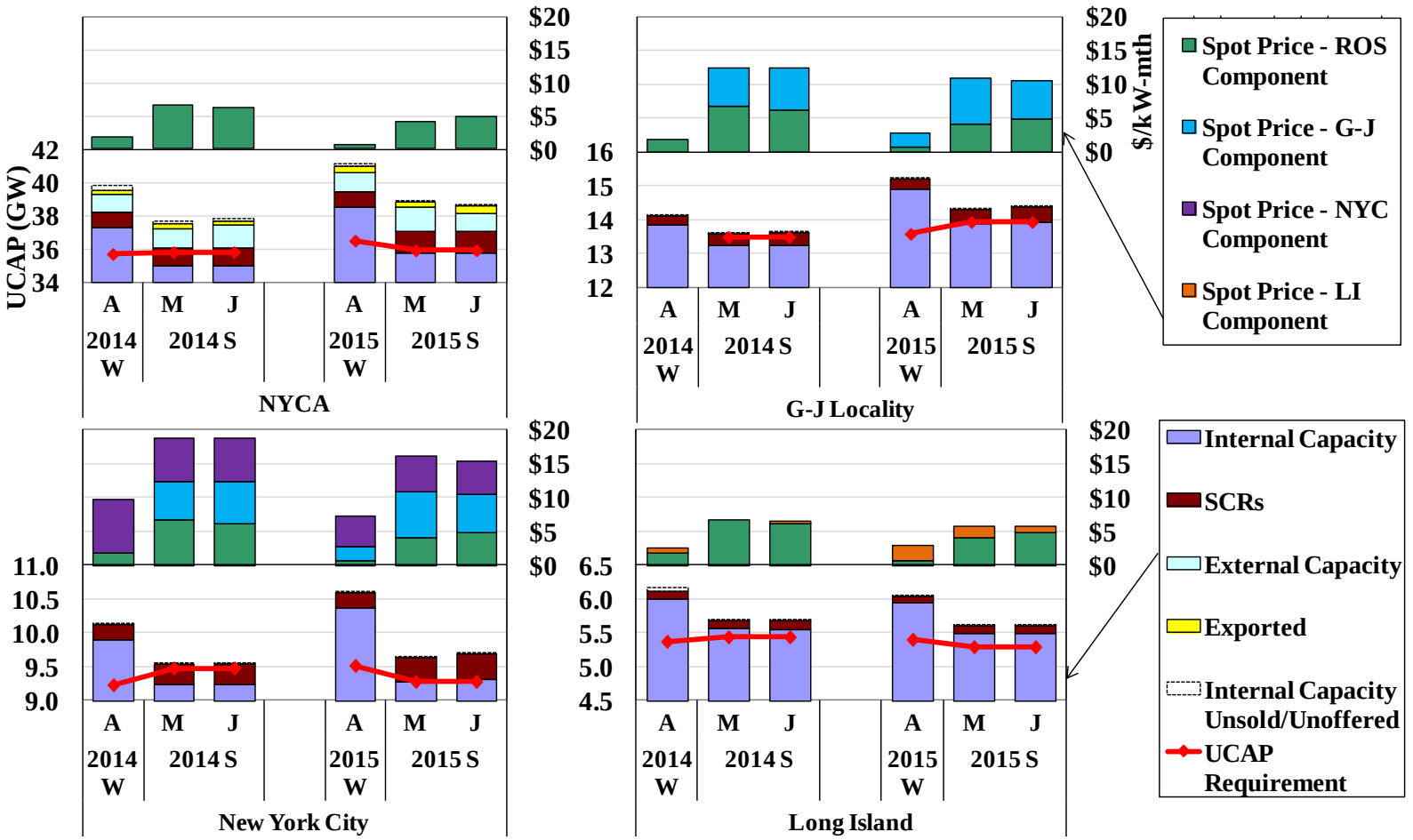
Highlights and Market Summary:
Capacity Market

- UCAP spot prices fell notably from the second quarter of 2014. UCAP prices:
  - ✓ In New York City fell 18 percent to an average of $12.92/kW-month;
  - ✓ In the G-J Locality fell 8 percent to an average of $8.10/kW-month;
  - ✓ On Long Island fell 8 percent to an average of $4.82/kW-month;
  - ✓ In Rest of State fell 34 percent to an average of $3.23/kW-month.
- Capacity spot prices fell across the system (see slides 77-79) because:
  - ✓ The return-to-service of multiple units, new wind capacity additions, and changes in DMNC test results increased internal capacity supply by 480 MW in Zone G, over 300 MW in NYC, and over 100 MW in West NY.
  - ✓ Average sales from SCRs rose 70 MW in NYC, 90 MW in the G-J Locality, and 210 MW in NYCA.
  - ✓ The ICAP requirement fell 115 MW (0.3 percent) in NYCA, 54 MW (0.5 percent) in NYC, and 148 MW (3 percent) in Long Island.
    - – However, the ICAP requirement rose 451 MW (3 percent) in the G-J Locality, offsetting the decrease of UCAP prices in the G-J Locality.
    - – The LCR reductions in NYC and Long Island and the increased LCR in the G-J Locality resulted primarily from recent capacity additions in Zone G.

Capacity Market Results: Second Quarter 2014 & 2015



Note: Sales associated with Unforced Deliverability Rights ("UDRs") are included in "Internal Capacity," but unsold capacity from resources with UDRs is not shown.

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