Quarterly Report on the New York ISO Electricity Markets First Quarter 2014

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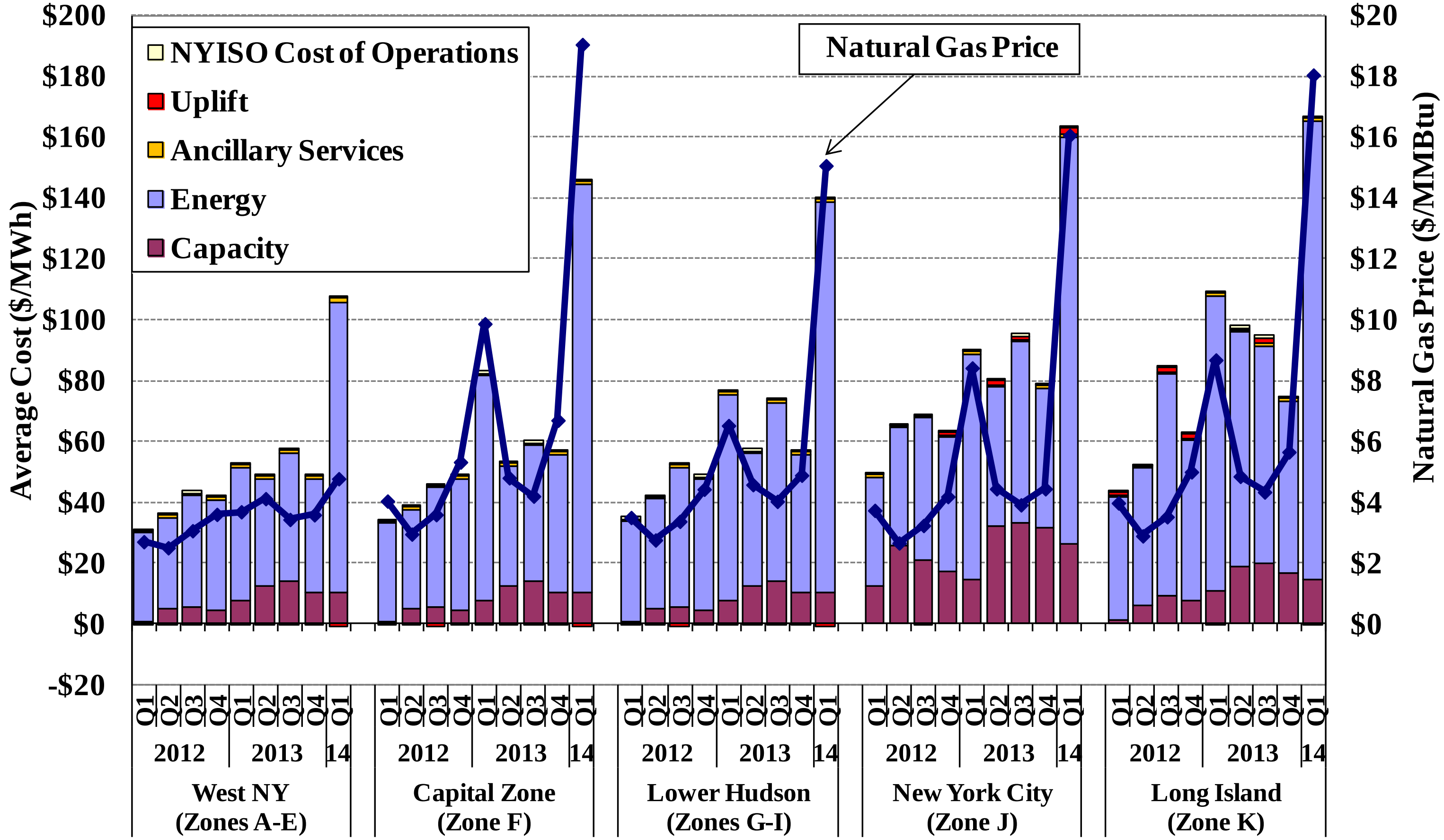
Highlights and Market Summary: Energy Market

- This report summarizes market outcomes in the first quarter of 2014.
- The energy markets performed competitively and variations in wholesale prices were driven primarily by changes in fuel prices, demand, and supply availability.
- High and volatile natural gas prices and congestion on the gas pipeline system were the primary drivers of variations in NYISO market outcomes.
  - ✓ RT energy prices averaged $121/MWh statewide, an increase of 86 percent from the first quarter of 2013 primarily because natural gas index prices rose 31 to 185 percent across the system. Other important drivers were:
    - Load levels rose by 560 MW on average because of colder weather;
    - Net imports from Ontario and Quebec fell especially during periods of high electricity demand and high gas prices. Net imports fell by 570 MW on average and by 1,015 MW on the 27 days when natural gas prices exceeded $20/MMbtu.
    - However, these factors were partly offset by increased imports from PJM across the Neptune Line, the HTP Line, and the Ramapo Line (collectively 470 MW).
  - ✓ Production from oil-fired units rose 469 percent from a year ago because high natural gas prices led oil-fired generation to be economic on nearly 30 days.
    - Consequently, oil-fired units were on the margin in 23 percent of intervals, up from 7 percent in the first quarter of 2013.

Highlights and Market Summary: Congestion Patterns and DA-RT Price Convergence

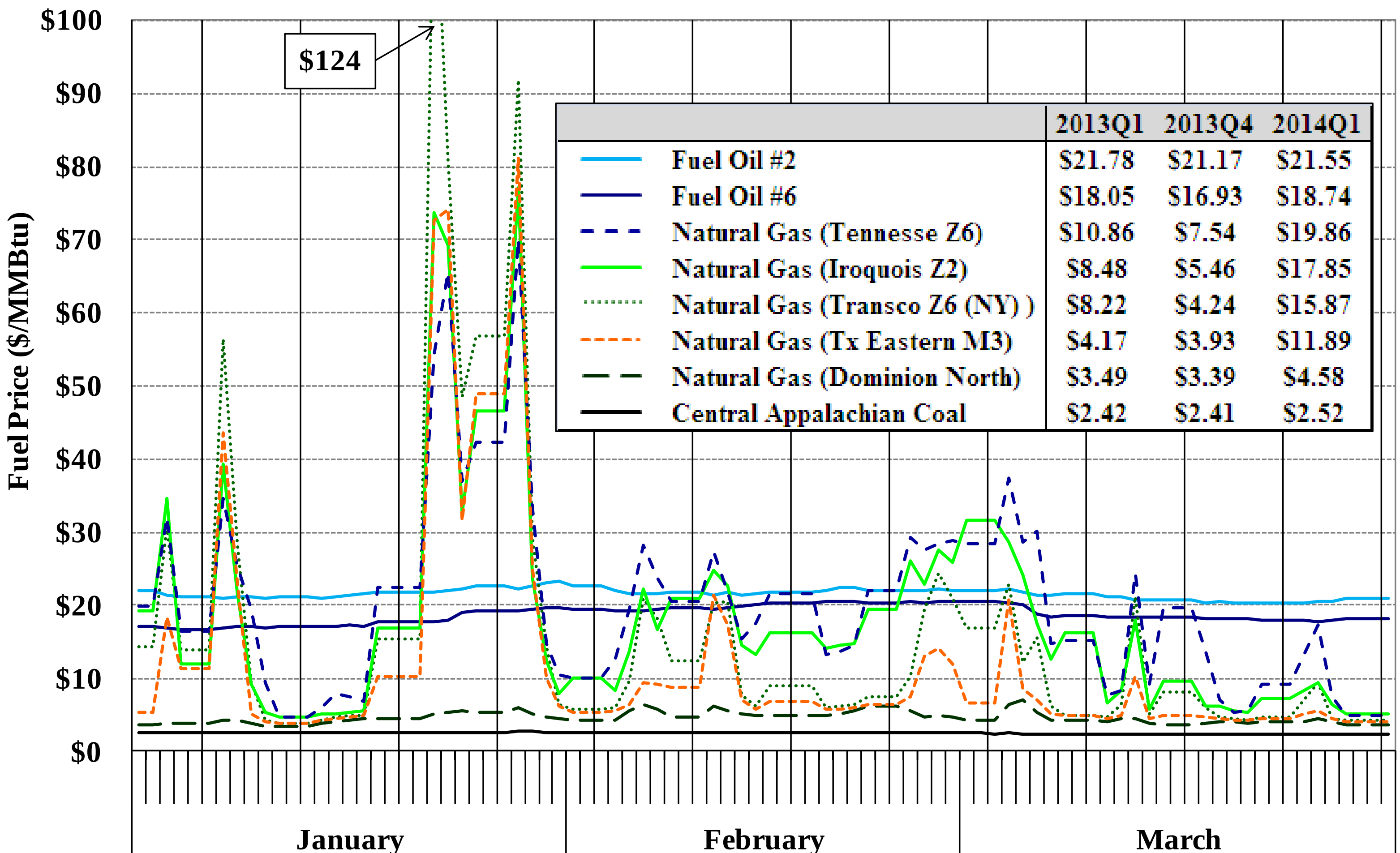
- Day-ahead congestion revenue increased to $427 million from $320 million in the first quarter of 2013 as a result of larger natural gas price spreads between East NY and West NY.
  - ✓ The Central-East Interface accounted for 64 percent of day-ahead congestion.
  - ✓ However, congestion was less frequent than in the first quarter of 2013 because there were many periods when energy prices in West NY rose to the levels of prices in East NY as a result of:
    - The reduced imports to West NY from Ontario and Quebec; and
    - The increased imports to East NY from PJM across Neptune, HTP, and Ramapo.
  - ✓ Consequently, average real-time energy prices in West NY rose more (118 percent) than in East NY (55 to 88 percent).
- Convergence between day-ahead and real-time energy prices worsened in most areas, particularly during periods of volatile gas prices, extreme weather, and gas pipeline OFOs.
  - ✓ Average day-ahead prices were 1 percent higher than real-time prices in the West Zone and were 4 to 9 percent higher than real-time prices in other areas.
  - ✓ January 22 to 29 (which exhibited the most gas price volatility) accounted for most of the day-ahead premiums.

All-In Energy Price by Region

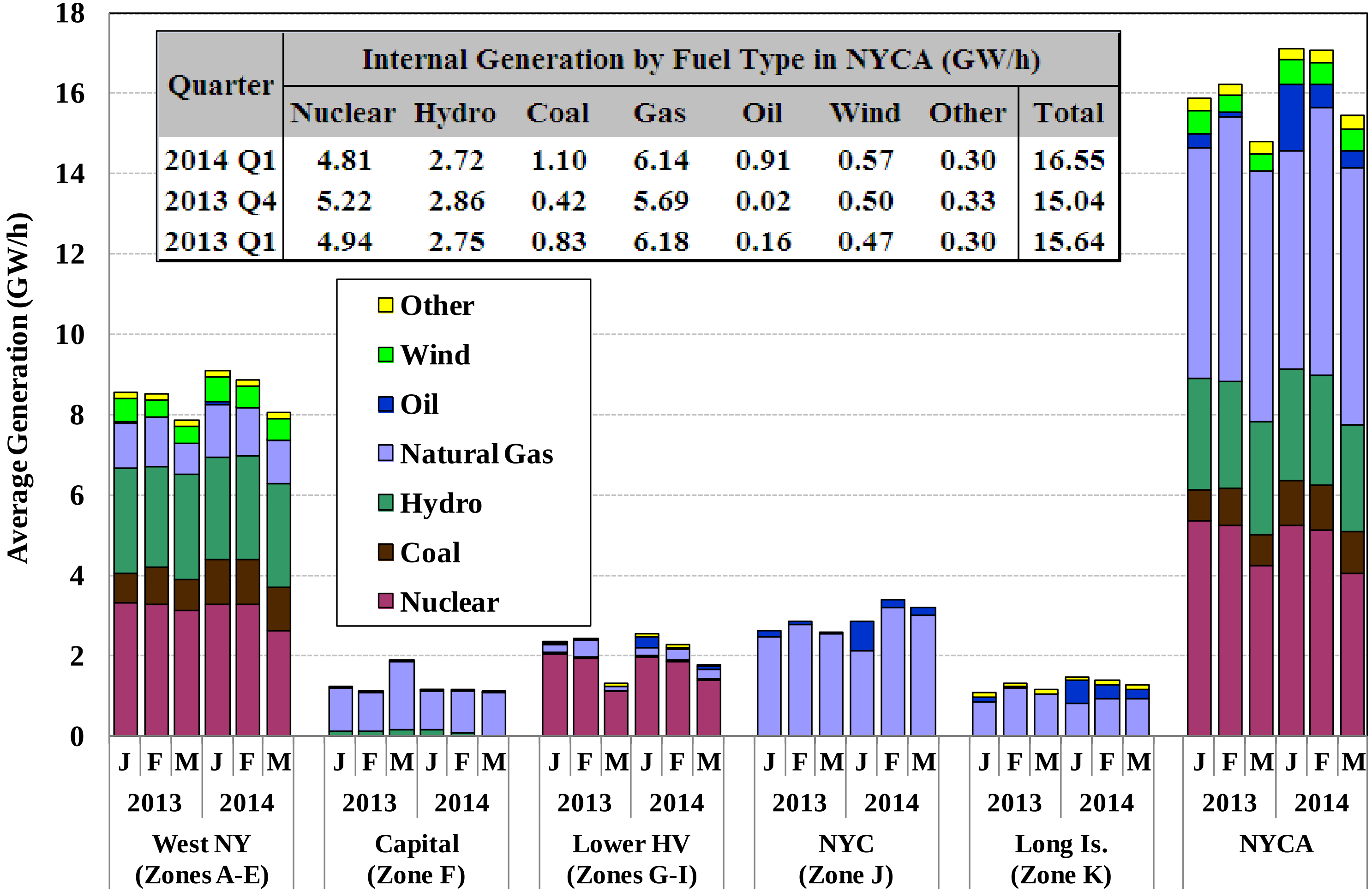


Note: Natural Gas Price is based on the following gas indices (plus a transportation charge of $0.20/MMbtu): the Dominion North index for West NY, the average of Tennessee Zone 6 and Iroquois Zone 2 for the Capital Zone, the average of Texas Eastern M3 and Iroquois Zone 2 for Lower Hudson, the Transco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

Coal, Natural Gas, and Fuel Oil Prices



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
2014 Q1	4.81	2.72	1.10	6.14	0.91	0.57	0.30	16.55
2013 Q4	5.22	2.86	0.42	5.69	0.02	0.50	0.33	15.04
2013 Q1	4.94	2.75	0.83	6.18	0.16	0.47	0.30	15.64

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

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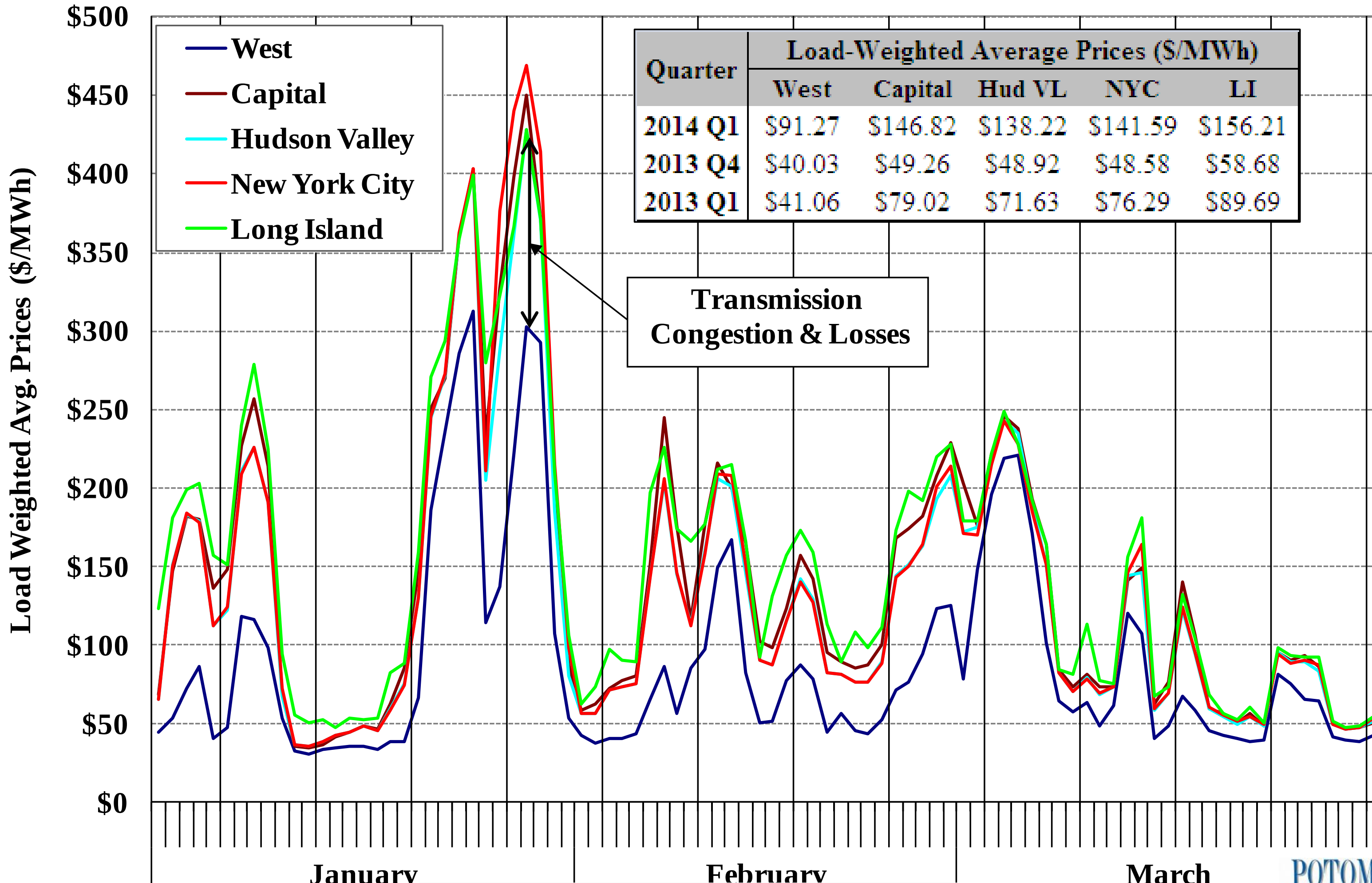
Day-Ahead Electricity Prices by Zone



Quarter	Load-Weighted Average Prices ($/MWh)				
	West	Capital	Hud VL	NYC	LI
2014 Q1	$91.27	$146.82	$138.22	$141.59	$156.21
2013 Q4	$40.03	$49.26	$48.92	$48.58	$58.68
2013 Q1	$41.06	$79.02	$71.63	$76.29	$89.69

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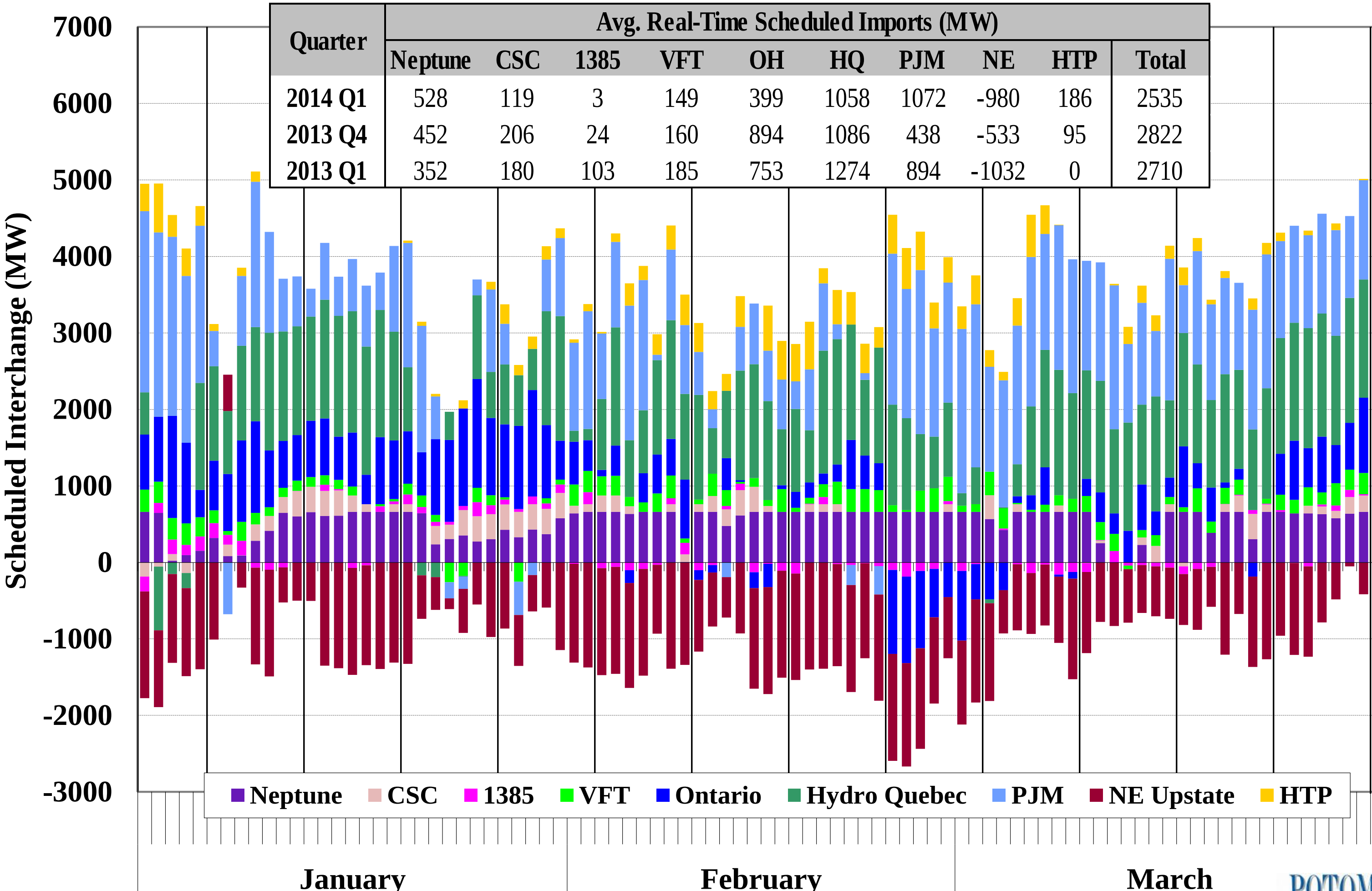
Net Imports Scheduled Across External Interfaces
Daily Peak Hours (1-9pm)

Quarter	Avg. Real-Time Scheduled Imports (MW)									
	Neptune	CSC	1385	VFT	OH	HQ	PJM	NE	HTP	Total
2014 Q1	528	119	3	149	399	1058	1072	-980	186	2535
2013 Q4	452	206	24	160	894	1086	438	-533	95	2822
2013 Q1	352	180	103	185	753	1274	894	-1032	0	2710



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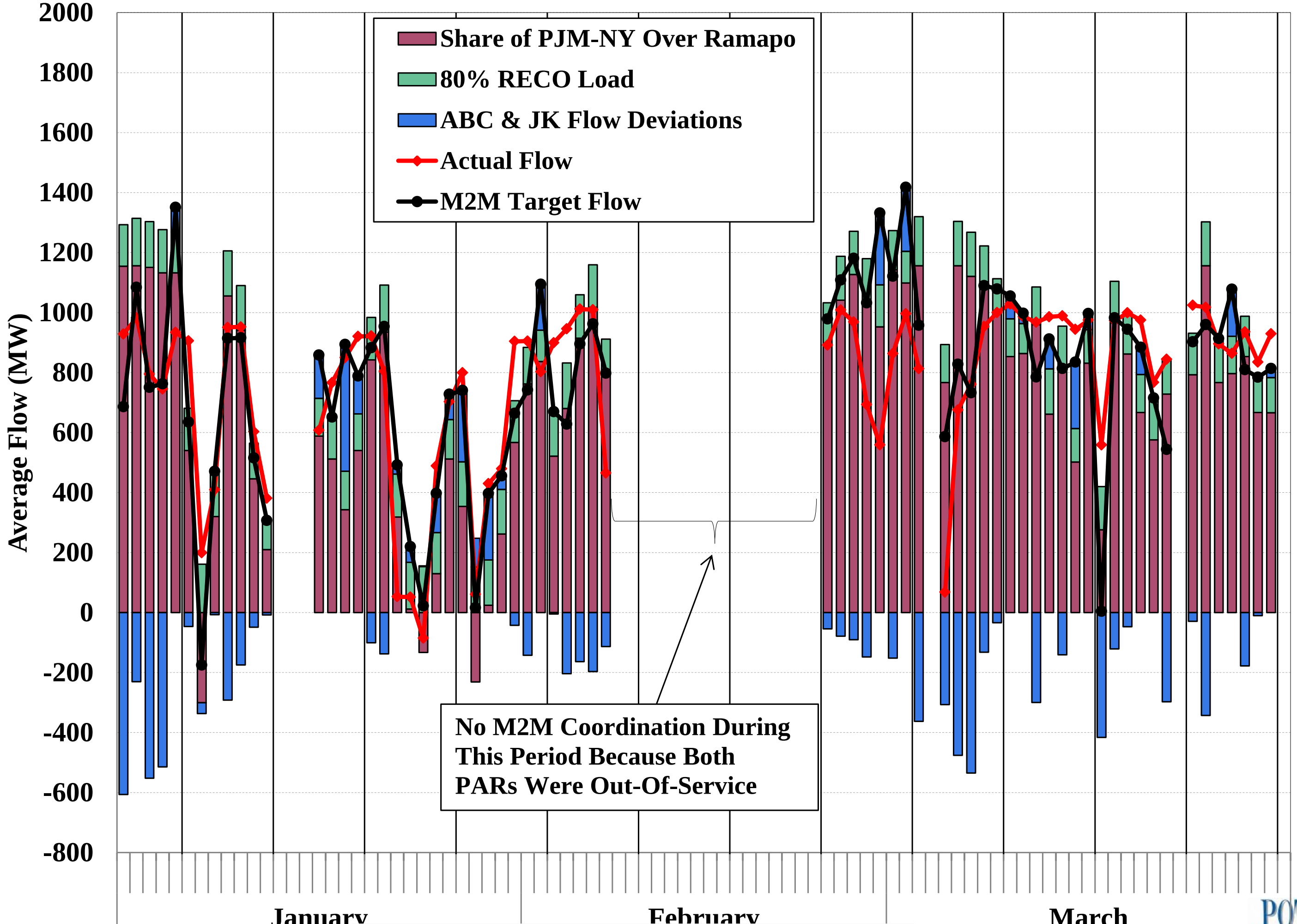
Actual and Target Flows for the Ramapo Line
During the Intervals with Binding M2M Constraints



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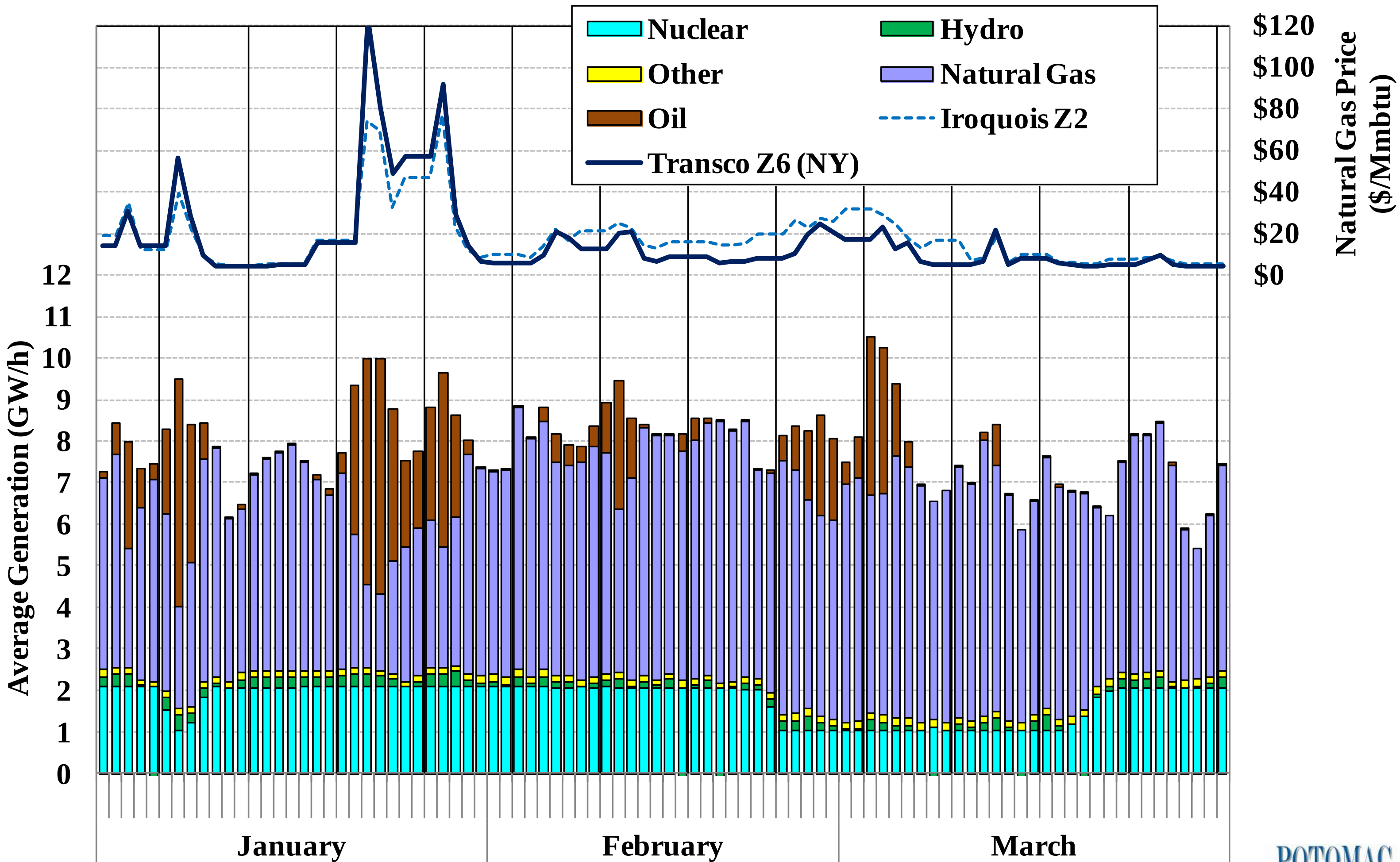
Highlights and Market Summary: Energy Market in Winter Peak Conditions

- Hourly production from oil-fired generation rose significantly on 27 days when natural gas prices in Eastern NY exceeded $20/MMbtu, averaging 2.4 GW during these periods and reaching a maximum of 5.7 GW on January 23.
  - ✓ On most of these days, pipeline capability into East NY was not fully utilized because the import-constrained area (for natural gas) encompassed East NY and portions of neighboring systems.
  - ✓ The majority of oil was used on days when gas pipeline constraints led to high gas prices up and down the Atlantic coast, leading generators in East NY to use fuel oil when gas was available.
    - Our simulations indicate that dual-fueled CCs and steam turbines in East NY could have earned an additional $34 to $43/kW-year from dual-fuel capability.
    - However, actual use of oil was limited by planned and forced generator outages, low oil inventories, and air permit restrictions.
- Nonetheless, the widespread use of oil during high gas price conditions reflects that the market performed relatively well in guiding the fuel consumption decisions of generators.
- Large amounts of dual-fueled capacity in East NY burned gas, was scheduled for operating reserves, or not committed, suggesting that existing installed resources more than adequate to satisfy system needs in extreme winter conditions.

Actual Fuel Usage and Natural Gas Price
Eastern New York



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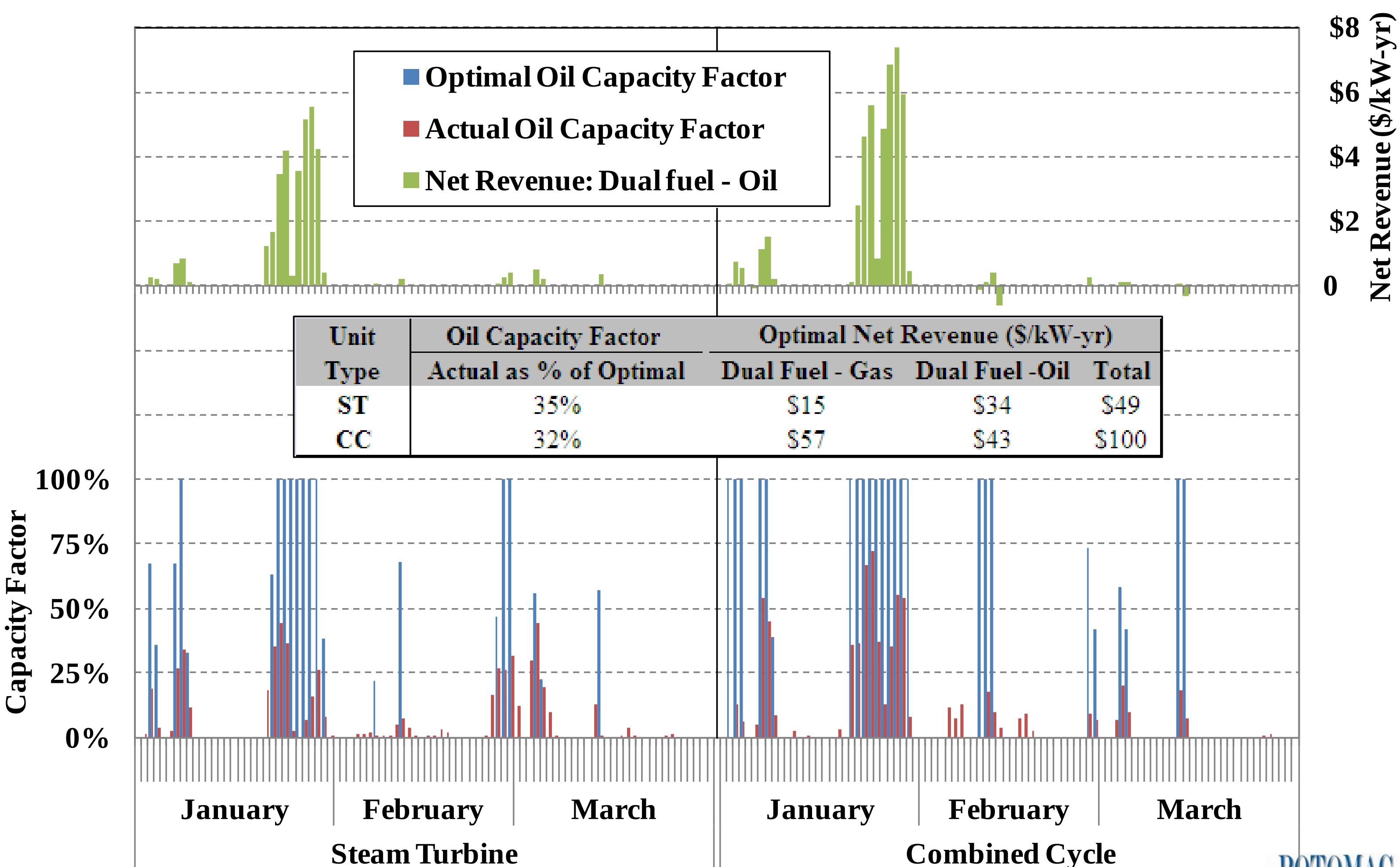
Actual Oil Production vs Optimal Oil Production
New York City



Unit Type	Oil Capacity Factor Actual as % of Optimal	Optimal Net Revenue ($/kW-yr) Dual Fuel - Gas	Dual Fuel -Oil	Total
ST	35%	$15	$34	$49
CC	32%	$57	$43	$100

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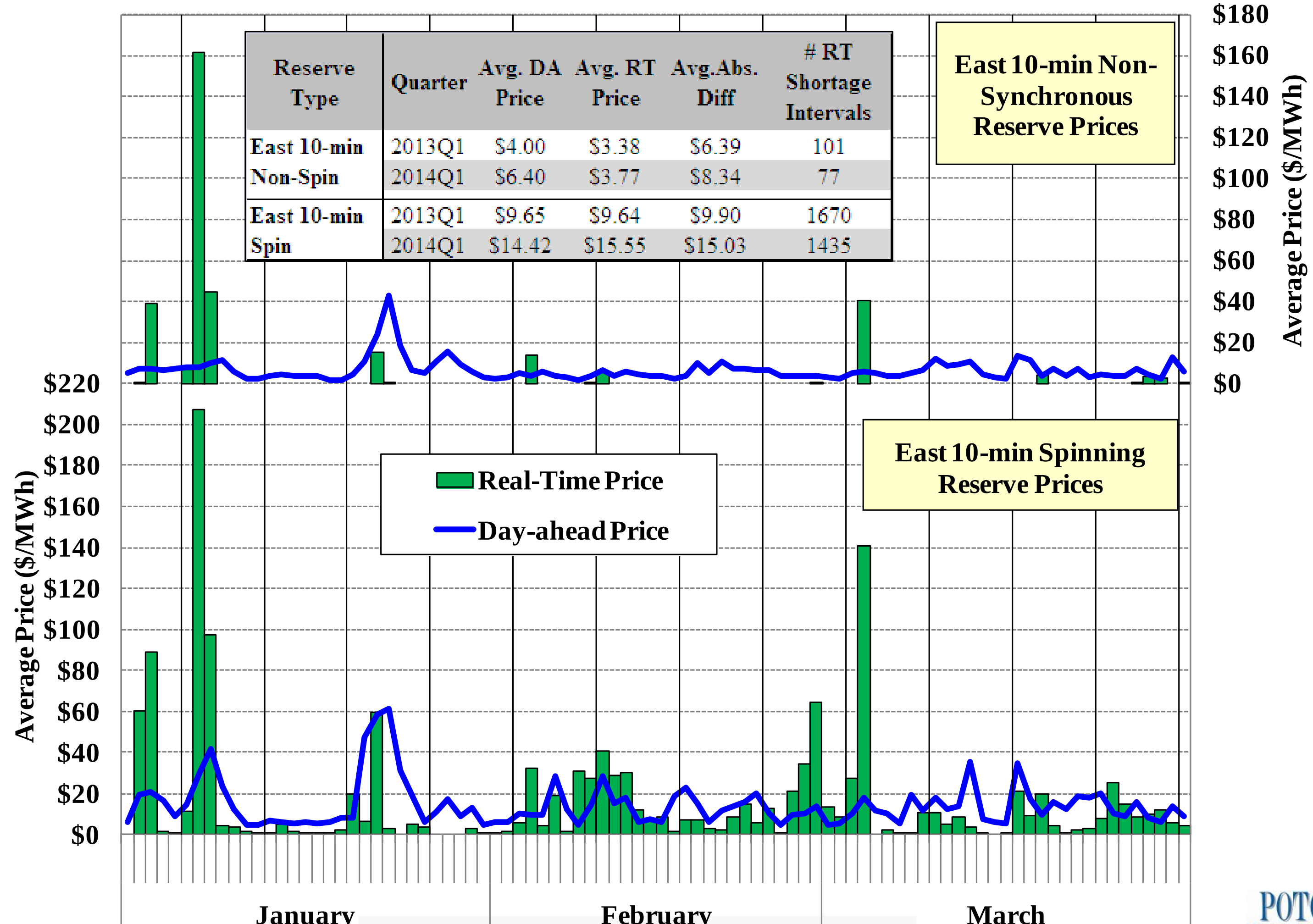
Day-Ahead and Real-Time Ancillary Services Prices
Eastern 10-Minute Spinning and Non-Spinning Reserves

Reserve Type	Quarter	Avg. DA Price	Avg. RT Price	Avg.Abs. Diff	# RT Shortage Intervals
East 10-min Non-Spin	2013Q1	$4.00	$3.38	$6.39	101
	2014Q1	$6.40	$3.77	$8.34	77
East 10-min Spin	2013Q1	$9.65	$9.64	$9.90	1670
	2014Q1	$14.42	$15.55	$15.03	1435



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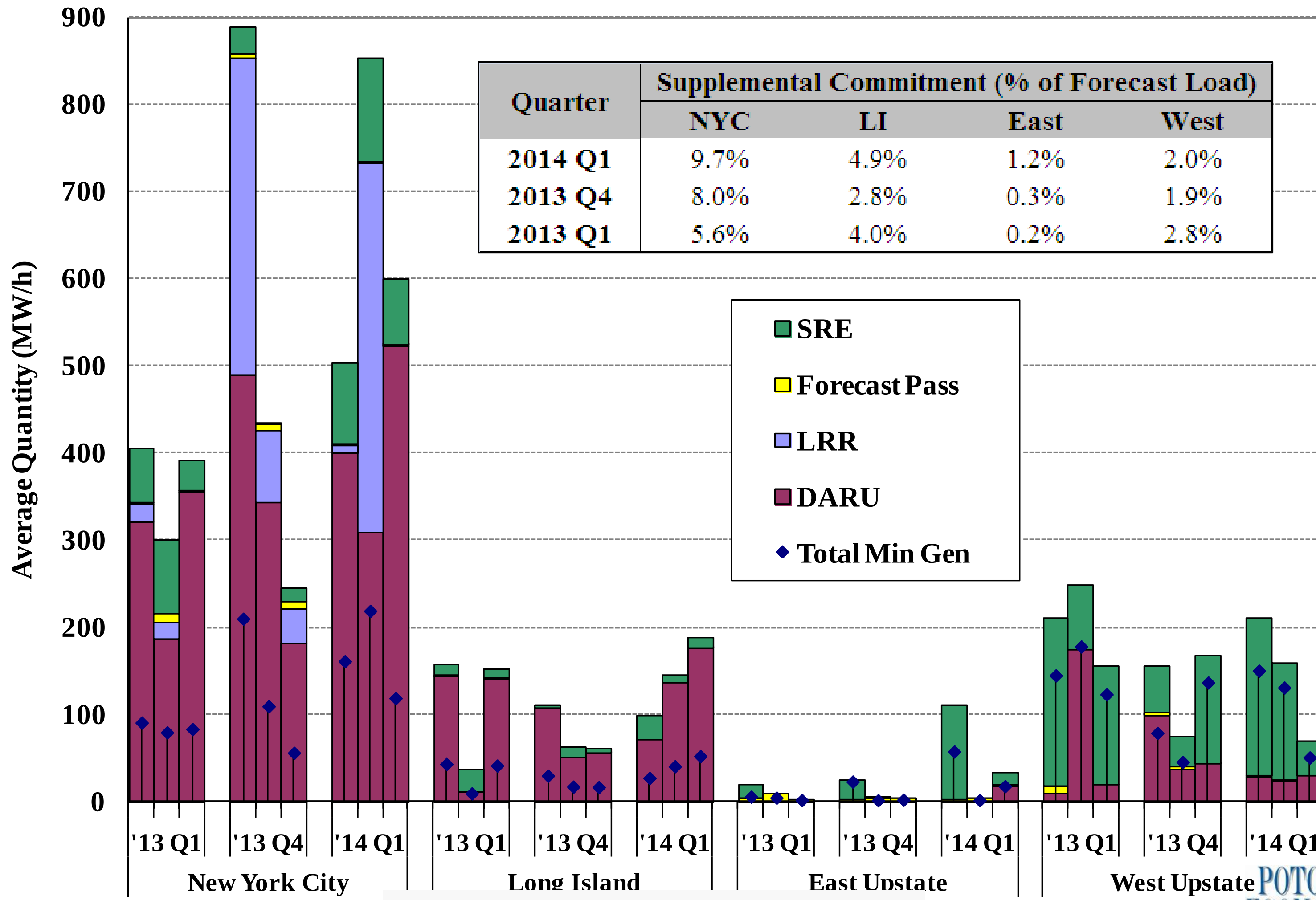
Highlights and Market Summary: Uplift and Revenue Shortfalls

- Higher and volatile natural gas prices were a primary driver of increases for all categories of uplift in the first quarter of 2014 from a year ago.
- The uplift from guarantee payments totaled $96 million, up 92 percent from the first quarter of 2013.
  - ✓ Daily uplift costs were correlated with the variation of natural gas prices
    - 31 percent of all guarantee payment uplift accrued from January 22 to 28 when natural gas prices averaged over $50/MMbtu in Eastern NY.
  - ✓ Increased supplemental commitment and OOM dispatch also contributed to the increase in guarantee payment uplift.
- Day-ahead congestion shortfalls were $35 million, up $13 million from a year ago.
  - ✓ Transmission outages in NYC, Long Island, and on the Ramapo PARs accounted for the majority of the shortfalls.
    - This was offset by $13 million surpluses generated at the Central-East and Oswego Export interfaces due to changes in commitment and generation patterns.
- Balancing congestion shortfalls totaled *negative* $9 million (i.e., a surplus), comparable to the first quarter of 2013.
  - ✓ The surplus resulted primarily from changes in generation patterns after the DAM because of changing weather patterns, natural gas prices, generation forced outages, and SRE commitments.

Supplemental Commitment for Reliability
by Category and Region



Quarter	Supplemental Commitment (% of Forecast Load)			
	NYC	LI	East	West
2014 Q1	9.7%	4.9%	1.2%	2.0%
2013 Q4	8.0%	2.8%	0.3%	1.9%
2013 Q1	5.6%	4.0%	0.2%	2.8%

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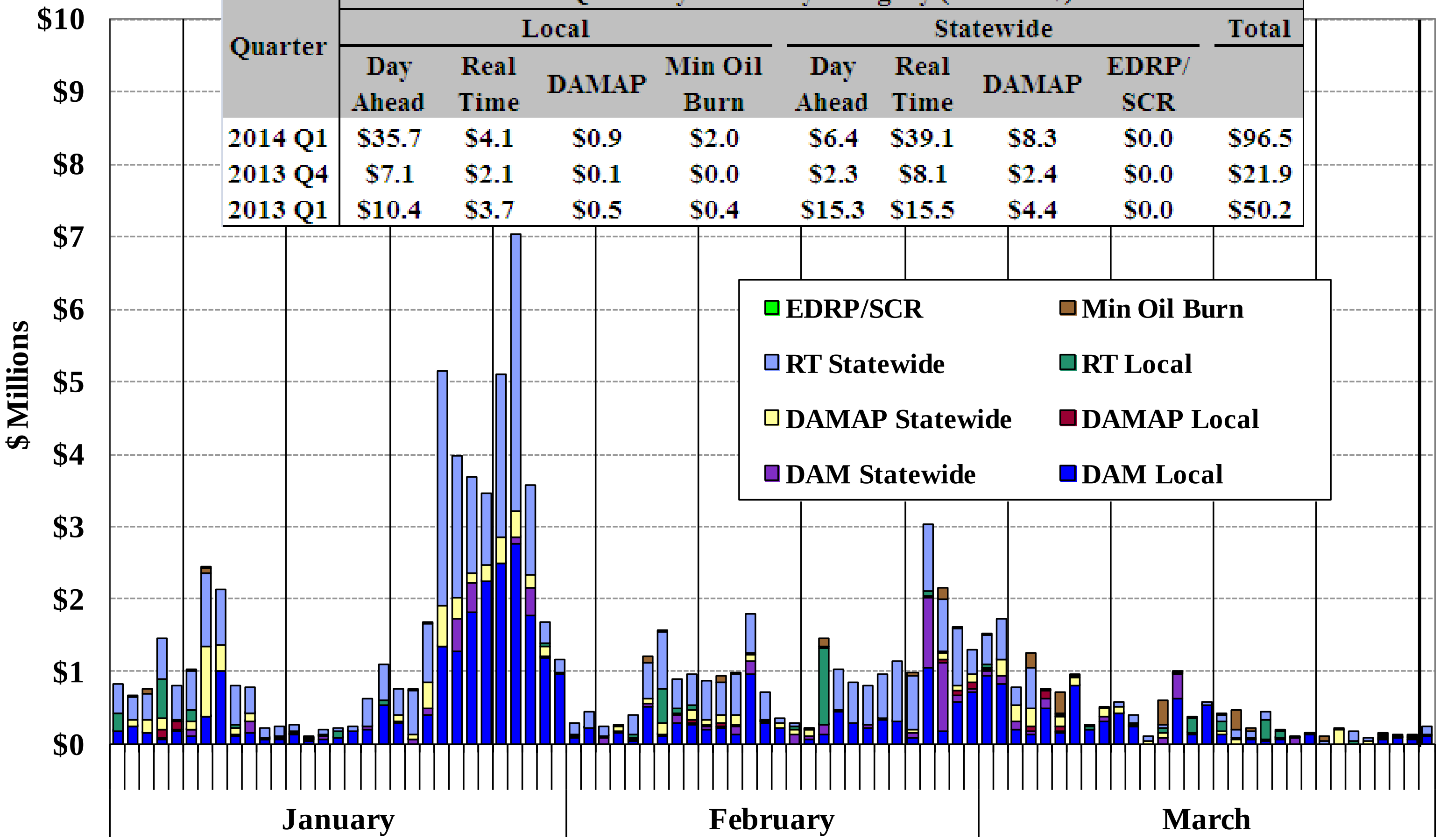
Uplift Costs from Guarantee Payments
Local and Non-Local by Category

Quarter	Local: Day Ahead	Local: Real Time	Local: DAMAP	Local: Min Oil Burn	Statewide: Day Ahead	Statewide: Real Time	Statewide: DAMAP	Statewide: EDRP/ SCR	Total
2014 Q1	$35.7	$4.1	$0.9	$2.0	$6.4	$39.1	$8.3	$0.0	$96.5
2013 Q4	$7.1	$2.1	$0.1	$0.0	$2.3	$8.1	$2.4	$0.0	$21.9
2013 Q1	$10.4	$3.7	$0.5	$0.4	$15.3	$15.5	$4.4	$0.0	$50.2

Quarterly BPCG By Category (Million $)



Note: These 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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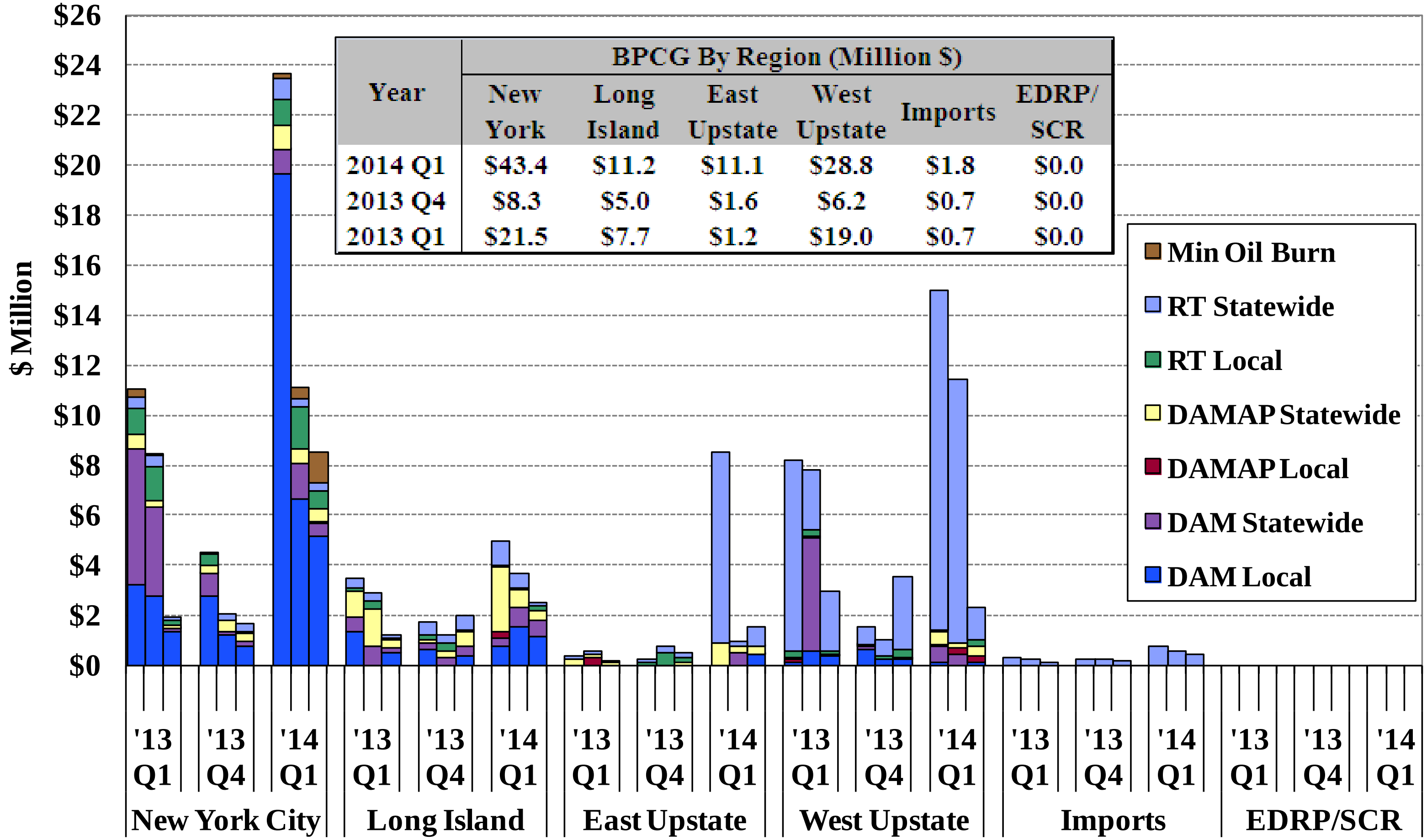
Uplift Costs from Guarantee Payments
By Category and Region



Year	BPCG By Region (Million $)					
	New York	Long Island	East Upstate	West Upstate	Imports	EDRP/ SCR
2014 Q1	$43.4	$11.2	$11.1	$28.8	$1.8	$0.0
2013 Q4	$8.3	$5.0	$1.6	$6.2	$0.7	$0.0
2013 Q1	$21.5	$7.7	$1.2	$19.0	$0.7	$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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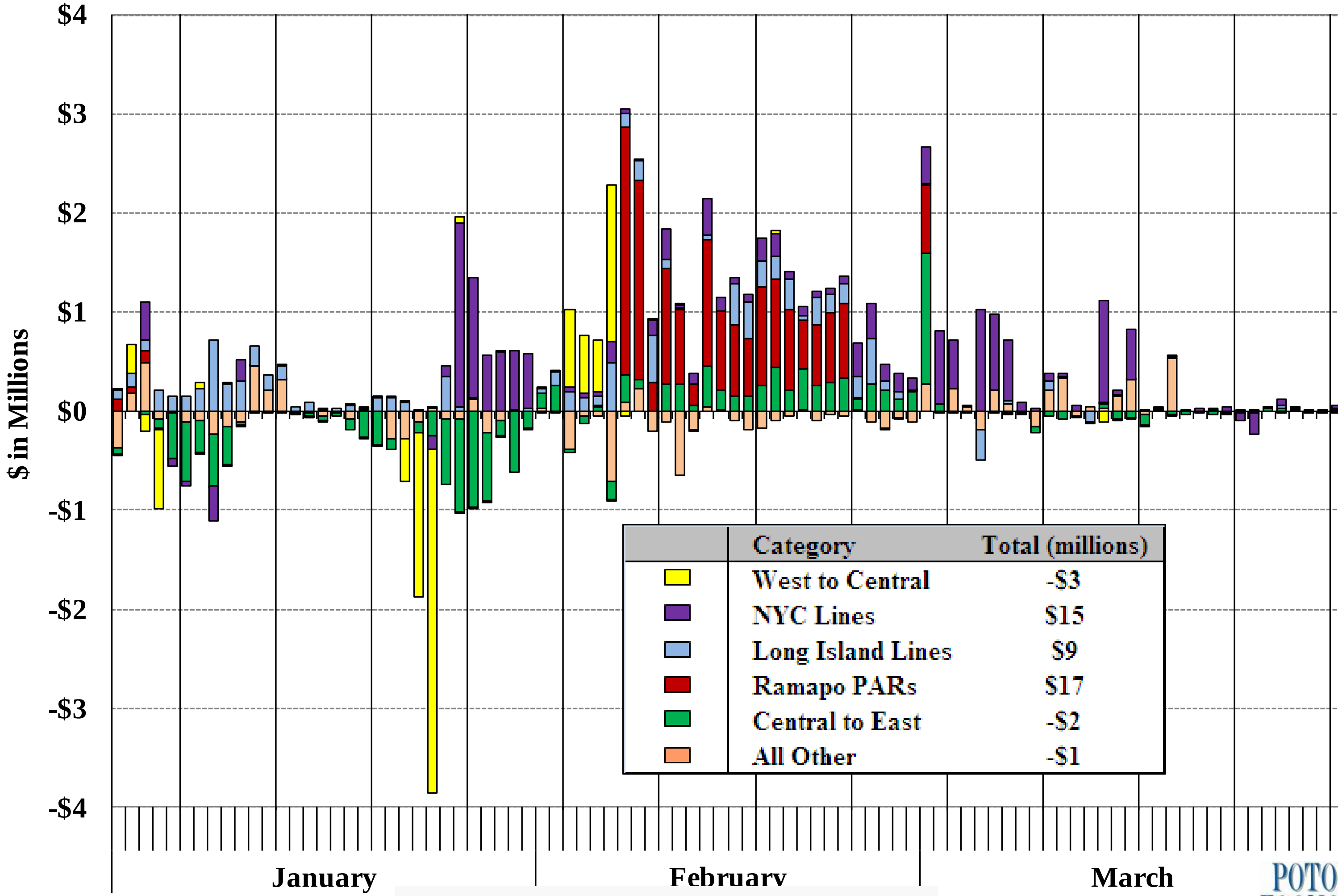
Day-Ahead Congestion Revenue Shortfalls by Transmission Facility



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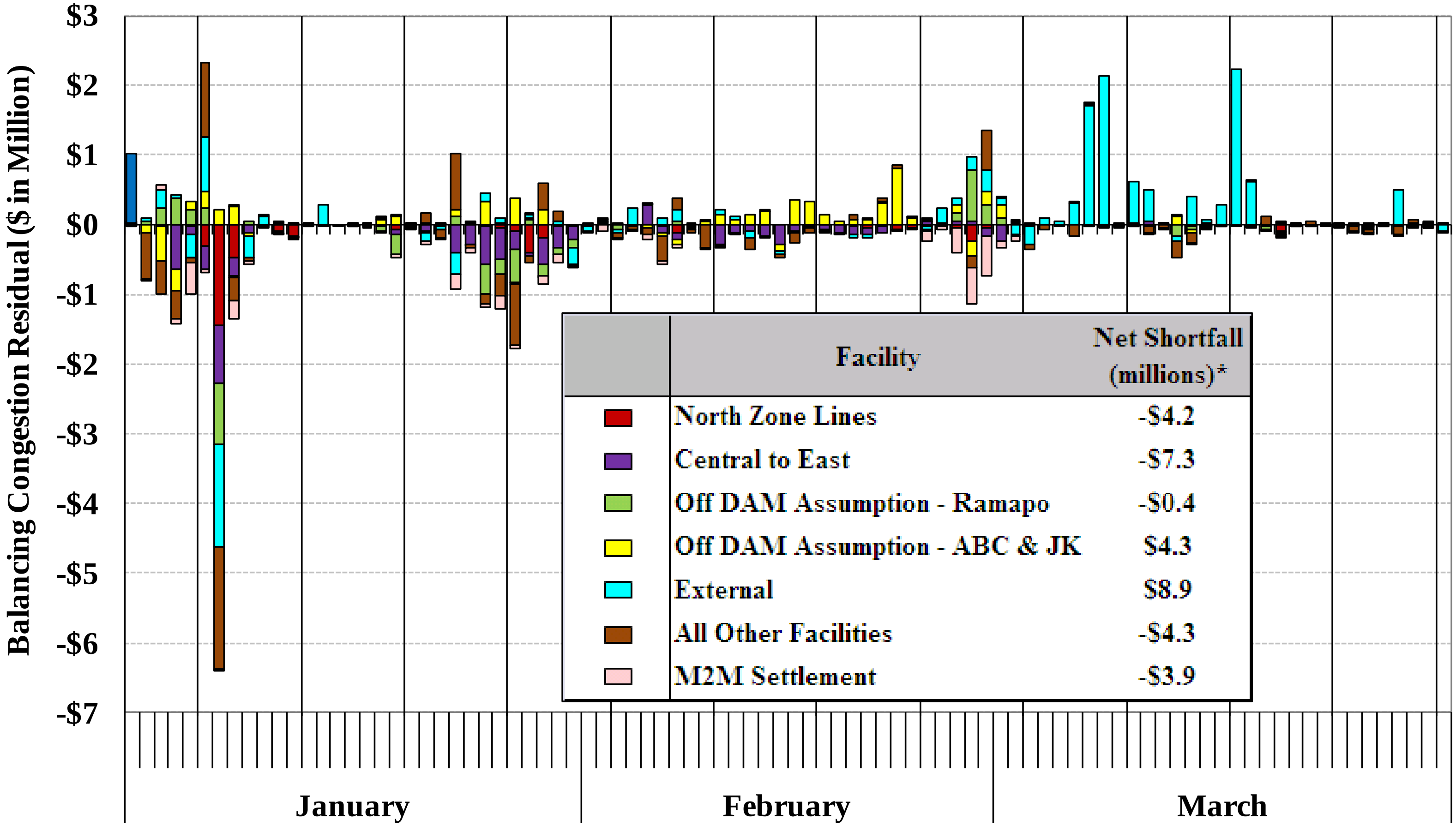
Balancing Congestion Shortfalls by Transmission Facility



Notes: The BMCR estimated above may differ from actual BMCR because the figure: (a) is partly based on real-time schedules rather than metered values and (b) assumes the energy component of the LBMP is the same at all locations including proxy buses (while the actual LBMPs are not calculated this way under all circumstances).

Highlights and Market Summary: Capacity Market

- UCAP spot prices rose notably in the first quarter of 2014.
  - ✓ In Rest of State and Long Island, UCAP spot prices averaged \$3.91/kW-month, up 43 percent from the first quarter of 2013.
  - ✓ In New York City, UCAP spot prices averaged \$9.64/kW-month this quarter, up 96 percent from the first quarter of 2013.
- Higher UCAP prices were primarily driven by increased ICAP requirements from the 2012/13 Capability Year to the 2013/14 Capability Year, which rose:
  - ✓ 314 MW (0.8%) in NYCA due to an increase in the IRM from 16% to 17%;
  - ✓ 332 MW (3.5%) in NYC due to an increase in the LCR from 83% to 86%; and
  - ✓ 320 MW (5.8% in LI due to an increase in the LCR from 99% to 105%.
- The increased LCRs in NYC and LI (in the 2013/14 Capability Year) resulted primarily from the loss of generating capacity in the Hudson Valley, since this requires more capacity in downstate areas to secure the UPNY-SENY interface.
  - ✓ However, this is less efficient than modeling a capacity Locality that includes the Hudson Valley and setting the LCR in the new Locality at a level that accurately reflects the reliability benefits of placing capacity there.
  - ✓ Hence, modeling the new G-J Locality starting in the 2014/15 Capability Year better enables the market to provide efficient investment signals.

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