

# 2009 Annual Markets Report DRAFT

Marc D. Montalvo  
Director, Assessment & Investigation  
Internal Market Monitoring  
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# Outline

- Summary of Market Outcomes
- Competitiveness of the Energy Market
- Energy and Reserve Markets Key Findings
- Reliability and Operations
- Forward Capacity Market Performance
- IMM Recommendations
- Statistical Summary

# Summary of Market Outcomes

- Energy costs fell from \$10.6 billion in 2008 to \$5.3 billion in 2009.
- Day-ahead congestion fell from \$125.4 million in 2008 to \$26.7 million in 2009.
- Payments for providing regulation fell from \$50.5 million in 2008 to totaled \$23.1 million in 2009.
- Uplift associated with local second-contingency protection and voltage support fell from \$213 million in 2008 to \$23 million in 2009.
- From 2008 to 2009, natural gas prices fell by 54%; residual fuel oil prices, 29%; distillate fuel oil prices, 43%; and coal prices, 46%.
- Hydroelectric production in 2009 was at near-record levels, 30% above the 2000-2007 average.

# Summary of Market Outcomes (cont'd)

- Net energy for load (NEL) in 2009 was almost 5,000 GWh (3.7%) lower than in 2008 and approximately 7,600 GWh (5.7%) lower than in 2007.
- The third Forward Capacity Auction (FCA) held in October 2009 cleared at the floor price of \$2.95/kW-month.
- The first Annual Reconfiguration Auction (ARA) for the FCM commitment period 2010/2011 held in May cleared 197.6 MW at \$1.50/kW-month.
- The capacity market transition payments made to all resources in 2009 totaled \$1,765 million.

# Competitiveness of the Energy Market

- The price outcomes of the ISO administered energy market are consistent with those expected of a competitive market
- IMM uses two types of measures of market competitiveness:
  - Structural measures (concentration and pivotal supplier tests)
  - Price-based measures (price-cost comparisons)
- The market is generally unconcentrated and structurally competitive
- Energy prices by and large reflect supplier short-run marginal costs
- When needed, mitigation rules provide adequate behavioral remedies

# Energy and Reserve Markets Key Findings

- Overall reduction in energy prices and congestion costs
- An increase across the year in the frequency and magnitude of non-zero real-time reserve prices
- A shift in the relationship between day-ahead and real-time prices in the late second quarter, from DA prices that were higher than RT to DA prices that are lower than RT, on average
- The number of declared Minimum Generation Emergencies increased from 32 hours over six months in 2008 to 97 hours over nine months in 2009.
- These findings are consistent with changes in several key inputs:
  - lower, less volatile fuel prices
  - near-record hydro production
  - an overall reduction in electric load
  - a reduced need to operate generation for local second-contingency protection

# Reliability and Operations

- The sum of all NCPC components fell from \$256 million in 2008 to \$55 million in 2009, a change of 78%.
- Economic NCPC fell from \$42 million in 2008 to \$32 million in 2009, a change of 24%.
- Net payments to generation under reliability agreements fell from \$127 million in 2008 to \$72 million in 2009.
- Transmission upgrades in Southwest Connecticut and in Lower SEMA have significantly reduced the need for LSCPR commitments.

# Forward Capacity Market Key Findings

- The results of FCA #3 are competitive
- The large amount of surplus capacity in FCA #3 indicates sufficient supply-side competition
- The surplus capacity exceeded the amount of OOM capacity, so the OOM capacity did not cause the floor price to be reached
- The APR was not triggered in FCA #3 because the existing qualified capacity (37,695 MW) exceeded the NICR of 31,965 MW, and no new capacity was needed

# IMM Recommendations

- 1. ISSUE:** The rules governing the calculation of static and permanent delist bids in the Forward Capacity Market are intended to result in a delist bid that reflects the net risk-adjusted going-forward cost of the resource. However, the current rules do not distinguish between the going-forward costs of resources wanting to exit the energy market and those resources wanting to remain in the energy market. As a practical matter, the going-forward costs for a resource that wants to remain in the energy market will be much lower than for those that want to leave the energy market.

**RECOMMENDATION:** The IMM recommends reviewing and revising the definition of net risk-adjusted going-forward costs and opportunity costs as applied to static and permanent delist bids with particular attention to the difference between the going-forward costs of resources that exit the energy market and those that remain in the energy market. The resolution of this issue may increase the ability of delist bids to affect zonal pricing and creation.

## IMM Recommendations (cont'd)

- 2. ISSUE:** *Minimum Generation Emergencies* (MinGen Emergencies) are declared when the on-line generation on the system comes close to exceeding the load on the system. IMM has observed a significant increase in the frequency of declared MinGen Emergencies in 2009 over previous years. The existing procedure that administratively sets all prices to zero does not provide appropriate incentives to maximize resource flexibility and make price-based offers into the market under all conditions.

**RECOMMENDATION:** The IMM recommends that the ISO consider changing the rules to provide stronger incentives for market participants to submit economic offers into the Day-Ahead and Real-Time Energy Markets, including the use of negative offers and bids, and allowing real-time offers and bid modifications.

## IMM Recommendations (cont'd)

- 3. ISSUE:** In September 2009, the ISO filed rules with FERC to extend the price-response programs without modifications until the rules are in service to implement the long-term price-responsive demand (PRD) solution. The real-time price response program uses estimated prices from the Reserve Adequacy Analysis (RAA) as a price trigger. Allowing RAA prices to trigger the program dispatches the resources in many hours when the realized locational marginal prices (LMPs) are well below the forecasted prices.

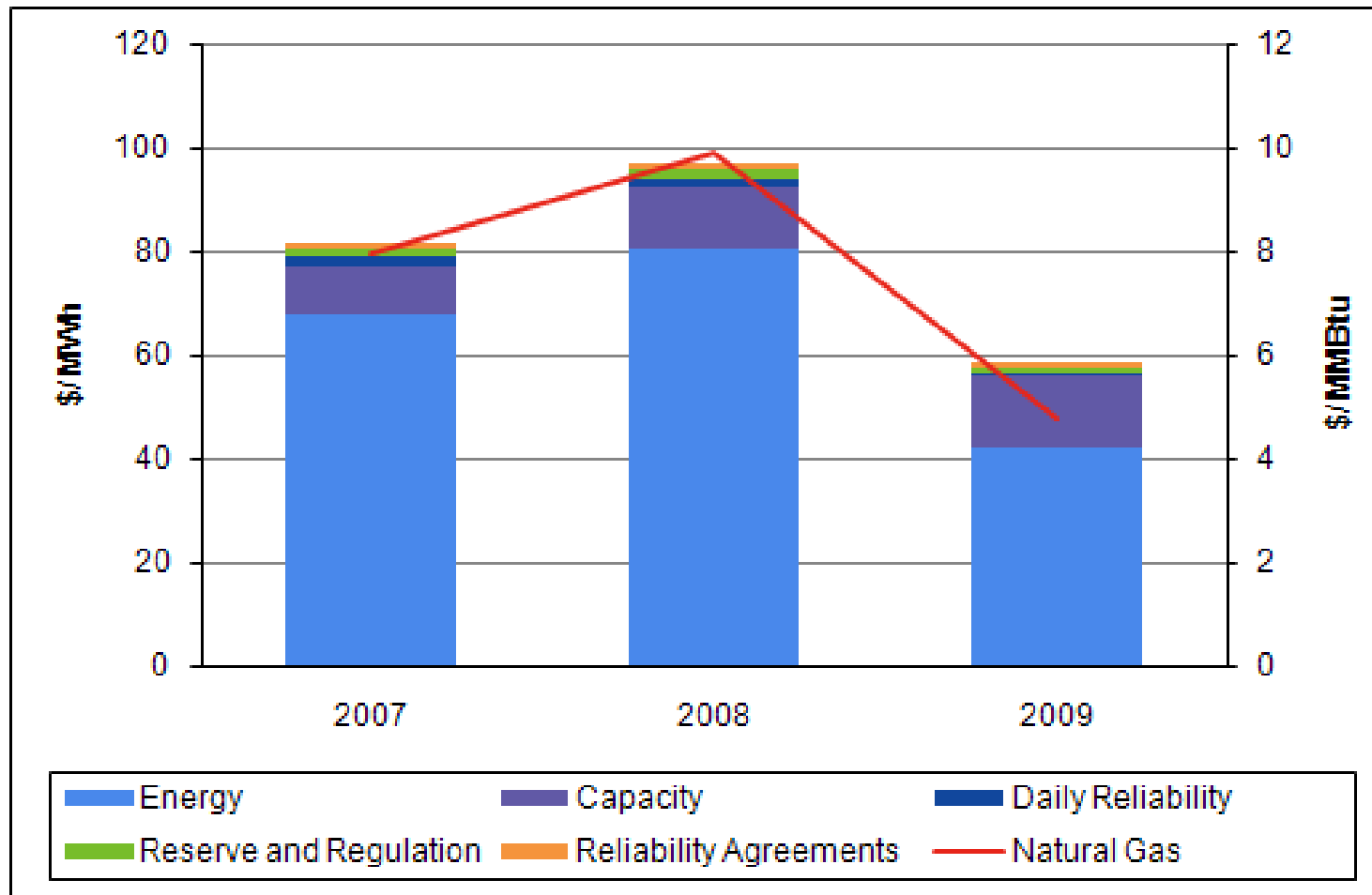
**RECOMMENDATION:** The IMM recommends revising the price-response program rules either to exclude RAA prices as a trigger or to modify the methodology used to calculate prices in the RAA process.

# Statistical Summary

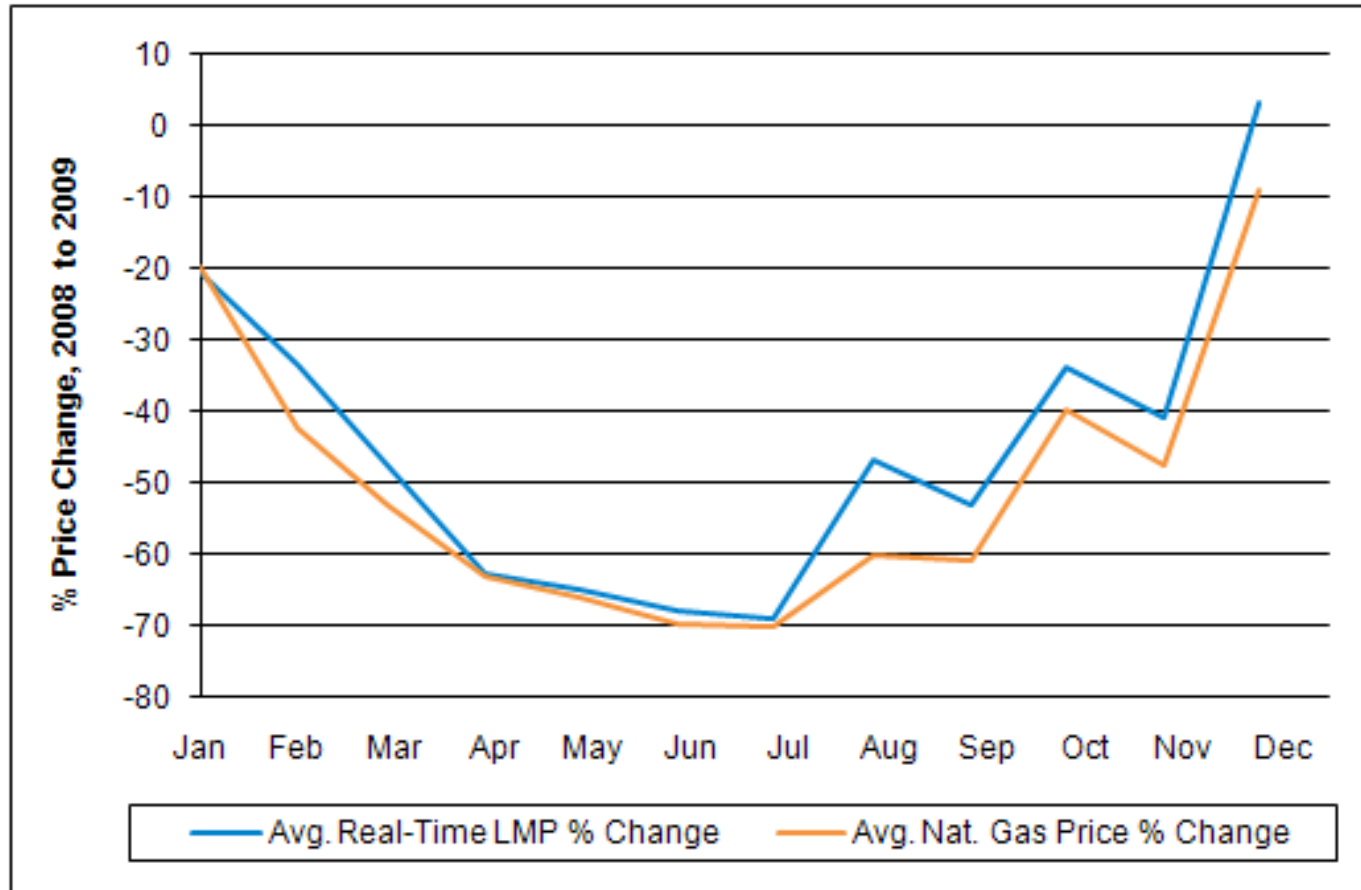
# Annual and Quarterly Average Day-Ahead and Real-Time Hub Prices, \$/MWh

	2009	Q1	Q2	Q3	Q4
Day ahead	41.54	54.17	35.52	32.38	44.32
Real time	42.02	52.80	35.24	34.30	45.89
Difference	-0.48	1.37	0.28	-1.92	-1.57

# Annual All-in-Wholesale Electricity Cost



# Percentage Change in Real-Time Locational Marginal Prices and Natural Gas Prices, 2008 to 2009



# Annual and Peak Electric Energy Statistics, 2007 to 2009

	2007	2008	2009	% Change 2008 to 2009
Annual NEL (GWh)	134,466	131,743	126,842	-3.7%
Normalized NEL (GWh)	134,153	131,127	128,224	-2.2%
Recorded peak demand (MW)	26,145	26,111	25,081	-3.9%
Normalized peak demand (MW)	27,460	27,765	27,460	-1.1%

# Systemwide Ten Minute Spinning Reserve Price Statistics

## Comparison of the 1<sup>st</sup> and 2<sup>nd</sup> halves of 2009

	Jan to Jun	Jul to Dec	Change	% Change
<b>Count</b>	1,013	1,560	547	54%
<b>Frequency</b>	1.95%	2.95%	1.0%	51%
<b>Average Price</b>	\$18.37	\$36.41	\$18.04	98%

Count = number of five-minute intervals with positive TMSR prices

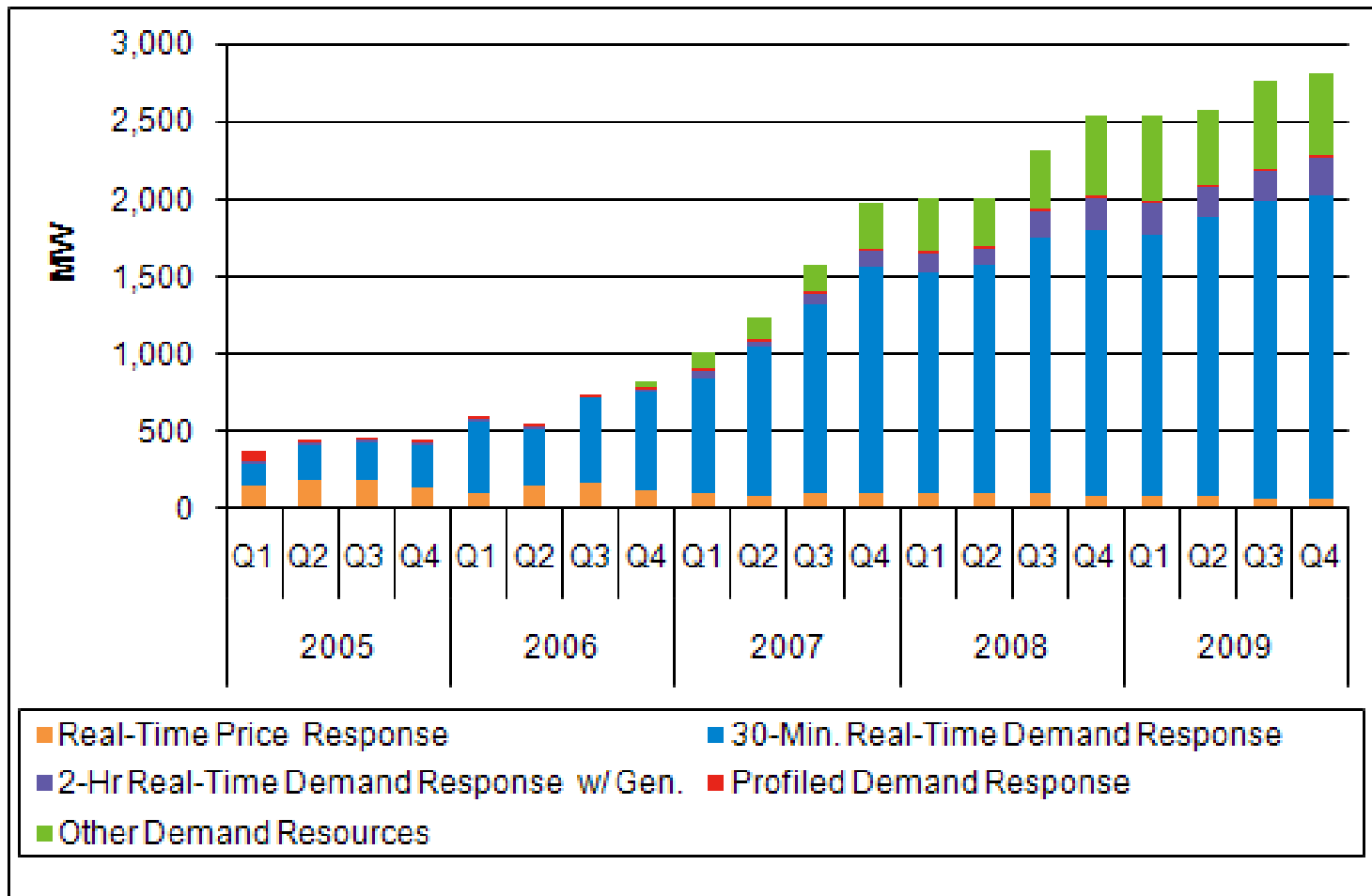
Frequency = percentage of intervals with nonzero prices

Average price = average TMSR price for intervals with nonzero prices

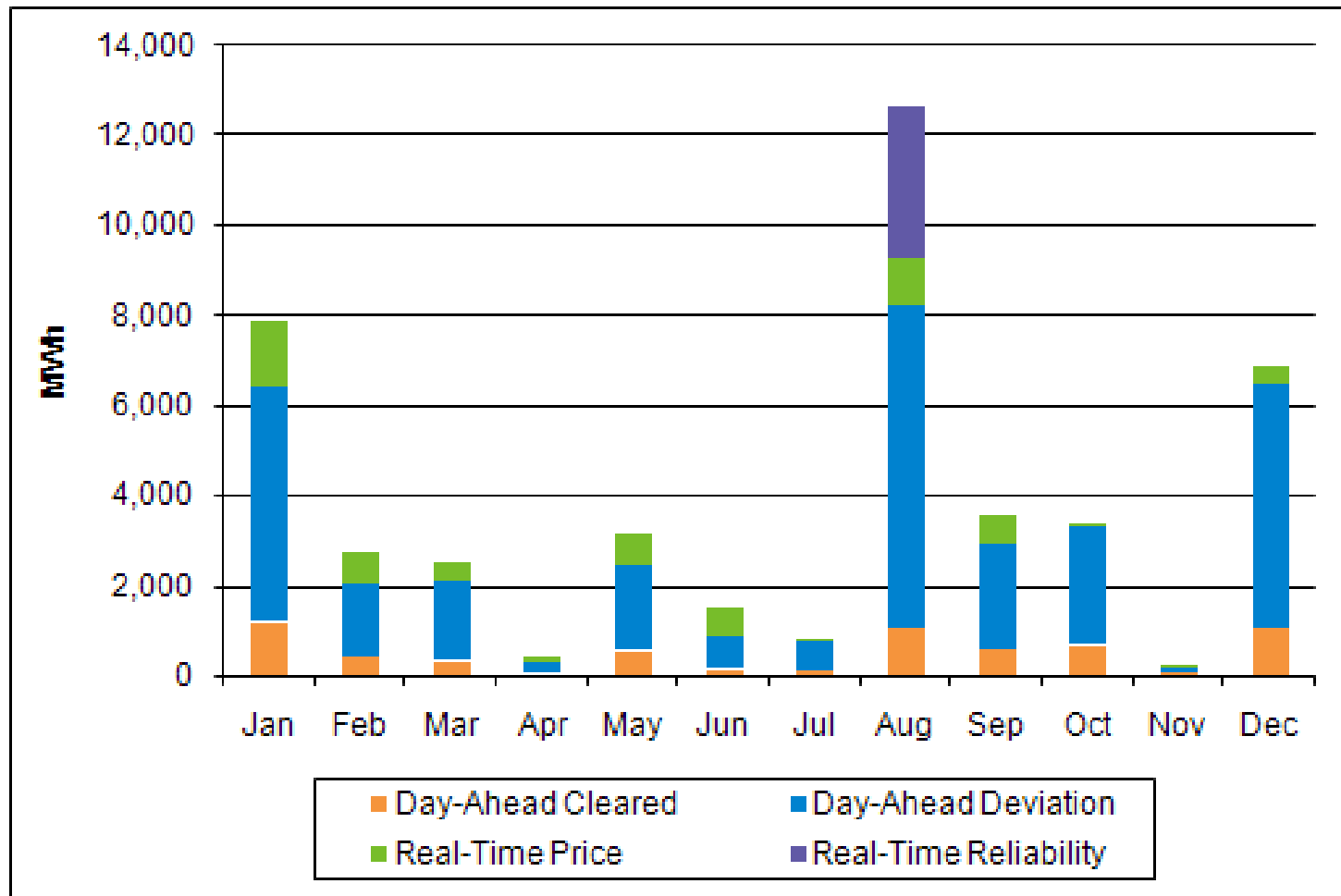
# Comparison of Realized Day-Ahead Congestion Revenue to Annual FTR Auction Revenue

	Day-Ahead Congestion Revenue (Millions \$)	Total Auction Revenue (Millions \$)	Auction Revenue as % of Day-Ahead Congestion Revenue
2007	130.1	122.8	94%
2008	125.4	116.7	93%
2009	26.7	71.1	266%

# Demand Response Enrollments, 2005 to 2009



# Interruptions by Load-Reduction Programs, 2009



# Demand Response Payments, 2009

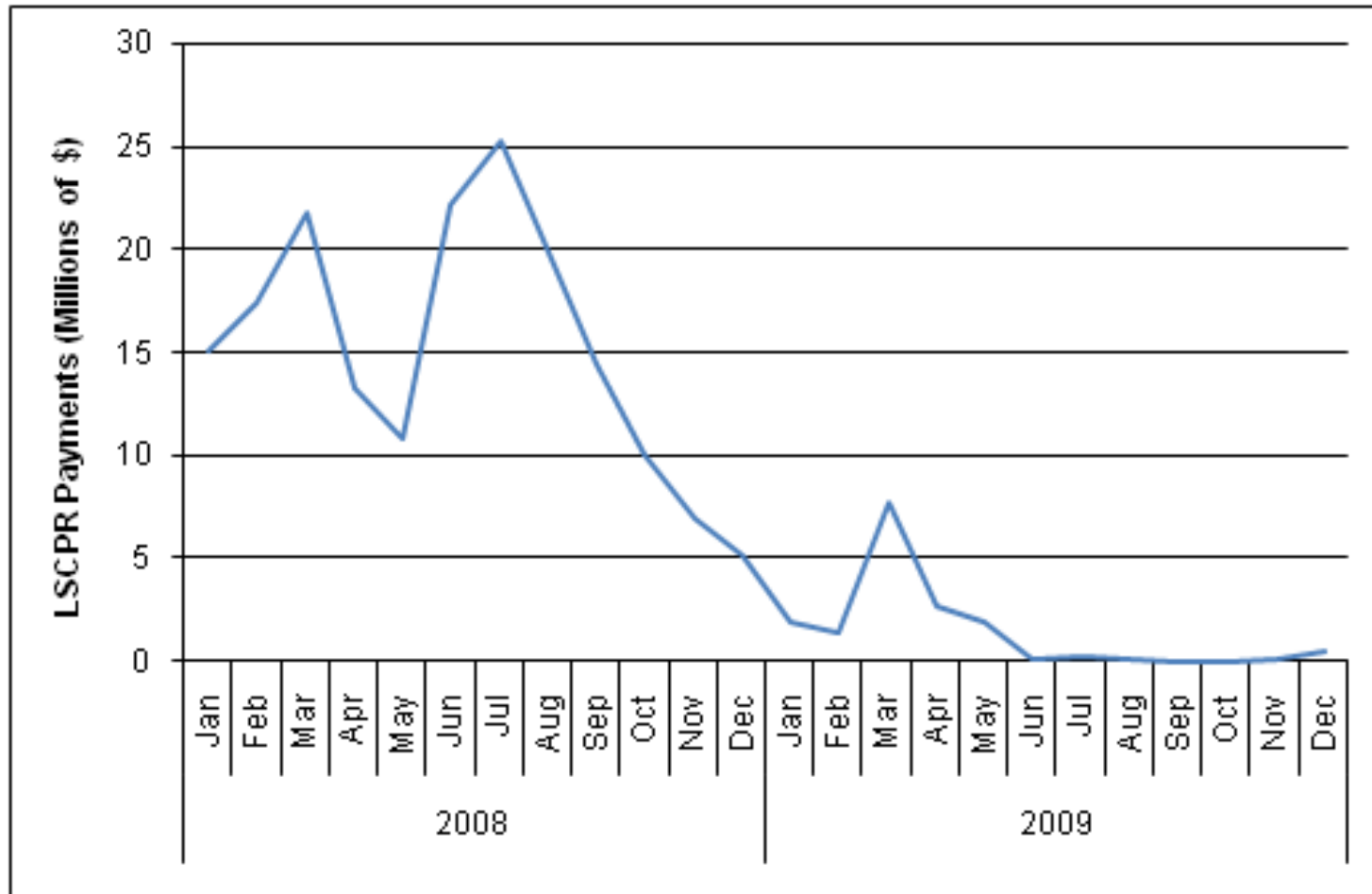
Demand-Response Program	Payment (\$)
Total payments made to Day-Ahead Load-Response Program	2,567,378
Total payments for Real-Time Price-Response Program	597,455
Total payments to reliability programs for real-time events/audits	1,614,149
Total capacity market transition payments made to reliability programs	106,775,377
<b>Grand Total</b>	<b>111,554,359</b>

These values do not include transition payments made to ODR resources

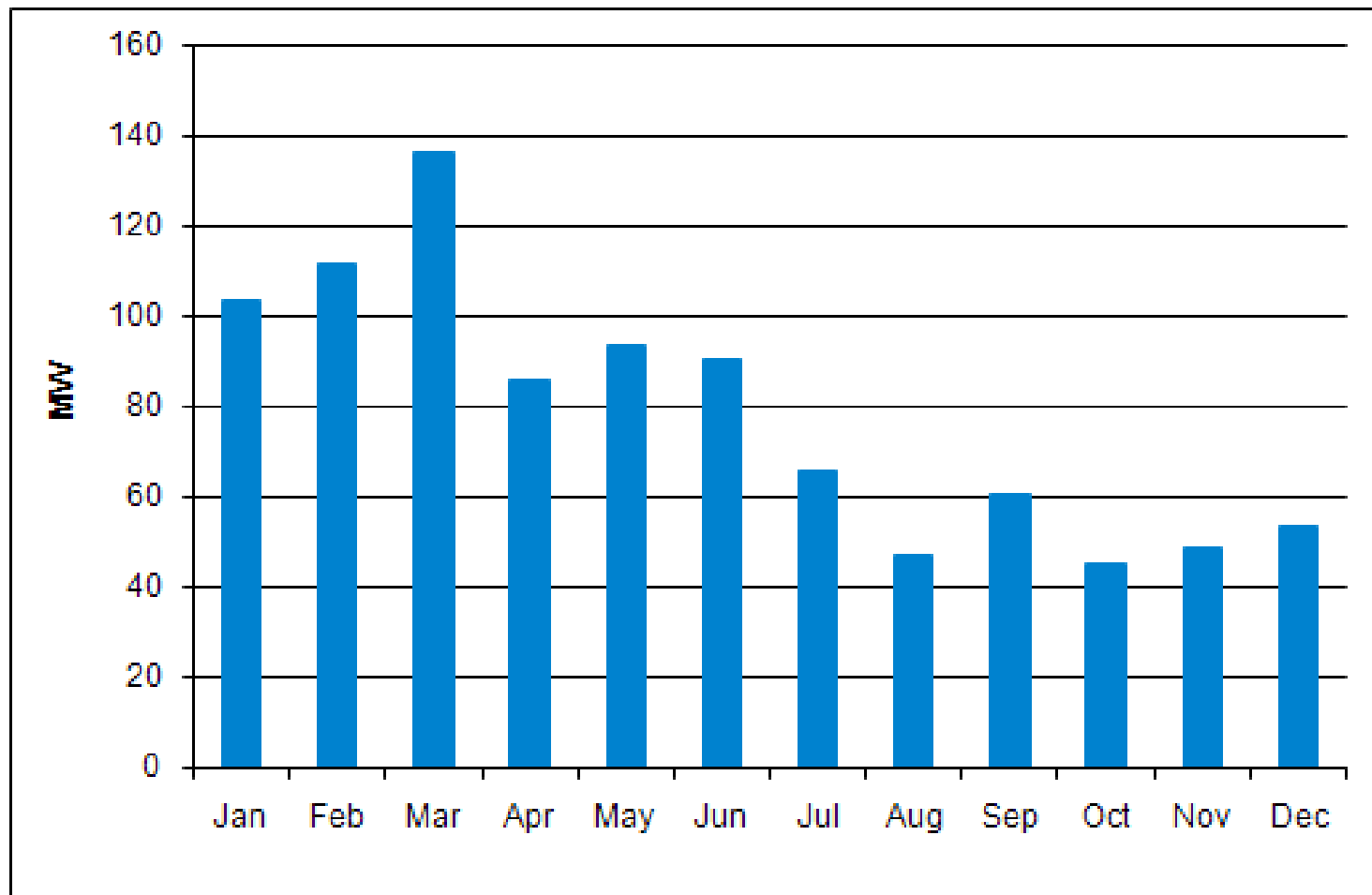
# Summary of NCPC Payments for LSCPR, Distribution and Voltage, 2008 to 2009

Payment Type	2008	2009	Difference	% Change
LSCPR	182.49	17.36	-165.14	-90%
Distribution	1.47	0.59	-0.88	-60%
Voltage	29,39	5.03	-24.36	-83%
<b>Total</b>	<b>213.35</b>	<b>22.98</b>	<b>-198.37</b>	<b>-89%</b>

# Local Second Contingency Protection Resource Payments, 2008 to 2009



# Average Quantity of Capacity Committed after the DA Market and Operated at EconomicMin



# Forward Capacity Auction Results, FCA#1 to #3

NEPOOL PARTICIPANTS COMMITTEE  
7/10 MEETING, AGENDA ITEM #6B

	FCA #1	FCA #2	FCA #3
<b>Total qualified (MW)</b>	39,165	42,777	42,746
<b>Total cleared (MW)<sup>(a)</sup></b>	34,077	37,283	36,996
<b>NICR (MW)</b>	32,305	32,528	31,965
<b>Excess cleared (MW)<sup>(a)</sup></b>	1,772	4,755	5,031
<b>Clearing price (\$/kW-month)</b>	4.50	3.60	2.95

# FCM Auction Out-of-Market Capacity Summary

Auction	Type of Resource	Generation	Demand Resources	Imports	Total
FCA #1	New cleared	40	860	0	900
	In-market	0	860	0	860
	Out-of-market	40	0	0	40
FCA #2	New cleared	1,156	448	1,529	3,134
	In-market	38	298	1,529	1,864
	Out-of-market	1,118	150	0	1,268
FCA #3	New cleared	1,670	309	817	2,796
	In-market	1,095	189	817	2,101
	Out-of-market	575	120	0	695

# Delisted Existing Resources by Type, MW, and Percent

Resource Type	FCA #1	FCA #2	FCA #3
Generation	622 (64%)	350 (39%)	543 (32%)
Demand resources	296 (31%)	489 (55%)	257 (15%)
Import	51 (5%)	51 (6%)	910 (53%)
Total delisted	970 (100%)	890 (100%)	1,710 (100%)

# FCM Annual Reconfiguration Auction

Capacity Zone Type	Rest-of-Pool	New York AC Ties	Total
Total offers submitted (MW)	915.0		915.0
Total bids submitted (MW)	-6,473.0	-153.4	-6,626.5
Total offers cleared (MW)	197.6		197.6
Total bids cleared (MW)	-117.6	-80.0	-197.6
Net capacity cleared (MW)	80.0	-80.0	0.0
Clearing price (\$/kW-month)	1.5	1.5	1.5

Bids are negative.

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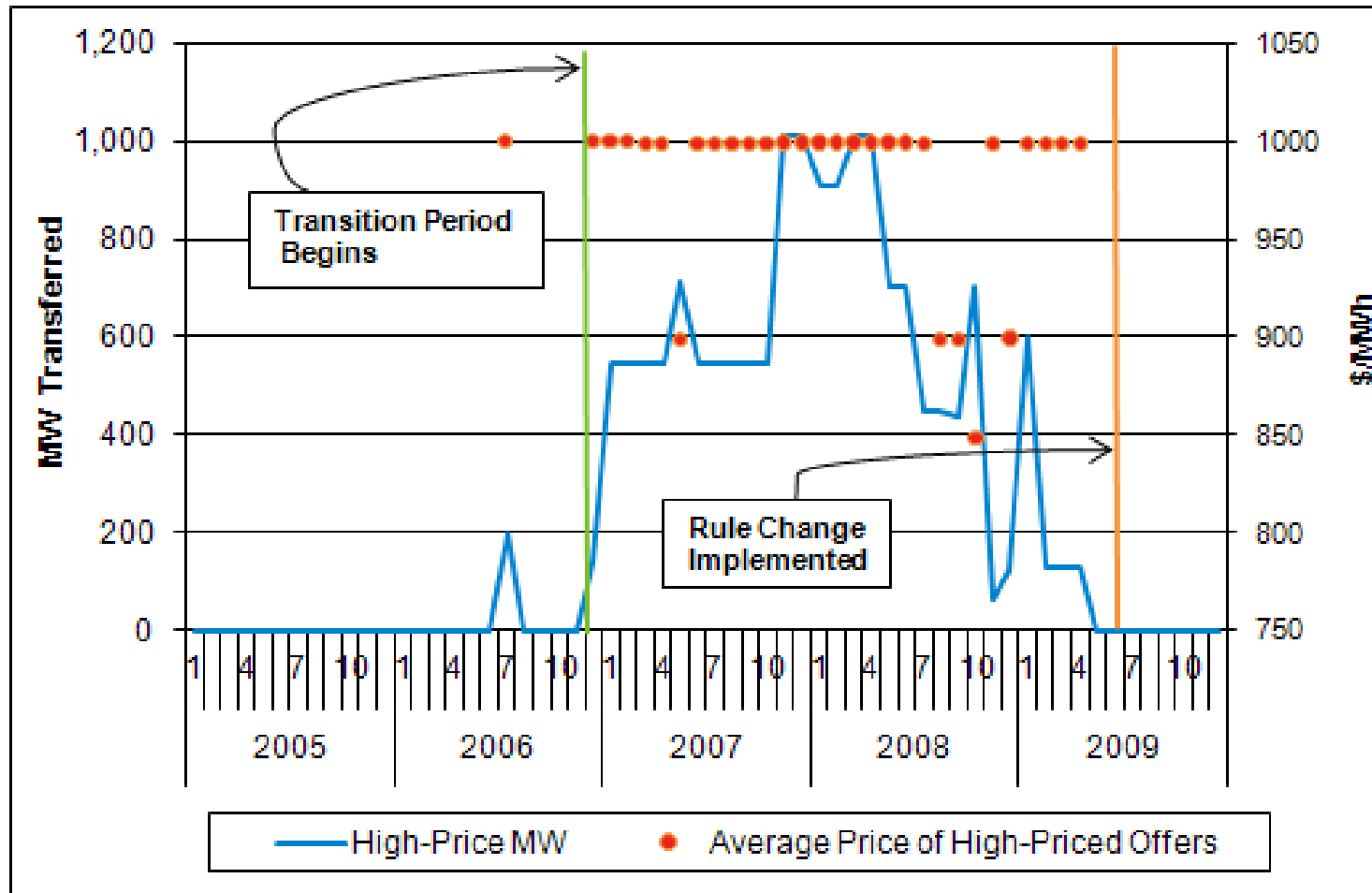
USE THE TABLE IN THE VERSION I SENT MOST RECENTLY TO MM

mdepillis, 4/28/2010

# Capacity Transition Period Supply and Payments, 2007 to 2009

Year	Average UCAP Supply (MW)	Annual ICR Requirement (MW)	Total Payment (\$)	ICAP Transition Payment Rate (\$/kW-month)	
				Jan—May	June—Dec
2007	34,985	31,270	1,280,464,983	3.05	3.05
2008	36,331	32,160	1,505,257,134	3.05	3.75
2009	37,236	31,823	1,765,901,336	3.75	4.10

# Summary of Capacity Import Offers over NY-AC Interface



# Results of Locational Forward-Reserve Auctions, \$/kW-Month

Reserve Zone	Reserve Category	Summer 2008	Summer 2009	Winter 2008/2009	Winter 2008/2009
Systemwide	TMNSR	8.88	6.30	6.74	6.08
Systemwide	TMOR	6.50	0	4.99	0
SWCT	TMOR	14.00	14.00	14.00	14.00
CT	TMOR	14.00	14.00	14.00	14.00
NEMA/Boston	TMOR	14.00	0	5.55	0

