Panel II
New York Utility Supply Procurement Practices

National Grid

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Agenda

- Description of the supply portfolio.
- Current practices for supply portfolio management.
- Cost elements of the commodity charge.
- Elements of the supply portfolio that can be made public.

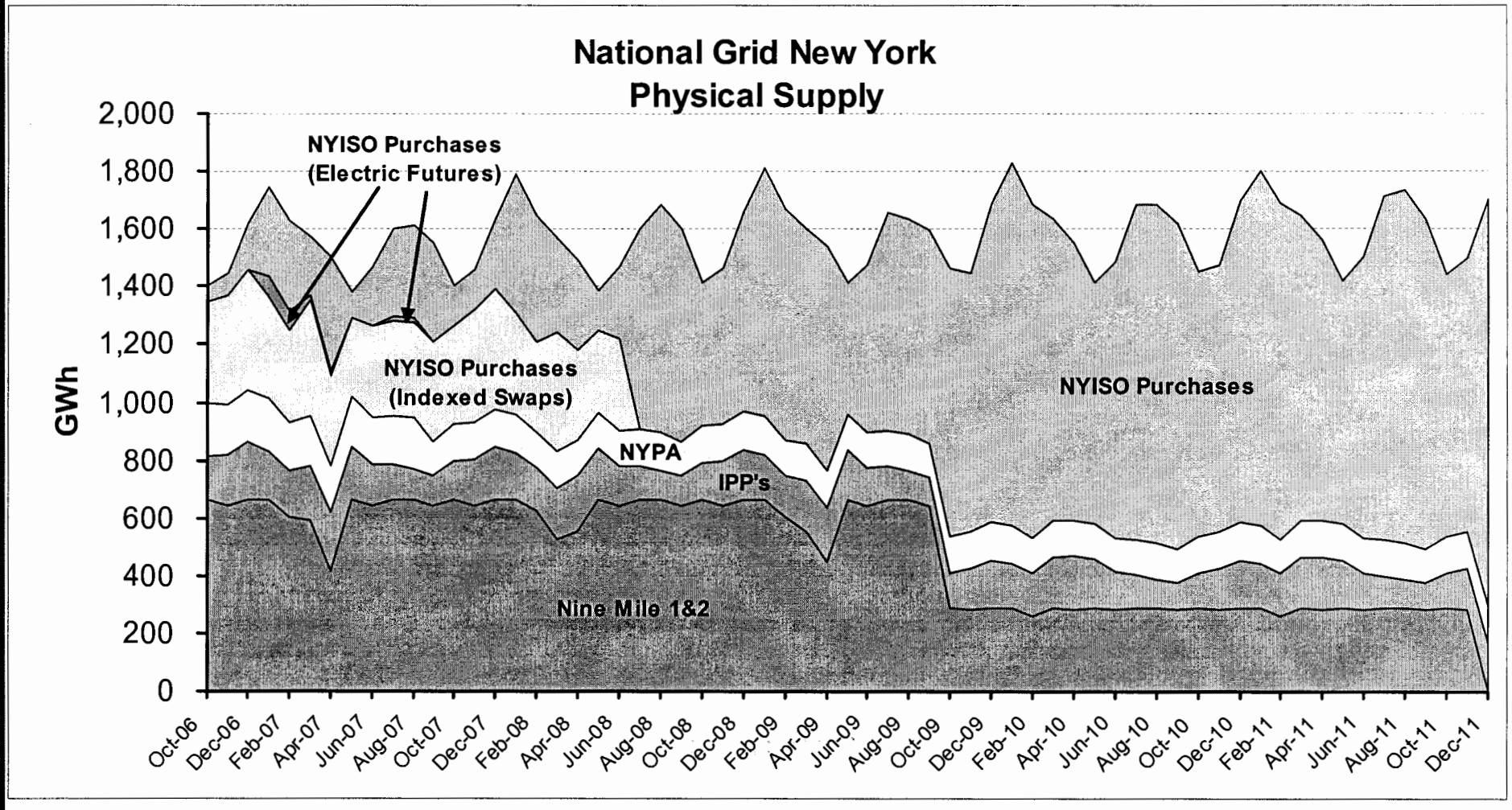
Commodity Program

- Market Rate Service (MRS)
  - Commodity priced at day ahead
  - Allocated a portion of above market variable costs every two years in Competitive Transition Charge ("CTC")
  - No hedging
- Standard Rate Service (SRS)
  - Commodity Priced at day ahead & allocated a portion of above market costs every two years in CTC
  - Partial hedged service, declining over time
  - Using legacy contracts from MRA and asset sales as market transition tools
  - Do not hedge the unhedged portion (that is, for residential customers, the hedge factor is 90%, the balance is priced at DA LBMP)

Description of the Supply Portfolio

- Approximately 100 Physical Power Purchase IPP some of which don't expire until 2035.
  - Three larger than 30 MW.
  - 45 Have pricing indexed to market prices (SC-6)
  - 80 Hydro units
- 8 Indexed Swap Contracts (financial) expire 6/06
  - NG receives a DA LBMP payment on a notional quantity from a counterparty and makes a payment to the same counterparty based on indexed gas prices & inflation indexes.
  - NG does purchase NYMEX gas futures in an attempt to "lock in" cost
- Physical Nine Mile 1 and Nine Mile 2 contracts expire '09 and '11
- NYPA contracts expire in 2007
  - Niagara Replacement (scheduled for residential)
  - Niagara Firm
  - Niagara Peaking
  - St. Lawrence Firm

Physical Supplies (Projected based on commodity load forecast and continuation of NYPA contracts)



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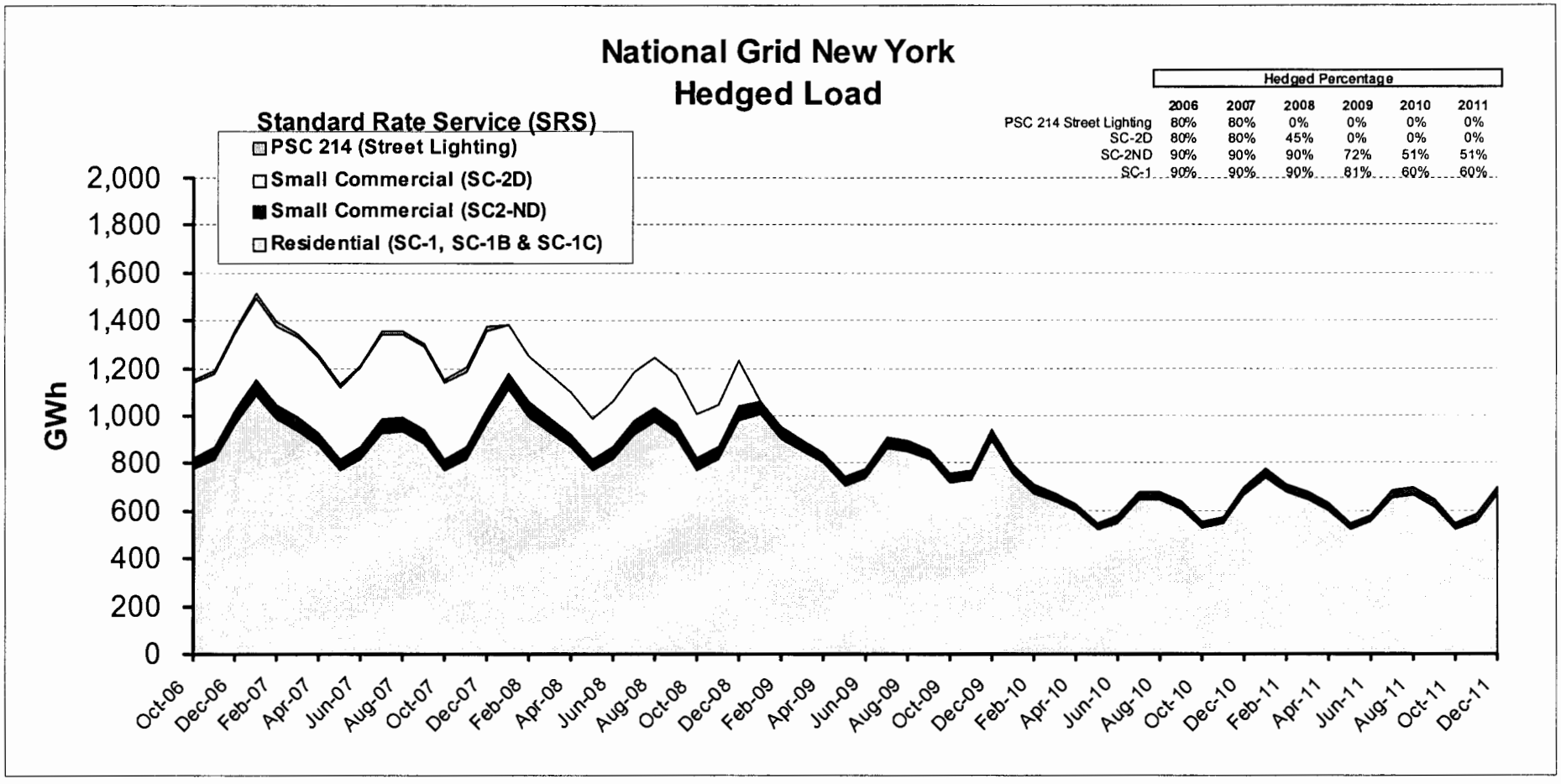
Hedged Load



	Hedged Percentage					
	2006	2007	2008	2009	2010	2011
PSC 214 Street Lighting	80%	80%	0%	0%	0%	0%
SC-2D	80%	80%	45%	0%	0%	0%
SC-2ND	90%	90%	90%	72%	51%	51%
SC-1	90%	90%	90%	81%	60%	60%

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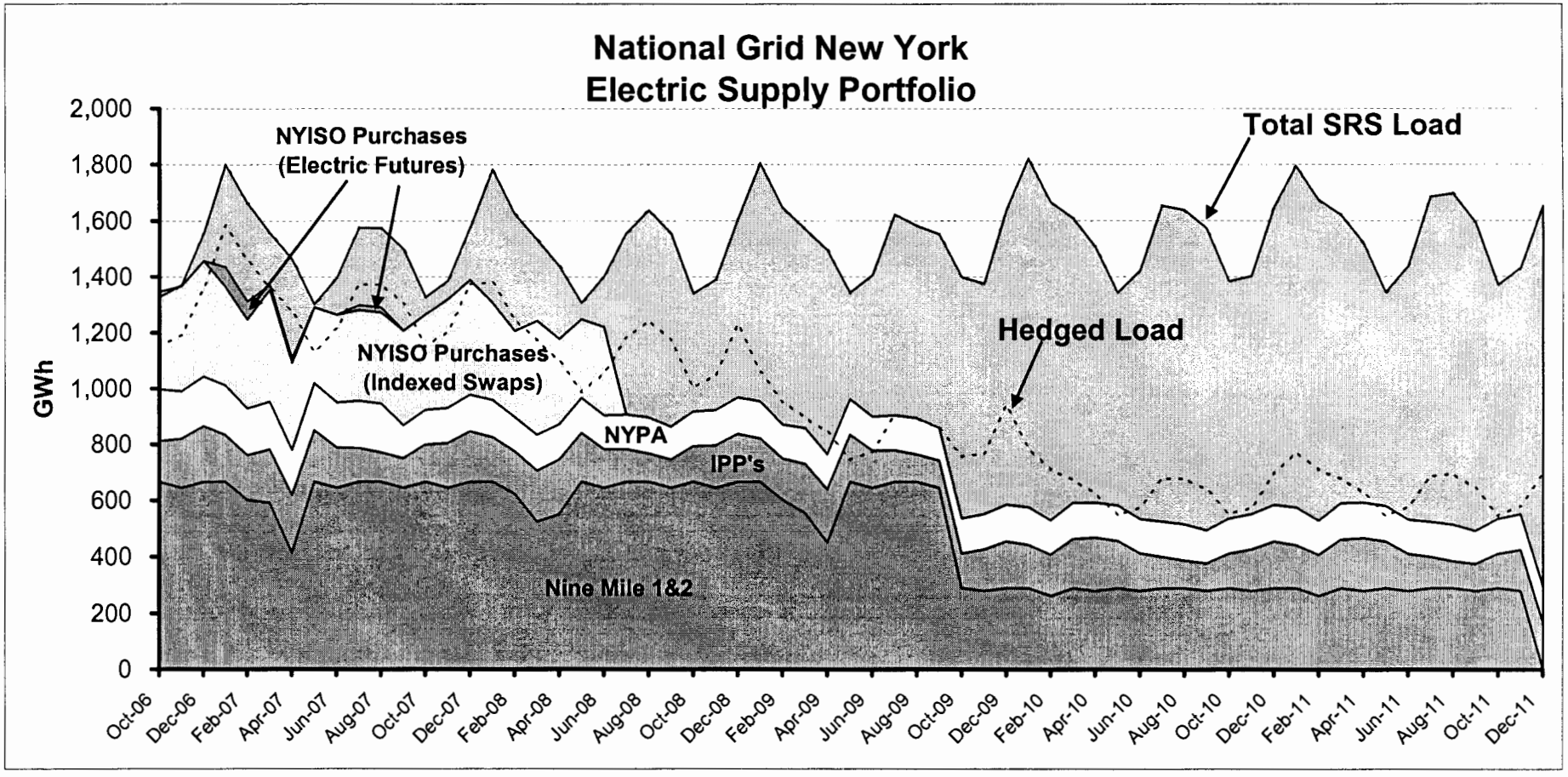
Hedged Load and Supply Portfolio



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Supply Portfolio

	4th Qtr 2006 (GWh)	2007 (GWh)	2008 (GWh)	2009 (GWh)	2010 (GWh)	2011 (GWh)
Physical						
Nine Mile 1 & 2	1,978.6	7,544.1	7,636.7	6,424.7	3,408.6	3,119.1
IPP's	517.6	1,850.7	1,761.1	1,707.5	1,706.5	1,689.8
NYPA	532.9	1,846.4	1,506.6	1,506.6	1,506.6	1,506.6
NYISO DAM Purchases	291.7	3,205.6	5,893.1	9,359.7	12,580.7	13,024.2
Total Commodity Load	3,320.8	14,446.9	16,797.6	18,998.4	19,202.3	19,339.6
Financial						
Indexed Swaps	1,142.9	4,102.3	1,970.1	0.0	0.0	0.0
Electric Futures	0.0	204.0	0.0	0.0	0.0	0.0
	1,142.9	4,306.3	1,970.1	0.0	0.0	0.0

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Current Practices for Supply Management

- Supply Management falls into two categories:
  - Meeting the physical requirements on a day-to-day basis.
    - Meeting commodity load requirements
  - Management of the existing supply portfolio
    - Meeting hedge load requirements

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Meeting Day-to-Day Requirements

+ Forecast next-day NG hourly commodity load requirement for 24 hours for 6 subzones

- Forecast physical bilateral production (schedules)

= Physical Day Ahead Load Purchased from NYISO at zonal Day Ahead LBMP's

NOTE: If all customers left for retail access, the portfolio would be "physically" long yet we would sell it into the NYISO and continue to receive and apply the hedge benefits in existing rate mechanisms. We could be physically very long in the NYISO yet short for hedges.

Management of Existing Supply

- Portfolio costs are a function of
  - Cost of the IPP contracts
    - Variable: IPP production (rain) & fuel prices
  - Cost of eight Indexed Swaps
    - Variable: Market gas prices & Market electric prices
  - Cost of Constellation contracts
    - Variable: Nine Mile 1 & 2 production
  - NYISO costs to meet physical imbalances between supply portfolio and customer hedges.
- The dominating variable is the impact of gas market prices on the Gas Futures for the 8 IPP Swaps.

Management of Existing Supply Actual VaR

- We can not predict with 100% certainty the future cost of our portfolio.
- We have developed a Value at Risk (VaR) model. The VaR model assigns probabilities to the variables that "drive" the cost and hence can forecast within one-tailed 95% confidence interval the potential change in commodity costs from a base forecast.
- As an example, if the base forecast of supply costs is $1 billion and if the 12 month actual VaR is $100 M, we would then be 95% certain that the supply costs will be less then $1.1 billion over the next twelve months.

Management of Existing Supply VaR Limit

- Currently develop a 12 month VaR Limit based on our retail Commodity Adjustment Clause's ("CAC") ability to recoup cost excursions in the next twelve months. The CAC collects or refunds the difference between total supply costs and commodity revenues. The CAC is limited to 3 mills in the first two months, 4 mills in the next two months, and 5 mills in the fifth month and beyond. Total supply costs in excess of commodity revenues and CAC collections are deferred to the next month. When the deferral exceeds $40 million, the CAC limits can be breached to prevent the deferral from rising further.
- The 12 month VaR Limit is currently set at the above CAC rate limits times the hedged load.
- If the actual VaR is under the VaR Limit, we are then 95% certain that the CAC will not need to collect more over the course of the next twelve months than its ability at the CAC rate limits. This does not mean we are 95% certain that the $40 million deferral will not be triggered.

Monitoring Actual VaR Relative to VaR Limit

- National Grid compares the actual VaR to the VaR limit at the end of each month as a tool to monitor customer volatility resulting from the supply portfolio.
- Different actions may be taken depending on the situation that may be causing the potential for cost over-runs.

  Causes: Loss of a nuclear plant, potential for higher gas prices, load forecast variability

  Actions: Electric swaps, more gas futures, nuclear insurance, other
- Often times locking in one variable does not help much because a second variable may also create significant cost over-runs.

Monitoring Actual VaR Relative to VaR Limit

- Often times analysis shows the only solution for reducing the actual VaR is to take a significant positions in the market. In those cases National Grid needs to consider the costs and risks of taking market positions against reduce volatility.
- Existing hedges and additional hedges don't reduce costs for customers. Hedges can reduce the risk of higher costs for customers but hedges come with a cost to the customers.
- Often times an actual VaR based on a one tailed 95% confidence interval is over the VaR limit but an actual VaR based on 85% is not.
- Time periods when the VaR is over the limit tends to be when market prices are high hence may be a risky time to purchase additional hedges.

Summary - Portfolio Management

- National Grid **does not**:
  - Hedge electricity supply for non SRS customers (SC-3A & SC-3)
  - Prospectively hedge the unhedged sales pursuant to Rule 29 (10% of SC-1 sales, etc.)
  - Hedge ancillary services
  - Participate in NYISO virtual load bidding
  - Arbitrage day ahead against real time
  - Arbitrage NYISO market against PJMISO or ISO-NE
  - Purchase "long" (relative to hedged sales) to reduce VaR

Summary - Portfolio Management

- National Grid **does:**
  - Purchase day ahead supplies to meet shortages between physical supply and commodity load.
  - Execute a Gas Futures purchase program for the purposes of "locking in" the eight Swap contracts.
  - Run a Value at Risk model on the existing supply as a tool to monitor volatility and will consider purchase action if a reasonable option exists.

Commodity Charge Calculation Breakdown

- DAM LBMP
  - The actual LBMP (by Zone).
  - Posted Day Ahead NYISO LBMP prices are run through the Rule 46 equation and the results posted on the Company's web page.
- Ancillary Services
  - Assigned to all hours.
  - Two month lag.
  - Installed Capacity imbalances (monthly and spot purchases/sales) included in this value.

Commodity Charge Calculation Breakdown

- Capacity Price
  - The six-month strip clearing price.
  - Value is unitized to $/MWH and only applied during 8 on-peak hours (HE 1300 – 2000 weekdays).
- On-peak Hours
  - Number of on-peak hours during the month.
- Reserve Requirement
  - The NYISO UCAP reserve requirement.

Commodity Charge Calculation Breakdown

- Load Factor
  - The Load Factor for each customer class (not by zone or transmission level).
  - Used to reflect contribution to the peak.
- Losses
  - Heating/step-up losses per the Company's Tariff (does not include losses calculated by the NYISO).
  - Unaccounted for losses.
    - Four month rolling average.

Commodity Charge Sample Calculation
"Rule 46"

July 07, 2006

	ENERGY	ANCILLARY SERVICES	CAPACITY					LOSSES	TOTAL
	(Central DAM LBMP	+ Ancillary Services	+ (Capacity Price	x Convert kW to MW	/ # On-peak Hours	x Reserve Requirement	/ Load Factor	)) x Losses	= Electricity Supply Charge
Hour Ending	($/MWh)	($/MWh)	($/kW month)	(x1000)		%	%	%	($/MWh)
1	36.39000	3.17002						1.02904	40.70884
2	32.30000	3.17002						1.02904	36.50007
3	30.11000	3.17002						1.02904	34.24647
4	27.93000	3.17002						1.02904	32.00316
5	27.58000	3.17002						1.02904	31.64300
6	28.70000	3.17002						1.02904	32.79552
7	32.62000	3.17002						1.02904	36.82936
8	38.83000	3.17002						1.02904	43.21970
9	44.56000	3.17002						1.02904	49.11610
10	46.94000	3.17002						1.02904	51.56521
11	51.07000	3.17002						1.02904	55.81515
12	56.12000	3.17002						1.02904	61.01180
13	56.49000	3.17002	1.44	1000	160	1.1159	0.63237	1.02904	77.73543
14	60.13000	3.17002	1.44	1000	160	1.1159	0.63237	1.02904	81.48114
15	61.08000	3.17002	1.44	1000	160	1.1159	0.63237	1.02904	82.45873
16	61.20000	3.17002	1.44	1000	160	1.1159	0.63237	1.02904	82.58221
17	60.81000	3.17002	1.44	1000	160	1.1159	0.63237	1.02904	82.18089
18	58.99000	3.17002	1.44	1000	160	1.1159	0.63237	1.02904	80.30803
19	53.41000	3.17002	1.44	1000	160	1.1159	0.63237	1.02904	74.56599
20	47.21000	3.17002	1.44	1000	160	1.1159	0.63237	1.02904	68.18594
21	47.50000	3.17002						1.02904	52.14148
22	47.30000	3.17002						1.02904	51.93567
23	43.32000	3.17002						1.02904	47.84009
24	37.95000	3.17002						1.02904	42.31414

NOTES:

1. **Ancillary Services:**

	$/MWh
Scheduling System Control & Dispatch	$0.30439
Voltage Support Service	$0.32357
Regulation & Frequency Response Service	$0.47405
Energy Imbalance	$0.78106
Operating Reserve Service	$0.14123
Black Start Service	$0.00242
NTAC	$0.61176
Installed Capacity Imbalance	$0.53154
TOTAL -->	$3.17002

2. NYISO capacity reserve requirement = 11.5900%

3. Line losses + unaccounted for =

Unaccounted for ->	-2.2756%
Transmission Line Losses ->	2.6700%
Sub-Transmission Line Losses ->	2.5620%

4. Capacity is only included for on-peak hours (HE 13 through HE20).

5. SC-3 customer connected at the sub-transmission voltage level

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Elements of Supply Portfolio that can be Made Public

- The contracts of the National Grid supply portfolio can not be made public
  - Individual contracts have confidentiality protections
- The over market costs in aggregate exist in the biannual CTC Reset filing
- The commodity rate is on the National Grid web site.