

# Market Performance Report

## April 2006

Market Surveillance  
Committee Meeting  
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# Market Review

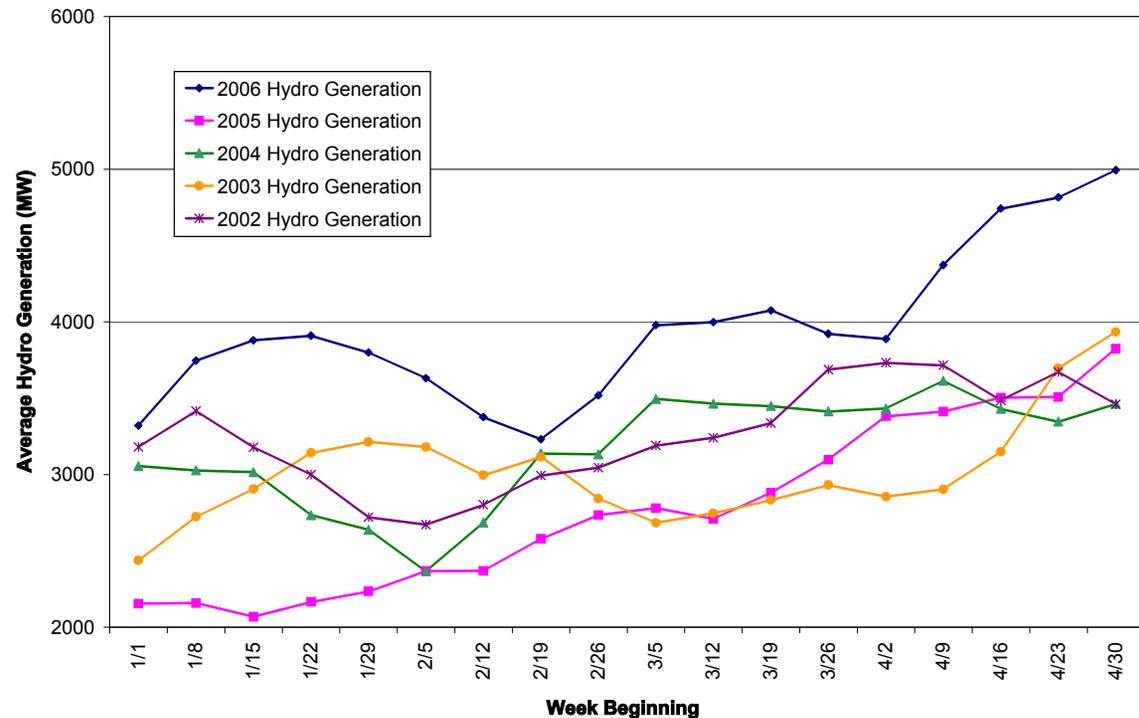
- High levels of hydroelectric production continued into April, bilateral energy prices remain low
- High hydroelectric production displacing dispatchable gas, limiting system ramping capability
- Nearly 15,000 MW of generation out of service at start of month, declining below 10,000 MW by the end of the month
- Both incremental and decremental real time stack capacity declined, creating increased real-time price volatility
- Real-time energy prices exceeded \$250 in 89 five-minute dispatch intervals this month.

## Market Review (*cont.*)

- Minimum Load Cost Compensation doubled over the past month, to \$27.6 million due to transmission and generation outages
- Ancillary Services markets saw a tripling of bid insufficiency, cost to load increased 72%
- Primary OOS dispatch drivers were South of Lugo and Path 26. Volume increased by factor of six from March
- Total inter-zonal congestion costs for April were \$11.28 million. Primary driver was maintenance on PACI, NOB, and Path 26

# In-State Hydroelectric Production

- In-State Hydro exceeds previous 5-year high by 25%
- Northwest snowpacks also high, contributing to very low contract energy prices



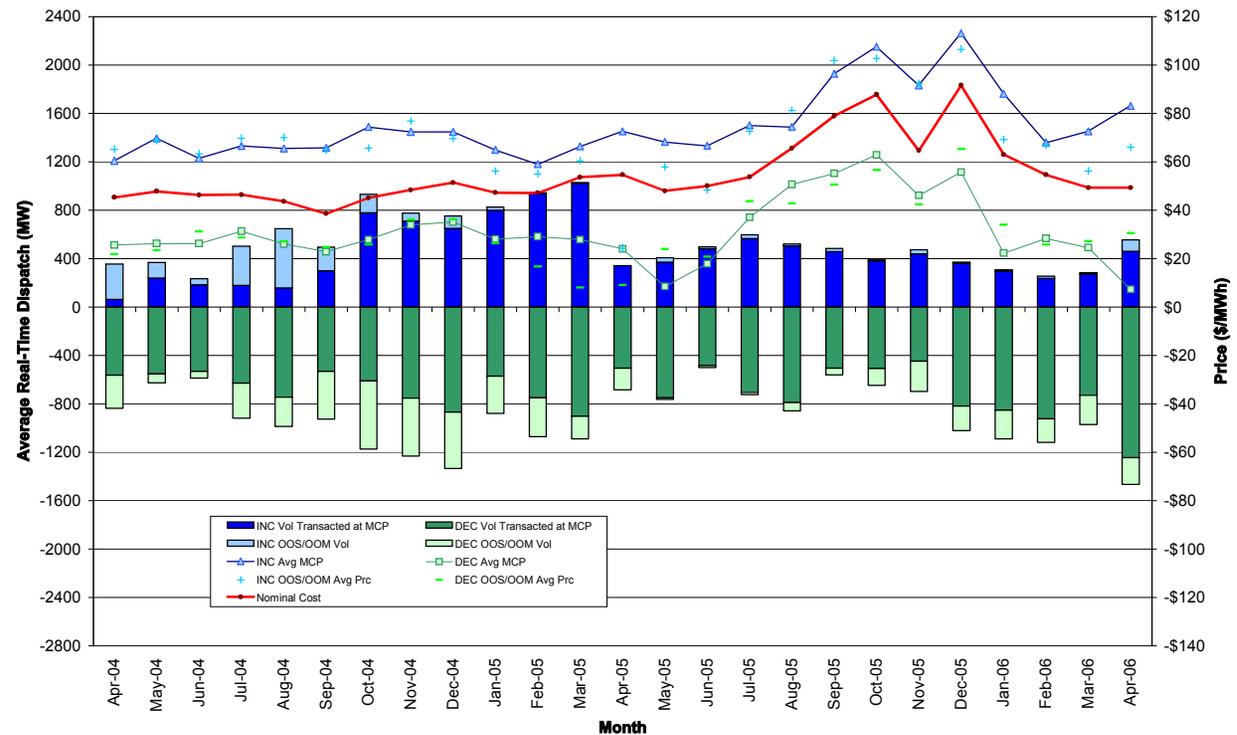
# Monthly Real Time Market Volumes and Prices

- **Decremental Dispatch per Day increased to -21.76 GWh/day from -16.5 GWh/day**
- **Average real-time price decreased to \$29.81/MWh from \$35.08/MWh**

	<b>In-Seq. RT Dispatch and Average Price</b>	<b>OOS/OOM Dispatch and Average Price</b>	<b>Total Dispatch and Average Price</b>
<b>PEAK</b>	-349.84 GWh at \$31.26/MWh	-82.11 GWh at \$42.96/MWh	-431.95 GWh at \$33.68/MWh
<b>OFFPEAK</b>	-215.2 GWh at \$22./MWh	-5.62 GWh at \$29.88/MWh	-220.82 GWh at \$22.46/MWh
<b>ALL</b>	-565.04 GWh at \$27.7/MWh	-87.74 GWh at \$41.29/MWh	-652.77 GWh at \$29.81/MWh

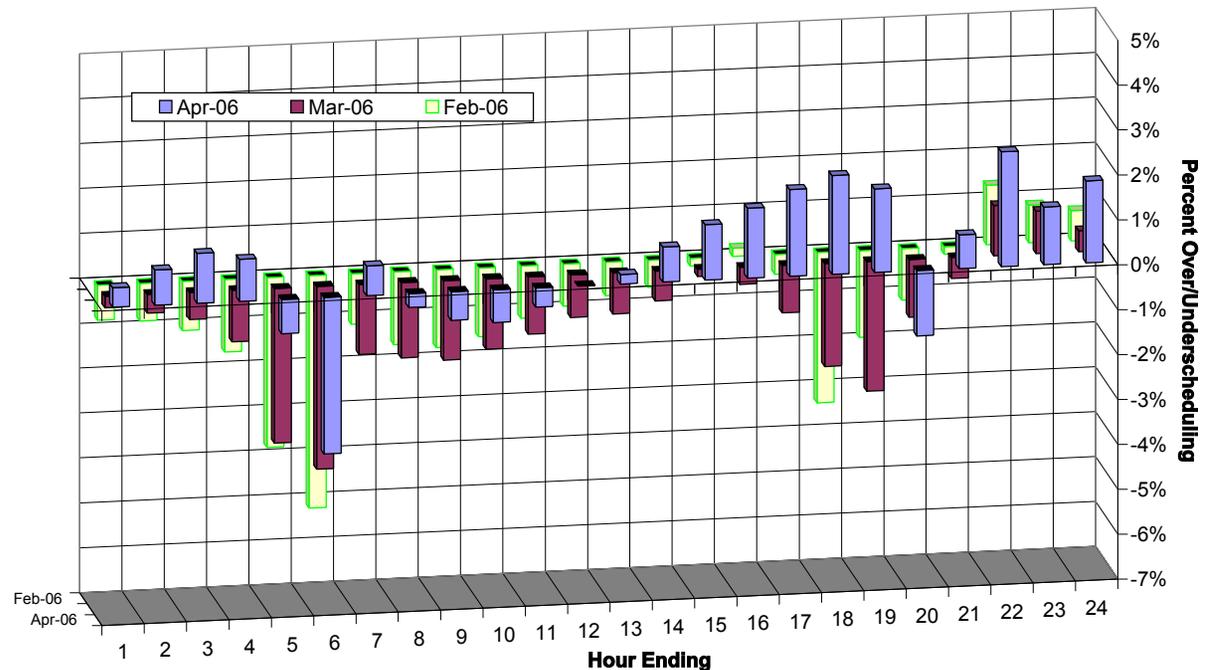
# Market Volume and Price

- Total market volume for both incremental and decremental increased from previous month
- Incremental prices up, decremental prices down
- Thinner real-time energy bid stacks, increased OOS utilization may be responsible for price spread



# Over- and Under-Scheduling

- Scheduling pattern shows clear shift toward over-scheduling during peak hours
- Maximum deviation is 4% under-scheduling at hour ending 6, start of morning ramp
- Low prices for hourly energy contracts may be motivating over-scheduling.

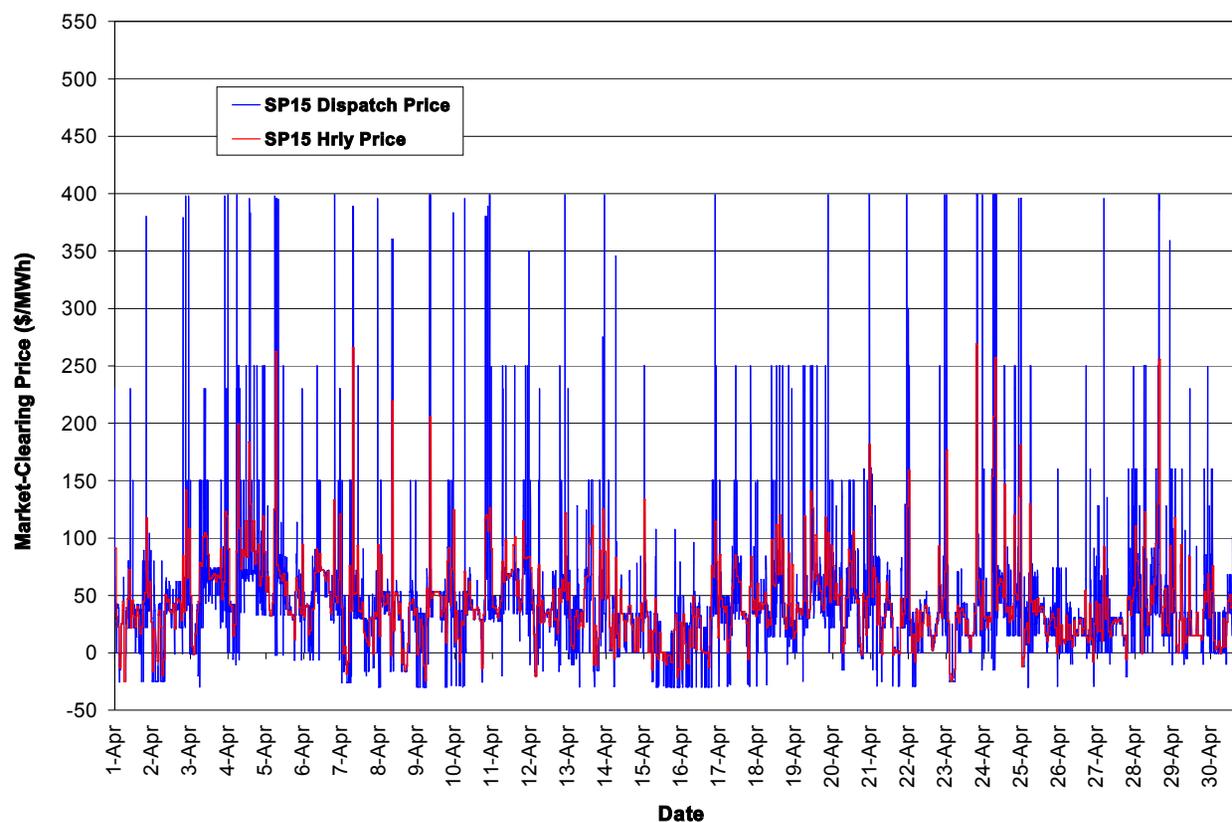


## Prices Exceeding \$250

- Prices over \$250 in 89 5-minute dispatch intervals or 1.03% of the intervals
- Total number of intervals in month is 8640
- Many units remain out for scheduled maintenance
- Abundance of hydroelectric energy displaced fast-ramping gas units thereby depleting the real-time bid stacks
- Thin real-time bid stacks lead to increased volatility of real-time prices
- In spite of volatility, overall weighted average real time price dropped in April

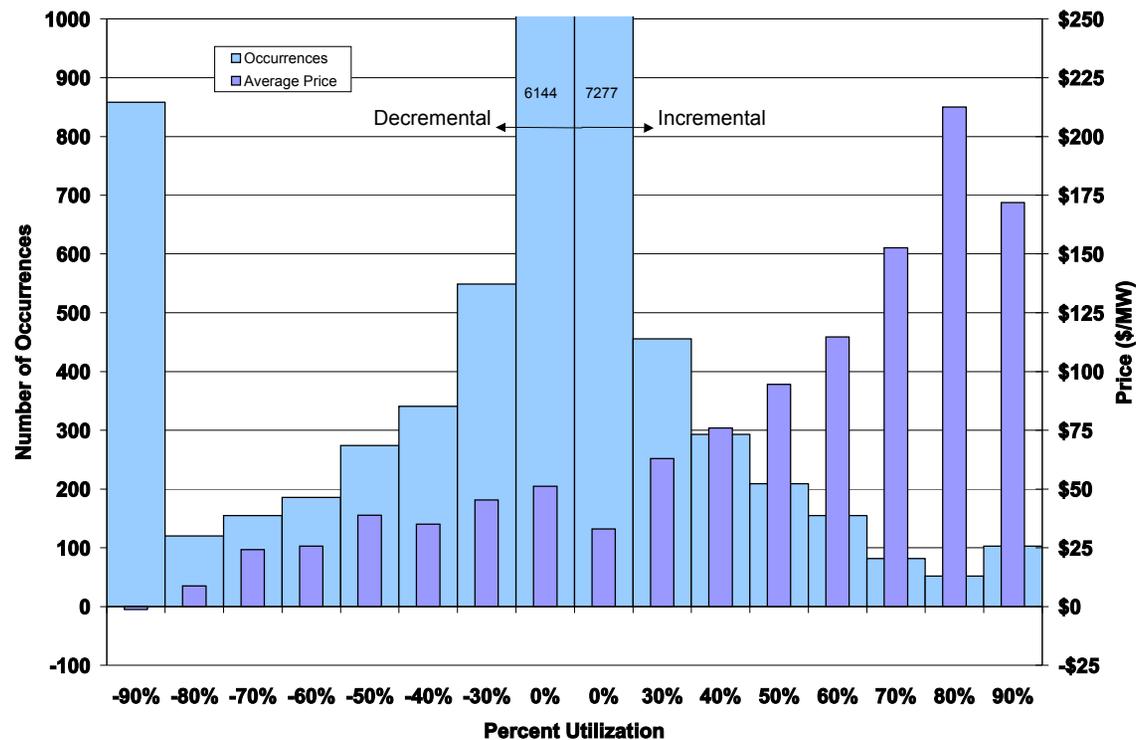
# Real-Time Balancing Energy Prices

- Price events are evident.
- Red price is hourly weighted average of five-minute prices
- Hourly prices are significant since load deviations are settled at hourly prices
- Hourly prices exceeded \$250 in 5 instances (0.7%)



# Five-Minute Capacity Utilization

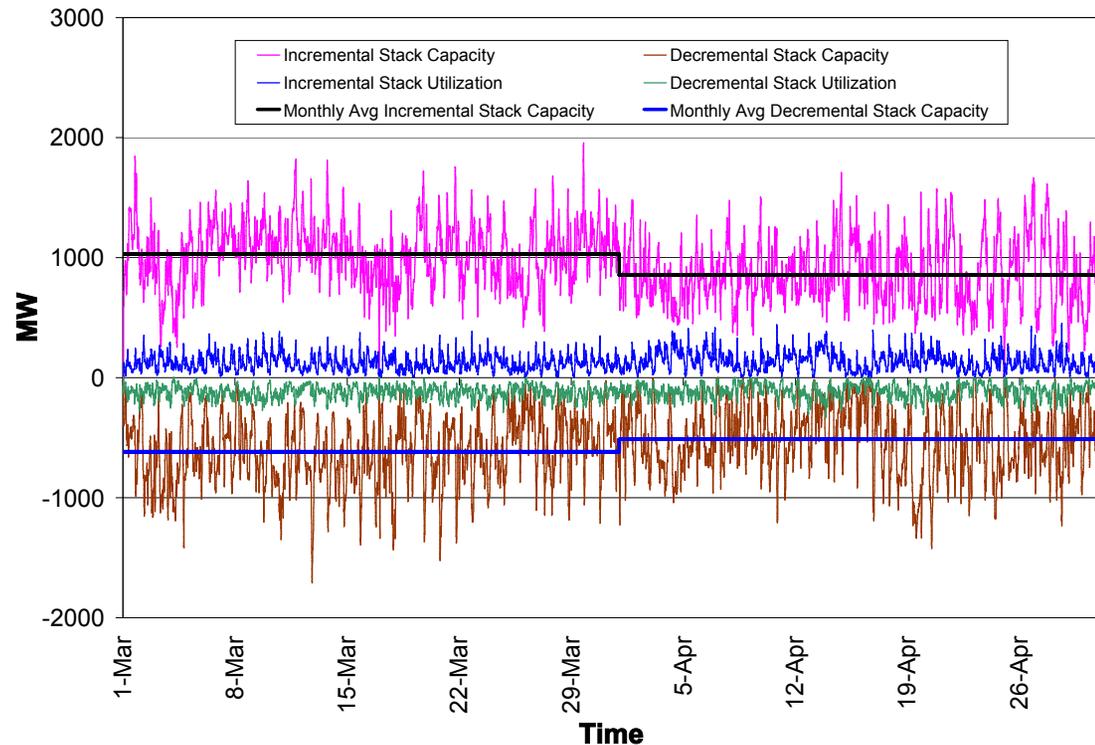
- Increasing incidence of decremental capacity over-utilization (850+ intervals over 90%)
- Incremental stack utilization over 90% in 100+ occurrences
- High utilization of both inc and dec bid stacks is consistent with increasing spread in inc-dec prices seen in Slide 5





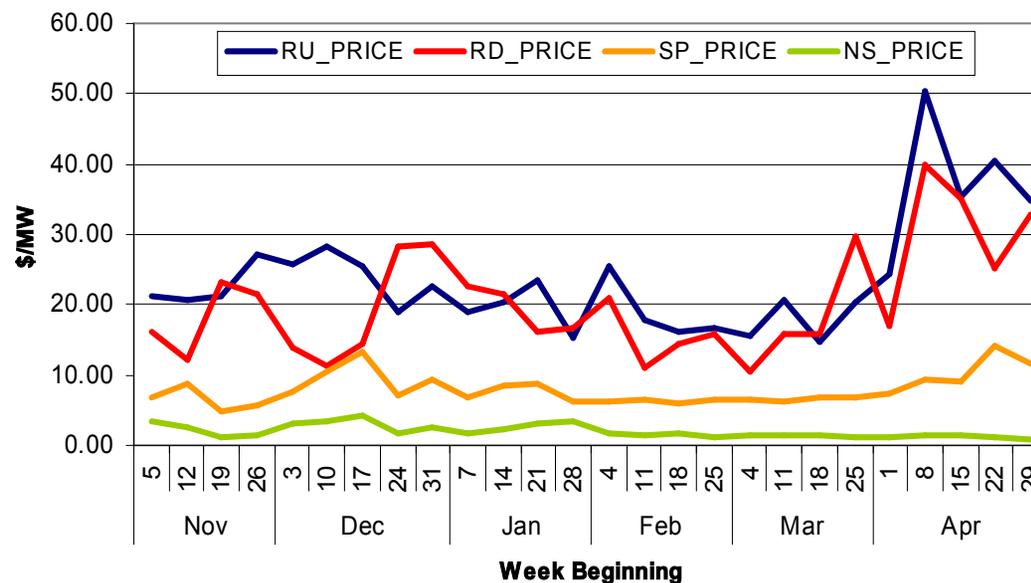
# Bid Stack Capacity and Utilization

- Two-month plot of five-minute stack capacity shows decrease in both incremental and decremental capacity from March into April
- Decreased capacity leads to increased volatility of energy prices.



## Ancillary Services Markets

- All prices except non-spinning reserve were up significantly in April.
- Bid quantities for thermal generators of all types were down, likely due to displacement by hydroelectric energy.
- Instances of bid insufficiency rose to 110 hours from March's 35.
- Ancillary Services cost to load was \$1.29/MWh, up from \$0.75/MWh in March.



## MLCC, Congestion and OOS

- Must-Offer procurement costs increased to \$27.6 million from \$13.4 million in March, primarily motivated by South of Lugo, exacerbated by outage of large generating units and Lugo-Serrano transmission work.
- A total 67,955 MWh OOS Incremental dispatch -- primarily to address South of Lugo.
- A total 152,795 MWh Decremental OOS -- primarily to address South of Pastoria and Miguel.
- Congestion costs increased five-fold to \$11.28 million -- primarily related to maintenance on PACI, NOB and Path 26.