



CALIFORNIA ISO

California Independent
System Operator

Market Update May-June 2005

Market Surveillance Committee Meeting
July 7, 2005

Prepared by

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Hot in late May, Cool in June

- Moderate Underscheduling offset by uninstructed deviations
 - Low imbalance energy volumes
- Decremental dispatches prevalent in early May and late June
 - Unseasonably cool weather
 - Uninstructed energy
- Real-time price volatility in off-peak hours
 - Limited ramping capability in real-time market during off-peak hours



**Spring 2005 weather much milder than last year;
Weather-resistant trough index relatively stable**

Load Growth Rates Compared with Same Month Prior Year

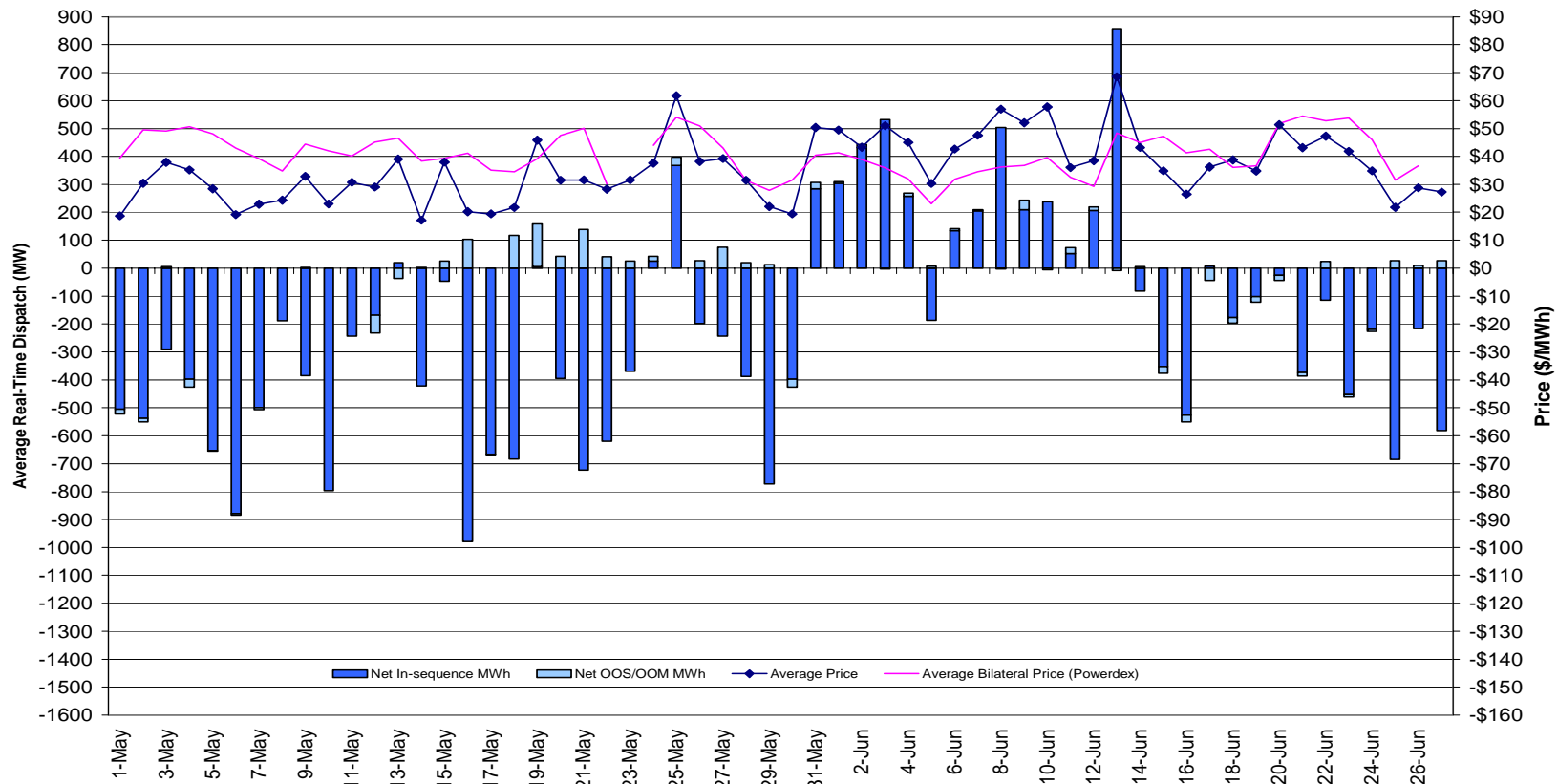
	<u>Avg. Hrly. Load</u>	<u>Avg. Daily Peak</u>	<u>Avg. Daily Trough</u>	<u>Monthly Peak</u>
July-04	0.7%	0.3%	1.9%	4.0%
August-04	1.0%	0.6%	0.6%	5.2%
September-04	3.4%	3.5%	3.4%	10.1%
October-04	-1.4%	-2.8%	1.5%	-5.9%
November-04	4.2%	3.9%	3.9%	6.6%
December-04	4.4%	4.1%	6.5%	3.4%
January-05	1.8%	2.8%	1.2%	5.0%
February-05	1.5%	1.8%	2.2%	0.3%
March-05	-2.3%	-2.2%	-0.6%	-5.2%
April-05	-2.2%	-3.6%	-0.3%	-22.9%
May-05	-2.5%	-2.9%	-1.1%	-9.3%
June-05	-3.6%	-5.2%	-0.2%	-1.9%

Notes: Through 7/10/03: Actual loads at top of hour. Since 7/11/03: Hourly average loads.



Real-time market incremental during early June, when weather was warm; decremental during late June, when weather was unseasonably mild

RTMA In-Sequence and OOS/OOM Energy: Daily Average Volumes and Prices (with Bilateral prices)



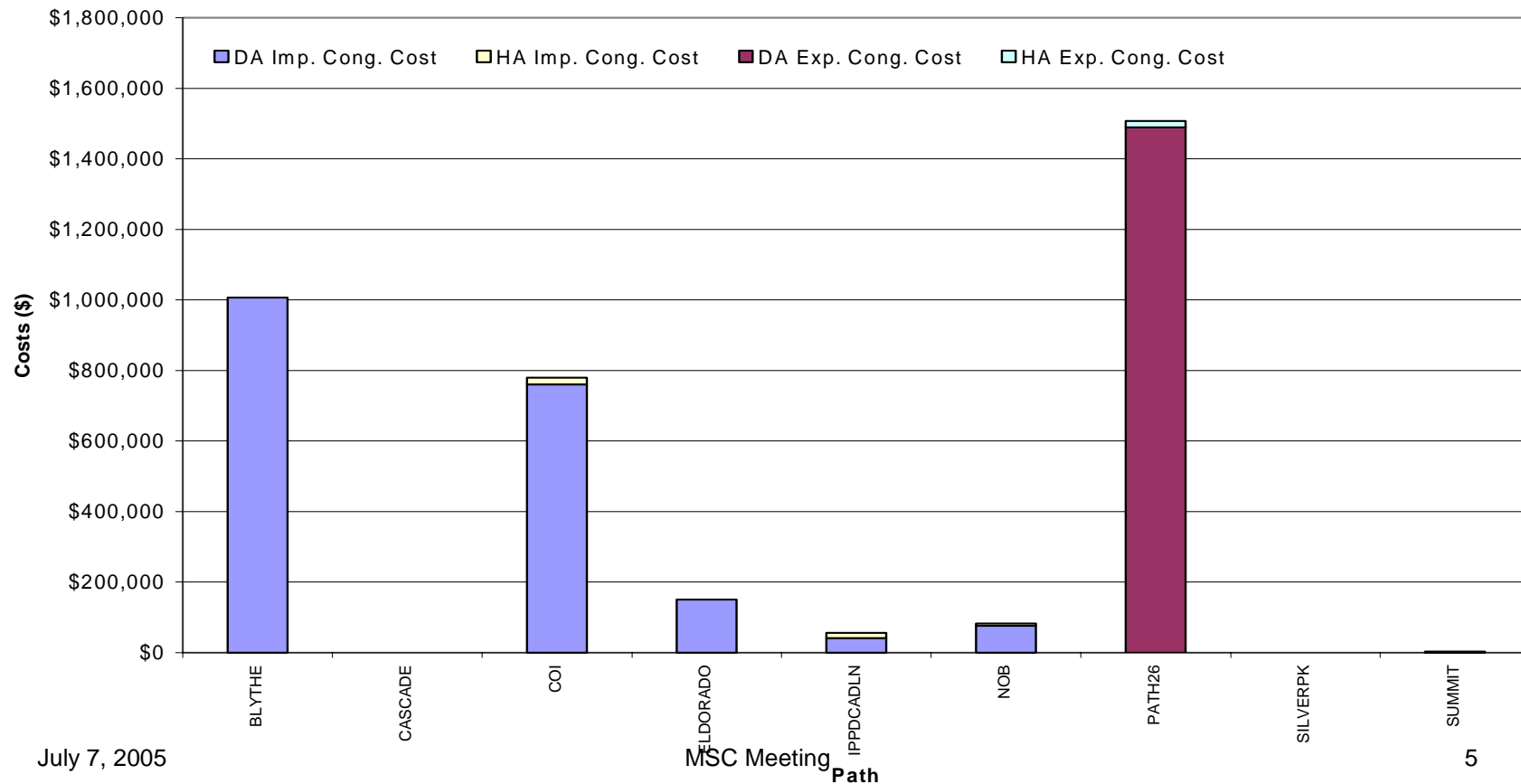
July 7, 2005

MSC Meeting



**Path 26 derated due to upgrade; due in July 8, rated at 4000 MW.
Blythe (200 MW) scheduled without adjustment bids; curtailments resulted in high congestion costs.**

Congestion Costs by Path: June 2005

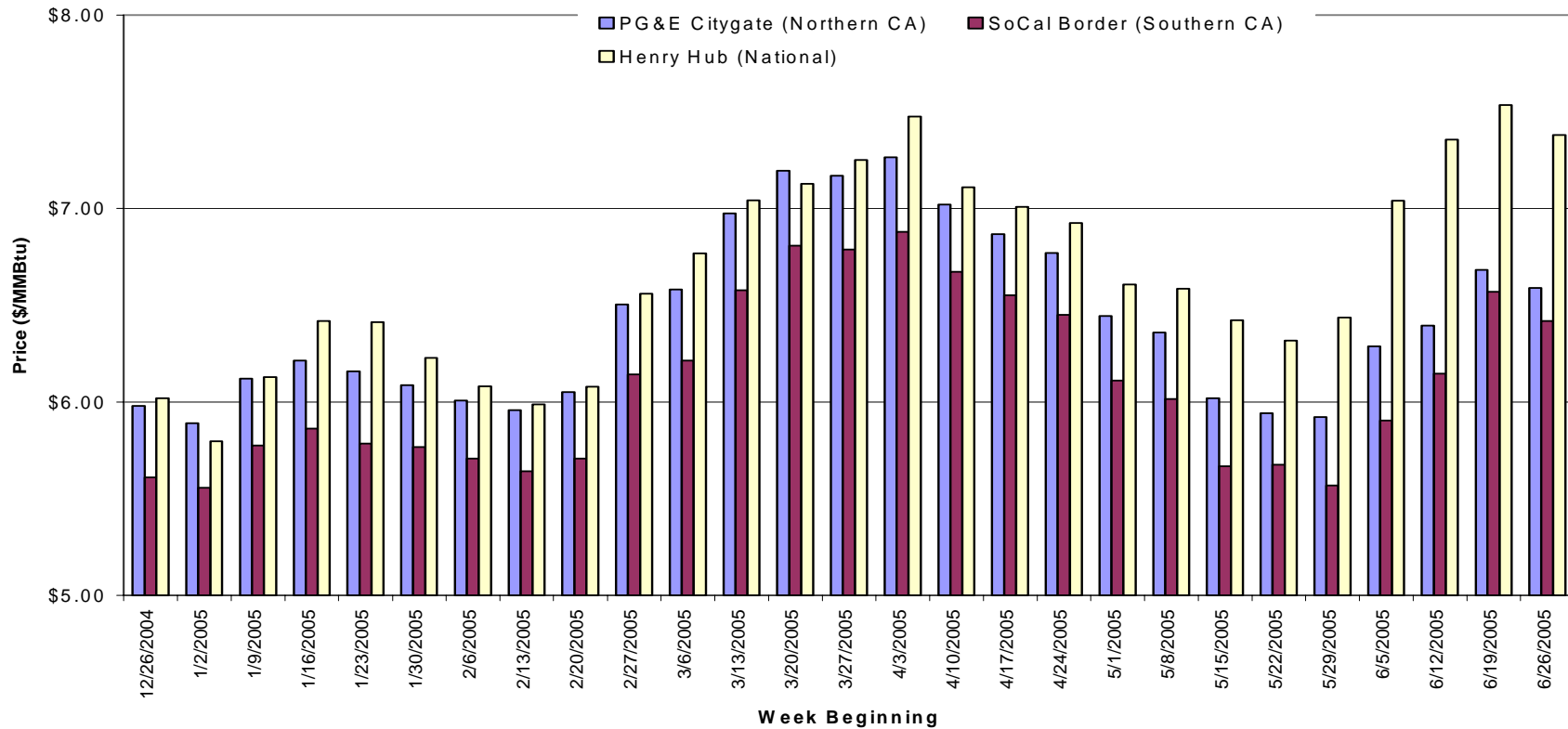


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MSC Meeting
Path

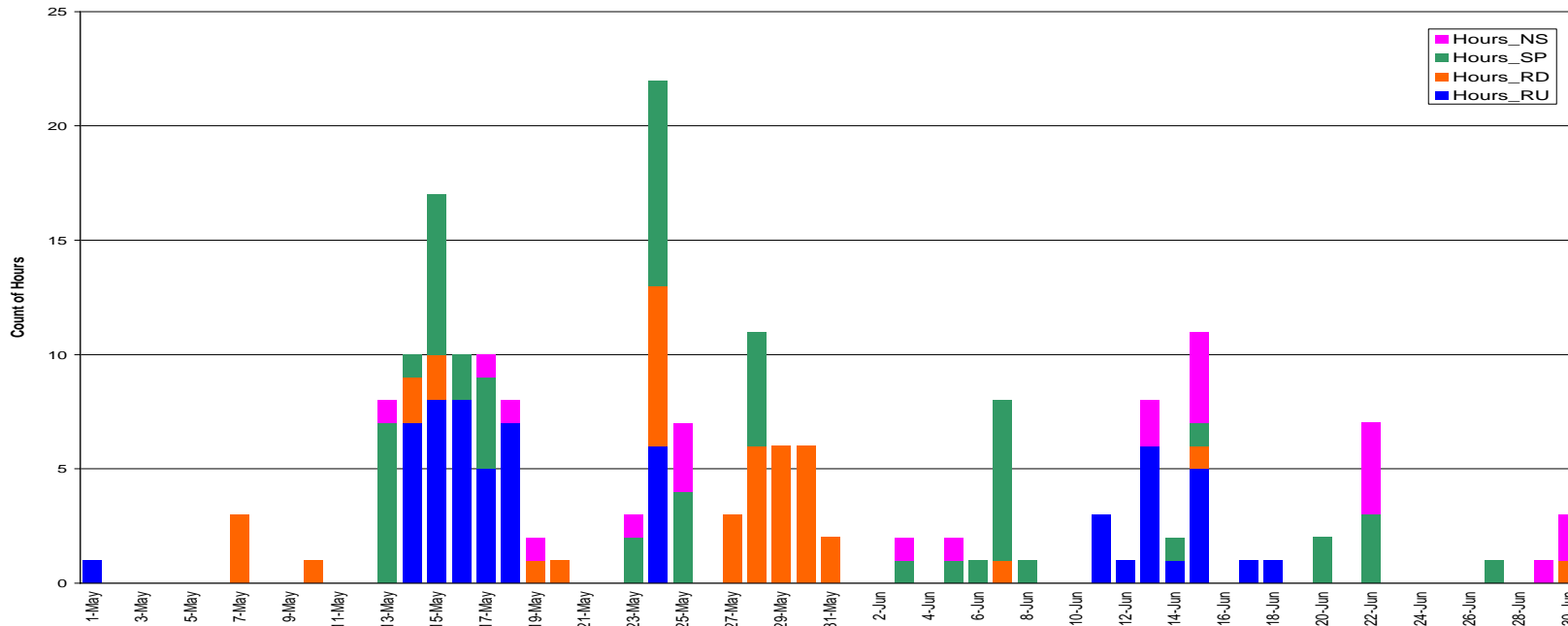


Gas prices rebounded after soft May and rising rapidly, in step with oil **Weekly Average Gas Prices through June**





As loads increase and hydro resources are no longer in spill conditions, bids into ancillary services markets have increased, alleviating insufficiency
Daily count of bid-insufficient hours in A/S markets: May-June 2005 (Chart)
And A/S Requirements and Prices in June (Table)

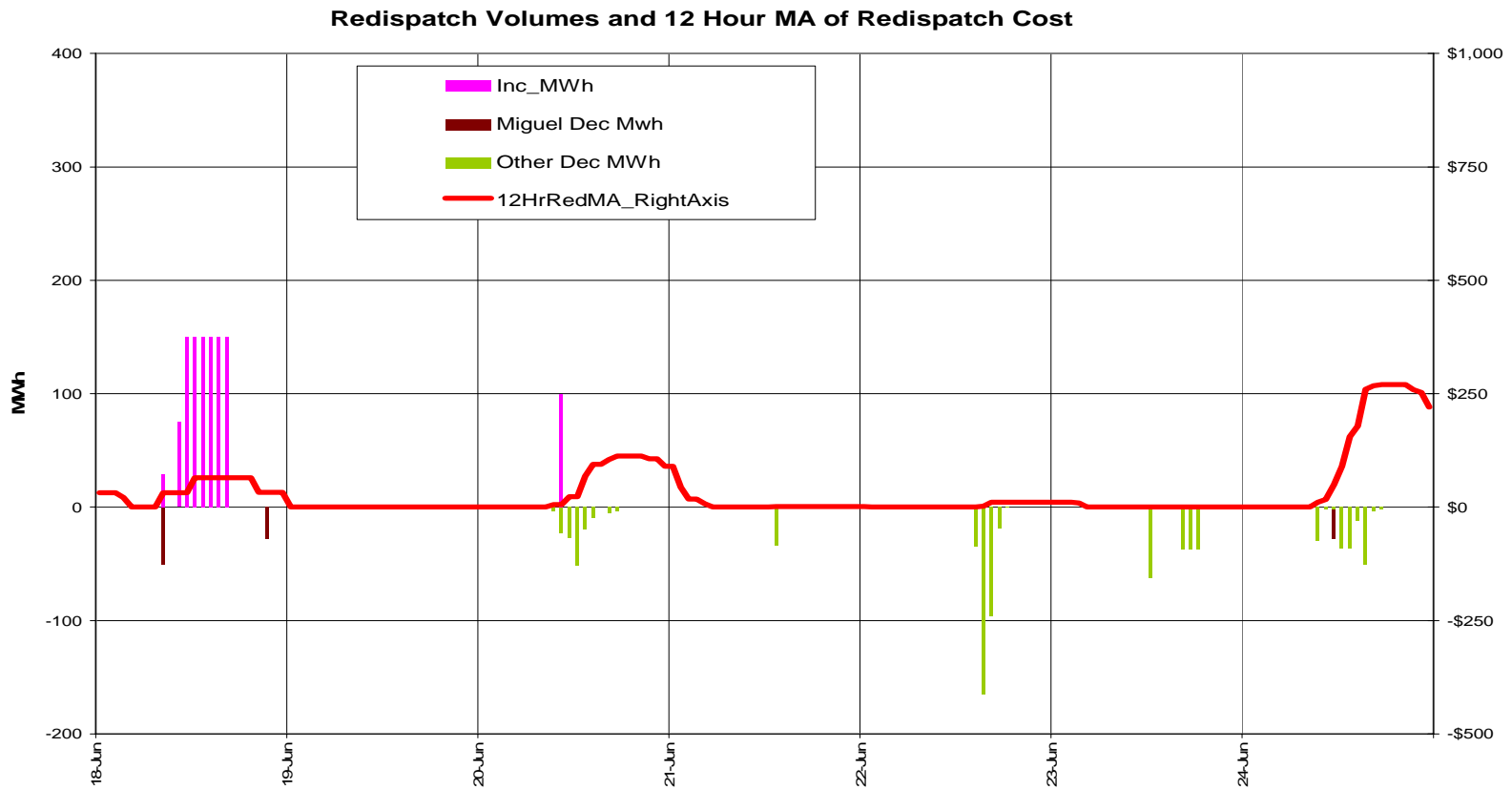


	Average Required (MW)				Weighted Average Price (\$/MW)			
	RU	RD	SP	NS	RU	RD	SP	NS
May 05	403	350	750	788	\$ 24.04	\$ 17.42	\$ 15.59	\$ 1.76
Jun 05	385	357	832	834	\$ 20.21	\$ 20.66	\$ 10.96	\$ 4.40



Transmission upgrades have reduced the need to redispatch units out of sequence to manage intra-zonal congestion

***Redispatch Volumes and 12-hour Moving Average of Redispatch Cost:
June 18-24, 2005***





RTMA Price Volatility

- As RTMA dispatches resources, prices can move \$100 or more between intervals
 - Usually occurs when un-INCing or un-DECing
- Price variation is a consequence of economic clearing in the presence of ramping constraints

Next slide:

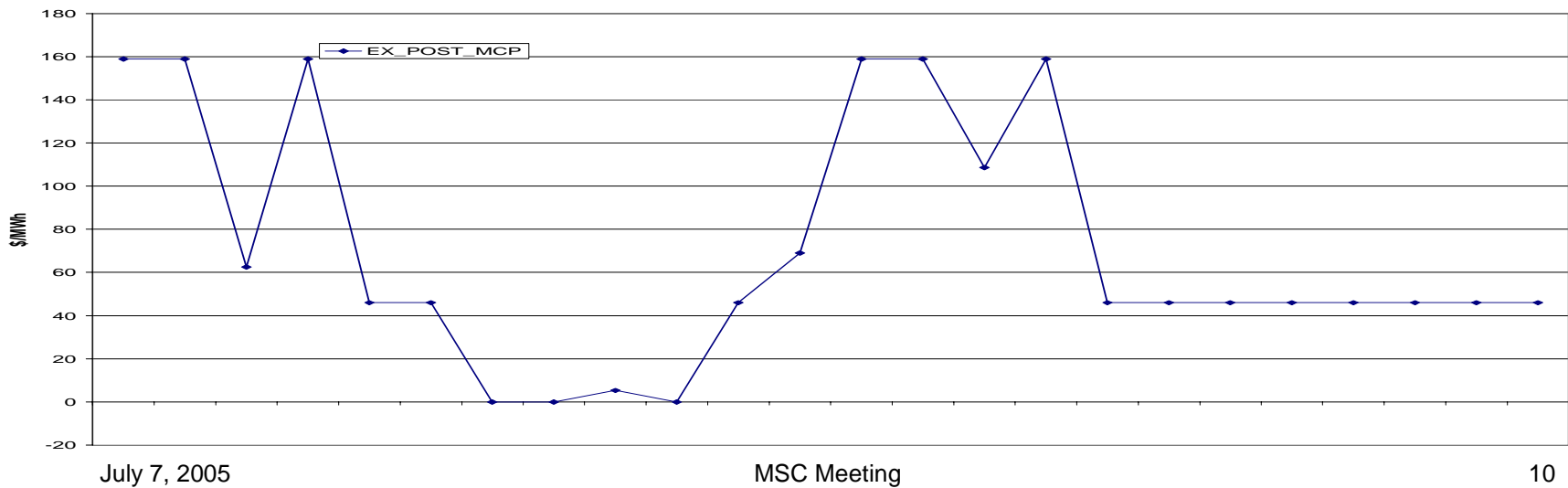
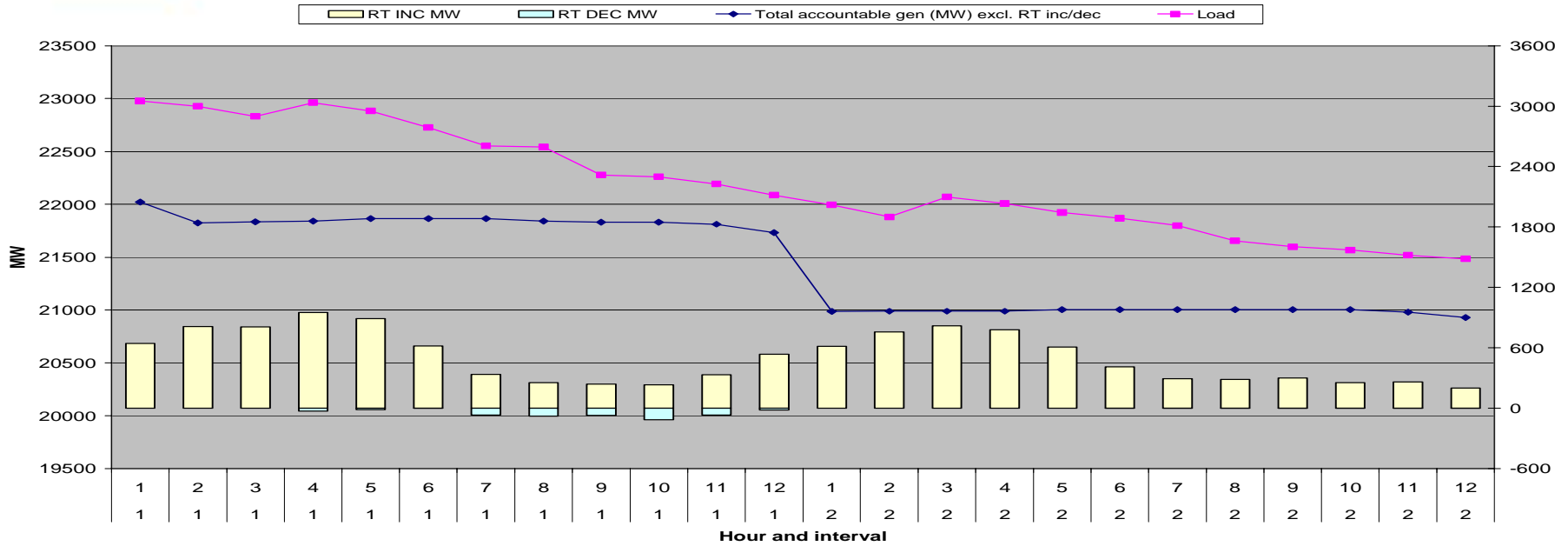
- 5-minute load following (non-RTMA and RTMA generation vs. load snapshots) in top chart
- Dispatch price in bottom chart



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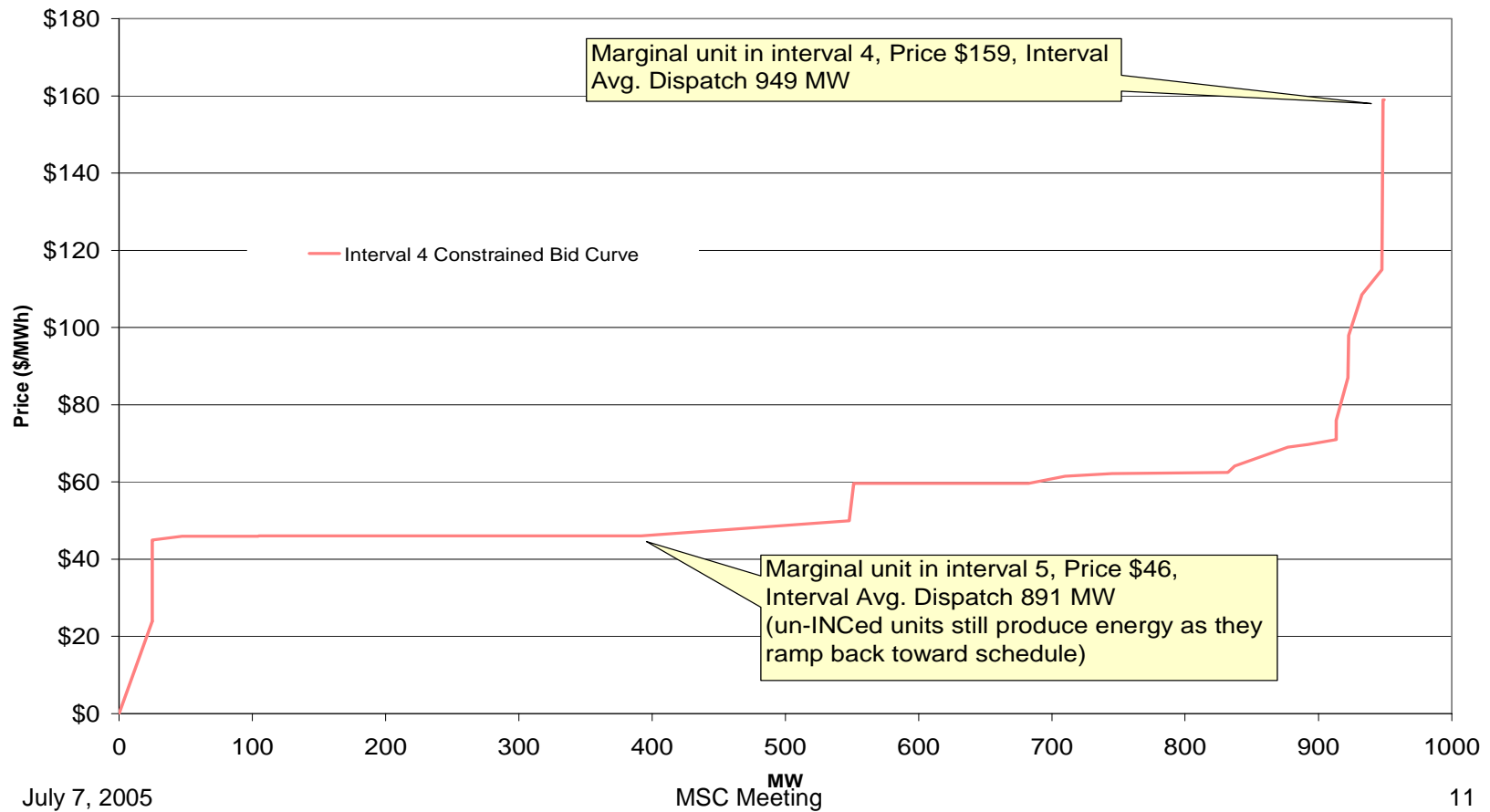
Total gen vs load 6/5/05 HE 1-2





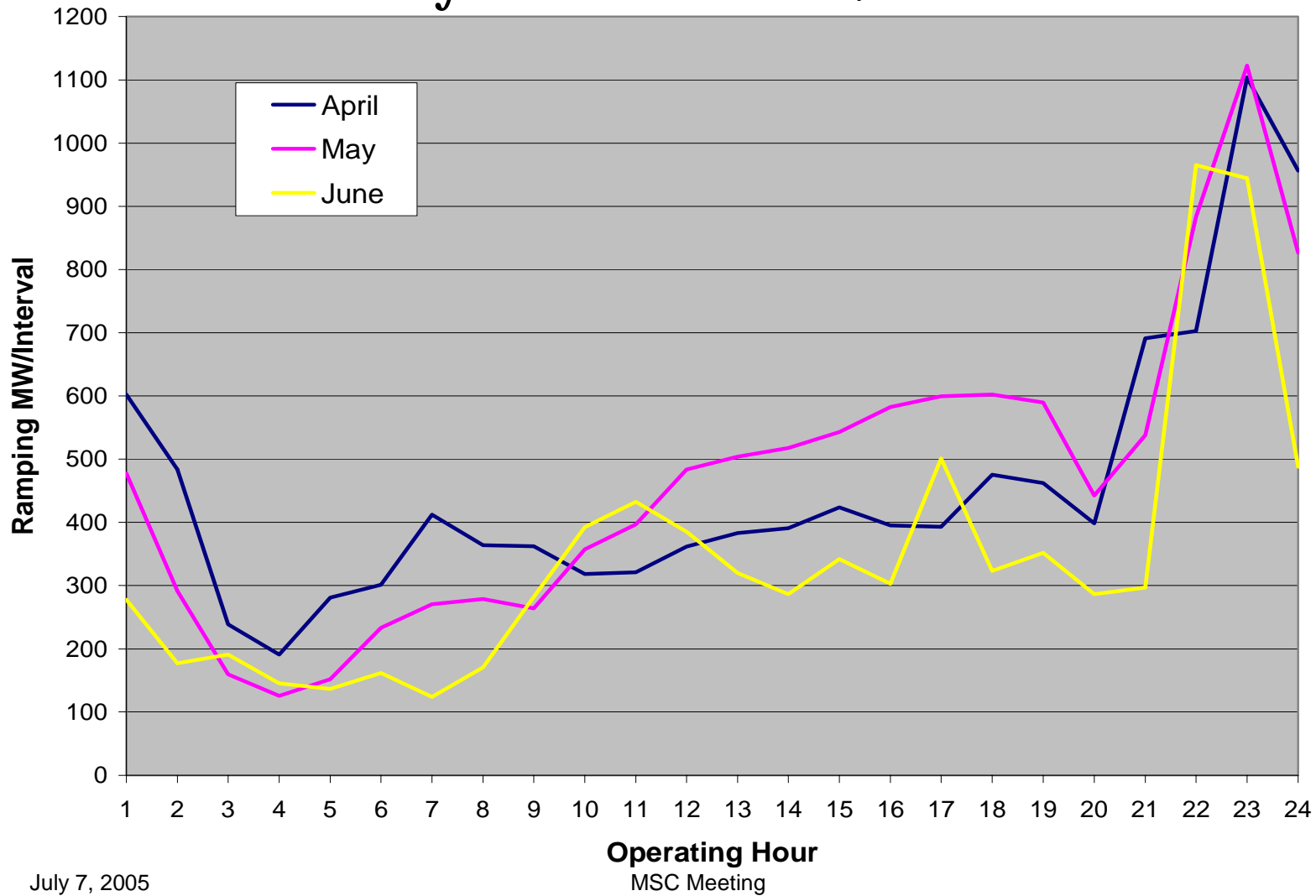
Prices swing dramatically as RTMA dispatches up and down a steep bid stack to balance generation with load.

RTMA Ramp-Constrained Bid Curves and Interval Dispatch Points: 6/5/05 HE 1:00





Monthly Average Real-time Bid Stack Ramping Capability Hourly Profile – Bids < \$150/MWh





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Monthly Average Real-time Bid Stack Ramping Capability Hourly Profile– Bids < \$50/MWh

