

# PJM Markets in 2001 Preliminary Assessment

RAA Meeting

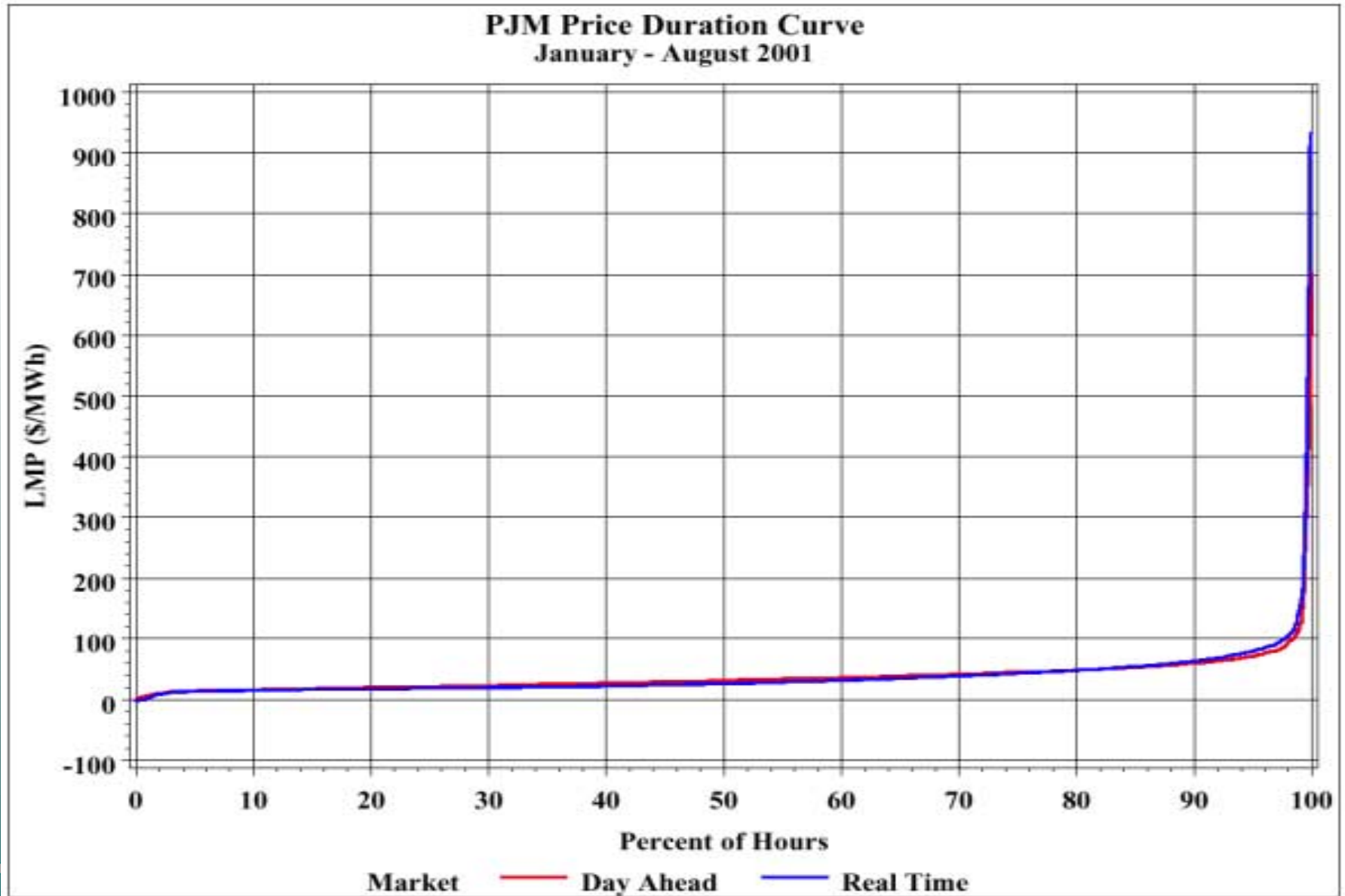
October 18, 2001

Joseph E. Bowring

Manager

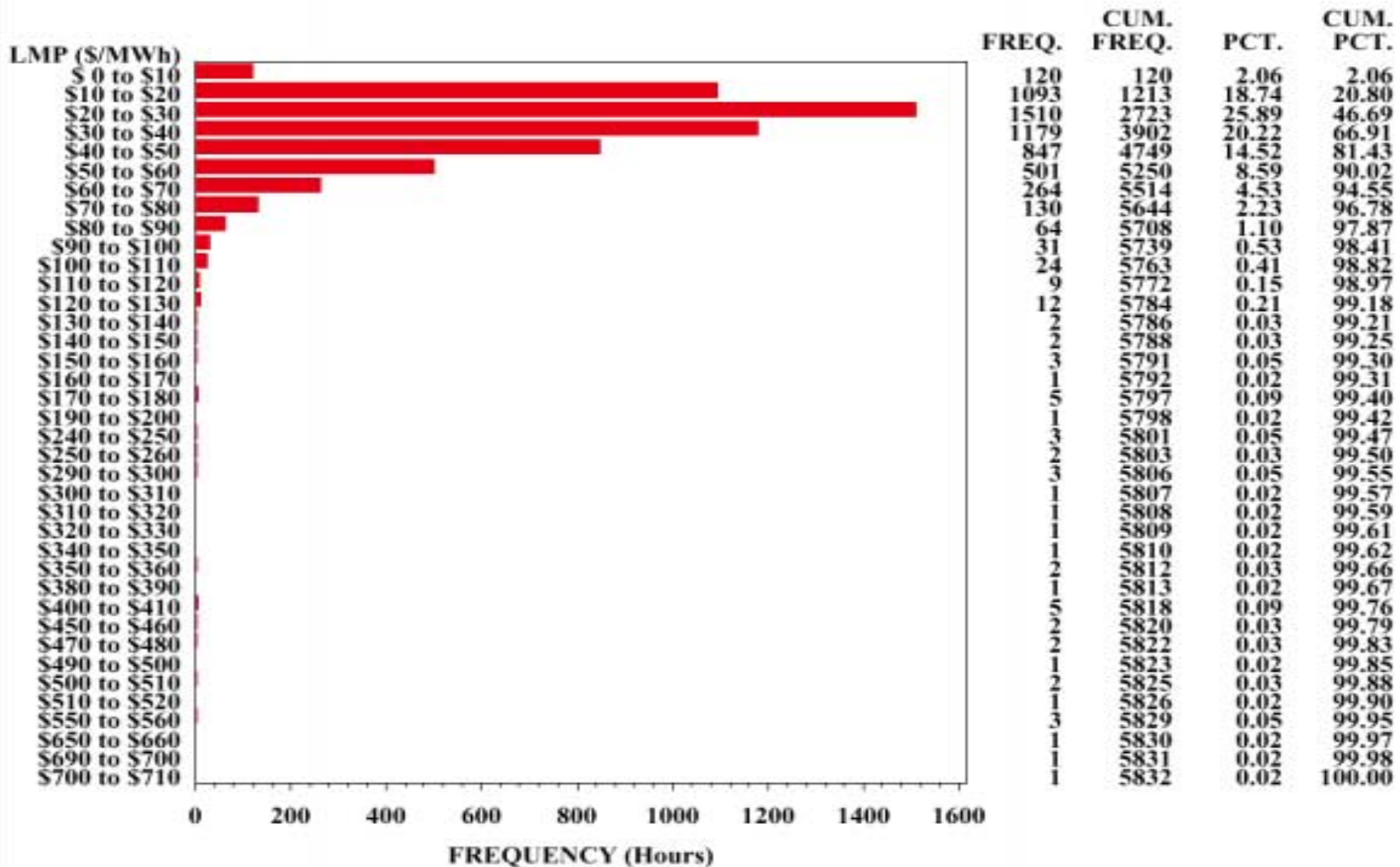
PJM Market Monitoring Unit

# Energy Market Prices: 2001 YTD



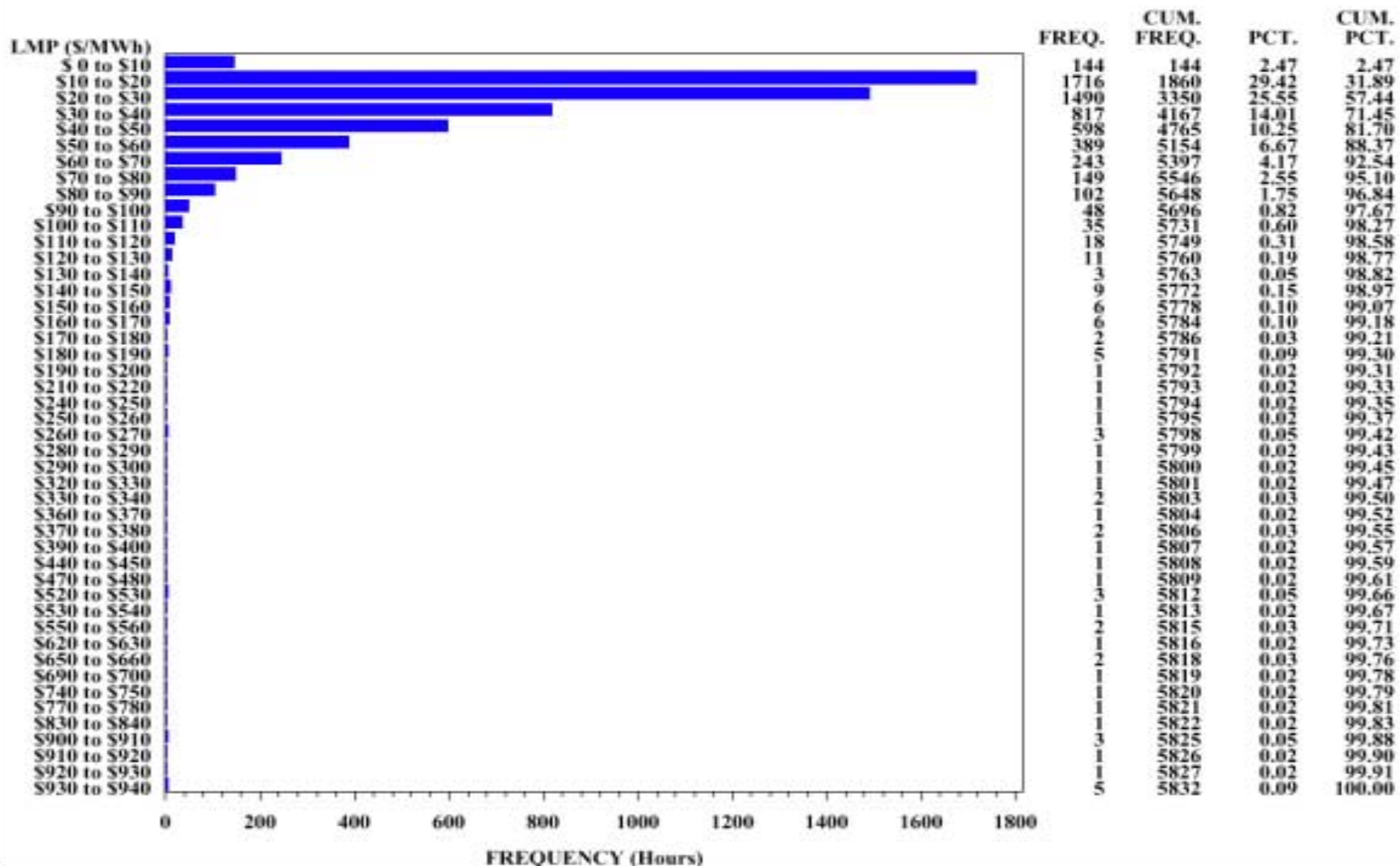
# Energy Market Prices: 2001 YTD

**Frequency Distribution by Hours of PJM LMPs**  
 January - August 2001 - Day Ahead Market

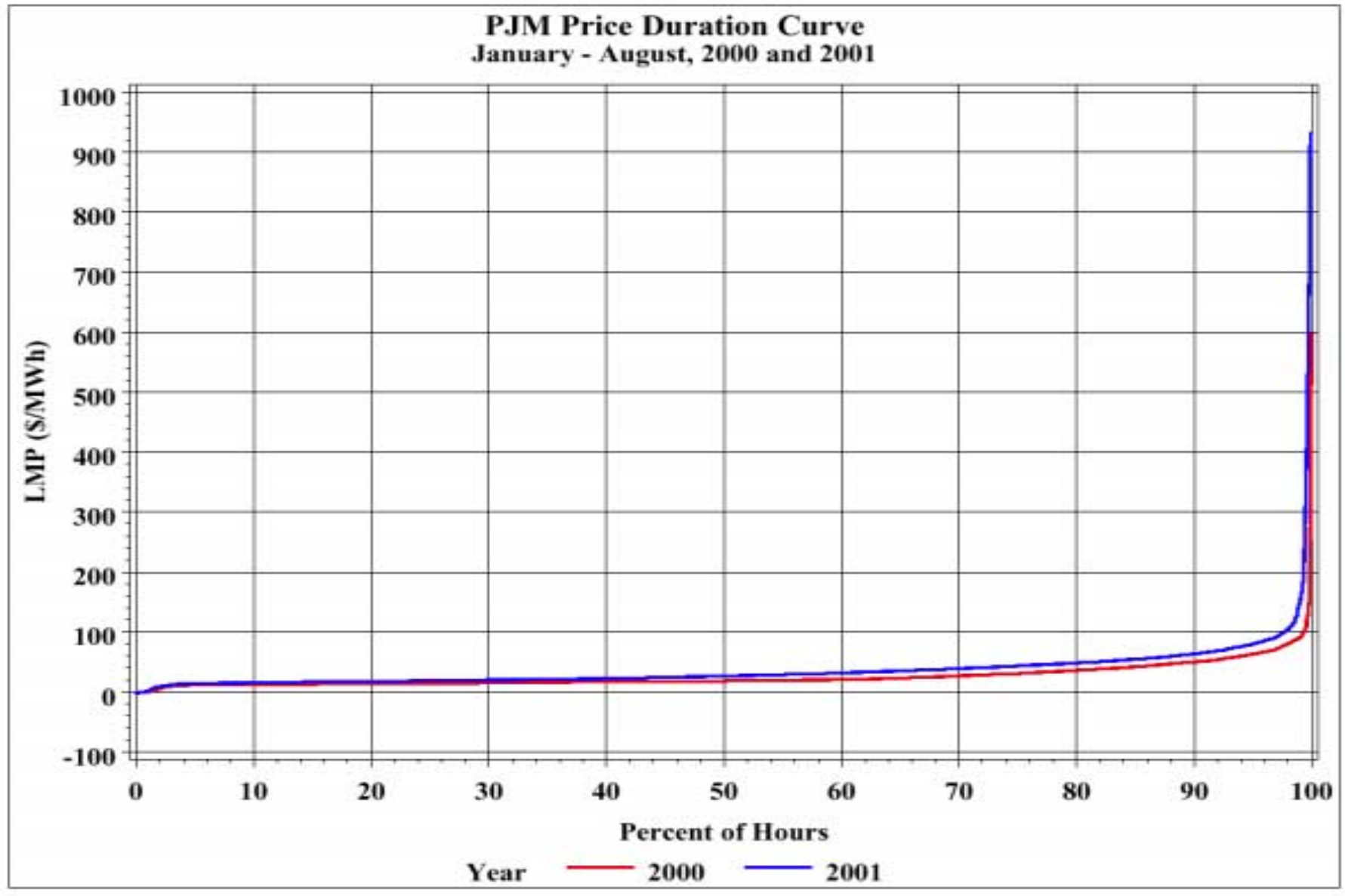


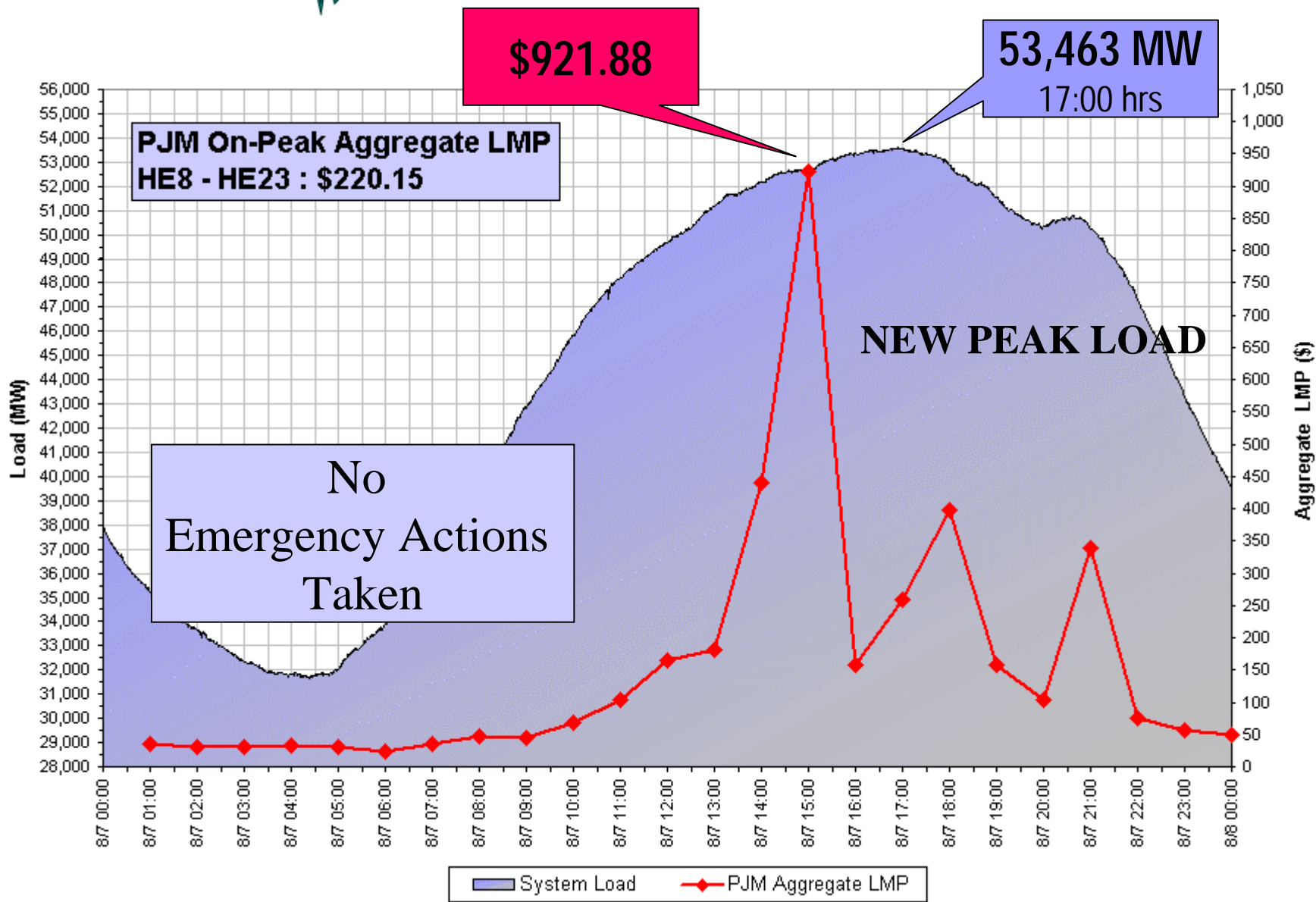
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**Frequency Distribution by Hours of PJM LMPs**  
January - August 2001 - Real Time Market

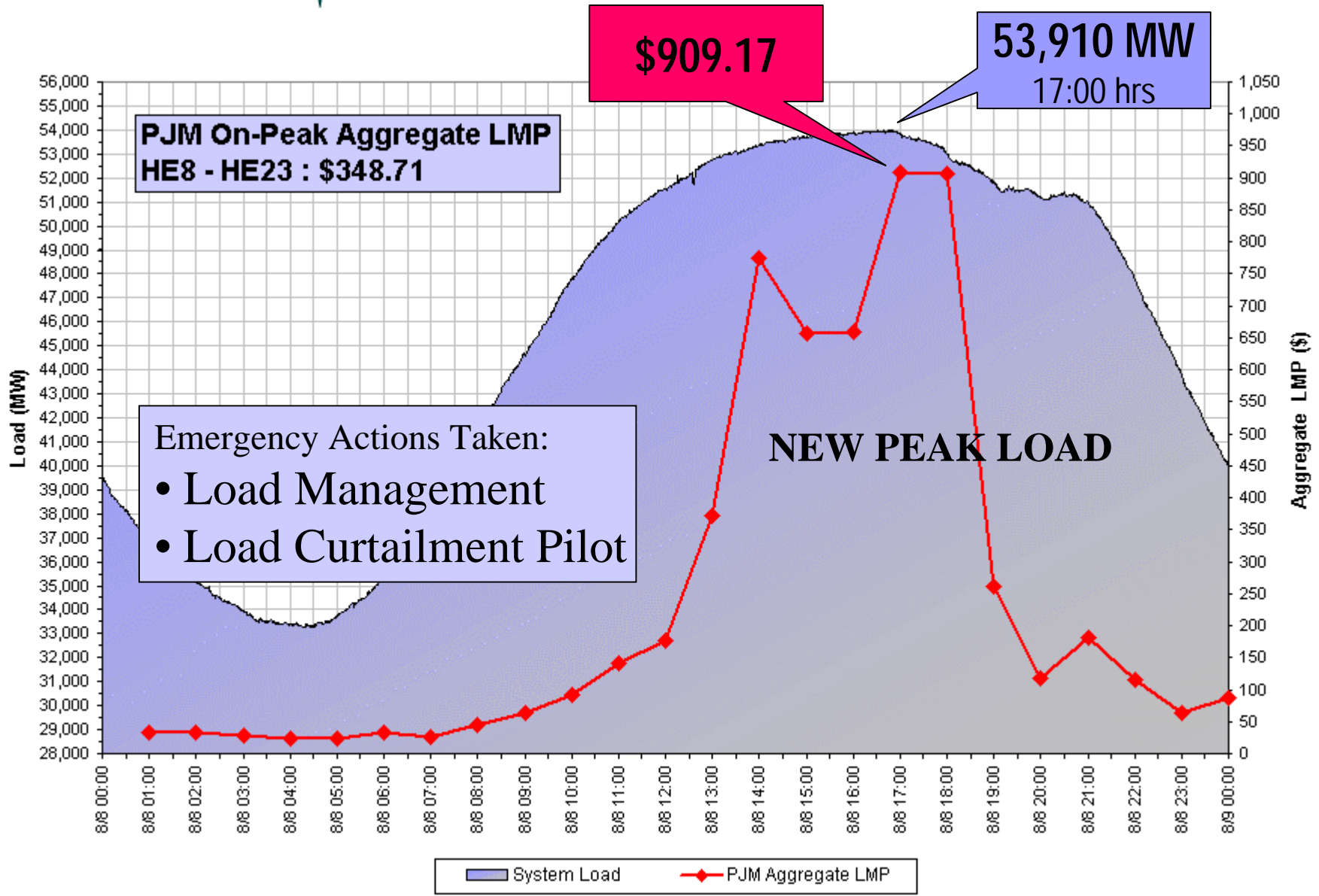


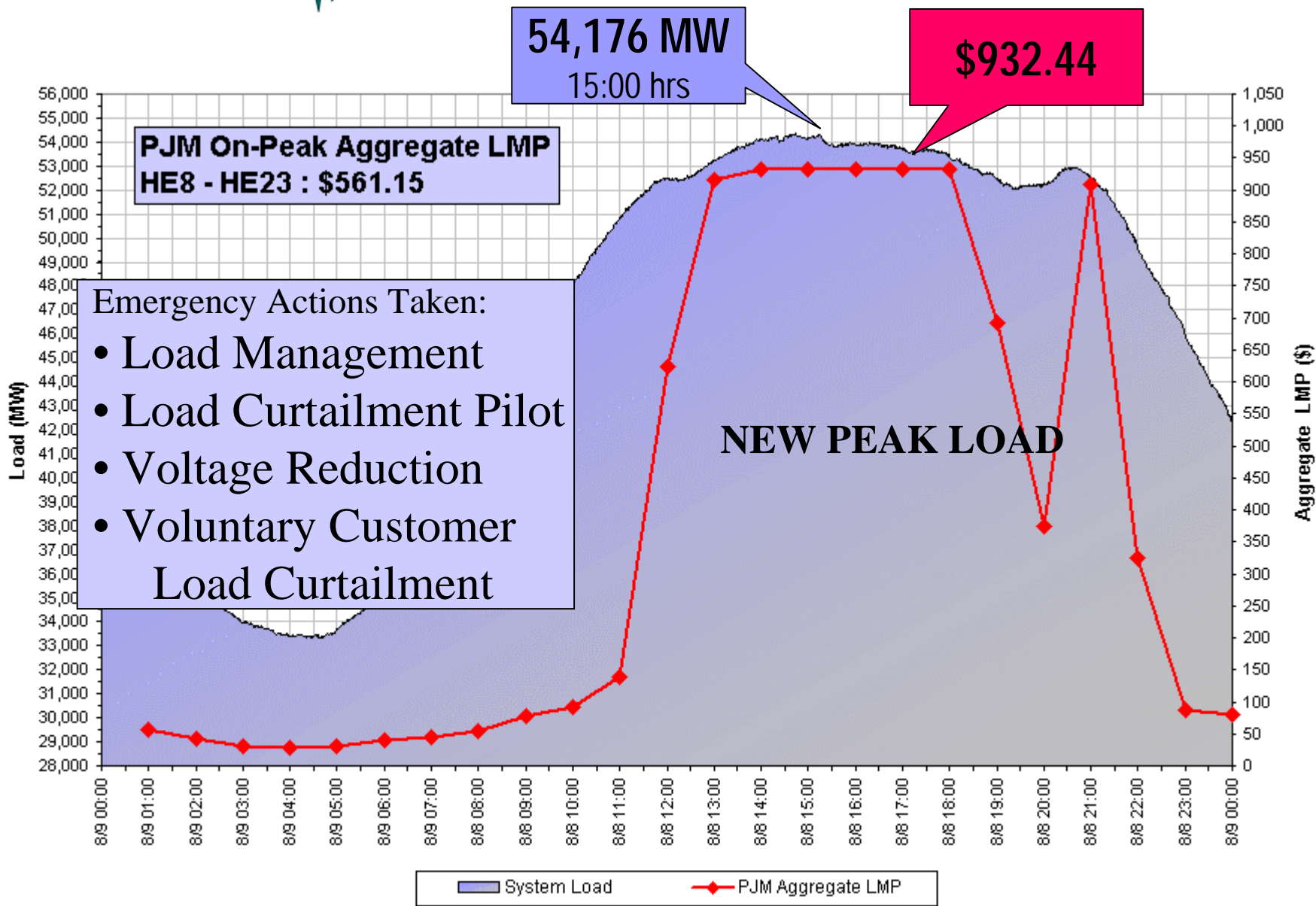
# Energy Market Prices: 2000/2001 YTD



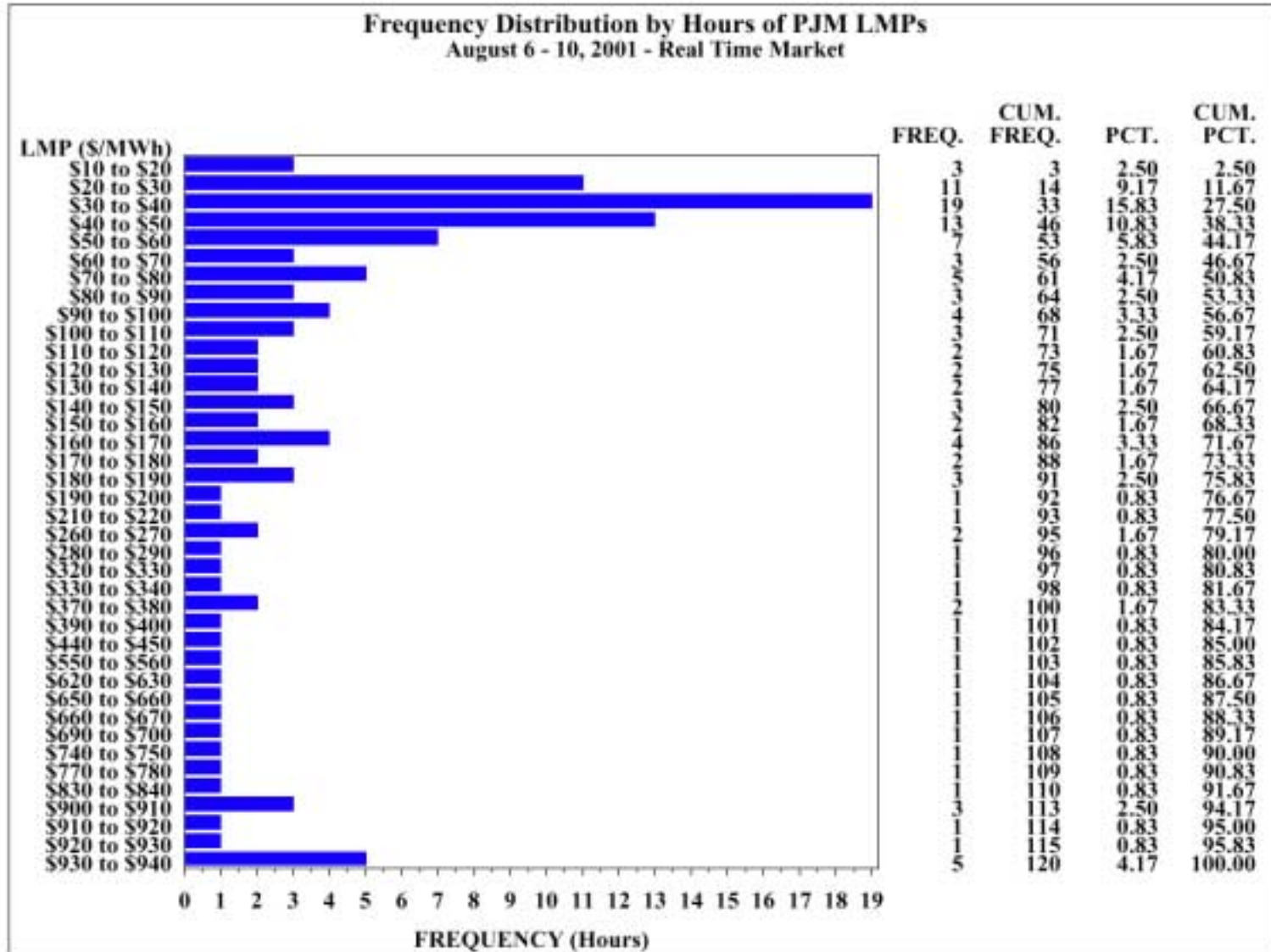


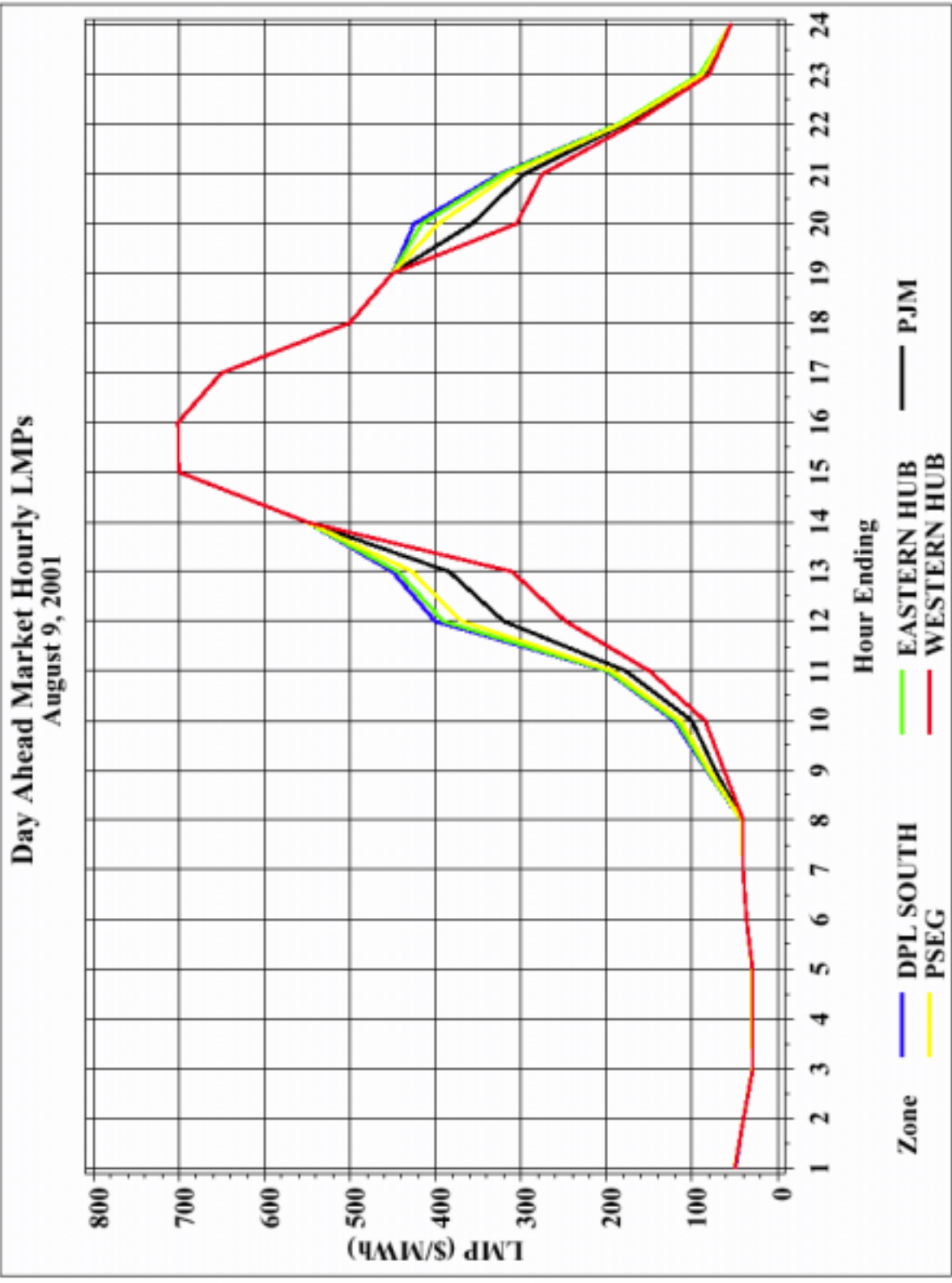


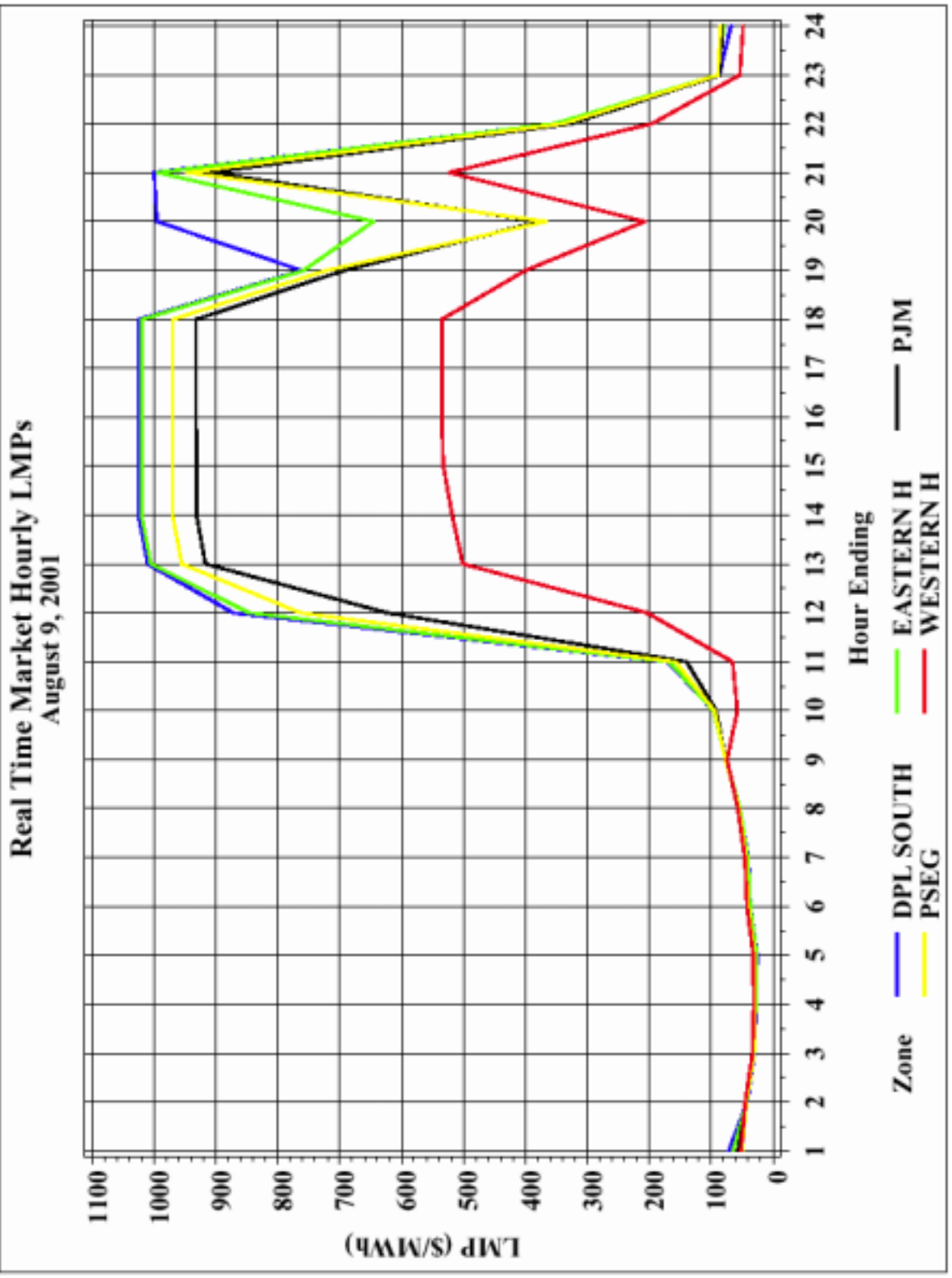


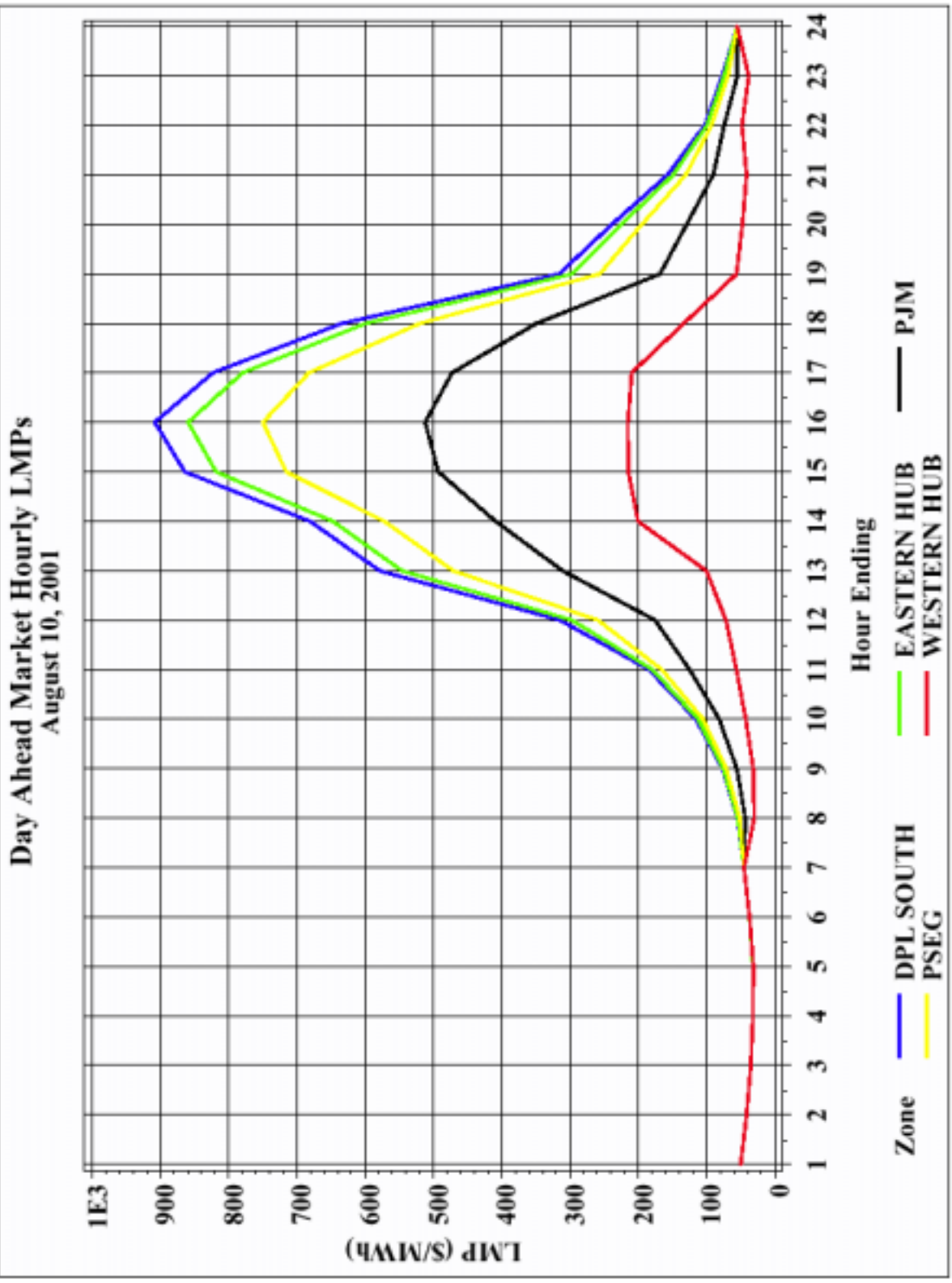


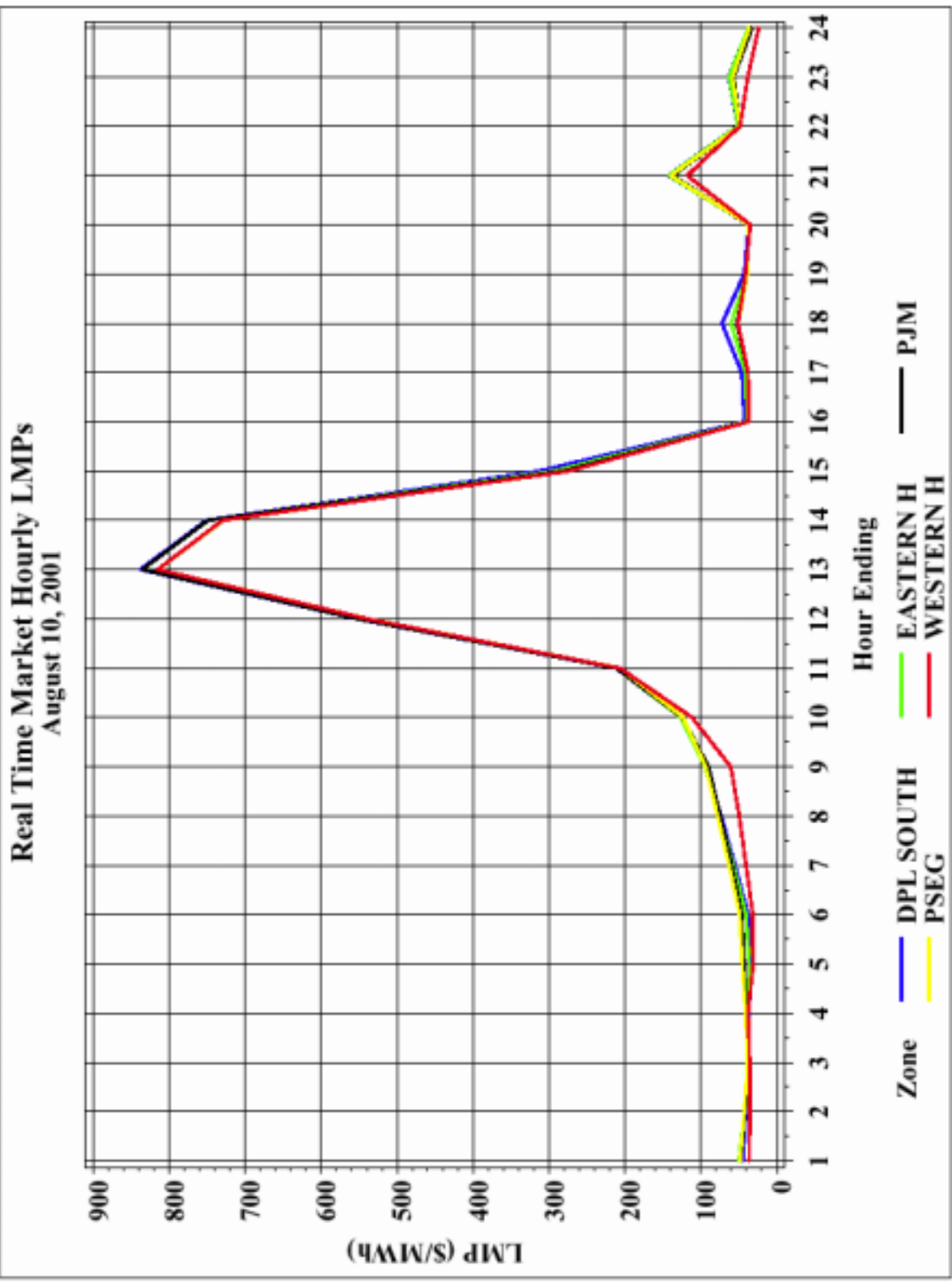




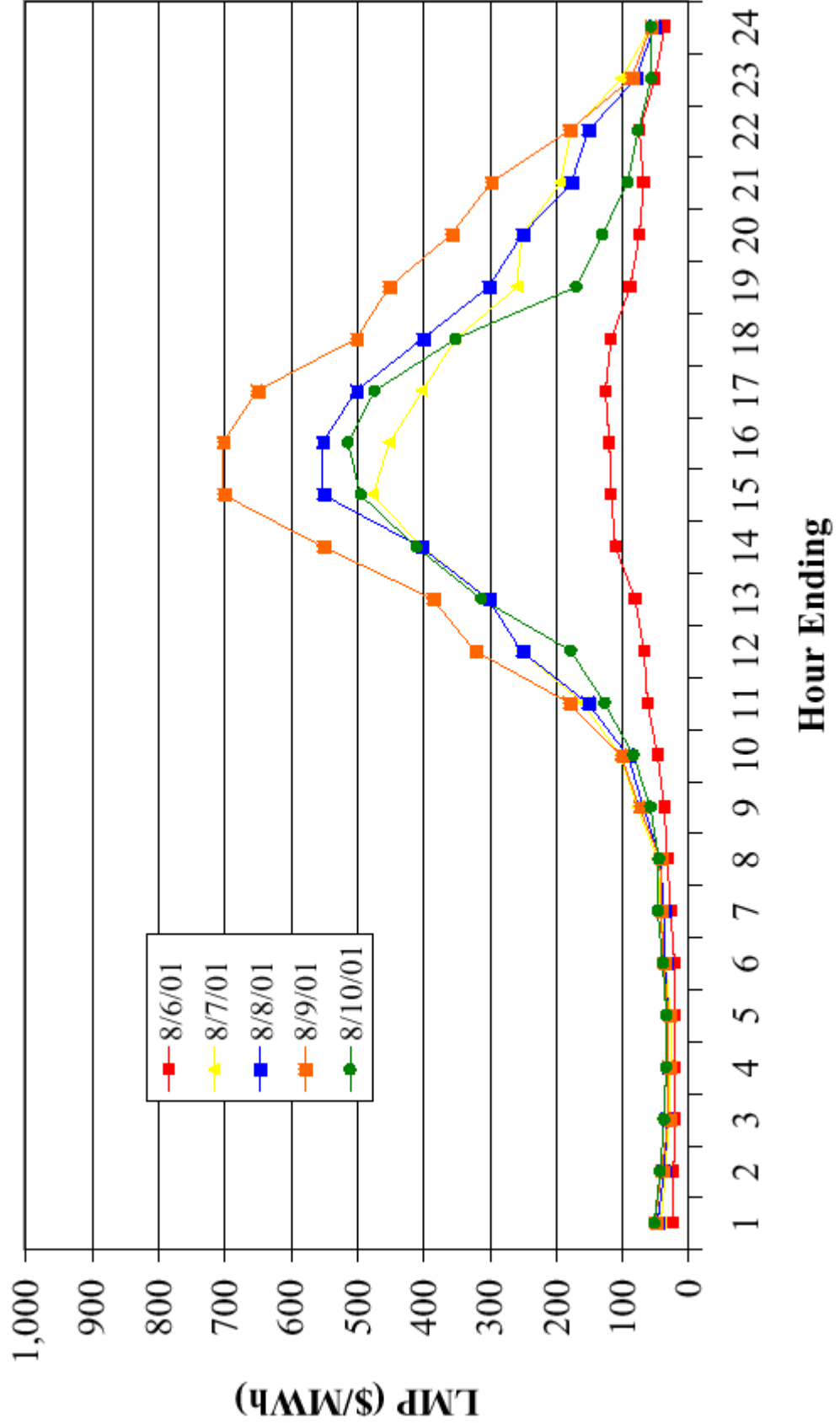






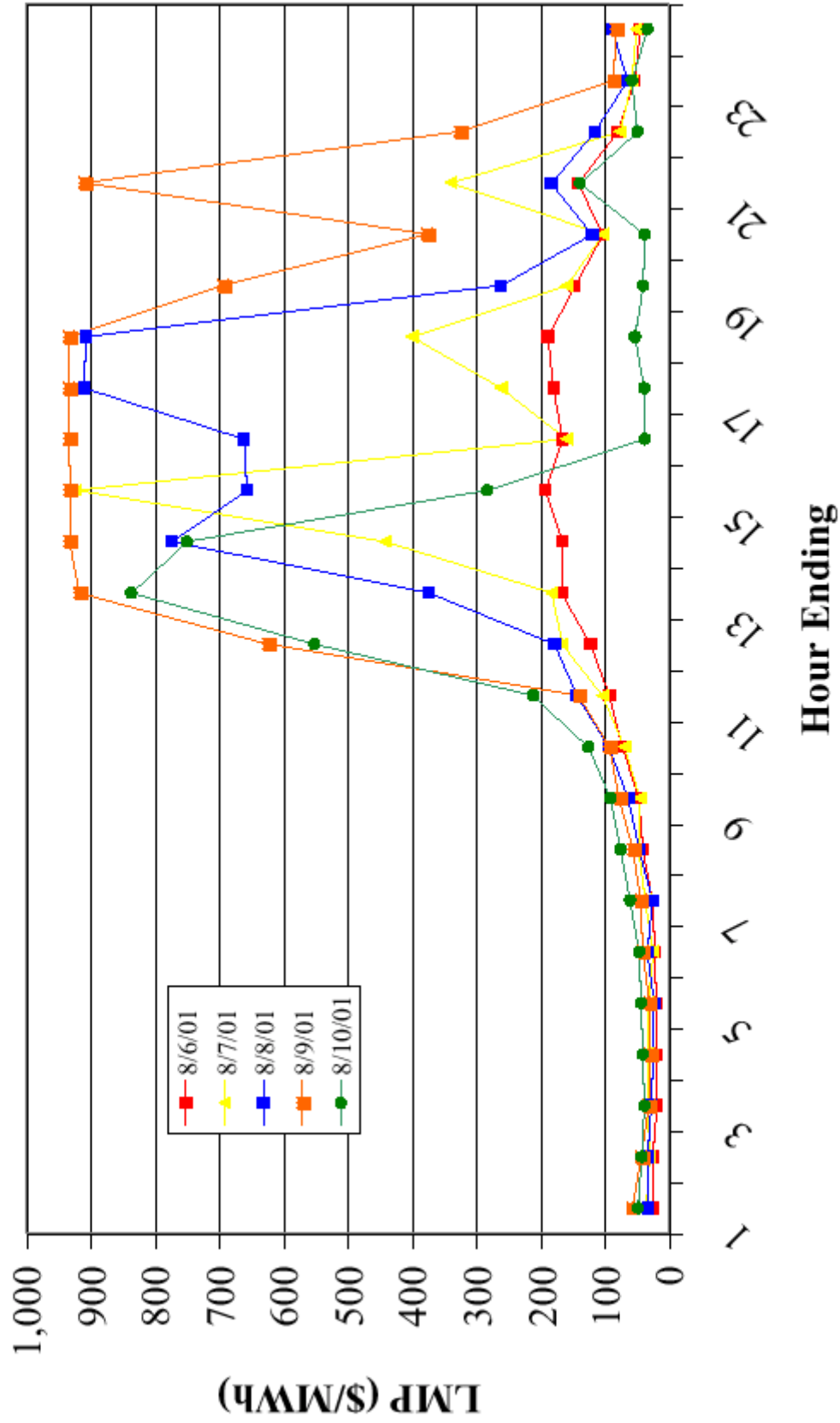


**PJM Average Day Ahead Price  
August 6-9, 2001**

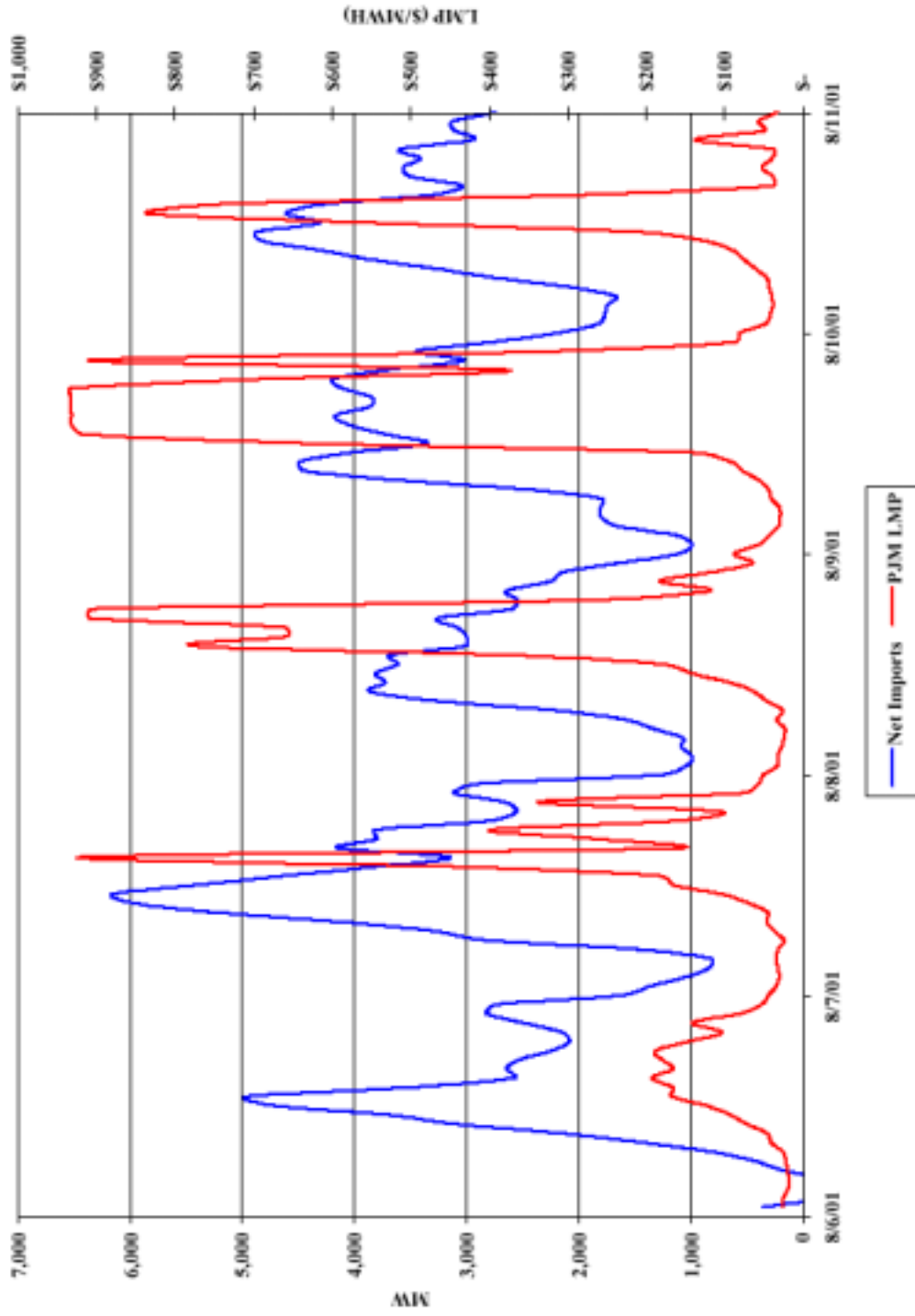




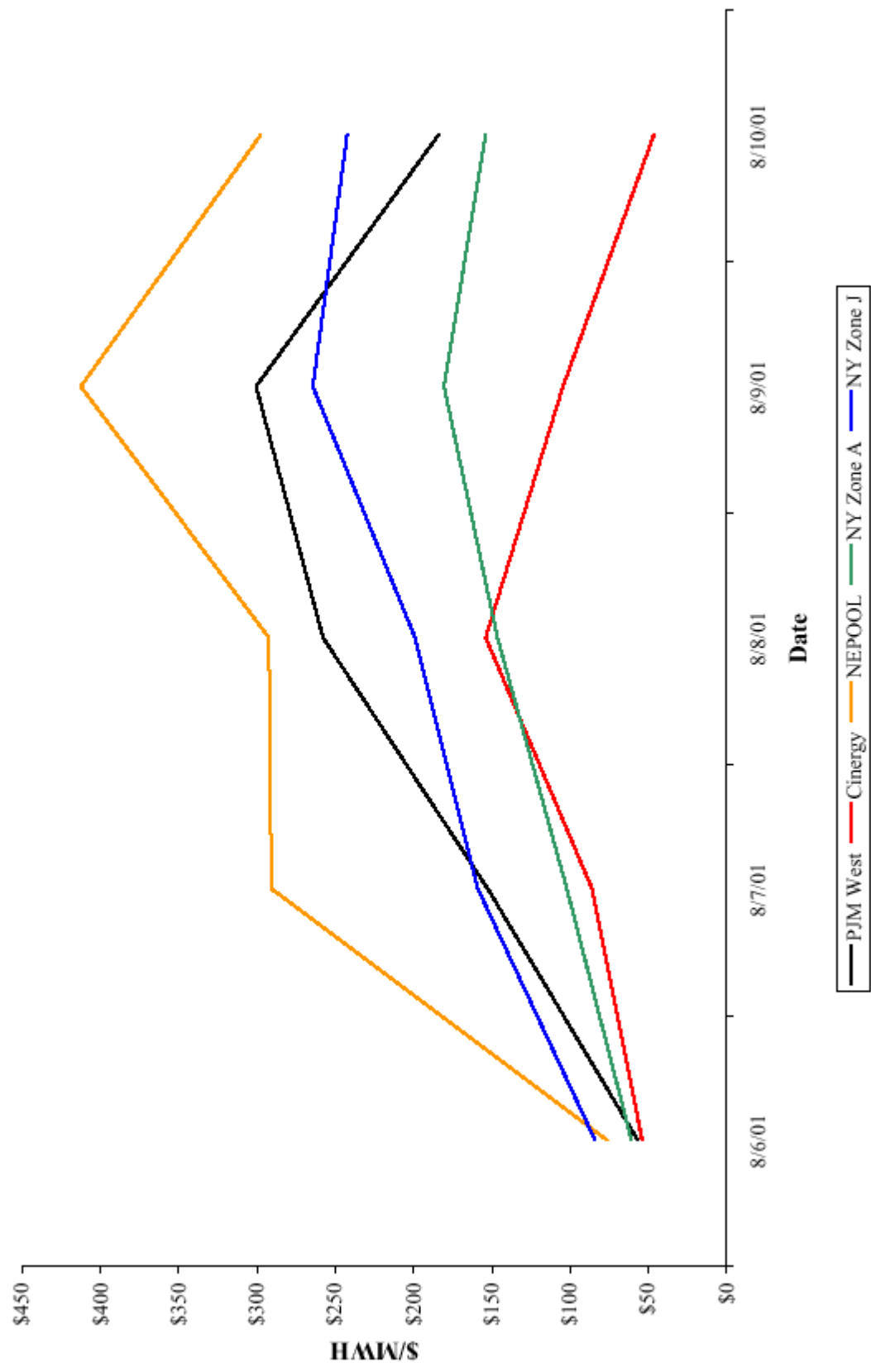
**PJM Average Real Time Price**  
**August 6 - 9, 2001**



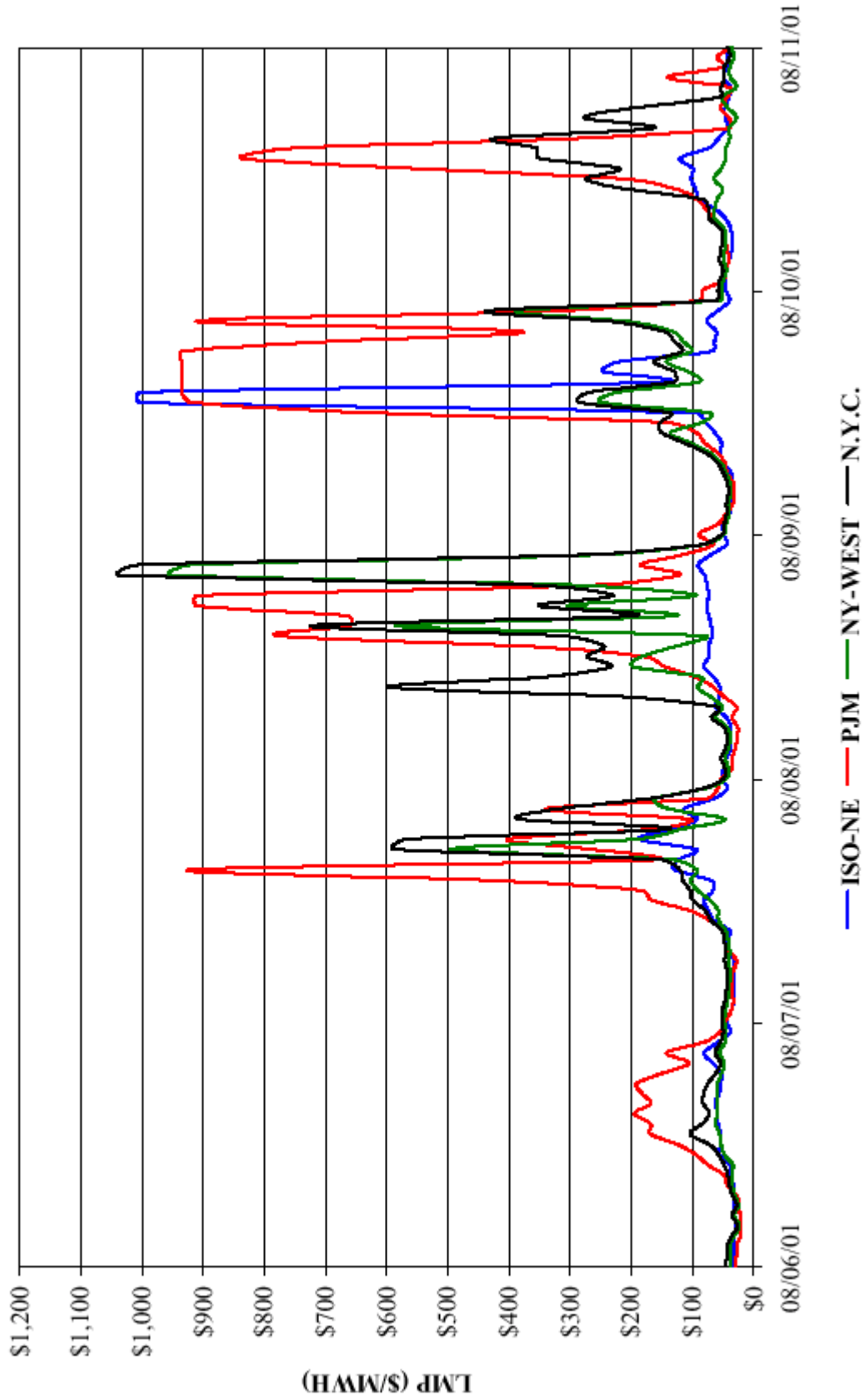
August 6-10, 2001  
PJM LMP and Net Imports



Electricity Forward Prices (Dailies) August 6 - 10, 2001



PJM, NY, & NE Hourly System Average LMPs



	PJM	NE	N_Y_C_	NY_WEST	HUD_VL
2000					
Average	28.14	43.23	50.35	29.88	41.96
Median	19.11	38.88	43.21	26.12	39.67
Max	801.55	6000.00	1862.41	907.74	1222.51
Min	0.00	-2.59	-903.02	-864.73	-881.42
Standard Deviation	25.69	132.20	82.72	31.50	46.08

**Note: Data for 2000 is all of 2000**

	PJM	NE	N_Y_C_	NY_WES	HUD_VL
2001					
Average	33.47	45.95	49.79	32.33	43.47
Median	25.26	41.80	44.67	31.63	41.49
Max	557.22	1000.00	1000.32	607.65	755.14
Min	-1.94	-6.45	-169.37	-152.35	-165.37
Standard Deviation	28.52	53.78	51.85	21.24	37.99

**Note: Data for 2001 is between Jan. 1, 2001 and July 31, 2001**



- Capacity market issues in first quarter of 2001
  - Market tight
  - One entity longer than market
  - Market power issue
- Rule changes
  - Deficiency revenue allocation
  - Interval market



- Interval market changes market incentives to load
  - Capacity deficiency rate is an interval rate
  - Interval CDR = \$16,300 per MW deficiency
  - Daily CDR = \$177.30 per MW deficiency
- Interval market changes market incentives to generation
  - Interval rate is foregone with delisting
  - Interval rate exceeds external price opportunities
  - Share in capacity deficiency revenues depends on interval commitment to PJM

- Interval market incentives to load
  - Rational strategy is to cover load for full interval
  - In general, loads are covered for full interval
  - Daily market activity about 500 MW or less than 1% of load obligation
- Interval market incentives to generation
  - Rational strategy to sell for interval - commit to a specific LSE
  - Rational strategy to commit some capacity to PJM for interval

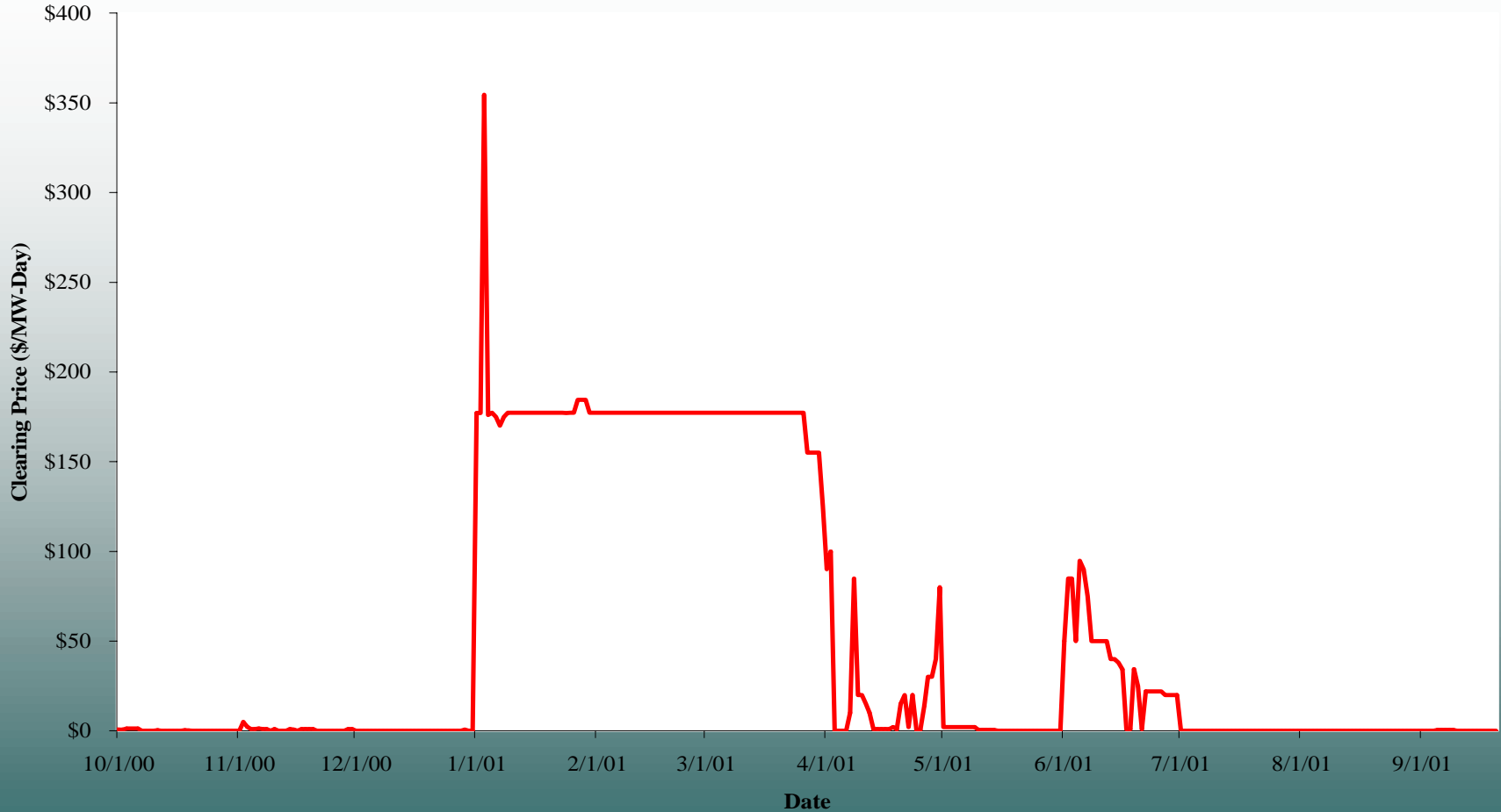
- Interpreting available information
  - Bilateral arrangements do not have to be declared for full interval
  - Load following arrangements exist
  - Loads may shift among LSEs
  - EDCs must plan for possible PLR loads
- Capacity markets for summer 2001 interval market
  - Commitments consistent with obligations
  - External market incentives less than interval penalty

- June-September Interval market 1.
  - Cleared MW: 114.5 MW
  - Clearing price: \$160/MW-day
- June-September Interval market 2.
  - Cleared MW: 73.8 MW
  - Clearing price: \$170/MW-day

- Summer 2001.
  - Positive capacity margin
  - No significant changes in delisting
  - Recalls of energy from capacity resources critical during week of August 6.

# Daily Capacity Market Prices

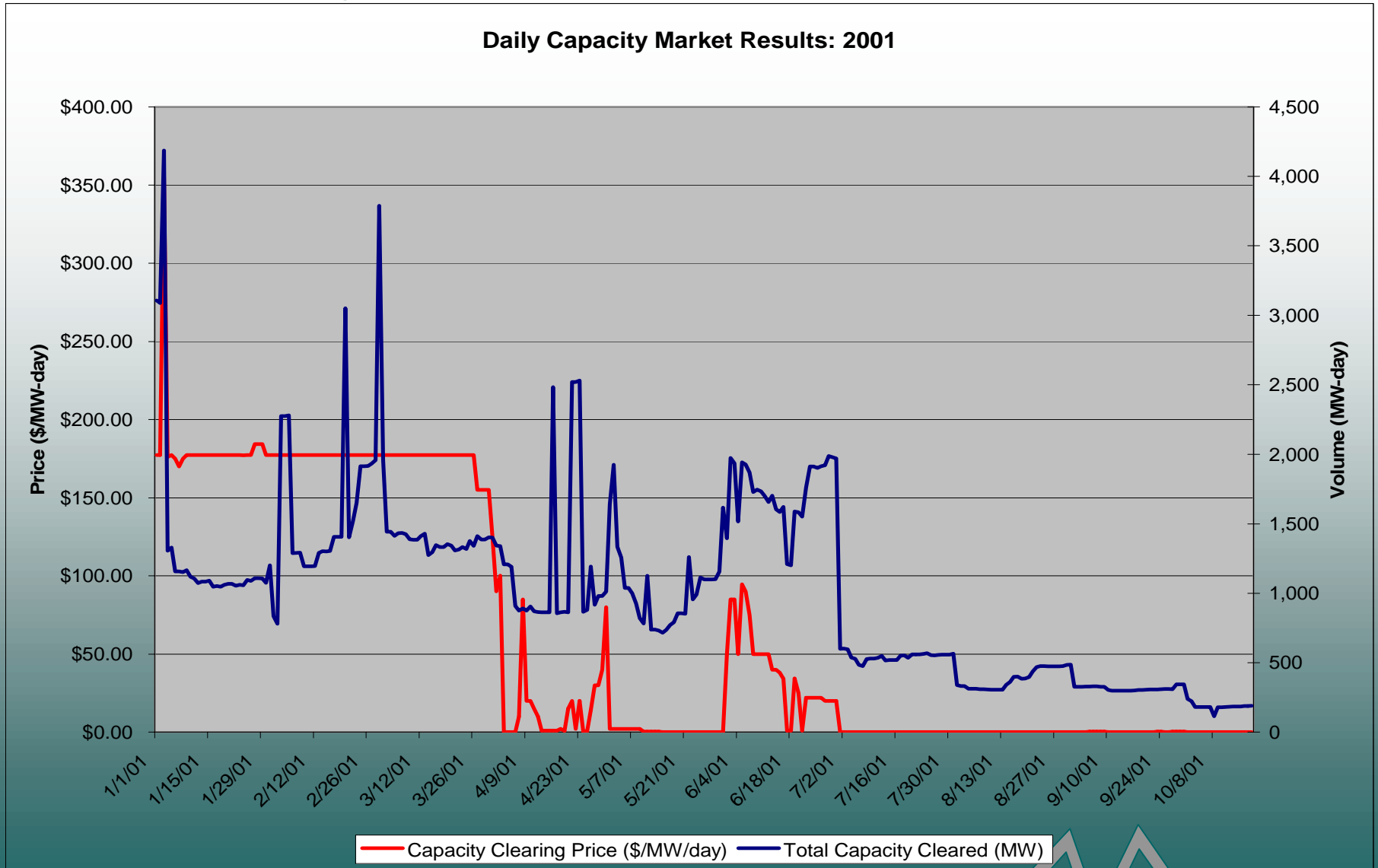
Daily Capacity Market Clearing Price: 2001 YTD



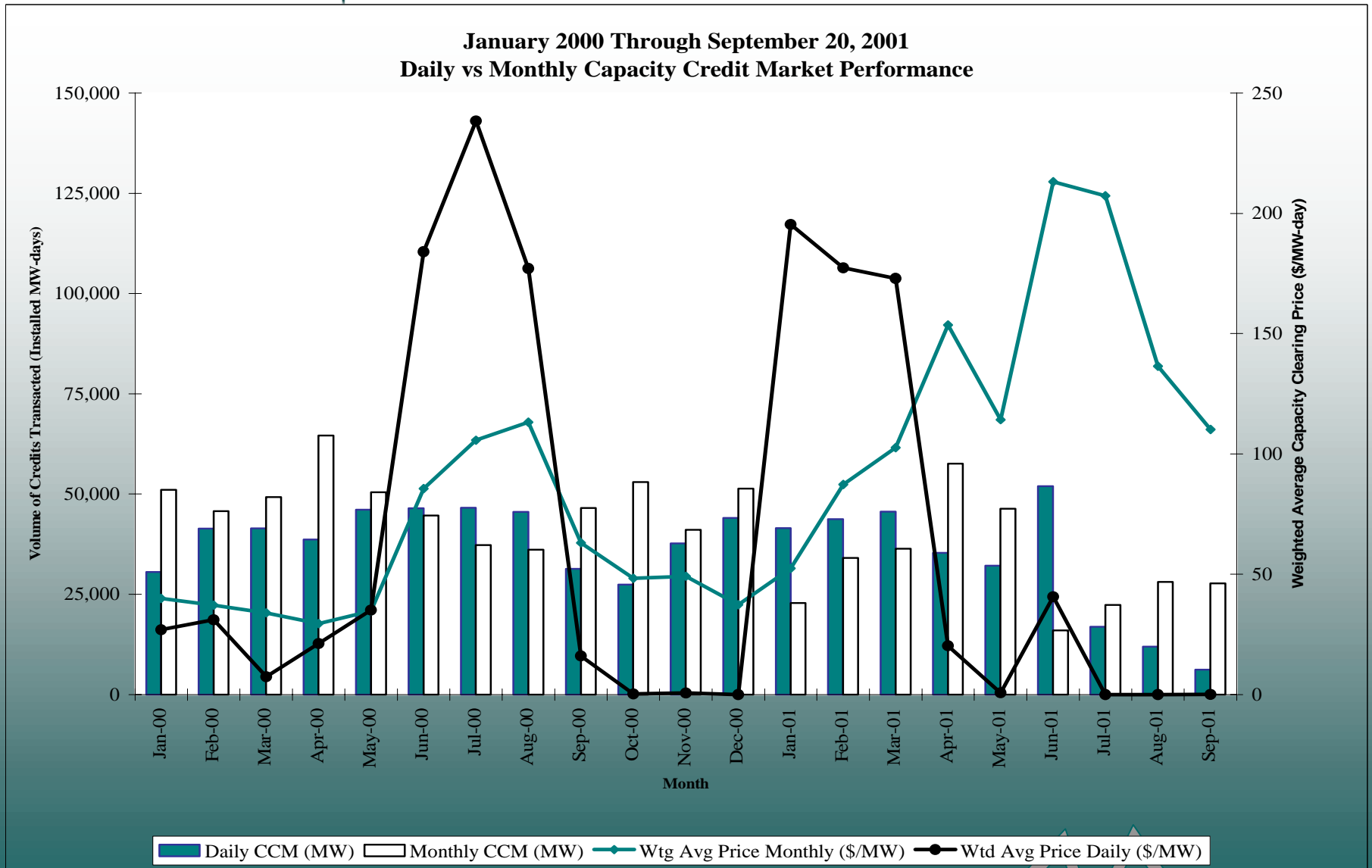
— Capacity Clearing Price (\$/MW/day)



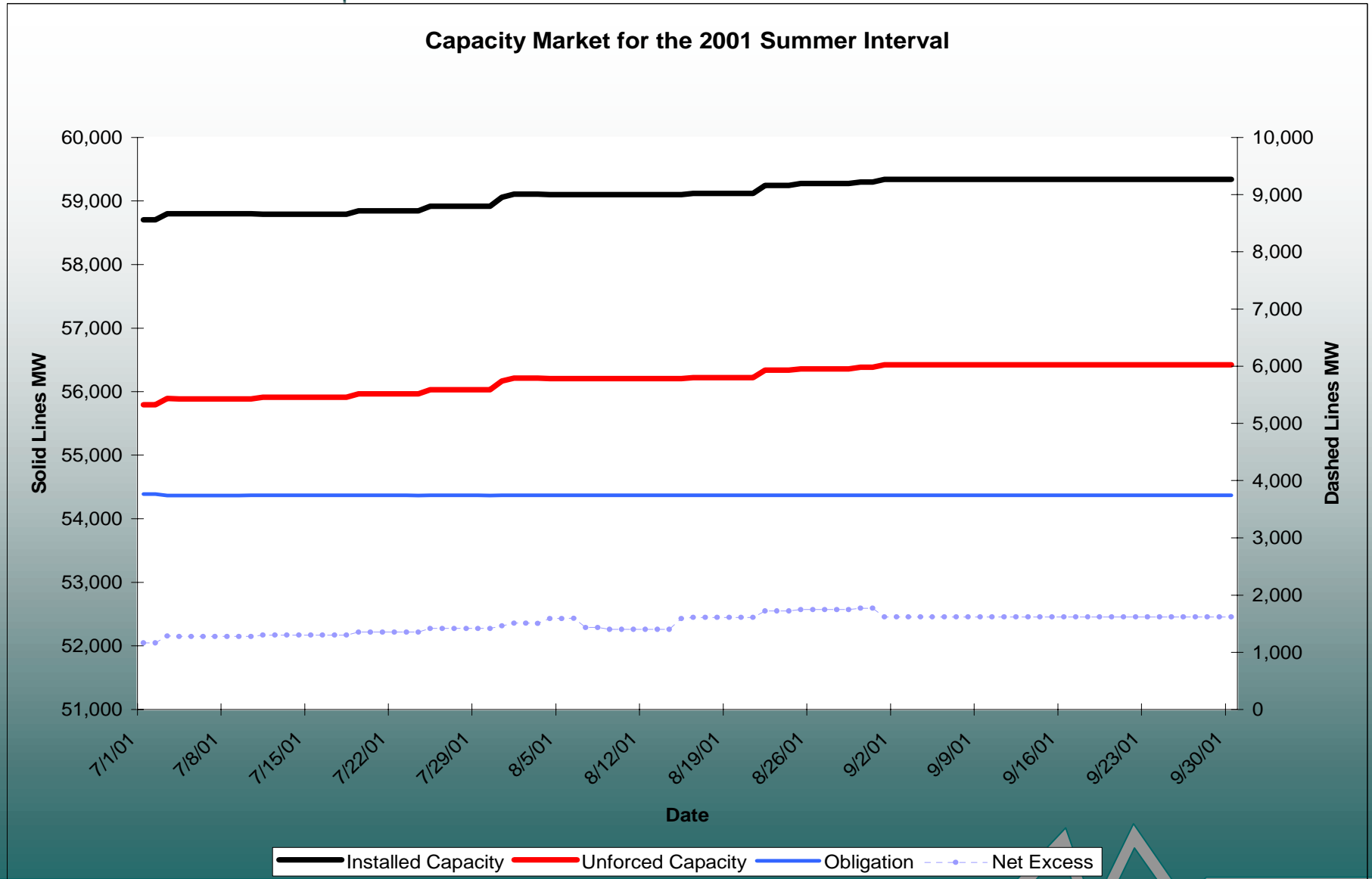
# Daily Capacity Market Results



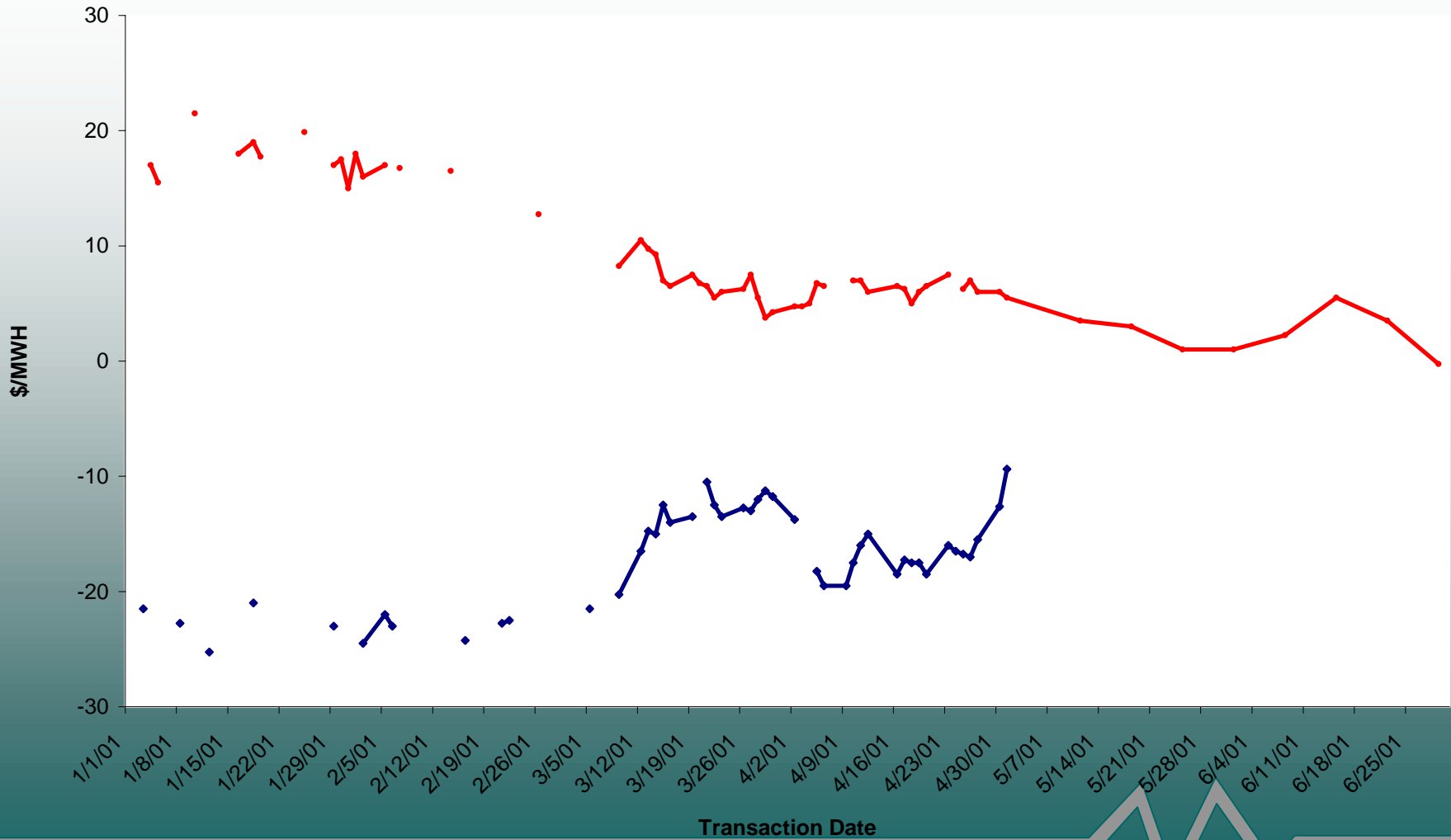
# Capacity Markets: Prices and Volumes



# Capacity Interval Markets: Summer 2001



July/August 2001 Forward Spreads



ecarspr nepoolspr