

Control Action Operating Reserve (CAOR)

MPWG January 20, 2006

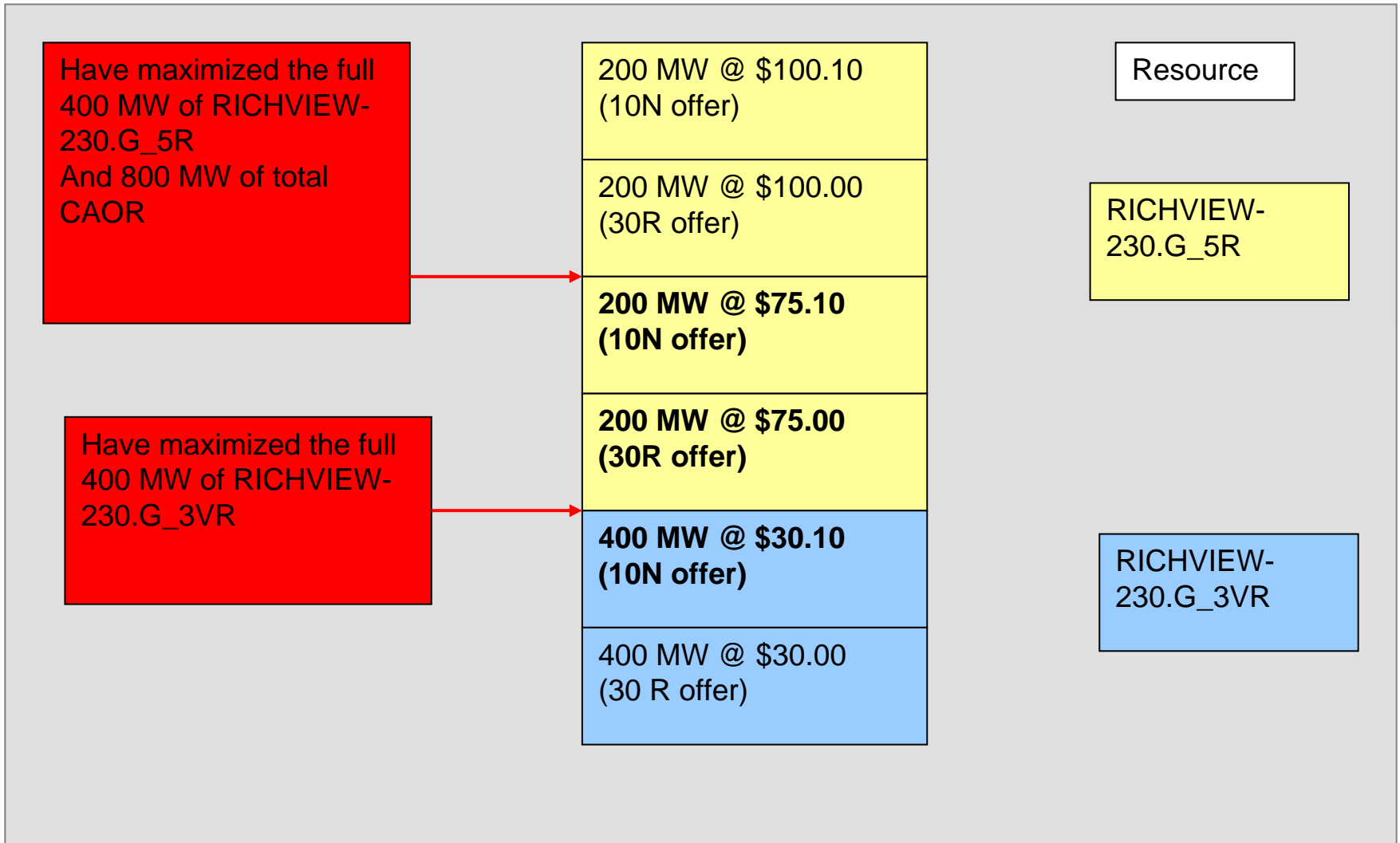


- Overview of CAOR Changes Implemented on November 23, 2005
- Frequency of CAOR usage
- Options to Address Reliability Concerns with CAOR

- Recommendation taken to IESO Board in October 2005

MW's offered in Pre-Dispatch	MW's offered in Real Time	30R Offer Price (\$)	10N Offer Price (\$)
400	400	30.00	30.10
0	200	75.00	75.10
0	200	100.00	100.10
All CAOR offers to have an associated energy offer price of \$2000 /MW			

CAOR Scheduling with Original Offers



CAOR Offers in the Real Time Markets

Resource	MW's offered in Pre-Dispatch	MW's offered in Real Time	30 Minute OR Offer Price (\$)	10 N OR Offer Price (\$)
Richview _3VR	400	400	30.00	30.10
Richview _5VR	0	200	N/A	75.00
	0	200	N/A	100.00
All CAOR offers have an associated energy offer of \$2000 /MW				

Usage of 2nd Set of CAOR Offers

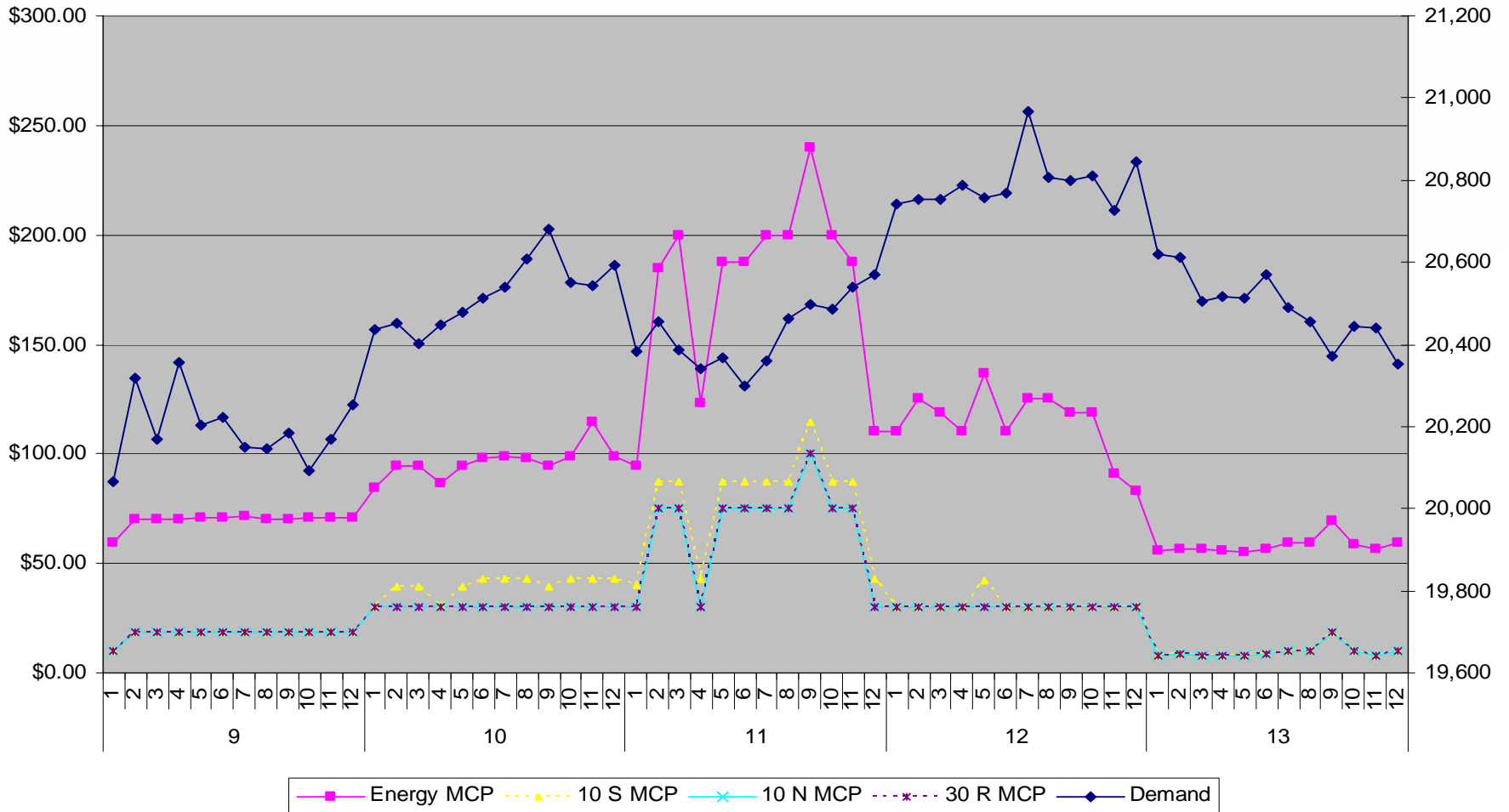
- From November 23, 2005 to January 15, 2006

	Dispatch Unconstrained			Dispatch Constrained		
	# of Intervals Scheduled	Frequency (%)	Average MW	# of Intervals Scheduled	Frequency %	Average MW
O-400MW CAOR	1010	6.74 (3.7*)	133.2	2829	18.89 (10.5*)	147.1
400-800 MW CAOR	24	0.16	84.5	281	1.88	138.9

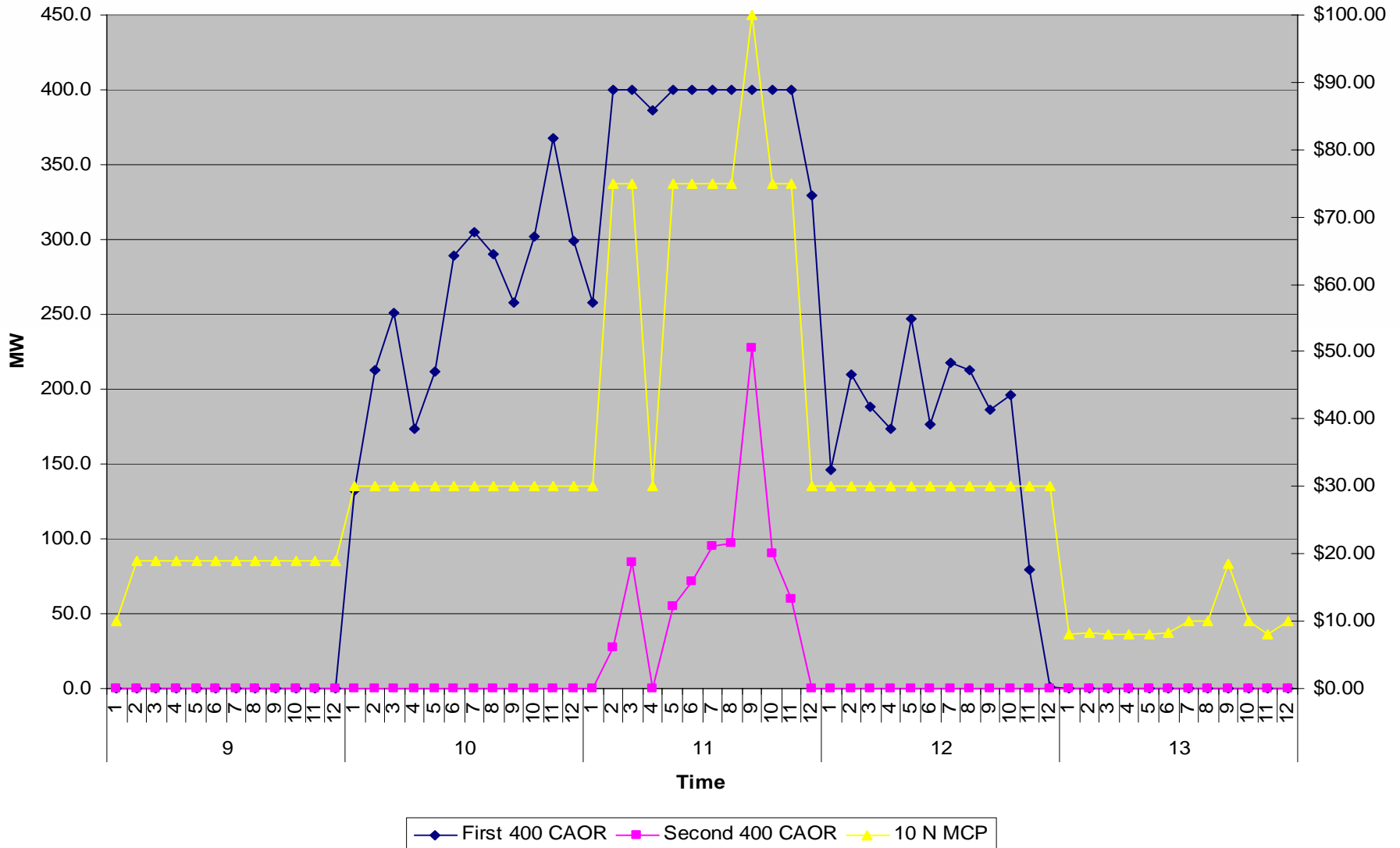
*scheduling frequencies for Winter 2003-2004-2005

- Two instances of Richview_5VR (2nd 400 MW of CAOR) being scheduled have been selected to show as examples:
 - November 30, 2005; HE 11
 - CAOR scheduled for 9 of 12 intervals (the most usage within an hour) up to a maximum of 627 MW (the largest MW scheduling of CAOR)
 - December 14, 2005; HE 8
 - CAOR scheduled for 5 of 12 intervals up to a maximum of 610 MW (the second highest usage within an hour and the second highest MW scheduling)

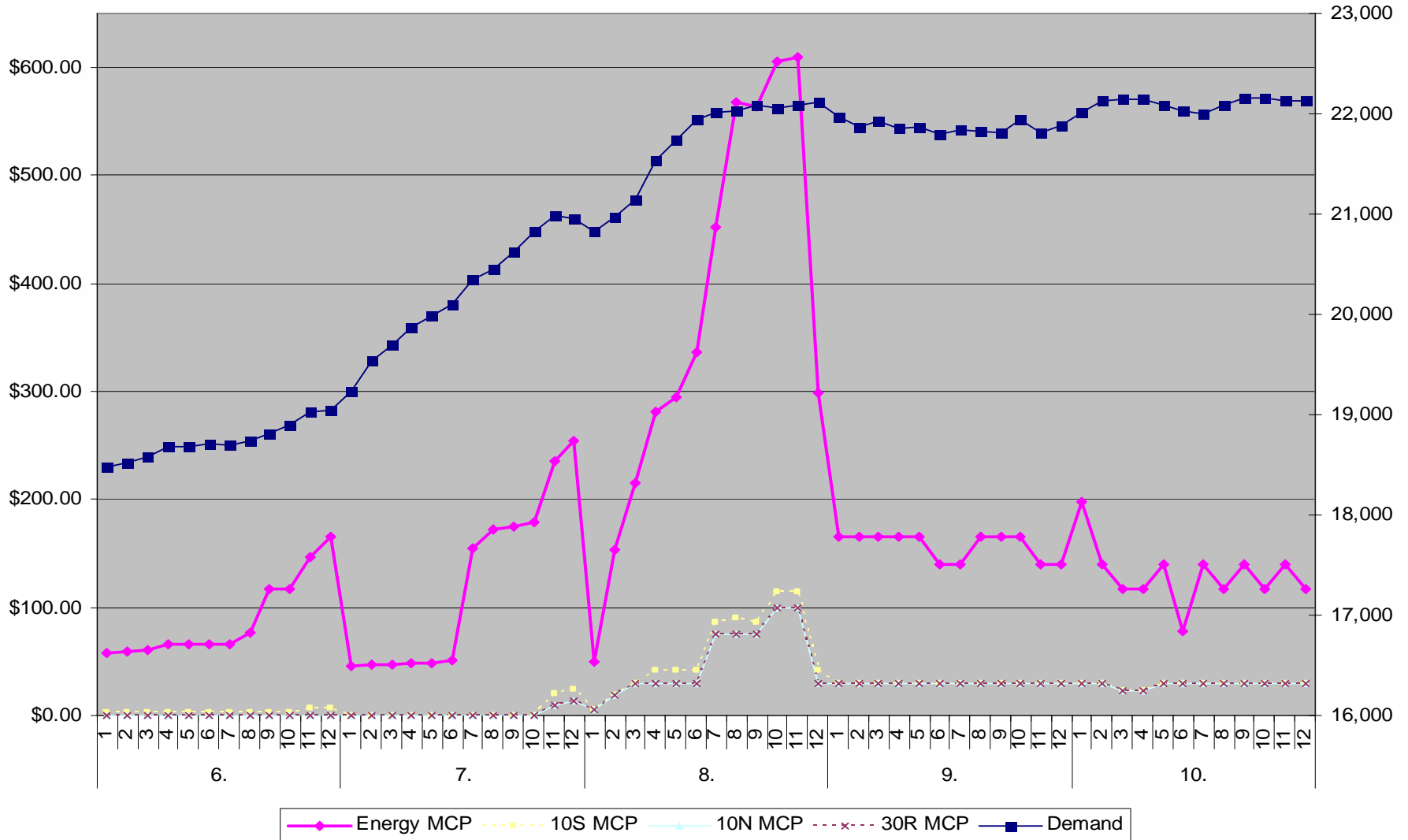
Market Conditions; November 30



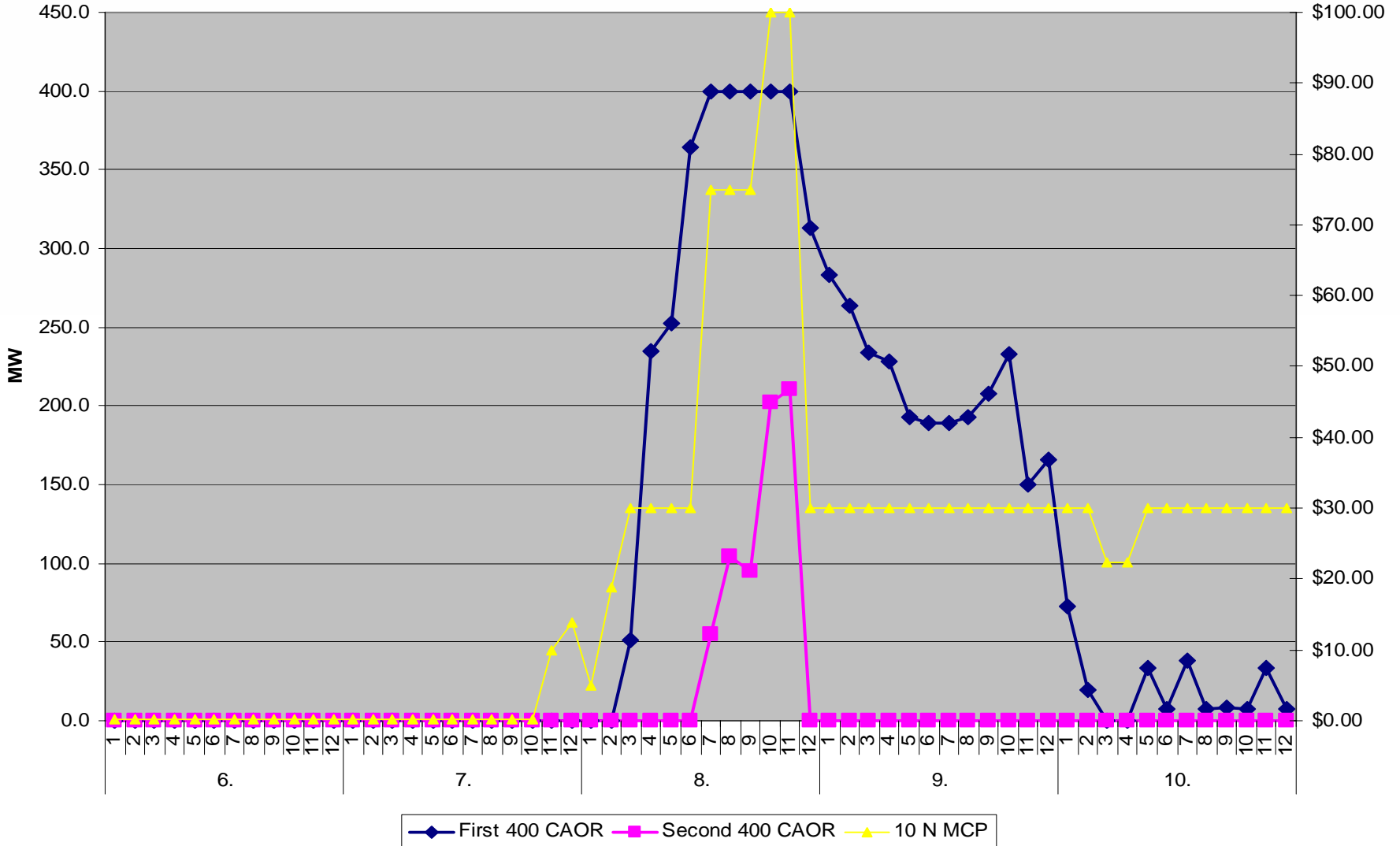
Offer Usage; November 30



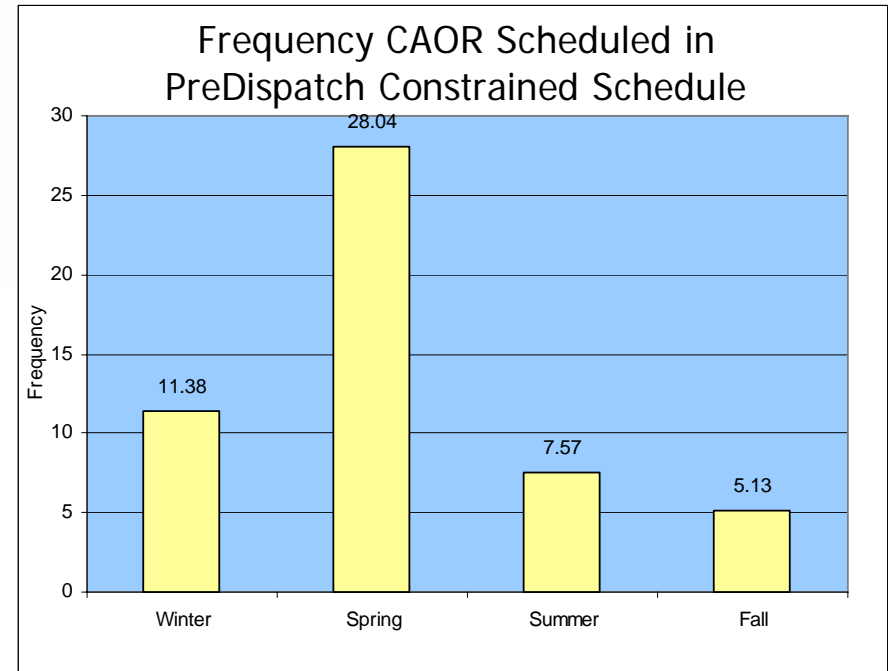
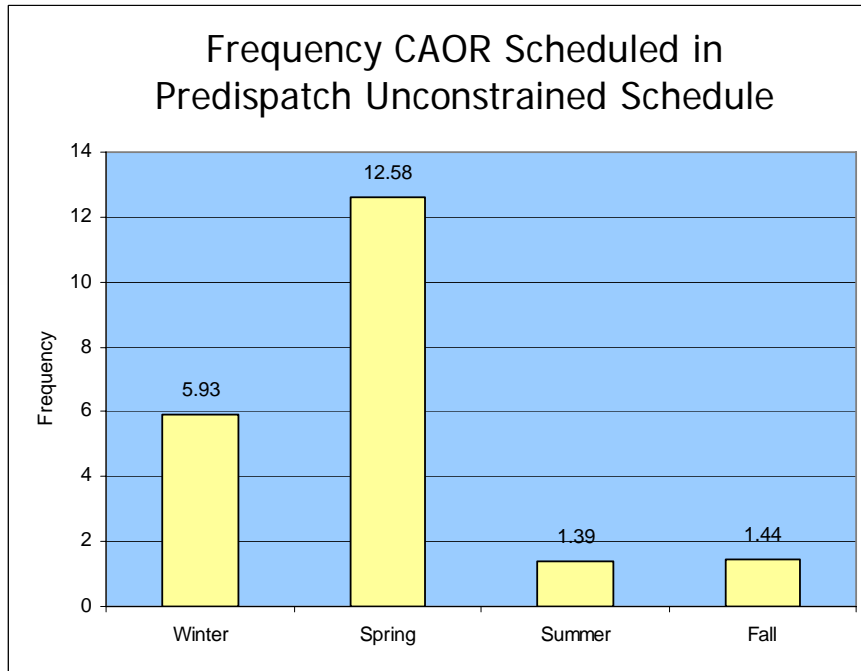
Market Conditions; December 14



Offer Usage; December 14

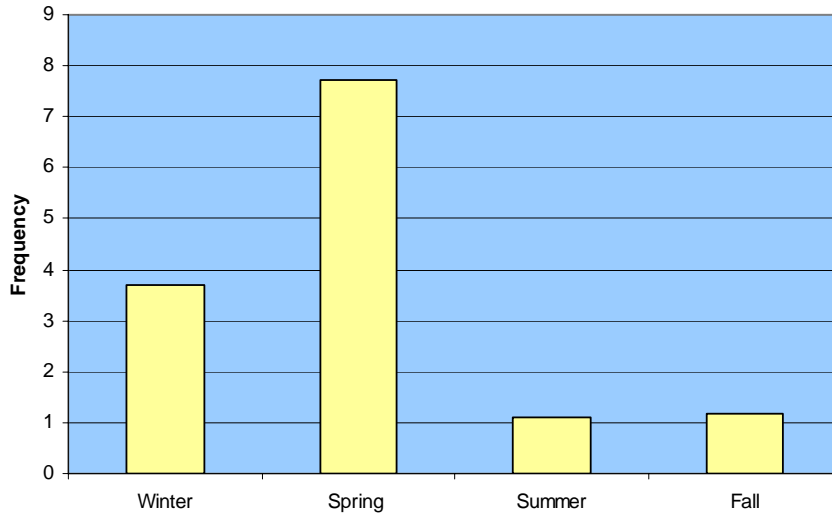


Frequency of CAOR Usage (PreDispatch)

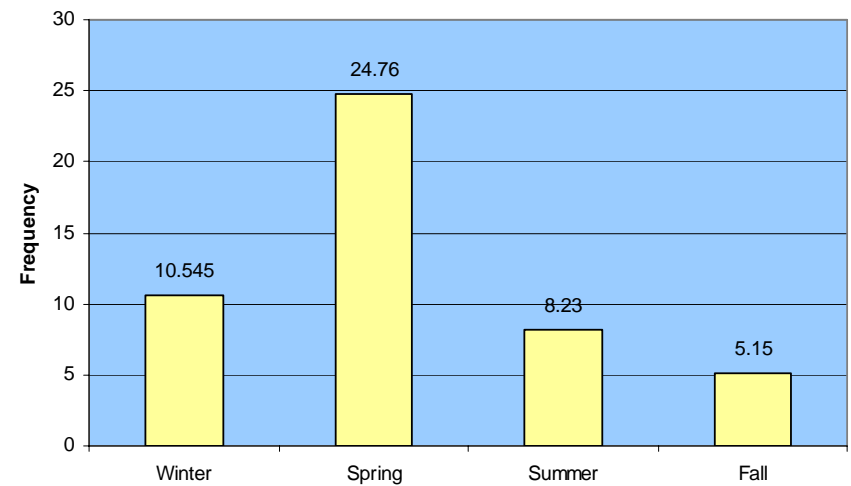


Frequency CAOR Usage (Dispatch)

Frequency CAOR Scheduled in Dispatch Unconstrained Schedule



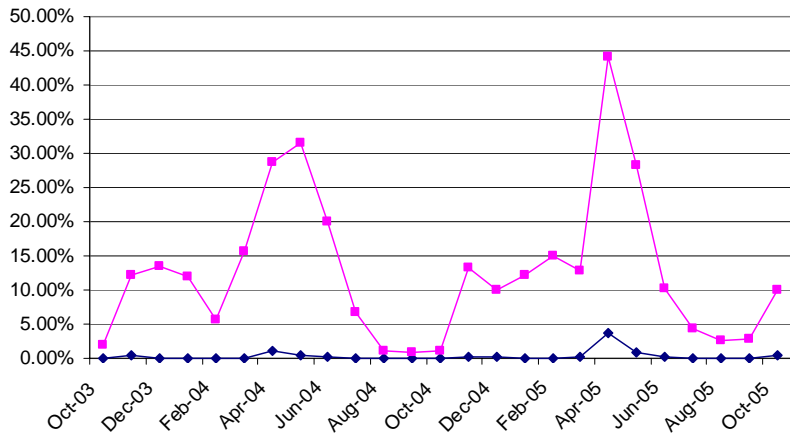
Frequency CAOR Scheduled in Dispatch Constrained Schedule



Frequency CAOR Usage (Peak Hours)

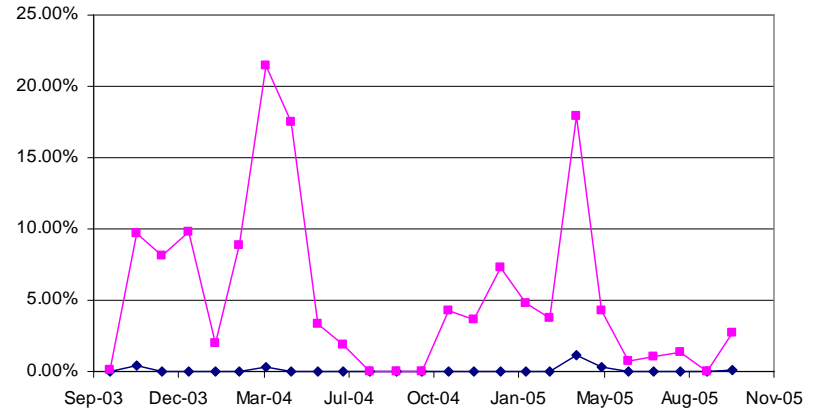
Pre-Dispatch Constrained On-Peak Vs Off-Peak Frequency

Off-Peak
On-Peak



Pre-Dispatch Unconstrained On-peak Vs Off-Peak Frequency

Off-Peak
On Peak



1. Increase Price of CAOR Offer
2. Remove CAOR offer from Pre-Dispatch (or reduce quantity offered)
3. Manually Constrain on Additional resources when CAOR is scheduled in Pre-Dispatch
4. Do Nothing

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