

UDP Metrics Report: February 16 – April 12, 2007

Summary

This report analyzes several metrics related to the impact of uninstructed deviations on the ISO's Imbalance Energy Market from February 16 through April 12, 2007, and compares that performance to the same period in the prior year. As shown in the table below, none of the threshold criteria indicating degradation in performance was triggered over this period. No immediate action to implement Uninstructed Deviation Penalties appears necessary.

The following table summarizes the four system metrics analyzed February 16 – April 12, 2007:

Metric	2006 Threshold Value	2007 Performance Value	Is Criterion Triggered?
Uninstructed Deviations	Greater than 242 MW	120 MW	No
CPS2 Violations	Less than 90%	96%	No
Regulation Requirements	Greater than 735 MW	700 MW	No
Contribution of Uninstructed Deviations to CPS2 Violations	78%	40%	No

Uninstructed Deviations

Significant increases in the average aggregate uninstructed deviations by Generating Units may suggest that UDP should be implemented. This metric is calculated by comparing the Expected Energy based on Final Hour Ahead Schedules, as adjusted by ISO Dispatch Instructions, to the metered Energy for each Settlement Interval. For this metric, uninstructed deviations are measured only for those Generating Units that would be subject to UDP.

The margin for defining the threshold criterion for a change in uninstructed deviations is the greater of an increase of 50% or 100 MW in average uninstructed deviations. For February 16 to April 12, 2007, uninstructed deviations for units subject to UDP averaged 120 MW over the current period, as compared to an average of 142 MW during the benchmark period and a calculated threshold value of 242 MW.

**CPS2
Violations**

Any significant decline in average CPS2 performance demands attention. While uninstructed deviations may play a role, other factors can have a significant effect, including limited ramping capability in the Imbalance Energy Market, deficiencies in the supply or performance of Regulation, or other factors such as the magnitude and volatility of interchange ramps and deviations between forward scheduled load and actual load. Recognizing that the Imbalance Energy Market is a key tool in balancing the system, however, a metric based significant change in CPS2 performance has been developed.

The threshold criterion is the smaller of a drop to below 90% in CPS2 performance, or a decrease of 4 percentage points in CPS performance. For February 16 to April 12, 2006, 94% of intervals did not have a CPS2 violation compared, meaning that the threshold criterion is 90%. The CPS2 performance for the current period was 96%, meaning that the criterion is not triggered since the threshold was not exceeded.

**Regulation
Requirement**

If Imbalance Energy performance declines, the ISO may be required to increase reliance on Regulation. The threshold margin for this metric is an increase in Regulation requirement of 5 percent. For February 16 to April 12, 2007, the Regulation requirement was an average 700 MW per hour, as compared to an average Regulation requirement of 700 MW over the same period in the prior year. This result is below the threshold criterion of 735 MW (i.e., 700 MW plus 5%).

**Contribution of
Uninstructed
Deviations to
CPS2
Violations**

This metric considers the contribution that uninstructed deviations make to CPS2 violations. If uninstructed deviations are in the same direction as the ISO's ACE in a 10-minute interval, then the uninstructed deviations contribute to or exacerbate the CPS2 violation, while if the uninstructed deviations are of the opposite sign, then the uninstructed deviations mitigate ACE. If the aggregate uninstructed deviations contribute to ACE by an amount in excess of the ISO's current L10 of 121.06 MW, then such a condition, while not definitive, suggests that uninstructed deviations may have had a significant impact on the ISO's ability to maintain system balance.

The metric considered here is the percentage of intervals with CPS2 violations in which the average volume of contributing uninstructed deviations exceeds the ISO's L10, and the threshold criterion is a 50 percent increase in that metric. For February 16 to April 12, 2007, the proportion of CPS2 intervals with uninstructed deviations from UDP units in excess of L10 was 40% and the threshold criterion was 78% meaning that the criterion was not triggered.

APPENDIX 1
SUMMARY UDP IMPLEMENTATION METRICS
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Current Period: February 16, 2007 through April 12, 2007
Benchmark Period: February 16, 2006 through April 12, 2006

	Metric			
	(1)	(2)	(3)	(4)
	Uninstructed Deviations	CPS2 Violations	Regulation Requirement	Contribution of Uninstructed Deviations to CPS2 Violations
Is Threshold Exceeded?	No	No	No	No
Benchmark Values				
Mean	142.14	94%	700.09	52%
Variance	2655.30	0%	NA	NA
Margin				
Absolute	100	4%	NA	100%
Relative	50%	90%	5%	50%
Threshold Values				
Mean Threshold	242.14	90%	735	78.0%
Variance	3982.95	0%	NA	NA
Current Values				
Mean	120.30	96%	700.54	40%
Variance	1763.57	0%	NA	0%
Increase (Decrease) over Threshold				
Mean	NA	NA	NA	NA
Variance	NA	NA	NA	NA
Does current value significantly exceed threshold?				
Mean	NA	NA	NA	NA
Variance	NA	NA	NA	NA
Summary Statistics				
t-value for current > threshold				
Mean (t-value)	NA	NA	NA	NA
Variance	NA	NA	NA	NA
(5) p-value				
Mean	NA	NA	NA	NA
Variance	NA	NA	NA	NA

Notes:

(1) Uninstructed Deviations in average aggregate MW per 10-minute interval averaged over the period.

(2) CPS2 measures the % of Intervals each day in which ACE is within the specified limits. The threshold is the higher of 90% or 4% below the percentage during the benchmark period.

(3) Regulation requirement in average MW per hour

(4) % of Intervals with CPS2 violation where contributing uninstructed deviations exceeded the ISO's L₁₀.

(5) P-Value is the probability that the threshold criteria have not been exceeded.