

## Narrow Constrained Area Mitigation Thresholds

Effective March 7, 2014

	Thresholds (\$/MWh)
WUMS NCA	\$87.31
North WUMS NCA	\$62.08
SE Minnesota/N Iowa/SW Wisconsin NCA	\$23.78
Amite South	\$31.20
WOTAB	\$30.89

### Notes:

1. These NCA thresholds are calculated based on the annual fixed costs of a new peaking generator, the net revenue such a generator would likely earn in the NCA, and the number of hours in which constraints are binding into the NCA per the formula in Section 64.1.2 of the Midwest Independent System Operator (MISO) FERC Electric Tariff.
2. Annual fixed cost: Threshold calculation assumes an annual fixed cost for an advanced combustion turbine of \$91.29 per KW-year. This annualized cost is calculated using: a) overnight capital costs of 696 \$/kW inflated to \$2014 from EIA's 664 \$/kW in \$2011 for an advanced combustion turbine estimated by the Energy Information Administration and used in the EIA 2013 Annual Energy Outlook; and b) most of the financing and other assumptions proposed by the MISO for use in the Resource Adequacy financial settlements, which are described on p. 4 of the Midwest ISO compliance filing dated September 3rd, 2013 (Docket No. ER13-2310-000). The assumed corporate interest rate was 5.32 percent based on prevailing market conditions and future inflation was assumed to be 2.0 percent.
3. Net Revenue: Net revenue is estimated assuming: a) a heat rate of 9,750 BTU/KWh; b) a gas price basis differential from the Chicago LDC of \$0.61 per MMBTU for WUMS and North WUMS, and of \$0.38 per MMBTU for SE Minnesota; c) a forced outage rate of five percent; and d) a minimum runtime of one hour. Based on these assumptions, the net revenue estimated for the NCAs for 2013 were: \$24.50 for WUMS, \$40.82 per KW-year for North WUMS, and \$43.73 per KW- year for SE Minnesota.
4. Constrained Hours: One or more constraints into WUMS and North WUMS were binding in 765 and 813 hours, respectively. One or more constraints into the Minnesota NCA were binding in 2,433 hours in 2012.
5. Amite South and WOTAB NCAs were defined with the integration of the South region into MISO in December 2013. The thresholds for these areas will be re-evaluated using operational data during 2014 and they will be updated as appropriate.