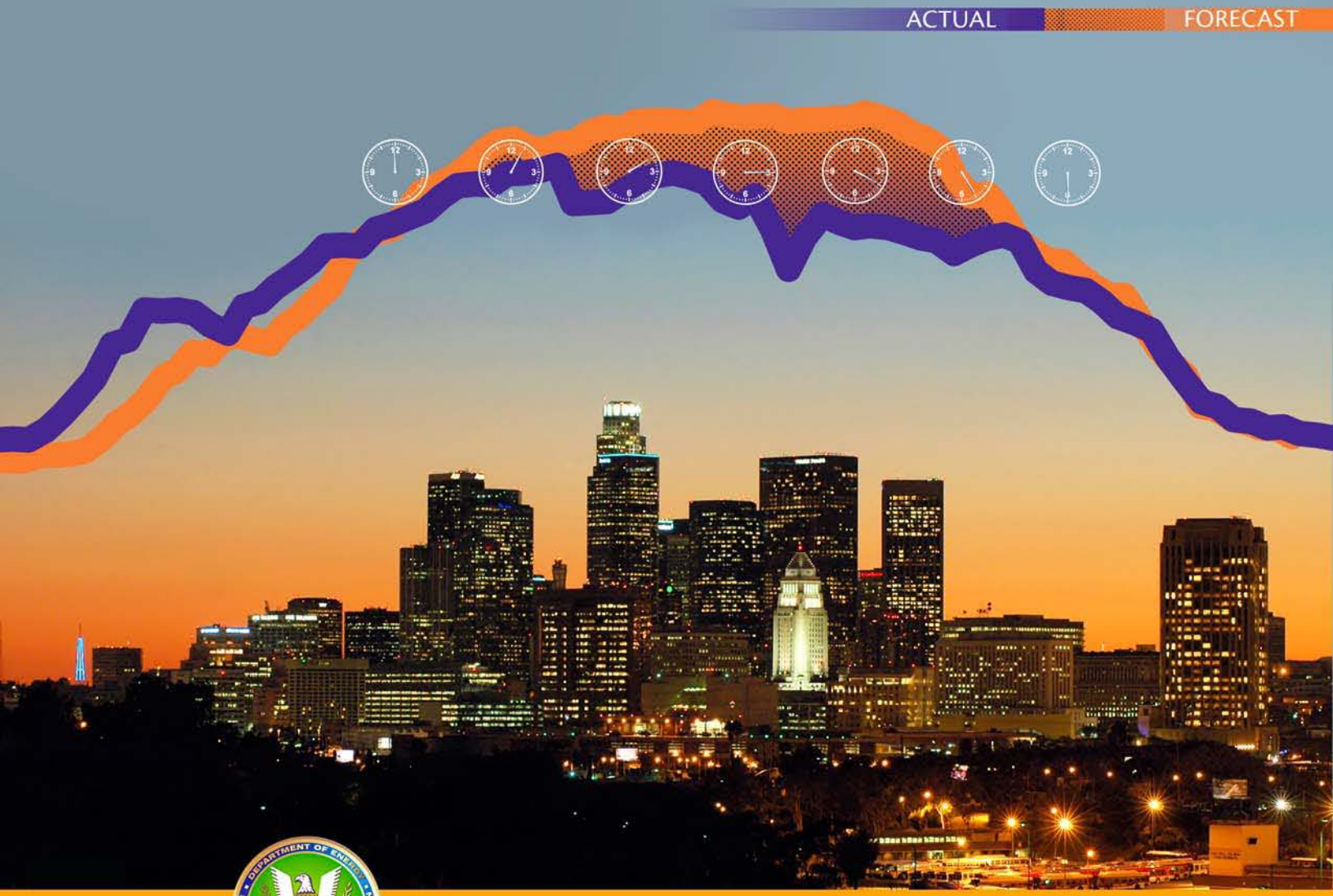
A National Assessment of
Demand Response Potential



Staff Report

Federal Energy Regulatory Commission

June 2009

Prepared by

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Minnesota State Profile

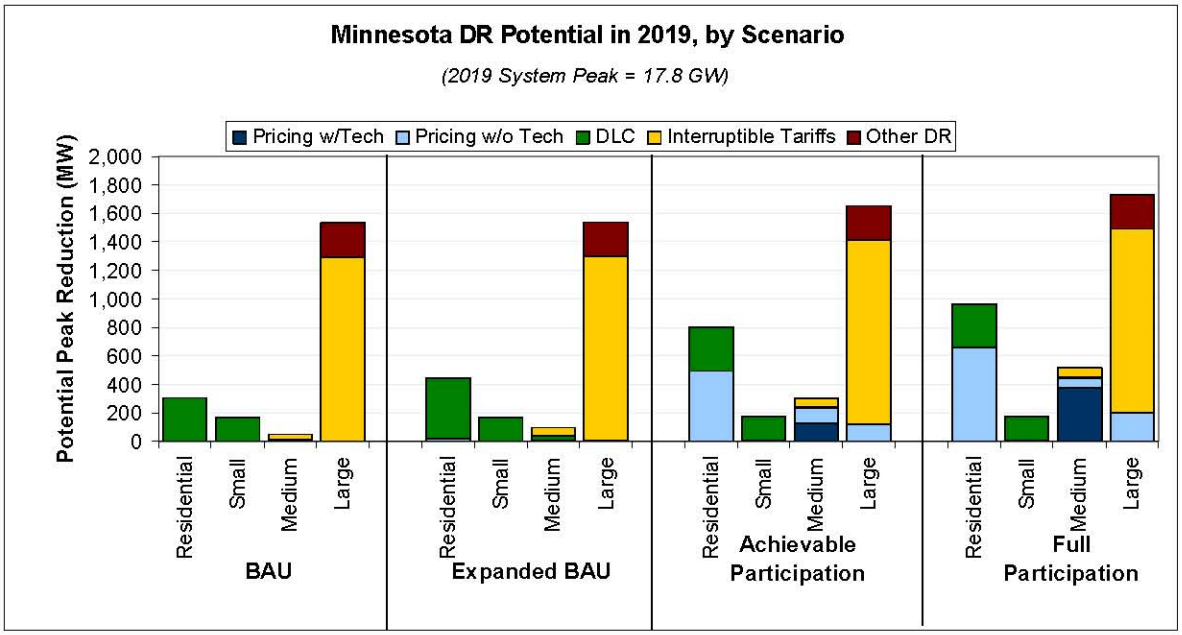
Key drivers of Minnesota's demand response potential estimate include: a substantial amount of existing demand response, above average share of peak demand (30%) in the Large C&I classes and a large residential base. Pricing with enabling technologies is not cost effective for all customer classes, except for the Medium C&I class. DLC is cost effective for all customer classes.

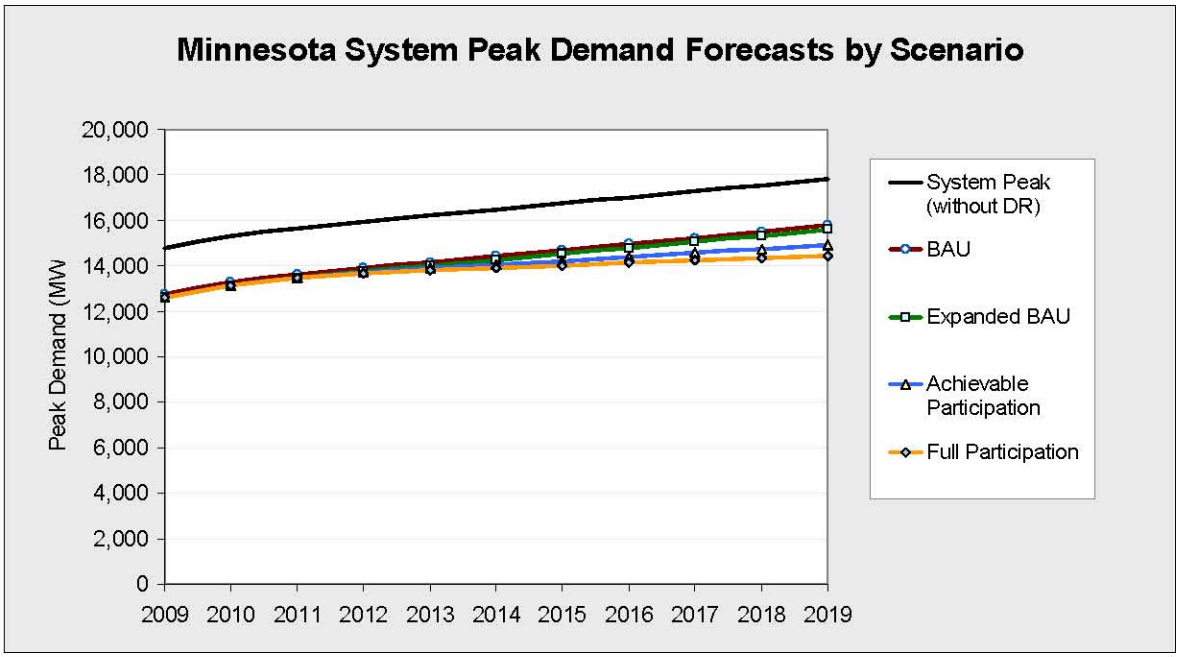
BAU: Minnesota's existing demand response comes primarily from interruptible tariffs and Other DR programs for Medium and Large C&I customers. The savings from interruptible tariffs account for at least 40% of the total impacts under all scenarios, resulting in smaller incremental differences between BAU and the potential scenarios in comparison to most states. The rest of the existing potential comes from direct load control programs for residential and Small and Medium C&I customers.

Expanded BAU: DLC and dynamic pricing without enabling technology account for the growth in potential. Since current participation levels in interruptible tariffs is substantially high, there is not much scope for growth in this program.

Achievable Participation: The increase in demand response potential comes primarily from dynamic pricing without enabling impacts. Dynamic pricing with enabling technology which is cost effective for the Medium C&I class contributes additional savings.

Full Participation: Similar to Achievable Participation, the incremental impacts come from dynamic pricing.



Total Potential Peak Reduction from Demand Response in Minnesota, 2019

	Residential (MW)	Residential (% of system)	Small C&I (MW)	Small C&I (% of system)	Med. C&I (MW)	Med C&I (% of system)	Large C&I (MW)	Large C&I (% of system)	Total (MW)	Total (% of system)
BAU										
Pricing with Technology	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pricing without Technology	0	0.0%	0	0.0%	0	0.0%	1	0.0%	1	0.0%
Automated/Direct Load Control	304	1.7%	170	1.0%	11	0.1%	0	0.0%	485	2.7%
Interruptible/Curtailable Tariffs	0	0.0%	0	0.0%	38	0.2%	1,290	7.2%	1,329	7.4%
Other DR Programs	0	0.0%	0	0.0%	0	0.0%	242	1.4%	242	1.4%
Total	304	1.7%	170	1.0%	49	0.3%	1,533	8.6%	2,056	11.5%
Expanded BAU										
Pricing with Technology	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pricing without Technology	15	0.1%	0	0.0%	7	0.0%	5	0.0%	27	0.2%
Automated/Direct Load Control	428	2.4%	170	1.0%	27	0.2%	0	0.0%	626	3.5%
Interruptible/Curtailable Tariffs	0	0.0%	0	0.0%	61	0.3%	1,290	7.2%	1,352	7.6%
Other DR Programs	0	0.0%	0	0.0%	0	0.0%	242	1.4%	242	1.4%
Total	443	2.5%	170	1.0%	96	0.5%	1,537	8.6%	2,247	12.6%
Achievable Participation										
Pricing with Technology	0	0.0%	0	0.0%	127	0.7%	0	0.0%	127	0.7%
Pricing without Technology	492	2.8%	3	0.0%	102	0.6%	121	0.7%	718	4.0%
Automated/Direct Load Control	304	1.7%	170	1.0%	11	0.1%	0	0.0%	485	2.7%
Interruptible/Curtailable Tariffs	0	0.0%	0	0.0%	61	0.3%	1,290	7.2%	1,352	7.6%
Other DR Programs	0	0.0%	0	0.0%	0	0.0%	242	1.4%	242	1.4%
Total	796	4.5%	173	1.0%	302	1.7%	1,653	9.3%	2,924	16.4%
Full Participation										
Pricing with Technology	0	0.0%	0	0.0%	372	2.1%	0	0.0%	372	2.1%
Pricing without Technology	656	3.7%	4	0.0%	69	0.4%	202	1.1%	931	5.2%
Automated/Direct Load Control	304	1.7%	170	1.0%	11	0.1%	0	0.0%	485	2.7%
Interruptible/Curtailable Tariffs	0	0.0%	0	0.0%	61	0.3%	1,290	7.2%	1,352	7.6%
Other DR Programs	0	0.0%	0	0.0%	0	0.0%	242	1.4%	242	1.4%
Total	959	5.4%	174	1.0%	514	2.9%	1,734	9.7%	3,381	19.0%