

Energy Efficiency Question 19: Has Michigan or have any other jurisdictions attempted to incentivize peak shaving vs. general energy efficiency? What have been the costs and benefits associated with these policies?

Executive summary

1. States vary on the inclusion of energy efficiency and peak demand reduction goals in their standards; some states only advance energy efficiency requirements while other states include both energy efficiency and demand reductions. The inclusion of peak demand reduction goals at the state level reflects the impact of demand reduction on energy prices.
2. Michigan has introduced several incentives for demand reduction into the Energy Efficiency Resource Standard (EERS). However, they have not proven effective in incentivizing demand response.

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These variances illustrate that the decision to include demand impacts as part of statewide requirements is made state-by-state, and that each state has its distinct objectives and rationale for the inclusion and magnitude of demand reduction goals.

Table 1 below lists a survey of current requirements for selected states and demonstrates the range of responses and goals across states.

Table 1. Current Requirements for Energy Efficiency and Demand Reduction Goals - Selected States

State	Energy Efficiency Goals	Peak Demand Reduction Goals	Peak Demand Goal Amount	Compliance Date	Notes
Delaware	Yes	Yes	15%	2015	2% peak demand reduction by 2011 increasing to 15% by 2015. Assumes base year peak demand in 2007
Illinois	Yes	Yes	1.10%	2018	0.1% reduction annually starting in 2008 through 2018
Indiana	Yes	No	-	-	Individual utilities have approved peak clipping programs
Maryland	Yes	Yes	15%	2015	5% reduction by the end of 2011, 10% reduction by 2013 and 15% by end of 2015 in per capita peak demand based on 2007 sales.

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State	Energy Efficiency Goals	Peak Demand Reduction Goals	Peak Demand Goal Amount	Compliance Date	Notes
New Jersey	Yes	Yes	5,700 MW	2020	Directed by 2008 NJ Energy Master Plan, not legislation. Goal remained unchanged in 2011 update.
Ohio	Yes	Yes	7.75%	2018	1% reduction in peak demand starting 2009 and 0.75% reduction annually from 2010- 2018.
Pennsylvania	Yes	Yes	4.5%	2012	4.5% reduction for top 100 hours of highest demand in Summer 2012.
Virginia	No	No	-	-	Goals are voluntary-utilities offer programs but are not mandated.
Wisconsin	Yes	No	-	-	Individual utilities have approved peak clipping programs

Sources:

1. Public Service Commission of Maryland, The EmPower Maryland Energy Efficiency Act Standard Report of 2012, March 2012.
2. Public Utilities Commission of Ohio, Ohio's Energy Efficiency and Alternative Energy Requirements, power point presented by Ray Strom, September 2012.
3. Act 129 Energy Efficiency and Conservation Program, Pennsylvania Public Utilities Commission, Implementation Order, Docket no. M-2012-2289411, August 2012.
4. 6. Personal communications, Mr. Chris Siebens, First Energy Corporation, Energy Efficiency and Demand Response Department, Reading Pennsylvania, February 2013.
5. The Brattle Group, The Current State of U.S Demand Response, Ryan Hledik, April 2012.

Rationale for Peak Demand Reduction Goals: The inclusion of peak demand reduction goals at the state level reflects the impact of demand reduction on energy prices. With some exception for system reliability, a reduction of demand during peak periods reduces the need to operate older, more expensive marginal-peaking generating units. Demand reduction can also defer the need to invest in new generating capacity. This set of benefits applies to independent investor-owned utilities responsible for their own system operations as well as to organized wholesale markets, which use merit dispatch methods to match supply to demand.

The impact of promoting demand reduction at the wholesale market was initially advanced through a report prepared for the PJM Interconnect: *"Quantifying Demand Response Benefits in PJM,"* prepared by the Brattle Group, which indicated that peak

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load reduction may provide wholesale price savings¹. According to the study, an assumed 3% reduction in peak load during the top 20-hour blocks resulted in wholesale price reductions of 5% to 8% on average. Note that the study was conducted in 2005-2006 timeframe. The Commonwealth of Pennsylvania is currently conducting a detailed study to use more current information (summer of 2012) to determine the impact on wholesale price and cost effectiveness². A similar study by the Brattle Group was recently completed for the Midwest Independent System Operator (Midwest ISO).³ These offerings are relatively new and there are no analytic results to review.

2. Michigan has introduced a few incentive measures for demand reduction in the Energy Efficiency Resource Standard (EERS). However, these policies have not proven effective in incentivizing increased demand response in Michigan.

2008 PA 295 allows electric providers, whose rates are regulated by the commission, to recover costs for demand response programs; however the demand response programs have to be undertaken pursuant to their energy optimization plans. At this time, cost recovery for demand response is limited to the programs implemented under Michigan's EERS.

The performance incentive mechanism that the Michigan Public Service Commission (MPSC) approved for Consumers Energy only affects the general energy efficiency programs that have a demand reduction component, not demand response. Demand response, by definition, does not result in significant energy savings. To qualify for the energy efficiency performance incentives, the programs have to meet energy saving targets. The performance incentive allows Consumers Energy to earn an additional 0.33%-1% of the overall program spending if the electric providers achieve (a) at least 100.1% of the mandated base energy savings and (b) certain system peak reduction requirements set by the MPSC for the utility. Consumers Energy can only achieve demand reduction credits by encouraging customers to adopt technologies that provide general energy efficiency with the demand reduction component at peak demand time periods. Demand response programs themselves do not qualify for the incentives.

¹ The Brattle Group, Quantifying Demand Response Benefits In PJM, The Brattle Group, Jan 2007.

² GDS Associates, Update on Demand Response Study, Pennsylvania Public Utility Commission Demand Response Stakeholders Meeting, February 2013.

³ The Brattle Group, Demand Response in the Midwest ISO, January 2010.

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Finally, if an energy optimization plan included investments in demand response, those investments would proportionately increase the energy saving targets for electric providers according to the provisions in 2008 PA 295. This has become a significant barrier for including demand response in energy optimization plans. The law stipulates that if an electric provider uses demand response to achieve energy savings under its energy optimization plan, the minimum energy saving requirements need to be increased so that the ratio of the minimum energy savings to the total program expenditures including both general energy efficiency and demand response remains constant.

Example: A 25% investment in demand response (\$1,000 on demand response out of \$5,000 total expenditures) leads to a 25% increase in the minimum energy saving requirements (from 1,000 MWh minimum energy savings to 1,250 MWh minimum energy savings) for the electric provider. The increased minimum energy saving requirement makes it more costly for electric providers to achieve the energy efficiency target.