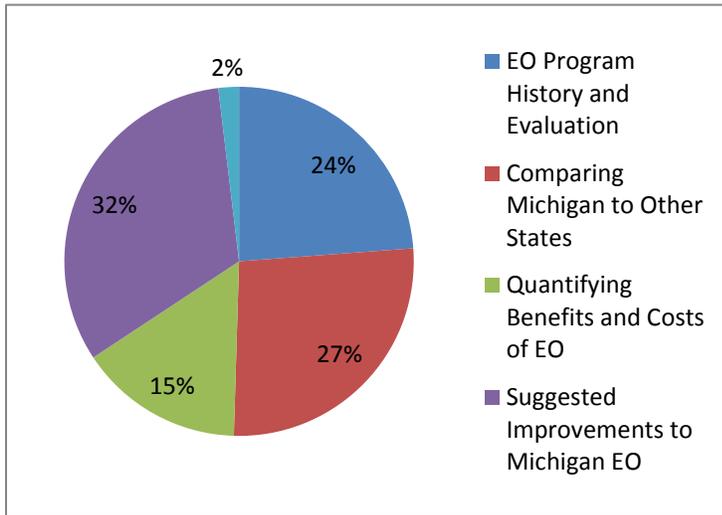


Readying Michigan to Make Good Energy Decisions – Energy Efficiency Executive Summary

The 30 energy efficiency questions posted on the Ensuring Michigan’s Energy Future website garnered 87 responses. The comment summary pie chart presents an overview of comments received at the website. Many additional comments regarding energy efficiency were provided at the public energy forums.



Where Michigan Is Today:

Michigan’s current Energy Optimization (EO) standard required electric providers to ramp up energy savings to 1.0% of the previous year’s electricity sales in 2012, and natural gas utilities to ramp up energy savings to 0.75% of the previous year’s sales in 2012. The provisions in PA 295 provide for the continuation of the 1.0% energy savings for electric providers and 0.75% energy savings for natural gas providers through 2015. Beyond 2015, the efficiency savings targets

would continue at 1.0% energy savings for electric providers and 0.75% for natural gas providers under Michigan’s current law. Michigan’s electric and gas utilities are, in aggregate, surpassing the standards set forth in PA 295. Natural gas utilities achieved 134% of their targets in 2011, while electric utilities achieved 116% of their targets in 2011. Actual results for 2012 also indicate the targets were met, with natural gas utilities achieving 126% of their targets, and electric utilities achieving 125% of their targets. For each dollar spent on utility EO programs during 2012, it is estimated that customers benefit from approximately \$3.83 in avoided energy costs (on a net present value basis). The total estimated savings for the 2012 program year is expected to reach \$936 million on a net present value basis, and for the 2013 through 2015 program years, an additional savings of \$2.8 billion is expected. Through 2011, Michigan consumers paid approximately \$408 million in support of EO programs. Program spending for 2012 was \$245 million, and program spending for 2013, 2014 and 2015 is expected to be about the same level as for 2012.

EO Program History and Evaluation

- Michigan utilities are on track to continue to meet the current EO targets.
- Utility EO programs are designed to encourage customers to make their homes or businesses more energy efficient. Utilities collect money from customers in the form of an itemized charge on the customers’ bills to fund the EO programs. The programs typically include rebates or incentives to reduce the upfront cost of energy efficiency upgrades such as lighting, furnaces and insulation.

- The objectives of the utility EO programs include delaying the need for new electricity generation, reducing emissions, encouraging local job creation, and lowering customers' utility bills.
- Commenters state that Michigan's EO programs to date have been cost effective.
- PA 295 provides that Michigan EO spending shall have a cap, not to exceed 2% of each utility's annual revenues. The cap provides an incentive for utilities to pursue the most cost-effective EO programs to achieve the energy savings targets.
- EO charges collected from a particular customer class, such as residential, commercial, industrial or low-income, must be spent within that same rate class.
- PA 295 contains provisions allowing non-residential customers to self-direct their own EO programs. Self-directed EO programs are self-funded, and self-directed EO program customers do not pay itemized EO charges to the utility. Self-directed EO programs have only been implemented by a handful of large customers.
- Commenters agree that energy efficiency should be considered a resource in long-term utility planning, however, caution was expressed that future savings may be somewhat more expensive to achieve than in the past, because many cost-effective EO programs have already been implemented. Estimates of the increased cost of future programming are included in the GDS Potential Study and further evaluated by Optimal Energy.

Comparing Michigan EO Programs to Other States

- Many differences exist between state energy efficiency programs related to targets, timing, funding, and applicability making it difficult to directly compare programs between various states.
- Six states have standards that are 2.0% of electric sales or higher and nine (including Michigan) have standards between 1.0% and 1.9%.
- Five of nine states have natural gas standards above 1.0% and three of nine (including Michigan) have standards between 0.5% and 0.9%.
- State standards generally allow a broad range of end-use efficiency programs to count, but differ on whether to include combined heat and power, applications of waste heat, reduced transmission and distribution line losses, and electric generator efficiency upgrades.

Identifying and Quantifying Benefits and Costs of EO

- Benefit-cost tests are typically used to evaluate EO programs. Michigan law requires the utilities to use the utility system resource cost test (USRCT) sometimes referred to as the utility cost test (UCT), or the Program Administrator Cost (PAC) test. The USRCT includes all of the costs and benefits experienced by the utility.

- Some commenters contend that the USRCT does not take into account other benefits that were identified by commenters such as environmental improvement, macro-economic growth, or societal benefits.
- The USRCT also does not take into account costs experienced outside of the utility, such as the customer's investment in new energy efficient equipment such as an upgraded furnace or insulation.
- Energy efficiency could also be used to prevent local reliability problems through geo-targeting.
- Utilizing the USRCT for calculating the benefits and costs synchs up well with revenue requirement (rate making) considerations.
- The report outlines additional methods for identifying and quantifying the benefits of EO programs.
- Michigan is one of the few states that relies on the USRCT (Utility System Resource Cost Test), also known as the Program Administrator Cost (PAC) test, as its primary test. Only one of the eight states surveyed for this report, and five states throughout the United States, use the PAC test as their primary test.

Improving Michigan's EO Programs

- Nearly one quarter of the comments submitted included alternatives for improving Michigan's EO programs.
- Suggested improvements include adding the following specific devices and emerging technologies in utility EO programs:
 - Flue-gas heat recovery systems
 - Combined heat and power systems
 - Geothermal heat pumps
- Additional alternatives for improving Michigan's EO programs included:
 - Providing customers with more detailed and timely data to better tailor their energy use to reflect utility system costs that vary in response to the timing of customer demands.
 - Upgrading building standards and codes.
 - Retaining flexibility and adaptability in EO programming.
 - Improving EO opportunities for all customer classes.
 - Improving low-income EO programming.
 - Integrating EO with utility business models.
 - Integrating EO with an RPS into a larger clean energy standard.
 - Greater consistency across utility programs such as commonality of forms and rebates providing for reduced confusion among contractors and customers.
 - Create incentives or remove the current disincentive for peak reductions and load management in order to reduce system peak loads.

Michigan's EO Potential

The Michigan Public Service Commission, DTE Energy and Consumers Energy worked together to complete a study in 2013 of energy efficiency potential in the state of Michigan. This draft study assesses electric and natural gas energy efficiency potential in Michigan over ten years, from 2014 through 2023. This energy efficiency potential study provides a roadmap for policy makers and identifies the energy efficiency measures having the greatest potential savings and the measures that are the most cost effective. GDS Associates, the consulting firm retained to conduct this study, produced the following estimates of energy efficiency potential:

- Technical potential
- Economic potential
- Achievable potential
- Constrained achievable potential

Summary of Key Findings in the Draft Potential Study

- This study examined 1440 electric energy efficiency measures and 811 natural gas measures in the residential, commercial and industrial sectors combined. The MPSC staff, utilities in Michigan, and stakeholder organizations all had input to the list of measures examined in this study.
 - For the State of Michigan overall, the *economic* potential for electricity savings over the next ten years (2014 – 2023) ranges between 30.1% and 33.8% of forecast kWh sales for 2023, producing the potential for a 38.0% - 40.9% reduction in electric demand in 2023. The *achievable* potential for electricity savings over the next ten years (2014 – 2023) is a range of 13.5% to 15.0% of forecast kWh sales for 2023, producing the potential for a 16.1% - 17.0% reduction in electric demand in 2023.
 - For the State overall, the *economic* potential for natural gas savings over the next ten years (2014-2023) ranges from 20.4% to 30.1% of forecast MMBtu sales for 2023. The *achievable* potential for natural gas savings over the next ten years (2014 – 2023) is a range of 10.6% to 13.4% of forecast MMBtu sales for 2023.
 - For the State overall, the constrained achievable potential scenario limits the spending on energy efficiency to 2% of utility revenues which is equal to the spending caps in the current law, whereas both the economic and achievable potential scenarios would likely require that the current spending cap in PA 295 be raised. The *constrained* achievable potential for electricity savings over the next ten years (2014 -2023) is 5.7% of forecast kWh sales for 2023, producing the potential for a 6.3% reduction in electric demand in 2023. The *constrained* achievable potential for natural gas savings over the next ten years (2014 -2023) is 5.7% of MMBtu sales for 2023.
- The available energy efficiency potential may vary between individual utilities in Michigan, particularly in the territories of rural cooperatives and Michigan's Upper Peninsula.

Energy Efficiency Options and Analysis (Optimal Energy Phase 2 Study)

Building upon the Energy Efficiency Potential Study, Optimal Energy conducted an analysis to facilitate Michigan's development of new energy savings targets. The efficiency potential estimates from GDS Associates' draft potential study was used to develop and present four concrete options for quantified annual energy and capacity targets and funding caps for years 2016-2020. The study also quantifies options for demand targets and explores expanded savings opportunities. Optimal Energy presents options for efficiency savings targets that would result in annual MWh (energy) savings of 0.7% to 24.4%, annual MW (electric demand) savings of 0.7% to 25.4%, and annual natural gas MMBtu savings of 0.6% to 19%. The Optimal Energy Phase 2 Study, *Options for Establishing Energy Efficiency Targets in Michigan: 2016 – 2020*, is included as Appendix E to this report.

Summary

- Michigan's utilities have met or exceeded and are expected to meet near-term EO targets.
- The EO programs in Michigan to date, have been cost-effective. (~2 cents/kWh which is less than 1/3 of the cost of new generation)
- Michigan has the potential to continue to achieve incremental cost-effective savings from energy efficiency.