

To: State of Michigan

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Q4. What is the history of the cost of conserved energy for natural gas and electric efficiency programs in Michigan by class (residential and non-residential)? How does this cost compare to the costs of new and existing generation?

First, the purpose of saving energy is to avoid the cost of generating, transmitting and distributing electricity – not just the cost of generation. Therefore, a comparison of energy efficiency costs to generation costs alone has very little value in the policy context because it ignores the costs associated with getting electricity from a power plant to our homes and businesses, as well as the line losses associated with that task. For this reason, regulators assess the cost-effectiveness of energy efficiency programs using the utility system resource cost test, as described more fully in the answer to Question #5 below.

That said, there is ample evidence that efficiency programs are even cheaper than just the generation costs associated with either new or existing sources of power. The Michigan PSC reports that the average levelized cost of the energy savings for electric utilities was \$20/MWh, compared to new natural gas combined cycle generation at \$66/MWh, or new coal generation at \$111/MWh. Consumers Energy reports that its 2011 electric efficiency portfolio produced savings for one cent per KWh, or \$10/MWh, just half of the state average cost per MWh for efficiency reported by the MPSC.¹ Thus, the cost of saving energy is between one-eleventh and one-third the cost of the levelized cost of building and operating a new coal or gas power plant.

The question also seeks to compare energy efficiency with generation from existing plants. It should be noted that while efficiency measures may be comparable to existing plants in the early years during which they provide savings, particularly if there is excess generating capacity, much of the savings they provide over their lives is often more appropriately comparable to new plants (or to the costs of existing plants whose lives are extended by new capital investments) which would otherwise have to be added to the system to meet the load that they are offsetting. However, even compared to existing generation costs, energy efficiency fares well.

- EIA reports that the average price per MWh of generation on the MISO wholesale market in 2012 was \$32 per MWh.

¹ Consumers Energy: 2011 Energy Optimization Annual Report, May 31, 2012, U-15805.

- In 2011, EIA reports that the U.S. average cost for operations, fuel and maintenance of an existing fossil power plant ranged from \$34 to \$44 per MWh. http://www.eia.gov/electricity/annual/html/epa_08_04.html
- These figures do not include any new capital costs required to retrofit existing plants, and since we know that both Consumers and Detroit Edison have concluded that substantial new capital investment is necessary to continue operating these generating facilities, this comparison does not reflect Michigan's reality.
- However, you can easily see that the current Michigan energy optimization programs with a cost of \$10-\$20/MWh are even cheaper than the generation-only cost from both new and existing plants.²

For the gas utilities, Consumers' gas portfolio produced savings at \$2.11/Mcf. EIA reports that for Michigan residential customers the average price for delivered natural gas ranged from \$9.17 to \$15.06 per thousand cubic feet, <http://www.eia.gov/dnav/ng/hist/n3010mi3m.htm>. Again, the comparison argues strongly for continued investment in efficiency programs in Michigan.

² The 2012-2013 projection of the average cost of energy efficiency for Michigan electric utilities of \$22/MWh is also much lower than generation from existing power plants.