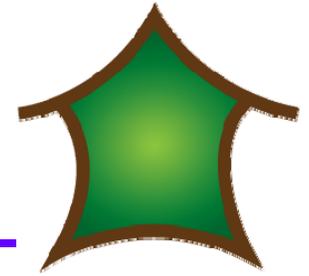




Response to Energy Efficiency Question #12

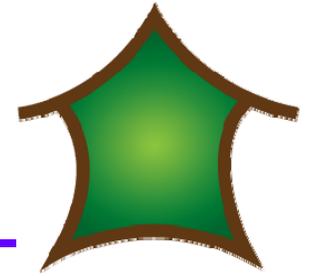
Amanda Godward
Owner

Energy Efficiency Question #12



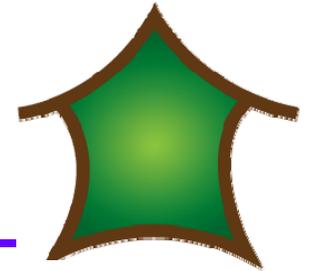
- **Q: Has Michigan and have other jurisdictions evaluated energy efficiency programs based upon first year savings and/or on lifecycle savings?**
- **A: Michigan currently evaluates based upon first year savings.**
 - PA295 - Incremental energy savings under subsection (1) or (3) for the 2008-2009 biennium or any year thereafter shall be determined for a provider by adding the energy savings expected to be achieved during a 1-year period by energy optimization measures implemented during the 2008-2009 biennium or any year thereafter under any energy efficiency programs consistent with the provider's energy efficiency plan.

Lifecycle Savings



- **A: Federal energy efficiency projects are evaluated based on lifecycle savings**
 - Section 707 of Executive Order 13123 defines life-cycle costs as **“...the sum of present values of investment costs, capital costs, installation costs, energy costs, operating costs, maintenance costs, and disposal costs over the life-time of the project, product, or measure.”**

ENERGY STAR Life Cycle Cost Estimate



Life Cycle Cost Estimate for an ENERGY STAR Qualified Gas Residential Furnace

This energy savings calculator was developed by the U.S. EPA and U.S. DOE and is provided for estimating purposes only. Actual energy savings may vary based on use and other factors.

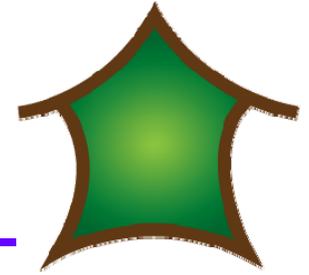
Annual and Life Cycle Costs and Savings for a Gas Furnace

	ENERGY STAR Qualified Unit	Conventional Unit	Savings with ENERGY STAR
Annual Operating Costs*			
Energy cost	\$978	\$1,222	\$244
<i>Energy Consumption (MMBTU)</i>	102	127	25
<i>Energy Consumption (Therms)</i>	1,018	1,273	255
Maintenance cost	\$0	\$0	\$0
Total	\$978	\$1,222	\$244
Life Cycle Costs*			
Operating costs (energy and maintenance)	\$12,377	\$15,471	\$3,094
Energy costs	\$12,377	\$15,471	\$3,094
<i>Energy Consumption (MMBTU)</i>	1,833	2,291	458
<i>Energy Consumption (Therms)</i>	18,332	22,914	4,583
Maintenance costs	\$0	\$0	\$0
Purchase price	\$1,400	\$0	\$1,400
Total	\$13,777	\$15,471	\$1,694
		Simple payback of initial additional cost (years) [†]	5.7

* Annual costs exclude the initial purchase price. All costs, except initial cost, are discounted over the products' lifetime using a real discount rate of 4%. See "Assumptions" to change factors including the discount rate.

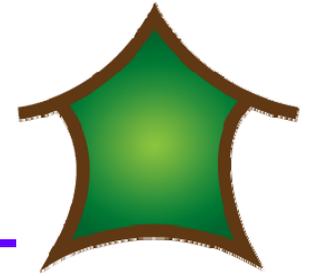
† A simple payback period of zero years means that the payback is immediate.

Benefits of Lifecycle Savings



- The State of Michigan can quantify the true energy savings potential and value of energy optimization (EO) programs
 - Lifecycle cost analysis shows potential and necessity of future EO programs
- Utility companies can incentivize energy efficiency improvements to meet EO goals in the most cost effective way
 - Quantifying lifecycle savings provides accurate cost analysis for program development
- Customers can understand the full picture of all the cost benefits of energy efficiency improvements
 - Lifecycle cost analysis lines up with generally accepted financing guidelines
- Using a lifecycle basis illustrates more cost savings than first year savings, EO targets should be adjusted accordingly to at least maintain current levels
 - Yearly targets should be incrementally increased as the cost savings will be carried out throughout the life of the efficiency measure

Reference



- [ENERGY STAR Life Cycle Cost Estimate](#)
- [Guidance on Life Cycle Cost Analysis](#)
- [Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis – 2012](#)