MEEA
Midwest Energy Efficiency Alliance

The Source On Energy Efficiency

Essentials of Energy Efficiency

What is Energy Efficiency?

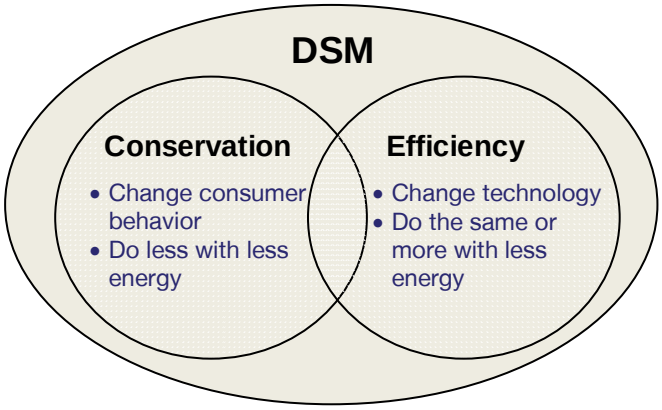
A recent survey confirmed that most energy consumers do not understand their own usage or the most effective steps to reduce their energy consumption. As such, it is important to educate consumers on energy efficiency measures and develop programs that support the investment in energy efficiency. *So, what is energy efficiency?*

Energy efficiency is a technology-driven process that seeks to maintain the level of *energy service* – the useful work we get from energy – while reducing *energy demand* – the amount of energy required to meet our energy needs. Examples of energy efficiency include installing a better light bulb, or insulating a building so it loses less energy.. Related to energy efficiency is energy conservation (also known as curtailment), which is more behavior-driven, and seeks to reduce overall energy demand by changing the type or level of energy-using activity. Conservation includes activities like turning off the lights, or turning down the thermostat.

Energy efficiency and energy conservation are distinct, but very complementary. For example, installing high-efficiency lights and also turning them off when you leave the room, reduces your energy use to light your home by both efficiency and conservation actions. In fact, some energy efficiency experts believe that behavioral change is a necessary factor in addition to technological change in order to achieve long-term energy savings.

Collectively, we refer to energy conservation and energy efficiency activities as Demand Side Management (DSM), and together they play an essential role in the supply and demand economics that control the cost and availability of the electricity and natural gas that our homes, businesses, and industries require.

Figure 1: Relationship between Demand-Side Management Activities



Examples of Successful Energy Efficiency Programs

Utilities develop, or work with other organizations to develop, energy efficiency programs to meet energy efficiency goals – whether mandated by legislation or voluntarily set – and to provide energy savings for their customers. Some examples of successful energy efficiency programs include:

- Residential compact fluorescent (CFL) lighting.
- Commercial and industrial fluorescent and LED lighting retrofit.
- ENERGY STAR® appliance rebates with take-back and recycling of old appliances.
- Heating, ventilation, and air conditioning (HVAC) optimization and retrofit.
- Home weatherization.
- Contractor education and training.
- Commercial building operator training and certification.
- Youth education and high-efficiency product fundraising programs.

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Why is Energy Efficiency Important?

Energy efficiency is important because, fundamentally, it helps to control energy cost. The national average cost of saving a kilowatt-hour (kWh) of electricity is 2.5 cents per kWh, whereas the year-to-date national average retail price of electricity (across residential, commercial, industrial, and transportation sectors) is about 9.5 cents per kWh. Similarly, the year-to-date average customer price of natural gas is about $1.16 per therm for residential customers, while the cost of saving natural gas is 37 cents per therm. As the energy needs of consumers increase, the cost of the fuels that utilities use to generate electricity and the wholesale cost of natural gas to the utility also tend to increase, following the economics of supply and demand.

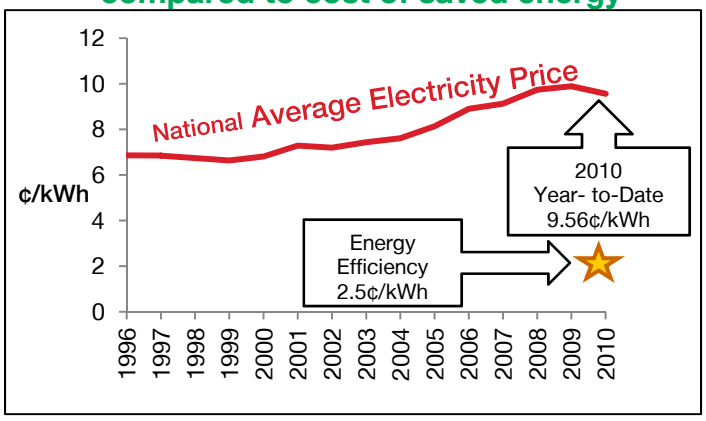
As cost increases for the utility, rates increase for the consumer. Over time, though, the cost of saving energy has been very consistent. If a utility invests in cost-effective energy efficiency, rather than in energy supply in order to meet some of the energy demand, the savings can be passed along to their customers. A recent McKinsey & Company report found the potential for energy efficiency to reduce nationwide consumer utility bills by $680 billion cumulatively through 2020, through demand reduction of about 23%.

Examples of Public Policies that Promote Energy Efficiency

Policymakers can adopt a variety of policies that promote energy efficiency practices, including:

- Building energy codes.
- Appliance energy efficiency standards.
- Energy Efficiency Resource Standards (EERS) that mandate utility efficiency goals.
- Energy Efficiency financing programs .
- Treating energy efficiency as a clean energy source in utility planning processes.
- Aligning utility incentives with investments in energy efficiency, including cost recovery.
- Incentives for exceeding utility efficiency goals, and penalties for non-compliance.

Figure 2: Average customer cost of electricity compared to cost of saved energy



Sources: Energy Information Administration; American Council for an Energy-Efficient Economy

More information about Energy Efficiency

Organizations

Midwest Energy Efficiency Alliance (MEEA)
http://www.mwalliance.org

American Council for an Energy-Efficient Economy (ACEEE)
http://www.aceee.org

Alliance to Save Energy (ASE)
http://www.ase.org

Kentucky Department for Energy Development and Independence (DEDI)
http://energy.ky.gov

U.S. Department of Energy (US DOE)
http://energy.gov/

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