

Empowering smarter energy choices

There's more to home energy management than adjusting a thermostat or switching to compact fluorescent lamps. A smart-grid-enabled home, with smart metering, time-of-use pricing and simple user interfaces, enables consumers to make more intelligent energy choices — helping them manage energy usage and save money without compromising their lifestyles.

At the same time, smart homes help utilities manage peak loads, lower the need for additional peaking power plants, and reduce costs.

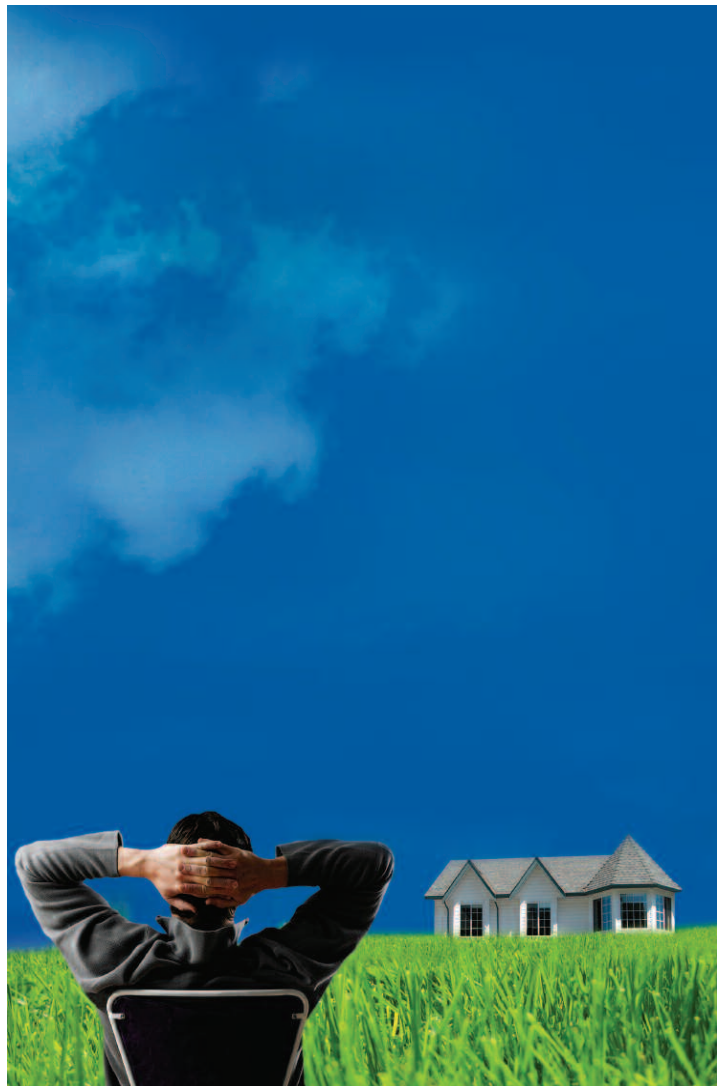
The old way:

Consumers “managed” energy consumption with one-dimensional changes, such as fluorescent lights and programmable thermostats. They had no compelling, ongoing evidence that it paid to be more vigilant.

The smarter way:

Smart-grid-enabled smart homes with time-of-use metering and energy-management tools help consumers monitor, manage and control energy usage, while helping them optimize performance and reduce energy losses from major appliances, heating, cooling, and lighting. With smart grid, consumers can manage energy usage and costs throughout the day, without compromising their lifestyles.

Smart Homes – Empowering Consumers to Manage Energy Usage & Save Money Every Day



The facts:

- Residential electricity prices are on the rise.¹
- The open-market mine price of coal, which accounts for 50% of U.S. net electricity generation², increased nearly 40% from 1995 to 2007, and is expected to rise in 2009.³
- The cost to build power plants is rising.⁴
- Anticipated federal legislation will likely force coal-fired generators to pay carbon taxes, adding yet more cost for consumers.⁵

Smart Homes make every household a potential source of savings

Home Energy Challenges	Smart Grid Advantages
<p>Electricity prices are climbing and most consumers are not empowered with information to manage energy usage and costs.</p>	<p>Most consumers don't realize the cost of electricity varies based on demand. Electricity is cheaper to produce during off-peak hours and more expensive during peak hours when additional generation is needed. Yet most residential electricity customers pay one set price — regardless of the time of day. Smart meter technologies enable “time of use” pricing, which offers lower prices during off-peak periods.</p> <p>A U.S. Department of Energy study showed that smart grid consumers were able to save 10% on power bills and cut power use 15% during peak hours with access to time-of-use pricing information.⁶</p>
<p>Even the most-high-tech appliances run on their own schedules with no regard for energy availability or electricity costs.</p>	<p>Within 10 years, GE energy-management-enabled appliances could be as common as ENERGY STAR® products today. GE is investing in these appliances to help consumers use less energy and reduce their utility costs in the future.</p> <p>These appliances work with the smart meters to avoid peak-hour energy usage and top-tier pricing — without any negative impact on the consumer. How? The automatic defrost cycle in most refrigerators is initiated based upon the number of door openings. Whenever the count is high enough, the cycle begins regardless of the time of day or cost of electricity at that time. In a smart refrigerator, the appliance will track door openings and the cost of electricity, enabling the refrigerator to defrost when it's cheapest to do so. This shift in timing will help to save the consumer money, and will also help to reduce the power requirements on the grid at peak times.</p>
<p>Home-based renewable generation can slash household emissions and lower energy bills. But this is not yet widely adopted.</p>	<p>With a smart-home mindset and smart-grid-enabled net metering, consumers will have the ability to easily sell excess power back to the grid without problems. Plus, with time-of-use pricing, consumers are incented to sell back to the grid during peak hours at higher rates, further offsetting rising power bills.</p>

¹ Energy Information Administration. “Short Term Energy Outlook.” http://www.eia.doe.gov/emeu/steo/pub/jan09_text.pdf. January 2009.

² Energy Information Administration. “Electric Power Industry 2007: Year in Review.” Figure ES 1: U.S. Electric Power Industry Net Generation, 2007. http://www.eia.doe.gov/cneaf/electricity/epa/epa_sum.html. 21 January 2009.

³ Energy Information Administration. “Coal prices.” Average Open Market Mine Price of U.S. Coal 1995-2007. <http://www.eia.doe.gov/ncic/infosheets/coalprice.html>. February 2009.

⁴ I.H.S. and Cambridge Energy Research Associates (CERA). Power Capital Costs Index. <http://energy.ihs.com/News/Press-Releases/2008/North-American-Power-Generation-Construction-Costs-Rise-27-Percent-in-12-Months-to-New-High-IHS-CERA.htm>. 14 February 2008.

⁵ Davidson, Paul. USA Today. “Price Jolt: Electricity bills going up, up, up.” 20 June 2008. <http://www.usatoday.com>.

⁶ Department of Energy's Pacific Northwest Laboratory, GridWise project, January 9, 2008

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