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Shocker: Power demand from US homes is falling

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NEW YORK (AP) — American homes are more cluttered than ever with devices, and they all need power: Cellphones and iPads that have to be charged, DVRs that run all hours, TVs that light up in high definition.

But something shocking is happening to demand for electricity in the Age of the Gadget: It's leveling off.

Over the next decade, experts expect residential power use to fall, reversing an upward trend that has been almost uninterrupted since Thomas Edison invented the modern light bulb.

In part it's because Edison's light bulb is being replaced by more efficient types of lighting, and electric devices of all kinds are getting much more efficient. But there are other factors.

New homes are being built to use less juice, and government subsidies for home energy savings programs are helping older homes use less power. In the short term, the tough economy and a weak housing market are prompting people to cut their usage.

As a result, many families can expect their monthly bills to remain in check, even if power prices rise. For utility executives, who can no longer bank on ever-growing demand, a major shift is under way: They're finding ways to profit when people use less power.

"It's already having an impact and we may just be in the early innings of this," says Michael Lapedes, a utilities analyst at Goldman Sachs.

From 1980 to 2000, residential power demand grew by about 2.5 percent a year. From 2000 to 2010, the growth rate slowed to 2 percent. Over the next 10 years, demand is expected to decline by about 0.5 percent a year, according to the Electric Power Research Institute, a nonprofit group funded by the utility industry.

Overall demand, including from factories and businesses, is still expected to grow, but at only a 0.7 percent annual rate through 2035, the government says. That's well below the average of 2.5 percent a year the past four decades.

Utility executives have been aware that the rate of demand growth is slowing, but a more dramatic shift than they expected may be under way. Executives were particularly surprised by a dip during the first three months of this year, the most recent national quarterly numbers available. Adjusted for the effects of weather, residential power demand fell 1.3 percent nationwide, an unusually sharp drop.

Executives and analysts are perplexed because residential demand doesn't usually track economic ups and downs very closely. Even when the economy is stagnant, people still watch TV and keep their ice cream cold.

"No one knows if it's customer concern about the economy or a structural change," says Bill Johnson, CEO of Progress Energy, which serves Florida and the Carolinas.

For now, meters are spinning more slowly due to a mix of long-term and short-term factors:

— Lighting, which accounts for 10 to 15 percent of a typical family's power use, is much more efficient than it used to be. Americans are installing compact fluorescent bulbs and light emitting diodes, which are up to 80

percent more efficient than incandescent bulbs. Traditional incandescent bulbs will start disappearing from store shelves next year because they waste too much energy to meet federal standards crafted in 2007.

— Federal and state efficiency programs have expanded rapidly. Twenty-eight states have passed laws that force utilities to help customers use less power. The federal stimulus program allocated \$11 billion to local efficiency programs, including subsidies for home weatherization and the purchase of energy-efficient appliances.

— With the U.S. economy in the doldrums and gas prices high, families are trying to save money. It's easier to turn off the air conditioner than shorten your commute, says John Caldwell, director of economics at the Edison Electric Institute, a trade group.

— The weak housing market has kept people from moving into bigger homes. And high unemployment is forcing college graduates and other family members to live together.

When Stephen Botehlo, a software designer in Westwood, Mass., moved his family into a 2,000-square foot, 80-year-old ranch, he knew his electric bill would rise. There was an electric dryer in the basement. The insulation was poor. And the kitchen was lit with 15 high-watt incandescent light bulbs.

"You could get a suntan if you turned all the lights on," he says. "I could practically hear the meter spinning outside."

He requested an energy audit from his utility, Nstar, to help cut his power use. Nstar installed what Botehlo estimates to be \$200 worth of compact fluorescent bulbs. He replaced his electric dryer with a gas-powered one. And with the help of rebates from the state, he had insulation blown into his attic. Next up: replacing a 14-year-old electric water heater with a gas model, which he expects will cut his \$950 annual water-heating bill in half.

National Grid, a gas and electric utility whose territory includes Massachusetts, New Hampshire, New York and Rhode Island, is seeing the effects of such behavior.

"Over the last six years we have seen decreased or flat growth, especially on the residential side," says Ed White, the company's vice president of customer and business strategy.

Suddenly faced with shrinking sales, some utilities are asking for regulatory changes so they can charge higher rates per kilowatt hour in exchange for helping customers further reduce consumption, reducing power demand and customers' electric bills at the same time.

In California, where utilities pioneered this approach in the early 1980s, residential power demand has grown at half the nationwide pace over the last 30 years, even though the state's population grew at a faster rate than the nation's.

In general, it is now cheaper for utilities to help customers cut back than to build a power plant. In past decades, the reverse was true. That's because the cost of materials and labor have risen faster than the price of power. There will continue to be a need for new plants, however, as existing facilities age.

Residential power use has fallen even as the number of electronic devices has exploded because the devices themselves have gotten more efficient. In the 1970s, for example, refrigerators used 2,000 kilowatt-hours per year. Today, they use 500.

IPads are everywhere and everyone seems to have a smartphone, but engineers have designed them to sip power because battery life is a major selling point. Also, these devices, as well as ever more powerful laptops, are cutting into the use of less efficient desktop computers.

The first flat screen TVs used twice as much power as their widebodied ancestors, but they have been getting dramatically more efficient in recent years, according to Tom Reddoch, executive director of energy efficiency at EPRI. "The flat panel community heard they were energy hogs and they did something about it," he says.

Appliances are expected to get even more efficient over the next two decades. An EPRI analysis predicts refrigeration will get 29 percent more efficient, space heating will get 24 percent more efficient and TVs and computers will get 22 percent more efficient. Energy needed for lighting will decline by half.

Experts caution that home electricity demand could begin to grow again if power-hungry devices that have yet to be imagined catch on, or if a device already imagined — the electric car — goes mainstream.

In the meantime, though, Americans are expected to watch their favorite TV shows on more efficient TVs. Or at least turn them off when they leave the room.

"Some do it for green reasons, some for money," says White, of National Grid. "We don't care why they are doing it, as long as they are doing it."

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