

Cable TV boxes become second biggest energy users in many homes

June 17 2014

In the middle of the night, when most Americans are sound asleep, their lights and appliances off, a power hog is wide awake and running at nearly full throttle: the boxes that operate their cable or satellite television service.

The seemingly innocuous appliances - all 224 million of them across the nation - together consume as much electricity as produced by four giant nuclear reactors, running around the clock. They have become the biggest single energy user in many homes, apart from air conditioning.

Cheryl Williamsen, a Los Alamitos, Calif., architect, has three of the boxes leased from her cable provider in her home, but she had no idea how much [power](#) they consumed until recently, when she saw a rating on the back for as much as 500 watts - about the same as a washing machine.

A set-top cable box with a digital recorder can consume as much as 35 watts of power, costing about \$8 a month for a typical Southern California consumer. The devices use nearly as much power turned off as they do when they are turned on.

"I could yank the power supply cord," Williamsen said, "but that's not a very consumer-friendly way to reduce energy consumption."

The boxes have been at the center of a battle between the cable industry and conservationists who believe the devices could be far more efficient.

"It is a classic case of market failure," said Andrew McAllister, a member of the California Energy Commission. "The consumers have zero information and zero control over the devices they get."

The industry agreed recently to voluntarily reduce the [power consumption](#) of new devices, which it said would save consumers \$1 billion annually. But experts say the deal will provide only a fraction of the potential gains and take years to realize.

The fight over set-top boxes is a stark illustration of the difficulty of wringing energy efficiency improvements even in an era when Americans are trying to reduce their energy footprint over concerns about global warming and family budgets are strained by rising electricity prices. The recent announcement by the Obama administration of plans to reduce carbon emissions from [power plants](#) by 30 percent and reduce electricity costs to the nation by 8 percent will require unprecedented improvements in efficiency.

Electricity demand is growing far more slowly today, thanks to conservation over the last decade. But total use is still projected to grow 29 percent by 2040, according to the Energy Department. Slower growth could reduce the pressure to build new gas-fired power plants as the nation retires low-cost coal-fired generators that cannot meet pollution standards.

While the technology exists to make giant strides in energy efficiency, the economic incentives are often missing. In many cases, there is no connection between who pays for electricity and who decides how much electricity gets used.

Steve Kelley, a senior vice president at Green Charge Networks, a Santa Clara, Calif., electronics firm that produces devices that help businesses lower their power bills, offers a case in point. The nation's shopping

malls annually use hundreds of millions of dollars of electricity, he said, but their owners are often indifferent about reducing power consumption because tenants pay the bills.

"The mall owners often won't consider spending \$50,000 on a system that would pay for itself, because they don't share in the savings," Kelley said.

Similarly, tenants in millions of apartments pay for electricity, but landlords decide whether they get efficient appliances, modern air conditioning systems and good building insulation. Many landlords, particularly those who rent modest apartments to working-class families, do not believe they can charge higher rents for units with improved efficiency, studies show.

The opposite problem exists at workplaces, where employees control much of the power use but do not pay the bills. Employees commonly use energy intensive space heaters under their desks, plug in incandescent lights or leave computers running all night.

It has fallen to the federal and state governments to clamp on mandatory standards in many cases, though they are fiercely opposed by the industry. Federal standards on refrigerators and televisions have driven down their energy use by 75 percent, even while the retail prices have dropped, said Ralph Cavanagh, an energy expert at the Natural Resources Defense Council.

"There are still lots of \$20 bills lying on the sidewalk," he said. "The potential is huge."

The set-top box issue is part of a much larger group of personal electronic devices in homes that represent one of the fastest-growing parts of residential electricity use. Americans are spending more than

\$12 billion a year on electricity to run computers, smartphones, game consoles, modems and other devices in their homes - one price of the nation's connected culture, according to estimates by the Consumer Federation of America.

"It is a very tough case to make to tell consumers don't use these devices," said Severin Borenstein, director of the UC Energy Institute. "People, as they get wealthier, are getting new toys and almost all of the things we do use electricity."

The set-top boxes consume power when turned off because of spinning hard drives, program guide updates and software downloads, leaving consumers with one choice to reduce that load: Unplug the device. The downside is that turning the system back on requires a convoluted reboot.

Energy experts say the boxes could be just as efficient as smartphones, laptop computers or other electronic devices that use a fraction of the power thanks to microprocessors and other technology that conserves [electricity](#). Ideally, they say, these boxes could be put into a deep sleep mode when turned off, cutting consumption to a few watts. At that rate, a box could cost less than \$1 a month for power, depending on how much it is used.

McAllister said the commission was closely watching the voluntary agreement and may still impose binding state standards.

The deal signed late last year by 11 cable and satellite companies, which control the bulk of the nation's communications services, calls for a power reduction in the range of 10 percent to 45 percent by 2017. It requires an independent audit of the program, detailed public reports and disclosures to consumers.

Brian Dietz, a spokesman for the National Cable & Telecommunications Association, said that by 2017 about 90 percent of the boxes would meet a standard set by the federal government, though a more ambitious standard was already being established. Dietz said the new boxes would provide all the current functionality for consumers, allowing them to program their television watching and to record shows, while still saving energy.

But Mark Cooper, research director of the Consumer Federation of America, takes a dim view of the deal, saying, "This voluntary agreement is very modest, to say the least."

Noah Horowitz, research director at the Natural Resources Defense Council, which was one of the organizations that signed the deal, said, "It is a good first step, but a lot more needs to be done." It does not require the devices go down to a trickle when turned off, for example. And the agreement has no penalties for noncompliance.

Horowitz said the council agreed to the deal because a federal standard could have taken eight years.

"The industry was putting up a big fight," he added, "threatening litigation."

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Citation: Cable TV boxes become second biggest energy users in many homes (2014, June 17)
retrieved 20 April 2024 from <https://phys.org/news/2014-06-cable-tv-biggest-energy-users.html>

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