

No, You Can't

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COPENHAGEN – Several thousand officials from 194 countries just gathered in Cancún, Mexico, for yet another global climate summit. Dissatisfied with the pace of climate diplomacy, many individuals are now wondering what they can do about climate change on their own.



For years now, climate activists from Al Gore to Leonardo DiCaprio have argued that individual actions like driving more economical cars and using more efficient light bulbs are a crucial element in the effort to address global warming. The United Nations' climate panel and the International Energy Agency both echo this sentiment, insisting that higher energy efficiency could reduce energy consumption by up to 30% – making improved efficiency an effective remedy for climate change. But is this really true?

Here's something to think about. Back in the early 1970's, the average American expended roughly 70 million British thermal units per year to heat, cool, and power his or her home. Since then, of course, we have made great strides in energy efficiency. As *The Washington Post* recently reported, dishwashers now use 45% less power than they did two decades ago, and refrigerators 51% less. So how much energy do Americans use in their homes today? On a *per capita* basis, the figure is roughly what it was 40 years ago: 70 million BTUs.

This surprising lack of change is the result of something economists call the "rebound effect." It's a phenomenon familiar to urban planners, who long ago discovered that building more roads doesn't ease traffic jams – it merely encourages more people to get in their cars and drive.

The underlying principle is a decidedly counterintuitive fact of life. You might think that learning to use something more efficiently will result in your using less of it, but the opposite is true: the more efficient we get at using something, the *more* of it we are likely to use. Efficiency doesn't reduce consumption; it increases it.

The Breakthrough Institute recently highlighted on its blog some startling – and important – research findings along these lines, published in August in *The Journal of Physics* by energy economist Harry Saunders and four colleagues from the US Department of Energy's Sandia National Laboratories. As Saunders noted in a summary on the blog, he and his colleagues, drawing on "300 years of evidence," found that, "as lighting becomes more energy efficient, and thus cheaper, we use ever-more of it."

For this reason, the proportion of resources that we expend on lighting has remained virtually unchanged for the past three centuries, at about 0.72% of gross domestic product. As Saunders and his colleagues observe in their journal article, "This was the case in the UK in 1700, is the case in the undeveloped world not on grid electricity in modern times, and is the case for the developed world in modern times using the most advanced lighting technologies."

The conclusion that Saunders and his co-authors draw from this is both surprising and hard to dispute: rather than shrinking our electricity use, the introduction of ever more efficient lighting technologies is much more likely to lead to "massive...growth in the consumption of light."

It's difficult to overstate what these findings mean for climate policy. In a nutshell, they tell us that, while increasing energy efficiency is undoubtedly a good thing, it is most assuredly not a remedy for global warming. Or, as Saunders puts it, "energy efficiency may be a net positive in increasing economic productivity and growth, but should not be relied upon as a way to reduce energy consumption and thus greenhouse gas emissions."

This is not an argument that should encourage anyone to go out and buy a Hummer. But we shouldn't fool ourselves into thinking that swapping our current car for a Prius, or replacing our incandescent lights with energy-efficient fluorescent bulbs, will strike a meaningful blow against climate change. The real fix to this problem will come when governments focus on research and development aimed at boosting the proportion of green energy sources in overall consumption.

It may be reassuring to believe there are cheap and easy things we can do as individuals to stop global warming, or that the answer is to continue chasing a chimerical global agreement on carbon cuts, as in Cancún. But the real action that we can take is to press our politicians to put smarter ideas on the table.

Bjørn Lomborg is the author of *The Skeptical Environmentalist and Cool It*, head of the Copenhagen Consensus Center, and an adjunct professor at Copenhagen Business School. A new documentary about him and his work, also entitled *Cool It*, was released in the US on November 12.

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