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| **Energy Efficiency Creating More Pollution?** |

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| ***New York Times*** |

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| New York Times March 7, 2011 When Energy Efficiency Sullies the Environment By JOHN TIERNEY For the sake of a cleaner planet, should Americans wear dirtier clothes? This is not a simple question, but then, nothing about dirty laundry is simple anymore. We’ve come far since the carefree days of 1996, when Consumer Reports tested some midpriced top-loaders and reported that “any washing machine will get clothes clean.” In this year’s report, no top-loading machine got top marks for cleaning. The best performers were front-loaders costing on average more than $1,000. Even after adjusting for inflation, that’s still $350 more than the top-loaders of 1996. What happened to yesterday’s top-loaders? To comply with federal energy-efficiency requirements, manufacturers made changes like reducing the quantity of hot water. The result was a bunch of what Consumer Reports called “washday wash-outs,” which left some clothes “nearly as stained after washing as they were when we put them in.” Now, you might think that dirtier clothes are a small price to pay to save the planet. Energy-efficiency standards have been embraced by politicians of both parties as one of the easiest ways to combat global warming. Making appliances, cars, buildings and factories more efficient is called the “low-hanging fruit” of strategies to cut greenhouse emissions. But a growing number of economists say that the environmental benefits of energy efficiency have been oversold. Paradoxically, there could even be more emissions as a result of some improvements in energy efficiency, these economists say. The problem is known as the energy rebound effect. While there’s no doubt that fuel-efficient cars burn less gasoline per mile, the lower cost at the pump tends to encourage extra driving. There’s also an indirect rebound effect as drivers use the money they save on gasoline to buy other things that produce greenhouse emissions, like new electronic gadgets or vacation trips on fuel-burning planes. Some of the biggest rebound effects occur when new economic activity results from energy-efficient technologies that reduce the cost of making products like steel or generating electricity. In some cases, the overall result can be what’s called “backfire”: more energy use than would have occurred without the improved efficiency. Another term for backfire is the Jevons Paradox, named after a 19th-century British economist who observed that while the steam engine extracted energy more efficiently from coal, it also stimulated so much economic growth that coal consumption increased. That paradox was mostly ignored by modern environmentalists, who have argued that rebound effects are much smaller today. But economists keep finding contrary evidence. When Britain’s UK Energy Research Center reviewed more than 500 studies on the subject, it rejected the assumption that rebound effects were small enough to be disregarded. The author of the 2007 report, Steve Sorrell, noted that these effects could, in some circumstances, “potentially increase energy consumption in the long term.” A similar conclusion comes from a survey of the literature published last month by the Breakthrough Institute, an American research group that studies ways to slow global warming. Its authors, Jesse Jenkins, Ted Nordhaus and Michael Shellenberger, warn that “rebound effects are real and significant,” and could sometimes erode all the expected reductions in emissions. “Efficiency advocates try to distract attention from the rebound effect by saying that nobody will vacuum more because their vacuum cleaner is more efficient,” Mr. Shellenberger said. “But this misses the picture at the macro and global level, particularly when you consider all the energy that is used in manufacturing products and producing usable energy like electricity and gasoline from coal and oil. When you increase the efficiency of a steel plant in China, you’ll likely see more steel production and thus more energy consumption.” Consider what’s happened with lighting over the past three centuries. As people have switched from candles to oil-powered lamps to incandescent bulbs and beyond, the amount of energy needed to produce a unit of light has plummeted. Yet people have found so many new places to light that today we spend the same proportion of our income on light as our much poorer ancestors did in 1700, according to an analysis published last year in The Journal of Physics by researchers led by Jeff Tsao of Sandia National Laboratories. “The implications of this research are important for those who care about global warming,” said Harry Saunders, a co-author of the article. “Many have come to believe that new, highly-efficient solid-state lighting — generally LED technology, like that used on the displays of stereo consoles, microwaves and digital clocks — will result in reduced energy consumption. We find the opposite is true.” These new lights, though, produce lots of other benefits, just as many other improvements in energy efficiency contribute to overall welfare by lowering costs and spurring economic growth. In the long run, that economic growth may spur innovative new technologies for reducing greenhouse emissions and lowering levels of carbon dioxide. But if your immediate goal is to reduce greenhouse emissions, then it seems risky to count on reaching it by improving energy efficiency. To economists worried about rebound effects, it makes more sense to look for new carbon-free sources of energy, or to impose a direct penalty for emissions, like a tax on energy generated from fossil fuels. Whereas people respond to more fuel-efficient cars by driving more and buying other products, they respond to a gasoline tax simply by driving less. A visible tax, of course, is not popular, which is one reason that politicians prefer to stress energy efficiency. The costs and other trade-offs of energy efficiency are often conveniently hidden from view, and the prospect of using less energy appeals to the thrifty instincts of consumers as well as to the moral sensibilities of environmentalists. But if the benefits of energy efficiency have been oversold, then that’s more reason to consider alternatives like a carbon tax, and to look more carefully at the hidden costs and trade-offs involved in setting rigid standards for efficiency. Unlike a carbon tax, which gives consumers and manufacturers an incentive to look for smart ways to save energy, a mandated standard of efficiency can reduce flexibility and force people into choices they wouldn’t ordinarily make — including ones with consequences more serious than dirty clothes. Because of the smaller and consequently less safe cars built to meet federal fuel-efficiency standards starting in the 1980s, there were about 2,000 additional deaths on the highway every year, according to the National Research Council. And now the federal government is imposing even more stringent standards, with little objection except from a few critics like Sam Kazman of the Competitive Enterprise Institute, a free-market-oriented nonprofit research group. “Efficiency mandates have become feel-good mantras that politicians invoke,” Mr. Kazman said. “The results of these mandates have ranged from costly fiascos, such as once-dependable top-loading washers that no longer wash, to higher fatalities in cars downsized by fuel-efficiency rules. If the technologies were so good, they wouldn’t need to be imposed on us by law.” No matter what laws are enacted, people are going to find ways to use energy more efficiently — that’s the story of civilization. But don’t count on them using less energy, no matter how dirty their clothes get.  |

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| ***For Discussion*** |

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| 1. Define: Top-loading, inflation, paradox, proportion, incandescent, solid-state, LED, economic growth 2. Does this article convince you that the rebound effect is significant? If so, how does it do so? If not, what more information would you need? 3. What impact do dirtier clothes have on people? What would you do if you didn’t have $1000 to spend on a washing machine? 4. What is low-hanging fruit? Why did some people consider energy efficiency to be the low-hanging fruit of greenhouse emission cuts? What would be higher fruit? 5. Could energy-efficient washing machines contribute to the rebound effect? If so, how? 6. “the prospect of using less energy appeals to the thrifty instincts of consumers as well as to the moral sensibilities of environmentalists?” Is thrift moral? Is environmentalism? What are the goals of each? 7. “If the technologies were so good, they wouldn’t need to be imposed on us by law.” Is he right? What are some reasons for consumers not to purchase the most energy-efficient item possible? Are energy efficiency laws good for consumers? 8. How do energy efficiency laws, or laws that require us to use less energy to get the same product, different from laws that simply limit the amount of energy that we can use? Is one easier than the other? 9. “this misses the picture at the macro and global level.” What is the macro level? If regulations are intended to target a particular area, how is it that they end up having a broad impact? 10. Can you cause people to use less energy without imposing a cost on the use of energy? 11. Without government limiting energy use, what are the costs of using energy? How can we tell whether these costs are enough? |

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