U.S. energy usage and Jevons' paradox

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ECN recently published a piece slamming Texas [1] for passing a law that "allows Texans to make and sell the old-fashioned inefficient kind of bulbs". The author further states that the goal of the national law Texas is opposing "was to lower U. S. energy usage."

It will do no such thing. It will increase electrical usage. We have known this since Economist William Jevons discovered the principle in 1865. From the Wiki [2]:

> The Jevons paradox was first described by the English economist William Stanley Jevons in his 1865 book The Coal Question. Jevons observed that England's consumption of coal soared after James Watt introduced his coal-fired steam engine, which greatly improved the efficiency of Thomas Newcomen's earlier design. Watt's innovations made coal a more cost-effective power source, leading to the increased use of the steam engine in a wide range of industries. This in turn increased total coal consumption, even as the amount of coal required for any particular application fell. Jevons argued that improvements in fuel efficiency tend to increase, rather than decrease, fuel use: "It is a confusion of ideas to suppose that the economical use of fuel is equivalent to diminished consumption. The very contrary is the truth."[4]

Well that was then. Have things changed? In 1992, the economist Harry Saunders looked at the question [3]. Here is what he found.

> According to Saunders, increased energy efficiency tends to increase energy consumption by two means. First, increased energy efficiency makes the use of energy relatively cheaper, thus encouraging increased use (the direct rebound effect). Second, increased energy efficiency leads to increased economic growth, which pulls up energy use for the whole economy. At the microeconomic level (looking at an individual market), even with the rebound effect, improvements in energy efficiency usually result in reduced

> energy consumption.[6] That is, the rebound effect is usually less than 100 percent. However, at the macroeconomic level, more efficient (and hence comparatively cheaper) energy leads to faster economic growth, which in turn increases energy use throughout the economy. Saunders concludes that, taking into account both microeconomic and macroeconomic effects, technological progress that improves energy efficiency will tend to increase overall energy use.

So Texans may in fact be lowing their economic growth (assuming every use of higher efficiency lights is economically sound) by allowing continued use of incandescent lights. But I think Texas has it right when it comes to the broader questions involved. Should the Federal Government be micromanaging our lives by mandating such things as the multi-flush toilet? Or are they flushing our liberty down the drain by floating and passing efficiency laws?

M. Simon's e-mail can be found on the sidebar at Space-Time Productions [4].

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[1] http://www.ecnmag.com/blogs/2013/01/texas%E2%80%99-light-bulb-law-not-brightest-bulb-tree
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