

## **Rebound Effects From Energy Efficiency? --A Little Bit of Data Makes the Hypothesis Go Down. (with apologies to Mary Poppins)**

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Several recent articles have suggested that efforts to increase the energy efficiency (or, in McKinsey's phrase, the energy productivity' of America's economy are less desirable than would otherwise be expected. This assertion is based on several variants of arguments that are collectively referred to as "rebound arguments."

The most direct version of those arguments asserts that electricity-users who increase the efficiency of their usage by, for example, increasing the insulation in their dwellings, will see lower energy costs and react by increasing their use of heating or cooling devices, thereby reducing the expected reduction in demands upon the electricity grid. A less direct version of the argument is that customers will see savings in their energy bills and react by increasing their demand for other electricity services, such as lighting or mechanical power or new electronic devices. an even less direct version of the argument contends that customers will see savings in their energy bills and react by purchasing other, non-energy, goods or services and that the provision of those services by society will require corresponding increases in energy demands from commercial or industrial sectors.

If accurate, each of these theories might be important in terms of predicting actual electricity demand in specific future hours and, thus, deciding:

- \* what revenues utilities should expect when customers see differing energy prices
- \* what electricity plants to operate, what power plants and transmission lines to build,
- \* what changes to expect in deaths from coal-plant particulate emissions, and
- \* what levels of green-house-gasses to expect.

Not surprisingly, concerns for all those questions (particularly the first two) are not new and have lead to scores of trial-like contested utility regulatory cases requiring careful empirical analyses of expected results.

What IS surprising is that neither those deliberations, not the data underlying them, has been considered (or even mentioned) by those suggesting that rebound affects are likely to be material.

This is not because the utility commission decisions are hard to find -- they are set out in the published reports of each state, and summarized in data sets such as the Public Utility Reports section of Westlaw. Nor is it because the 'raw' data is inaccessible. It is set out in the Federal Energy Regulatory Commission's Form One, which lists both demand and price for each major utility in each state for each year for the first several decades.

What do we know about that data? In general, we know that elasticity of demand has been very low for electricity usage...in other words, relatively large changes in the price of electricity had led to very low changes in demand/usage. We also know that governmental and industry projections for expected energy usage have been consistently on the high side, suggesting that we have a pervasive 'bias' towards over predicting usage and under predicting the results of increased efficiency of usage.

Turning those general concepts into rigorous presentations deserves some serious attention; but, it is a small task, not a large one...and the failure to do so in the context of sweeping claims of detrimental rebound affects is deeply troubling at this stage.