

Pollution Regulation's Unintended Consequences

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Two recent energy stories were cheered by environmentalists and booed by the Wall Street Journal. Al Gore won the Nobel Peace Prize for his tireless efforts to warn about climate change. American Electric Power was fined \$4.6 billion for modifying old coal-fired power plants.

One decision celebrates reducing carbon dioxide emissions and the other effectively criminalizes carbon dioxide reductions. AEP will spend billions to reduce the emissions of criteria pollutants – nitrous oxides, oxides of sulfur, and particulate matter. Sounds good, but the new scrubbers and fans will add 5% to 10% parasitic load to each plant and lower efficiency. Criteria pollutant emissions will drop, but electric prices and CO2 emissions will go up.

Happily, there is a way to beneficially impact all three metrics. Efficiency gains reduce costs by saving expensive fuel, reduce criteria pollutant emissions and reduce CO2 emissions. Although current environmental and electricity regulations discourage efficiency, there is good news. Thermodynamic laws are inflexible, but governmental laws can be changed.

To understand the potential, look at the electric industry history, remembering that power generation is the largest U.S. source of carbon emissions. Delivered efficiency grew from 6% at Edison's first commercial power plant to over 30% by 1960, and then stopped improving. From the end of Eisenhower's presidency until today, the U.S. electric industry has failed to top 33% efficiency, thus wasting 2/3's of the energy in the fuel. Why?

Monopoly protection and central planning are classic ways to suppress innovation, and the US electric industry suffers from both, which principally explains the observed stagnation. But environmental regulations behind the AEP fines also help explain three decades of stagnant efficiency.

In 1977, Congress amended the Clean Air Act to reduce emissions of criteria pollutants – NOx, SOx, and particulates. This was long before today's concerns about CO2 emissions. The law allowed each existing plant to pollute at historic levels, unless the plant was subsequently modified. Modifications for any reason, including increased efficiency, voided the grandfathered right to pollute and required the plant to cease operations or to reduce cut emissions to then currently allowed levels.

This approach effectively blocked efficiency gains and perverted economic decisions. A flood of new technology could profitably increase the efficiency of existing power plants, but no one installs any of this technology because this would void the plant's permit to operate unless the owners installed prohibitively expensive pollution controls. New generation must meet current emission standards, which raises the capital cost, but the plant has to compete with power from dirty plants. Old coal plants gained immortality and the industry efficiency stagnated.

The Times editorial applauded the AEP penalty, but was it a penalty? The court found that AEP had illegally modified several coal plants without reducing emissions. In settling the case, AEP agreed to invest billions of dollars in pollution control equipment, which investment will go into rate base and increase allowed profits. The new pollution control will reduce efficiency, but regulators typically pass all fuel costs through to ratepayers, effectively holding the utility shareholders harmless. And the old coal plants will operate another 20 years at their dismal 1960 efficiency. It seems that the public has been penalized.

Congress can modernize the Clean Air Act's anti-efficiency bias by replacing grandfathered permits with nationwide output-based pollution allowances. Set a pollutant allowance per unit of useful energy that applies to every producer of electricity and thermal energy, and then set a schedule of lower allowances over time. Let producers of clean energy sell excess allowances and force producers of dirty energy to purchase allowances to cover excess pollution. Several states have taken the lead on output-based standards, and it is time for new federal rules.

Replace government's current intrusive right to select pollution control technology with these universal output-based allowances. This still forces cleaner air, but frees power entrepreneurs to pick among efficiency, windmills, solar power, waste energy recycling, added controls and every other idea that profitably reduces pollution.

Output-based allowances reward efficiency. Increasing the useful output of any power plant increases its pollutant allowances without increasing pollution or fuel use. Clean energy plants can improve economics by selling excess pollutant allowances while the cost of purchasing allowances will speed retirement of dirty plants. New construction will boom. Several Senators including John McCain have proposed 'four pollutant' bills linking carbon dioxide and criteria pollutants. To foster efficiency, add output-based standards.

Congress can turn climate change into an opportunity by simply removing the barriers inherent in old regulatory approaches. Modernize regulations to



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reflect climate change concerns and to speed deployment of proven efficiency improvements. Entrepreneurs will begin profitably reducing carbon emissions even before we resolve the larger issues surrounding a carbon bill. The resulting economic boom will clean the air, reduce carbon emissions, reduce electric prices and create a new U.S. export industry for clean energy technology.

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Len Gould 1.15.08	"prohibitively expensive pollution controls." -- The presentation deliberately ignores the real intent of the laws actually enacted. In plain language, what the laws said was "You must upgrade your plants to stop poisoning the air we all breath. We would like you to do this immediately, BUT since you've complained so much, we'll compromise and allow existing plants to continue polluting at unacceptable levels UNTIL their next major re-fit, at which time you must install the anti-pollution equipment". To present this action as a deliberate increase in CO2 emissions is very perverse. The history of this issue absolutely DEFINITELY means NO GRANDFATHERING IN FUTURE for any reason or complaint. You want it that way, that's how it'll be from now on.

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