Ceres Analysis:

The EPA often faces unfounded criticism that new emission-cutting technology can be adopted quickly and easily. But the EPA's forecasts of technological progress have a strong track record.

Under the Clean Air Act, the U.S. Environmental Protection Agency is required to consider the feasibility and cost of emerging technologies necessary to meet most new agency emission standards. Almost invariably, the EPA's projections for these technologies are met with concerns from industry and other stakeholders arguing the technology is not ready, is not affordable, or cannot be implemented by the EPA's proposed deadline without making electricity or transportation too expensive and unreliable for families and businesses across the country.

But long after long comment periods, lawsuits, and advertising campaigns have passed, the benefit of hindsight makes clear that the EPA's forecasts have a remarkable history of success.

From the catalytic converter to power plant pollution control equipment, technological progress that industry stakeholders dismissed as unrealistic has consistently taken hold quickly and cost-effectively enough to meet the EPA standards. **In fact, the standards themselves can help drive the technological innovation and progress necessary to achieve them while growing the economy, reducing costs, and improving public health.**

A new analysis from Ceres and Environmental Strategies Group takes a close look at four important case studies, spanning nearly 50 years of landmark EPA standards and technological projections. The research finds that throughout history, the EPA has provided reasonable timelines for nascent technology to become widely available and cost-effective, for unexpected alternative solutions to take hold to allow compliance by the deadline, or for sectors to become more proficient at using and deploying existing technology to effectively meet the standards.

In all cases, the EPA's projections about the feasibility of its proposed standards ultimately proved correct.

Case Studies

The analysis draws upon four case studies of key standards and technologies:

The Federal Vehicle Emission Standards Established Under the 1970 and 1977 Clean Air Act Amendments and Catalytic Converters

Updated standards to reduce hydrocarbons, carbon monoxide, and nitrogen oxides (NOx) from vehicles were met by 1981, as regulatory certainty drove the phase-out of leaded gasoline and the adoption of the three-way catalytic converter.

The 1970 and 1990 Clean Air Act Amendments and Scrubbers to Reduce Sulfur Dioxide

As part of the fight against acid rain, sulfur dioxide (SO_2) emissions were significantly reduced twice—reaching 100% of compliance with the first phase of the program, and then far eclipsing the EPA's goals in the second phase—due to major changes in the low-sulfur coal market, increased efficiency of scrubber technology, the success of a market-based emissions trading program, and other compliance solutions.

Nitrogen Oxide State Implementation Plan Call and Selective Catalytic Reduction

A 1998 proposal to reduce nitrogen oxide (NOx) pollution was met by all but two of more than 2,500 covered facilities by 2004, after selective catalytic reduction technology proved both easier to install and more effective than expected.

The Mercury and Air Toxics Standards and Activated Carbon Injection and Dry Sorbent Injection

A 2011 proposal to reduce toxic air pollution from the power sector was met by 2017, for $7 billion less than the EPA's initial $9.6 billion estimate, after activated carbon injection and dry sorbent injection suppliers invested in dramatically improving the effectiveness of their technologies, making additional retrofits unnecessary.

Key Takeaways

These findings have several important implications for policymakers, regulated industries, business groups, and other stakeholders. Among them:

- The EPA works closely with industry and stakeholder groups and includes flexibility in its standards to address legitimate industry concerns.
- Regulatory certainty spurs technological innovation that enables compliance.
- Regulatory design and incentives can lead to novel technological innovations.
- Unpredicted economic changes can shift the feasibility of compliance.
- Projections based on new technologies often fail to capture operational efficiencies that businesses will adopt over time.

Read More

More details are available in the full Ceres and Environmental Strategies Group, Inc. analysis **A Historic Review of the Environmental Protection Agency's Market Readiness Projections of Compliance Technologies**.

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