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Setting the Standards: How Performance Standards Can Get the US to 0x50

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Among climate policy advocates there is a growing consensus around using performance standards to eliminate carbon pollution from the United States. We agree that performance standards should be a central piece to the federal government's plan to fight climate change. Here's why.

A national climate plan needs to check many boxes. It must provide guaranteed emissions cuts to ensure we meet net-zero by 2050 at the absolute latest. [1] It must set clear, tangible goals and provide long-term policy certainty to spur full buy-in from businesses and investors. It must be affordable and fair to all Americans. It must be paired with sufficient investment and incentives to get things innovated and built. And it must attract a large coalition of support from workers, businesses, and impacted communities. Fortunately, there is a suite of policies with a proven track record in all of these areas: performance standards.

A "performance standard" is a policy mechanism that sets a benchmark for emissions and requires the performance of polluters to exceed that benchmark. [2] These go by a host of other names: clean energy standards, fuel economy standards, procurement standards, zero emissions vehicle standards, etc. While performance standards differ in their features, their benefits are universal:

- **Guaranteed Emissions Cuts:** As early as the 1970s, standards implemented at both the state and federal levels have been used to achieve substantial and consistent reductions in greenhouse gas emissions and other pollutants.
- **Long-Term Demand for New, Innovative Technologies:** Performance standards create long-term policy and market certainty, enabling businesses to invest in newer, cleaner technologies.
- **Affordable and Tailored for Each Sector:** To maximize affordability, performance standards can be tailored to the realities of each sector, including the availability of low-carbon solutions in the near-term and the pace of capital investment and infrastructure turnover in the sector.
- **Economically Efficient:** Performance standards are one of the most cost-effective decarbonization policies, often forcing changes that actually save money for firms or consumers.
- **Politically Popular:** In the past two years, 10 states have implemented renewable or clean electricity standards and 28 utilities have signaled their approval to this approach by committing to at least 70% clean energy by 2050.

Performance standard and other sector-specific solutions are not substitutes for economy-wide solutions, and setting performance standards for only one sector certainly will not be

enough to address climate change. Therefore, these standards should be used jointly with other climate policies in order to put the U.S. on the path to net-zero emissions by 2050.

The Proposal

While the design will vary across sectors, the basics of performance standards remain the same - set a benchmark and require the performance of polluters to exceed that benchmark. [3] That benchmark should become more stringent over time, requiring polluters to constantly improve their performance. The benchmark could be percentage of clean energy on the grid, carbon dioxide emissions per kilowatt hour, miles per gallon per vehicle, percentage of zero-emissions vehicles for new vehicle sales, etc.

The United States should implement ambitious sector-specific performance standards for electricity, transportation, and industry to set each sector on the path to net-zero emissions. Sectors like transportation and industry require tailored solutions - and therefore multiple standards – for their unique subsectors. These could include:

- **Electricity:** Clean Electricity Standard
- **Transportation:** Zero-Emissions Vehicles Standard, Fuel Economy Standards, and Low-Carbon Fuel Standards
- **Industry:** Efficiency and Emissions Productivity Standards by subsector

Why Performance Standards?

Guaranteed Emissions Cuts

Performance standards have a proven track record in achieving substantial and consistent reductions in greenhouse gas emissions and other pollutants. As early as the 1970s, standards implemented at both the state and federal levels have been used to clean up our nation's air and water. For example, Congress passed the Clean Air Act in 1970 requiring the Environmental Protection Agency (EPA) to set standards for air pollution coming from stationary and mobile sources. [4] The Clean Water Act of 1972 follows the same approach, requiring the EPA to set standards for wastewater and other pollutants into our nation's bodies of water. [5] In 1975, the federal government implemented the Corporate Average Fuel Economy (CAFE) standards requiring improved fuel economy of cars and trucks. [6] At the state level, California took the lead with energy efficiency standards for buildings and equipment. [7] All of these policies have been effective at reducing pollutants and accelerating the adoption of cleaner, more efficient technologies.

A big part of the success of performance standards is their focus on the actual deployment and usage of clean energy technologies. In comparison, pricing-based policies (like a carbon tax or cap and trade policy) focus on firms internalizing negative externalities like pollution but don't guarantee changes in behavior. By not relying on pricing or incentives to inspire decarbonization efforts, performance standards can work regardless of how price-sensitive consumers and producers are. Additionally, performance standards only need to be signed into law once and have a built-in rate of improvement, so emission reductions seen in the first year tend to expand through the policy's time frame. To ensure the desired emissions reductions, it is crucial that the policy design limits possible loopholes for companies to exploit.

We've seen the relative success of performance standards compared to other policies in California, which is now home to both cap and trade and renewable and clean energy standards. As a recent report by Energy Innovation: Policy and Technology LLC made clear: "Despite the existence of California's cap and trade program, non-cap policies have accounted for most, if not all, of the carbon emissions reduction since the cap was put in place. Of these non-cap policies, the RPS [renewable portfolio standard] is the driving policy." [8]

Long-Term Demand for New, Innovative Technologies

For businesses and investors to commit to build the next generation of clean energy technologies, they need long-term policy and market certainty. Performance standards that set goals ten or even thirty years out provide this for the private sector. They guarantee the long-term demand for clean energy technologies that companies say they want, force companies to invest in them, and result in companies having a financial stake in the continuation of the policy. [9] When setting these long-term goals, it is important that the policy has some sort of feedback mechanism to re-evaluate and increase the rate of improvement based on changes in technologies and market conditions.

Long-term business investments inevitably come with a degree of risk, but when firms invest in low-carbon technology to comply with a performance standard, new demand brought on by the standards offsets the cost of investment and reduces the risk of losing-out to cheaper, dirtier alternatives. Moreover, since performance standards increase gradually and consistently, firms can expect predictable returns on investments.

Affordable and Tailored for Each Sector

To maximize affordability, the goals of each performance standard, and their pace of change, can be tailored to the realities of each sector, including the availability of low-carbon solutions in the near-term, the current policy and regulatory environment, and the

pace of capital investment and infrastructure turnover in the sector. While each sector will have to transition to zero emissions, each sector's performance standard will have a different starting point and require a different pace of emissions reductions in order to ensure the policies are achievable and affordable.

By designing performance standards with unique sectoral needs in mind and partnering performance standards with other targeted policies, [10] we can also ensure that it is U.S. manufacturers that are able to meet the growing demand for clean energy technologies. Particularly for sectors that deal with globally traded commodities, we do not want to inadvertently disadvantage U.S. manufacturers while implementing these standards and risk simply outsourcing carbon emissions, better known as "carbon leakage."

Economically Efficient

Performance standards are among the most cost-effective decarbonization policies. [11] First, they can force changes that actually save money for firms or consumers. For example, efficiency standards can require efficiency upgrades that result in cost-savings that firms might otherwise ignore. [12] There are also many co-benefits to performance standards such as improved air quality and public health that often offset and sometimes even exceed the costs of new investments firms must pay to meet the standards. [13] This results in low cost or net financial gain per ton of carbon dioxide abated.

There are several policy design decisions that can make performance standards even more cost-effective, including: 1) making the policy inclusive of all available clean energy technologies, [14] 2) having tradable credits for compliance within or across sectors, [15] and 3) coupling standards with ambitious innovation policies that help new technologies make it to the market.

Politically Popular

Performance standards are historically a fan favorite amongst Americans, and only growing in popularity. [16] And states and utilities are getting the message. In total, 32 states have some kind of renewable or clean energy standard (including DC and Puerto Rico). [17] Over the past two years alone, four states have implemented clean electricity standards and 28 utilities have signaled their approval of this approach by committing to at least 70% clean energy by 2050. [18]

Democratic presidential candidates are taking notice. Of the top 10 presidential candidates, five have called for performance standards for light-duty vehicles and six for a national clean or renewable electricity standard. [19] Governor Inslee's plan, the gold standard for national climate plans, calls for several sector-specific performance standards for electricity, transportation, and buildings. [20]

Many environmental organizations and think tanks are also supporters of performance standards to address climate change. The Center for American Progress recommends a host of performance standards, including a clean electricity standard, zero-emissions vehicle sales standard, and energy efficiency resource standards. [21] Resources for the Future makes a compelling case for clean energy standards at the state or federal level. [22] The World Resources Institute, [23] Natural Resources Defense Council, [24] Center for Climate and Energy Solutions, [25] The Breakthrough Institute, [26] and the Union of Concerned Scientists [27] (just to name a few) all support a range of sector specific performance standards. And Third Way has long supported performance standards, particularly clean energy standards. [28]

Last, but definitely not least, there is a lot of support for various types of performance standards from the labor community. For example, the United Steelworkers of America and Utility Workers Union of America have shown support for clean energy standards. [29] And the United Automobile Workers (UAW) has shown support for fuel economy standards and zero emission vehicle standards. [30]

What about a Carbon Price?

Carbon pricing is a powerful policy tool that is widely regarded as the most economically efficient way to reduce emissions. Some carbon pricing supporters make the argument that a national response to climate change should revolve around a carbon price and that a high carbon price would negate the need for other policies that target emissions.

However, in the past 15 years carbon taxes and cap-and-trade policies have been implemented in many countries, yet political opposition and economic challenges have kept them priced far too low to achieve the necessary emissions reductions. [31] At current carbon prices, carbon emissions reductions are mainly coming from fuel switching to natural gas, small efficiency oriented modifications to power plants and industrial facilities or early retirement of old plants. This has become even more pronounced with the rise of populism, as voter distrust of experts and sensitivity to perceived price swings has driven political unrest in response to a de facto carbon price (on diesel fuel) in France and to rollbacks of carbon pricing in Australia and Ontario. [32]

Moreover, even with carbon pricing much higher than what we see today, we would still need performance standards, as they target market failures that carbon pricing does not address. [33] Indeed, the only performance standard that could arguably be considered redundant to a high carbon price would be a clean energy standard, since both would encourage the deployment of zero-carbon electricity sources. [34]

Economy-wide policies, particularly quantity-based instruments like the cap-and-trade systems of California, the Northeastern U.S., Europe, and China, concentrate on the easiest to decarbonize areas, like electric power. These tend to already have available cheap substitutes to fossil fuels. [35] To reach net-zero emissions economy-wide, we will need focused efforts on the hard to decarbonize sectors of the economy. That is where sector-specific policies can fill a gap that carbon pricing may have more trouble reaching.

To be sure, a modest carbon price (like the ones that exist today) can serve as a good compliment to any performance standard. [36] A moderate carbon price creates revenue for other critical climate solutions and incentivizes the immediate, more attainable emissions reductions across all sectors.

Turning Performance Standard Momentum into a Tipping Point

The shift towards performance standards has already begun. We are seeing them increase in popularity with voters and being implemented in many cities and states. The business community and utilities are offering their own ideas. Academics and non-governmental organizations are arguing for them. The movement is already happening, and it is happening the way systematic change occurs: slowly and relatively unnoticed until the tipping point hits.

But the ticking clock of the climate crisis means we cannot simply wait. We must have a concerted effort to drive this forward at the federal level. Shaping America's long-term decarbonization plans around performance standards is a winning strategy.

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