



## Insight

# California's Renewable Portfolio Standard Is Going to be Expensive

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## Summary

- California has just implemented a very ambitious requirement that by 2045 all its electricity come from carbon free sources, and by 2030 at least 60 percent of its electricity come from renewable sources.
- While the intentions of these regulations are admirable, they epitomize the challenges of a regulatory approach to abating emissions.
- California can expect, like other places that have adopted ambitious renewable portfolio standards, to see a big increase in the cost of its electricity in exchange for uncertain benefits. A better approach would have been to leverage market-based policies that incentivize pollution reduction beyond what is required by government.

## Introduction

California has just passed a landmark climate law requiring that 100 percent of the state's electricity come from carbon-free sources by 2045 and 60 percent come from renewable sources by 2030. This law is the most ambitious "alternative energy portfolio standard" or renewable portfolio standard (RPS) that any state has implemented, and other states such as [Massachusetts](#) and [New Jersey](#) are considering similar proposals. On the face of it, the idea seems great: Everybody wants clean electricity, so why not just require it? But for the same reason that policymakers avoid such a heavy-handed approach in other areas, policymakers should avoid it in energy: It's going to cost a lot while delivering only modest benefits.

## RPS Mandates Increase Cost

The benefit of competition among private entities is low-cost production. When companies compete, they can't increase their profits by raising prices, as consumers will turn to a competitor with cheaper prices. Instead, competitors seek to increase profits by reducing production costs, which allows them to reduce prices and secure more market share. If the government mandates where consumers can get a product, producers no longer have the same incentives to reduce costs, as they have less competition. Costs, and prices, rise as a result.

An RPS raises costs by shrinking the pool of competing energy producers. The demand for electricity that

otherwise would not be competitive in the market is artificially inflated, which increases the price they can charge. And capital, instead of moving to the most efficient producer, flows toward producers that are otherwise less efficient than their competitors but satisfy the government mandate. The result is an electricity market that is less efficient, and consequently produces more expensive power.

As a real-world example, Germany implemented its own RPS in 2000 with similar standards as California (a target for 80 percent renewable electricity by 2050, and 35 percent renewable electricity by 2020). Electricity prices in Germany are [more than double the U.S. average](#) (roughly \$0.34 per kilowatt hour, compared to a U.S. average of \$0.13), largely because of their renewable requirements: More than half of what Germans pay for electricity are surcharges, including ones to pay for state-mandated subsidies for renewable energy.

At a fundamental level, an RPS forces a less efficient ordering of capital distribution in the electricity industry, which leads to less efficient production, creating higher costs that are passed on to consumers. An RPS can only increase prices, not lower them, because if the alternative energy source were already the most efficient supplier, consumers would select it without a mandate.

## RPS Mandates are Very Inefficient Climate Policy

The principle objective of an RPS is to reduce pollution. But assessments of environmental policy consistently find that top-down mandates are inefficient policies for reducing pollution, because a government mandate does not create incentives for producers to pursue opportunities for pollution abatement beyond what the government requires.

[Past AAF research](#) compared two paths for pursuing the Intergovernmental Panel on Climate Change's recommended carbon emission targets: direct regulation and a carbon tax (which is a market-based mechanism). This research found that the carbon tax would both be more effective than regulations at reducing emissions and cost half as much per ton of greenhouse gas emission abated. That finding was not surprising, as a multitude of economic research—including reports from the non-partisan [Congressional Budget Office](#)—show that market-based mechanisms work better at abating pollution.

Regulatory mandates also generate a tradeoff between pollution and economic growth because regulatory compliance acts like a “shadow tax,” increasing costs for regulated entities and reducing net revenues, and consequently reducing incentives for capital investment. The result is that even though the total pollution levels may fall, the level of pollution per dollar of economic activity (known as “carbon intensity”) does not improve.

In an observation of climate policies' effect on carbon intensity, the [Breakthrough Institute observed](#) that in most cases stringent carbon regulation was not accompanied by a lower carbon intensity. The same study also included an assessment of California, pointing out that the total share of low-carbon electricity sources in the state *decreased* after the state passed new climate requirements (the Global Warming Solutions Act of 2006).

## A Difficult Standard, and a Better Way

If California wants to reduce greenhouse gas emissions, an RPS should not be its favored policy tool. Not only will it raise costs and not be as cost effective at reducing emissions as other policies, it also may not even be met. Managing the electricity supply is very complex, and numerous places that have set such standards have failed to meet them. Puerto Rico, whose electricity system has a range of problems, has a requirement to get 12 percent of electricity from renewable sources by 2019, but it has only [reached 2.4 percent](#). And an [Institute for Energy study](#) observing the 36 states with RPSs noted that only 14 were on track to reach their targets. The states struggling to meet their own mandates include California, which failed to meet its 20 percent RPS target for 2010, instead [reaching only 14 percent](#).

If Californians are determined to reach a greenhouse gas emissions target, they should instead consider more market-based policies such as refining their existing cap-and-trade regime, or using a revenue-neutral carbon tax. Doubling down on an RPS—which California has struggled with in the past—does not capture low-hanging fruit, or low-cost opportunities to reduce emissions. California may reach its target, but it will do so at a high premium, and one that most Americans cannot afford.