



Bipartisan Policy Center

Pathways to Decarbonization: A National Clean Energy Standard

1. What Is a Clean Energy Standard?

A clean energy standard, sometimes also called a clean electricity standard, requires a percentage of retail electricity sales to come from low- and zero-carbon “clean” electricity sources. While there are many ways to design this type of policy, the share of clean energy required typically increases over time. This type of policy standard reduces greenhouse gas emissions only in the power sector and is therefore considered a sectoral approach. It is not a full multi-sector, economy-wide solution to the decarbonization challenge.

CESs are similar to renewable portfolio standards, or RPSs, which require that a certain percentage of electricity supplies come from renewable energy sources such as wind, solar, and geothermal generators. These are well-tested and successful policy mechanisms. Numerous states have adopted renewable portfolio standards. A CES differs in that it allows a wider array of low- and zero-carbon sources to be used to meet the standard, including nuclear power and fossil generators with carbon capture and storage.

Under either a CES or RPS, qualifying sources earn tradable credits for each megawatt-hour they generate—or save, in the case of energy efficiency. Retail suppliers of electricity must hold enough credits at the end of each compliance period to demonstrate

that they have met the standard. For example, under a 10% CES, a retail electricity supplier who delivered 1,000 MWh of electricity over a given time period would have to hold 100 MWh of clean energy credits.

2. How Does a CES Help Decarbonize the Power Sector?

In the United States, the electric power sector is the second largest source of greenhouse gas emissions behind transportation. Decarbonizing the power sector is considered a priority for advancing economy-wide decarbonization because emitting sources from many other sectors—including, notably, motor vehicles—will likely have to electrify to a large degree to mitigate climate change.

By creating a market for clean energy credits, a CES allows qualifying sources to capture a greater share of the marketplace over time. Put another way, the standard ensures that clean sources of electricity gradually replace conventional sources in the market. While the qualifying sources of technology are broad, the CES creates a market for low-carbon technologies while providing maximum flexibility for competition across different technologies.

It is worth noting that a CES focuses on electric utilities and the power supply. Complementary policies

may be needed to advance other desired goals for a decarbonized power sector, such as supporting energy efficiency and innovation. Though energy efficiency may be included as a supply-side resource that can earn clean energy credits, a CES does not directly affect consumer behavior or demand for electricity. In addition, though this policy approach does create a long-term market signal for technology innovators, it is less likely to prompt the kinds of high-risk, large-scale investments needed to commercialize and deploy cutting-edge technologies with potential for transforming the power sector more quickly.

3. Have Clean Energy Standards Been Tried in the United States?

CESs build on a long history of state-level policies to promote renewable energy. As of March 2020, 30 states and the District of Columbia have enacted renewable portfolio standards (of varying ambition), while seven states have voluntary renewable portfolio goals.¹

Several states have recently proposed or passed state-level CESs, in some cases in conjunction with a separate renewable energy requirement.² For example, New Mexico recently passed a law requiring all retail electricity sold in the state by investor-owned utilities to be zero-carbon by 2045, with at least 80% of those sales coming from renewable sources. California's law requires 100% carbon-free power by 2045, with 60% of electricity coming from eligible renewables by 2030.

4. What Are Key Issues in Designing a Clean Energy Standard?

Though the basic concept of a CES is quite straightforward, several details of the policy require careful consideration. Key issues include:

- Defining “clean”—How will the policy treat different types of generation, as well as efficiency and energy storage? Will the policy specify which types of technologies can earn clean energy credits,

or will eligibility to be considered “clean” be based on the ability to meet a specified (or avoided) greenhouse gas emission rate? If the latter, what emission rate should be used?

- Targets and timelines—What percentage of the electricity supply must be “clean,” and by what date must the requirement be met?
- New versus existing sources—Will the policy allow existing electricity sources to qualify as “clean” and earn credits, or will eligibility be restricted to new sources of “clean” energy?
- Cost of compliance—What is an acceptable compliance cost for achieving the CES? Should the policy include features to try to control costs such as credit trading, credit banking, or a price cap (sometimes known as a safety valve) that would allow regulated entities to buy additional credits, or to make up a shortfall in credits, at a price set by regulators?
- Point of regulation—Who will be required to demonstrate compliance with the standard? Put another way, what entity or entities have the obligation to hold clean energy credits? For states with RPSs, the compliance obligation has typically been placed on load-serving entities (i.e., utilities). In the case of a national policy, the requirement to meet the standard could be imposed at the level of individual companies, regional power pools, states, or other.
- Interaction with other policies—How would a national CES interact with state-based energy standards and with other state, regional, or national policies and programs to reduce greenhouse gas emissions and promote clean energy innovation? Questions around whether a federal program will complement or interfere with state efforts and the approaches utilized to connect state and federal policies will have a large impact on CES design and performance.

¹ States with renewable portfolio standards: Arizona, California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Vermont, Virginia, Washington, and Wisconsin. States with renewable portfolio goals: Indiana, Kansas, North Dakota, Oklahoma, South Carolina, South Dakota, and Utah.

² <https://s3.amazonaws.com/ncsolarcen-prod/wp-content/uploads/2019/07/RPS-CES-June2019.pdf>

5. Where Does this Policy Idea Stand in the 116th Congress?

This is a dynamic area of policy development in Congress. As of March 2020, one CES bill, one legislative framework featuring a CES, and other legislative efforts have been announced. These include:

- Sen. Tina Smith's (D-MN) S. 1359 and Rep. Ben Ray Lujan's (D-NM) H.R. 2597: Clean Energy Standard Act of 2019
- House Energy and Commerce Committee Chair Pallone's (D-NJ) Climate Leadership and Environmental Action for our Nation's (CLEAN) Future Act legislative framework
- Rep. Diana DeGette's (D-CO) announced CES proposal
- Reps. David McKinley's (R-WV) and Kurt Schrader's (D-OR) announced CES proposal

The Clean Energy Standard Act, the CLEAN Future Act framework, and Rep. DeGette's announced proposal share some common overarching features, such as: (1) a goal of 100% clean electricity by 2050; (2) an inclusive approach to qualifying technologies (e.g., renewables, nuclear, qualified renewable biomass, qualified natural gas, and qualified low-carbon fuels, as well as carbon capture, utilization, and storage); (3) provisions for alternative compliance payments; and (4) mechanisms to support energy innovation.

These legislative approaches differ in other respects, including (1) where the point of regulation is set (e.g., the Clean Energy Standard Act sets a retail sales threshold so that certain smaller municipal utilities and electric cooperatives would be exempt, while the others do not); (2) how clean energy credits would be awarded to the different qualifying technologies; (3) the level of specificity regarding how alternative compliance payment funds would be spent; and (4) how the build out of innovative technologies would

be incentivized (e.g., Rep. DeGette proposes various tax credits and new project financing authorities overseen by a new federal entity, while the Clean Energy Standard Act includes an innovation multiplier for advanced technologies to receive additional clean energy credits).

Reps. McKinley and Schrader's announced proposal is for a CES to come into effect after a 10-year period of targeted public and private investments in clean energy innovation and infrastructure development. The standard would require an 80% reduction in power sector emissions by 2050. This 10-year period would also include a pause in any greenhouse gas regulatory actions under the Clean Air Act by the Environmental Protection Agency.

