ISSUE BRIEF

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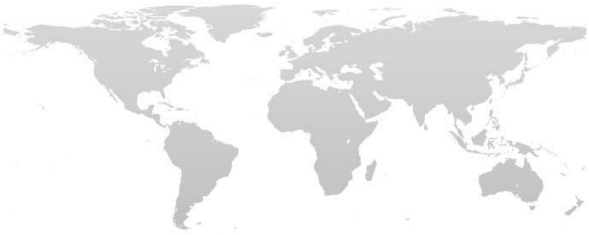

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Resources for the Future

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New Alternative Compliance Mechanisms for a Clean Energy Standard

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A principal objective of a clean energy standard (CES) is to reduce emissions of greenhouse gases and other air pollutants. Utilities comply with a CES by deploying clean energy through the purchase of clean energy credits, which generates reductions in greenhouse gas emissions and local air pollution. Previous renewable electricity standards (RES) at the state level have also typically included an alternative compliance payment (ACP) that allows utilities to avoid the requirements of the CES in exchange for paying a fee to the government.

These traditional ACPs have the advantage of reducing compliance costs and providing price certainty by putting a ceiling on clean energy credit prices, saving money for utilities and consumers. By providing an escape valve, however, this approach undermines the central goal of the CES program by limiting clean energy deployment and pollution reduction.

The new alternative compliance mechanisms described in this issue brief flip those disadvantages on their head. They provide the same cost control and flexibility for utilities as traditional ACPs while reducing emissions significantly beyond what is possible even through a CES alone. In other words, these alternative compliance mechanisms produce more emissions bang for the buck, creating a significantly more effective and affordable overall policy than traditional ACPs.

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Option 1: Flexible Compliance Mechanism

The flexible compliance mechanism would allow utilities the freedom to determine how to meet the goals of the CES. This way, utilities could find and deploy the most cost-effective means of reducing emissions, saving money and driving innovation.

The mechanism is simple: utilities could either purchase clean energy credits, as under a simple CES, or reduce emissions through other means by an amount equivalent to or greater than what they would have achieved through clean energy deployment alone. For instance, a utility could choose to meet their goals through efficiency improvements, forest conservation, reforestation, investment in low-carbon agriculture, or other measures that reduce emissions or sequester carbon. In many cases, these methods can reduce emissions at a fraction of the cost of clean energy deployment.

As with clean energy deployment, it is critical that these alternate emissions reductions meet basic standards to ensure that they are real, permanent, additional, and meet key environmental and health safeguards such as the protection of wildlife and clean water. An independent advisory board comprised of scientific experts would be established to ensure that these standards are met. Importantly, emissions reductions should only be eligible for use toward compliance with the CES *once they've already happened.* Under this pay-for-performance system, utilities would have to have already achieved and verified the emissions reductions before they could get credit for them.

Once verified by the advisory committee, emissions reductions achieved through these alternate means would generate flexible compliance credits, which would be interchangeable with clean energy credits. However, to ensure that these alternate emissions reduction methods achieve large scale emissions reductions and that clean energy deployment remains an important part of the CES, the program would not operate on a one-to-one exchange rate. As shown in Table 1, the CES statute would require that utilities deliver *at least* 2.5 flexible compliance credits for every one clean energy credit (keeping in mind that, purely for emissions reduction purposes, a higher exchange rate is optimal, as explained below). Even though, at this ratio, flexible compliance would produce significantly more emissions reductions than a "pure" CES without a traditional ACP, it would still lower costs substantially because of the greater affordability of alternate emissions reduction options. The independent advisory board could increase this level based on its evaluation of the expected costs of emissions reductions, projected clean energy credit prices, and other factors.

Table 1.

	CES with no ACP	CES with ACP ($25)	Flexible Compliance or Exchange
Electricity Price (2010$/MWh)			
Average Electricity Price	$108.87	$107.93	$107.93
Change in Electricity Price (relative to baseline)	$2.14	$1.20	$1.20
Change in Electricity Price (relative to no ACP)	NA	-$0.94	-$0.94
Emissions (million mt CO2e)			
Additional Direct Emissions	NA	187	187
Emissions Reductions	NA	0	-448
Net Emissions (relative to no ACP)	0	187	-261

Notes: 1) Costs converted to 2010$ using the CPI-U. 2) Costs and emissions are undiscounted annual averages from 2015-2024.

The effects of the flexible compliance mechanism on emissions reductions and compliance costs depends on a number of factors in addition to the exchange rate, including clean energy credit prices, the cost of emissions reductions, and various macroeconomic conditions. Our modeling finds that an exchange rate of 2.5 flexible compliance credits per clean energy credit (the floor) would achieve additional emissions reductions of 448 million metric tons of carbon dioxide equivalent (CO2e) annually over the first 10 years of the program relative to a CES with a traditional ACP, or 261 million metric tons CO2e relative to a pure CES without a traditional ACP. The flexible compliance mechanism would also achieve the same electricity price reductions as a traditional ACP, namely a $0.94 per MWh reduction relative to a CES with no alternative compliance mechanism.[2]

Our modeling also allowed us to determine the exchange rate of flexible compliance credits to clean energy credits that maximizes the emissions reductions from the policy. We found that an exchange rate of 4.2 would maximize emissions reductions. This estimate assumes that all emissions reductions cost $10 per ton and are sensitive to clean energy credit prices and other economic conditions.

[2] The results were developed using Resources for the Future's Haiku model of the energy sector. We assume a $10 per metric ton price for all emissions reductions. The results are an annual average from 2015–2024, the first 10 years of the program. The CES without ACP (as shown in the table and used in the other cases) is described by Paul, Palmer, and Woerman in a forthcoming RFF discussion paper: Modeling a Clean Energy Standard for Electricity.

Option 2: Exchange Mechanism

The exchange mechanism would behave very similarly to a traditional ACP by allowing utilities the option of making a fixed payment. Instead of requiring a payment to the government, however, the Exchange Mechanism would allow utilities to make a payment to a new, independent exchange for emissions reductions. Similar to other government certified entities such as electricity capacity markets and markets for certain types of insurance, the exchange would create new demand for private-sector goods and services while ensuring that the maximum amount of emissions reductions are achieved at the minimum cost.

Under the exchange mechanism, utilities would have the option to make a fixed payment to an independent exchange for greenhouse gas emissions reductions instead of purchasing clean energy credits. The exchange, certified according to standards outlined in the CES, would collect bids from third-party emissions reducers. The exchange would then automatically purchase the requisite emissions reductions until it exhausts the payments from the utilities. The exchange would automatically acquire the lowest cost emissions reductions first, guaranteeing the maximum environmental benefit at the lowest cost. The exchange would also be required to accept only emission reductions that meet the same basic standards described in Option 1, including the pay-for-performance principle to ensure emissions reductions had already been achieved before they are eligible to be used for compliance.

The exchange mechanism would provide utilities with greater certainty for compliance costs, given that the fixed payment would be set in the statute and would not change. The level of emissions reductions and the larger effects on the economy, however, would vary depending on clean energy credit prices, the cost of emissions reductions, and various macroeconomic conditions. Our modeling finds that a $25 payment would have similar impacts to the flexible compliance mechanism with an exchange rate of 2.5 flexible compliance credits per clean energy Credit (described above). Further, our modeling found that a $42 payment would maximize emissions reductions. Again, this estimate assumes that all emissions reductions cost $10 per ton and are sensitive to clean energy credit prices and other economic conditions.

Comparing the Options

Both of the two new alternative compliance mechanisms described above have their own advantages and disadvantages, relative to each other, to a traditional alternative compliance payment and to a “pure” CES. The flexible compliance mechanism would allow utilities to engage in direct action without government regulation, reducing emissions in the most cost-effective manner for their particular business. It also includes some cost uncertainty, however, as compliance costs would vary with the price of emissions reductions. The exchange mechanism would eliminate this remaining uncertainty by only requiring that utilities pay a fixed payment set

forth in the statute. However, it may not provide as much affordability if utilities are in practice able to reduce emissions at a lower cost through flexible compliance than the price of the alternate payment in the exchange mechanism. Both options can produce substantially greater emissions reductions and lower costs than a pure CES without an alternative compliance payment, but may not result in as much clean energy deployment.

Type of CES	***Benefits***	***Drawbacks***
Pure Clean Energy Standard (no Alternative Compliance Mechanism)	- Maximizes clean energy deployment - Emissions reductions	- No cost control - Relatively high priced emissions reductions
Clean Energy Standard with Alternative Compliance Payment	- Deploys some clean energy - Some emissions reductions - Cost control - Cost certainty - Revenue to government	- Less clean energy deployment - Less emissions reductions - Relatively high priced emissions reductions - Relatively modest emissions reductions
Flexible compliance	- Maximizes emissions reductions - Cost control - Additional savings possible through innovation - Provides utilities maximum flexibility - Provides benefits to wide sectors of economy	- Lacks price certainty - Possibly less clean energy deployment than pure CES
Exchange	- High emissions reductions - Cost control - Price certainty - Provides benefits to wide sectors of economy	- Possibly less clean energy deployment than pure CES

Both mechanisms offer opportunities for multiple stakeholders to benefit relative to other alternative compliance approaches. Independent emissions reducers including landowners, farmers, and others could benefit from new financing available through these mechanisms. Utilities and their customers would gain additional price certainty, reduced total compliance costs, and thus lower electricity prices. Finally, society at large would benefit from greater levels of emissions reductions than are possible through other alternative compliance approaches.