



Bipartisan Policy Center

Designing a Bipartisan Federal Clean Fuel Standard: Roundtable Takeaways

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A low-carbon fuels standard (LCFS) is a policy mechanism for reducing carbon dioxide (CO₂) emissions from the transportation sector, which currently operates almost exclusively on carbon-intensive, fossil-fuel-based liquid fuels. An LCFS obliges fuel producers to meet carbon intensity targets, either by reducing the carbon content of the fuels they sell or by purchasing credits from other producers of low-carbon fuels. Currently, [California](#), [Oregon](#), and [Washington](#) have adopted an LCFS and several other states: Colorado, Iowa, Illinois, Minnesota, New York, Pennsylvania, and South Dakota, are [considering](#) an LCFS.

In February 2023, the Senate Committee on Environment and Public Works held a [hearing](#) to consider the development of a national clean fuels policy, such as a federal LCFS. Meanwhile, a separate multi-stakeholder initiative, [Drive Clean](#), has been leading a broader public education effort on policies for promoting

low-carbon fuel. In this context, the Bipartisan Policy Center and Breakthrough Energy convened a stakeholder roundtable on October 31st, 2023 that included diverse participants from key industries, including representatives from biofuels companies, oil companies, and electric vehicle manufacturers, along with policy leaders, academics, and environmental advocates. The goal of the roundtable was to explore the design features of a national-level LCFS that would advance America's economic and climate objectives and could attract bipartisan support.

STRATEGIC BENEFITS OF A FEDERAL CLEAN FUELS PROGRAM

Roundtable participants began by discussing the potential strategic benefits that a national LCFS could offer. There was agreement that reducing greenhouse gas (GHG) emissions from the transportation sector is an immediate imperative and that an LCFS plays a key role in nearly every roadmap for achieving net-zero emissions by 2050. Furthermore, a national LCFS could have air quality benefits, positively impacting public health and well-being. There was also consensus about the energy security benefits of diversifying America's energy sources by promoting cleaner, domestically produced alternatives such as e-fuels, biofuels, hydrogen, and electricity. Finally, some attendees noted that a federal clean fuels program, by expanding the range of sustainable transportation options available in the marketplace, could benefit consumers by giving them more choices.

Participants highlighted the multiple potential benefits of a well-designed LCFS for producers and consumers. For example, establishing a stable, long-term trajectory of market demand for cleaner fuels would give fuel producers predictability while also fostering an environment conducive to innovation. Allowing fuel producers to trade credits would provide flexibility and spur market competition for those fuels and technologies that can deliver the largest emissions reductions within the shortest amount of time at the lowest cost. Assessing carbon intensity on a full life-cycle basis would promote innovation to reduce emissions throughout the value chain rather than just at the point of end use (e.g., the vehicle tailpipe). Another benefit mentioned by attendees was the ability to reduce emissions without curtailing miles traveled—in other words, a fuels-based approach helps avoid tradeoffs with mobility.

As a policy tool for reducing CO₂ emissions, roundtable participants thought an LCFS offered several advantages. One was effectiveness: Instead of the industry making voluntary commitments, all fuel producers would have incentives and obligations to reduce their emissions. For instance, a national LCFS that applied to aviation fuels would reduce emissions from all carriers, not just those carriers who have made net-zero commitments. Participants also noted that an LCFS would help transition the fuels industry, which is currently supported by various subsidies, to a polluter pays model. Some attendees also emphasized the opportunity to build on incentives in the Inflation Reduction Act^o to create

^o Inflation Reduction Act incentives including Clean Energy Tax Credits, Fuel Tax Credits and Clean Vehicle Tax Credits. <https://bipartisanpolicy.org/blog/inflation-reduction-act-summary-energy-climate-provisions/>

long-term demand for clean energy technologies with minimal federal resources. In short, participants saw an LCFS as a valuable tool that offers various strategic policy benefits, albeit not as the sole solution for broader decarbonization efforts.

DESIGN CONSIDERATIONS FOR A CLEAN FUELS POLICY

All participants concurred that the success and political viability of a national LCFS hinges significantly on its design. Design questions discussed during the roundtable spanned a variety of issues, from the scope of the policy to the accounting methods used to determine carbon intensity, technology and feedstock considerations, and interactions with existing policy. Several high-level takeaways from the roundtable discussion are summarized below.

Policy scope: Most participants thought a national LCFS policy should cover multiple modes of transportation, including on-road vehicles, ships, and airplanes. However, there was debate about whether different emission reduction trajectories and timelines should apply to different modes. Attendees noted that the availability and technology readiness of lower-carbon alternatives for different modes of transportation varies considerably; each industry is also subject to its own regulatory requirements. Thus, some participants suggested that independent LCFS regimes should be developed for each mode (e.g., light- vs. heavy-duty vehicles, aviation, maritime shipping, etc.) with credit trading between modes available as a backstop cost-containment mechanism only.

Policy ambition: Attendees noted that there is a lot of uncertainty about the next thirty years for transportation and clean fuels, and many drew the conclusion that carbon intensity reduction targets might need to be modulated accordingly. Some suggested that there is less uncertainty within a 10–15-year window and that an LCFS should therefore focus on short-term gains. Others favored setting an overall benchmark goal (such as 2050) complemented by shorter-term targets that can be updated more frequently, such as every 10 or 15 years.

Technology neutrality/inclusion: Many participants emphasized technology neutrality and inclusion as a key policy feature for bringing together a large coalition in support of an LCFS while also maximizing technology innovation. From the perspective that the central objective is to reduce carbon emissions, technology neutrality and cost minimization go well together. However, some participants had additional concerns: for example, that increased investment in biofuels could increase land-use requirements. This was among the most controversial issues raised at the roundtable and some participants offered to continue discussions around how a federal program might be designed to balance technology inclusion with broader sustainability imperatives. Setting rules/requirements for certain feedstocks and identifying proxy measures for sustainability goals that could be incorporated into compliance mechanisms were among the ideas proposed for addressing these concerns.

Life-cycle analysis: Attendees also began to discuss the boundaries of the life-cycle analysis used to measure the carbon intensity of fuels for purposes of implementing an LCFS. For example, questions were raised about the merits of a well-to-wheel versus cradle-to-grave approach. Also discussed was whether the life-cycle analysis should be limited to the direct environmental impacts of a process or value chain (attributional life-cycle analysis) or whether broader indirect effects at specific points in the value chain should also be considered additionally (consequential life-cycle analysis). Examples of such indirect impacts could include land-use changes, increased demand on the electric grid, and price impacts. Others noted that existing tools for life-cycle analysis, such as the Department of Energy's Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation ([GREET](#)) model are familiar and already in use; they wondered how a federal LCFS might alter these models.

Fuel feedstock trade-offs and related considerations: Acknowledging that productivity improvements have substantially reduced the direct land-use demands associated with corn ethanol production [since the 2010s](#), several participants emphasized that heightened concerns remain about land-use issues related to large-scale production of oil seeds as well as [indirect land-use](#) impacts from crop-based fuels. Attempts to analyze these indirect land-use impacts are dependent on the models and assumptions used and the results often hinge on demand shock estimates that are difficult to measure or observe. Given the prominence of land-use concerns in determining the success and credibility of an LCFS policy, participants stressed the importance of more in-depth discussions on this topic. There was also agreement that an LCFS should account for the indirect impacts of all fuels. Modeling improvements that incorporate, for example, the impacts of electric vehicles on the electric grid and the environmental impacts of mining for the minerals used to make electric- or hydrogen-fueled vehicles were suggested.

Interaction between fuel and vehicle: Another topic of discussion was the interaction between a lower-carbon fuel and the vehicle itself. One suggestion is to take an approach that considers the fuel and the vehicle as part of the same system. Credits in some existing, state-based LCFS programs account for the on-road driving performance of different alternative fuel-vehicle combinations by adjusting carbon intensity scores using [energy economy ratios](#). Alternatively, a federal LCFS could be designed to reward vehicles with more efficient engines with opt-in disclosures at fuel stations. However, other participants noted that this approach could be difficult to implement.

Interaction with other federal- and state-level fuels policies: The idea of combining the existing, volume-based [Renewable Fuels Standard](#) with a carbon intensity standard within an LCFS got a positive reaction from roundtable participants. This approach would ensure that volumes for renewable fuels are guaranteed as markets move to innovate lower-carbon alternatives. Maintaining both approaches could bring along stakeholders, helping the political viability of an LCFS. Additionally, a federal LCFS, whatever its design, would be implemented in a market environment where several states (and potentially more in the future)

already have an LCFS. Should a federal standard preempt state programs, or should state programs continue to exist? Attendees noted that state and federal policies can co-exist alongside each other so long as credits are not double counted and more stringent standards in a state program do not eliminate the ability to generate credits. Some suggested that state programs, considering the distinctive attributes of each state, could provide a basis for policy innovation and enhance political viability at the federal level.

Outlook and Future Dialogues: Policies designed to reduce transportation greenhouse gas emissions can also raise issues related to conventional air pollution, transportation affordability and access, labor, and environmental justice. Within that context, there was an emphasis on not viewing a LCFS too narrowly throughout the roundtable discussion. Topics identified for future conversations included creating pathways to credit higher-performance vehicles; including certifiable, higher-ethanol blends ([E15](#) and above); developing alternative compliance methods that recognize additional technologies (such as carbon credits for direct air capture); how to address additionality concerns; and how to incentivize investment in innovative fuels (such as e-fuels) that have not yet been demonstrated at scale.

Based on BPC's discussions with a wide array of relevant stakeholders, the potential to build consensus around an effective federal LCFS policy is clear, although many details remain to be negotiated. To win broad political and public support, a national LCFS will have to balance scientific, political, regional, industry, and administrative considerations. Further stakeholder discussions are needed to find viable solutions for the challenging design questions that will be critical to the success of a national LCFS.

