POLICY UPDATE

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AN OVERVIEW OF CANADA'S PROPOSED CLEAN FUEL STANDARD

ICCT **POLICY UPDATES** SUMMARIZE REGULATORY AND OTHER DEVELOPMENTS RELATED TO CLEAN TRANSPORTATION WORLDWIDE.

A regulatory framework for Canada's proposed federal clean fuel standard (CFS) was released by Environment and Climate Change Canada (ECCC) in December 2017 for a 1-month public comment period.[1] The framework is a pre-proposal document intended to provide some clarity on the structure of the CFS policy originally proposed in November 2016. This document serves to facilitate discussion and stakeholder comments before a full regulation is proposed.

The proposed CFS, intended to be a technology-neutral performance-based standard to incentivize the deployment of low-carbon fuels and technologies, aims to reduce Canada's greenhouse gas (GHG) emissions by 30 million tonnes by 2030. Together, transportation and fuel production comprise the largest share of Canada's overall GHG emissions—nearly one-third of the country's total emissions in 2015.[2] While Canada moves forward with a separate plan to phase coal out of the electricity sector, the remaining sectors covered by the CFS could provide a substantial GHG reductions through fuel-switching and technology improvements.

ECCC is planning to publish the draft CFS regulation in the fall of 2018 and the final regulation in mid-2019, with the enforcement date of the regulation to be determined. ECCC has collected comments on the framework document from stakeholders and has convened a series of working groups to receive feedback as the CFS is finalized.

This policy update provides a summary of the proposed CFS policy structure based on proposals and the framework document from ECCC, as well as discussion of the potential impacts of not addressing indirect land-use change (ILUC).

1 Environment and Climate Change Canada (ECCC), "Clean Fuel Standard Regulatory Framework" (2017). https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/clean-fuel-standard-regulatory-framework.html

2 Environment and Climate Change Canada (ECCC), "Canada's Greenhouse Gas Inventory: Greenhouse Gas Sources and Sinks," 2017. https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/inventory.html

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THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

PROPOSED STRUCTURE OF THE CANADA CLEAN FUEL STANDARD

The development of a Canadian clean fuel standard was announced in 2016 in conjunction with the development of the Pan-Canadian Framework on Clean Growth and Climate Change, which outlines a series of federal actions for sustainable development and meeting the climate goals of the 2015 Paris Agreement. Key pillars of the Pan-Canadian Framework on Climate Change including prices on carbon emissions, complementary climate actions such as efficiency standards, and investments in climate resilience. Unlike existing fuels policies, such as Canada's Low Carbon Fuel Standard and British Columbia's Renewable & Low Carbon Fuel Requirements Regulation, the scope of the CFS will include stationary fuel combustion in non-transportation sectors such as electricity, buildings and industry.

The policy framework classifies fuels according to their physical characteristics—liquid fuels, gaseous fuels, and solid fuels. Each of the three fuel streams will have its own baseline carbon intensity, with the potential for further sub-groupings within a given fuel stream. For the purposes of estimating emissions reductions, the carbon intensity of eligible fuels will be assessed relative to the baseline carbon intensity of that fuel stream. For example, the emissions from alternative liquid fuels will be compared to the baseline liquid fuel carbon intensity, which could consist of the weighted average carbon intensity for crude oil-derived liquid fuels in Canada.

Implementing carbon intensity targets for broad categories of fuels in lieu of specific sectors may put some fuel streams at a disadvantage for the purposes of generating emissions credits. Because coal and petroleum will have higher baseline carbon intensities relative to the gaseous fuel stream, there may be an incentive to switch from gaseous fuels to either renewable solid or liquid fuels without delivering an additional GHG benefit. The regulatory framework also states that a volumetric target may be established for the gaseous fuel stream, instead of a GHG target, or a hybrid approach with both requirements could be used.

The CFS framework does not include any sustainability criteria to determine the eligibility of fuels under the program—the only requirements established thus far relate to GHG performance. The CFS will evaluate fuels based on their lifecycle carbon intensity, including both production and combustion emissions. Alternative fuels will be assessed on the basis of their well-to-wheel carbon intensity in gCO_2e per megajoule (MJ) of fuel. This performance-based approach would set targets for overall emissions reductions from fuel consumption within each fuel stream, allowing any combination of qualifying fuels to meet the overall emission reduction target for that stream. This approach was chosen to facilitate technology-neutral alternative fuel deployment and minimize compliance costs.

To generate the necessary reductions within the program, the CFS will set a declining carbon intensity requirement for the weighted average fuel mix within each respective stream (either in absolute or relative terms). The carbon intensity requirement would become more stringent over time, theoretically achieving 30 million tonnes of emissions reductions by 2030. Emission reduction credits will primarily be granted for reducing the carbon intensity for a given fuel at various stages in its life-cycle and fuel-switching between fuels of differing carbon intensities. The framework specifies

that there may be other mechanisms to generate credits through the deployment of technologies that displace fossil fuels, such as electric vehicles.

THE IMPACT OF EXCLUDING INDIRECT EFFECTS FROM THE CFS

The current draft of the CFS specifically excludes all indirect effects from the assessment of carbon intensities of alternative fuels, most notably indirect land-use change (ILUC). ILUC occurs in response to increased demand for commodities produced on agricultural land, such as food crops used to produce biofuels. The increase in demand for those food crops in one country results in a global price increase, incentivizing cropland expansion elsewhere in the world, often onto high-carbon stock land. This generates greenhouse gas emissions outside of the direct production of the biofuel that in some cases significantly changes the relative benefits of some biofuel feedstocks. Some by-products and wastes can also generate indirect emissions when they are diverted from their existing uses.[3,4] Omitting ILUC is a significant methodological decision that will have a substantial impact on the effects of the policy. The omission could incentivize the production of poorer-performing fuels while depressing investment in transformative fuels that could offer steeper GHG reductions in the long-term.

While ILUC assessments have not yet been developed for Canada specifically, we can draw some conclusions from studies performed for other jurisdictions. Specifically, the ILUC modeling conducted for the European Commission and for the California Air Resources Board to support fuels policies indicates that food crop-based biofuels may generate indirect emissions from ILUC can that can significantly impact their overall benefits. For example, palm oil-based biodiesel generates substantial ILUC emissions resulting in a total carbon intensity greater than that of petroleum. Without any safeguards within the CFS, biofuels with high indirect emissions could substantially undermine the GHG targets of the policy. In contrast, lignocellulosic energy crops and agricultural residues typically have low or no indirect emissions, but without ILUC accounting, their superior GHG performance would not be rewarded within the CFS. The regulatory framework suggests that ILUC may be considered in a later review of the CFS, but it may be politically difficult to reduce incentives for food-based biofuels after investments have been made in the early phases of the program.

REMAINING ISSUES

Though the framework provides a general sense of what the final policy may contain, there are several substantial unresolved issues and implementation details to be addressed in the draft regulation. These include:

- **Carbon intensity targets and target schedule for each fuel stream:** ECCC will need to divide up the 30 million tonne CO_2e reduction goal amongst the three fuel streams and then translate those reductions into realistic, achievable carbon intensity targets. ECCC will also need to set schedules from the date of CFS

3 ICF International, *Waste, Residue and By Product Definitions for the California Low Carbon Fuel Standard* (ICCT: Washington, DC, 2015). https://www.theicct.org/sites/default/files/publications/ICF_LCFS_Biofuel_Categorization_Final_Report_011816-1.pdf

4 Stephanie Searle, Nikita Pavlenko, Sammy El Takriti, and Kristine Bitnere. *Potential greenhouse gas savings from a 2030 greenhouse gas reduction target with indirect emissions accounting for the European Union.* (ICCT: Washington DC, 2017). https://www.theicct.org/sites/default/files/publications/RED-II-Analysis_ICCT_Working-Paper_05052017_vF.pdf

implementation to 2030 to determine how rapidly the carbon intensity of the fuel mix in each stream must be reduced.

- **Baseline carbon intensity:** ECCC must establish its methodology for determining the baseline carbon intensity against which alternative fuels will be compared in each of the three fuel streams. Establishing baseline carbon intensities requires an assessment of the mix of conventional fuels consumed within each fuel stream and the carbon intensities of those fuels.
- **Design for credit generation, credit banking, and credit trading**: To track compliance for the CFS, ECCC must develop a compliance mechanism to facilitate fuel-switching and credit generation. The framework document also specifies that ECCC will introduce a credit-trading mechanism but does not identify a mechanism for cost-control.
- **Alternative compliance mechanisms to generate credits, including electric vehicle deployment**: While the bulk of the GHG reductions under the CFS are expected to come from fuel-switching, the framework document leaves open the opportunity for alternative methods of generating GHG reductions within the policy. These alternative compliance methods include electric vehicle deployment and process improvements for fuel production. However, it is not clear what technologies might be eligible for this form of crediting, or if there will be a minimum threshold for GHG reductions through these measures.

The framework document prepared by ECCC establishes some key priorities and areas for comment about the proposed CFS, but the framework falls far short of a detailed policy proposal. ECCC plans to publish the final CFS regulation in mid-2019, although there are still substantial lingering questions and design considerations for the policy that must be decided later this year.