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Clean Fuel Standard Regulatory Design Paper  
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## Re: TAF's Comments on the Clean Fuel Standard Regulatory Design Paper

### Introduction

The Atmospheric Fund (TAF) is a public agency established in 1991 by the City of Toronto and endowed by the City and the Province of Ontario. TAF works closely with stakeholders across the Greater Toronto and Hamilton Area (GTHA) to test and advance innovative programs to reduce greenhouse gas (GHG) emissions and air pollution. However, the views expressed in this submission do not necessarily represent those of the City of Toronto or other GTHA stakeholders.


TAF commends Environment and Climate Change Canada (ECCC) for its leadership in developing a Clean Fuel Standard (CFS) that targets transportation, buildings and industry to achieve 30 million tonnes of emission reductions annually by 2030.

The recent IPCC Special Report on Global Warming<sup>1</sup> sends an unequivocal message about the urgency of addressing climate change. At the same time, recent federal reports<sup>2</sup> project a gap of 66 MT in reaching Canada's Paris commitment to reduce emissions to 30% below 2005 levels by 2030. The CFS has an important role to play in meeting our 2030 targets, and even more so in supporting deeper reductions to reach Canada's long-term goal to reduce emissions by 80% by 2050. In light of these objectives, it is essential that policymakers take a holistic approach and understand the synergies and interactions among Canadian climate policies.

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<sup>1</sup> See <https://www.ipcc.ch/sr15/>

<sup>2</sup> **Progress towards Canada's greenhouse gas emissions reduction target (2018).** ECCC. <https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/progress-towards-canada-greenhouse-gas-emissions-reduction-target.html>



This submission responds to the 2018 Regulatory Design Paper (RDP) and focuses on recommendations related to indirect land-use change (ILUC), electric vehicle (EV) revenue recycling, effective compliance options, and emissions intensive and trade exposed (EITE) considerations with a view to maximizing CFS potential towards achieving Canada's emission reduction targets.

### Application of the CFS: Guiding Principles

TAF proposes that the CFS should be designed and implemented based on a set of guiding principles that align with CFS objectives to achieve 30Mt of annual GHG reductions by 2030 and foster innovation. These objectives can most effectively be met by establishing a CFS that is:

**Ambitious:** Supports ambitious action and promotes environmental integrity while accelerating our transition to the low-carbon economy

**Comprehensive:** Includes broad coverage, considers all direct and indirect impacts, and triggers emission reductions in all intended sectors

**Competitive:** Ensures a market where all low carbon fuels, energy sources, and technologies can compete while driving cost-effective emissions reductions across all relevant sectors

**Credible:** Uses the best available data, holistic analysis, concrete assumptions, and robust methodologies to ensure the integrity of the policy

**Straightforward:** Is clear to all regulated parties, enhances the likelihood of compliance by avoiding unnecessary complexity, and minimizes administrative burden without compromising policy objectives

**Transparent:** Is transparent and predictable to build trust and market confidence, encouraging participation and investment. Is regularly reviewed, with findings shared and applied to improve the policy.

These principles should be rigorously applied to the design of the CFS in order to maximize the transformative power of this policy towards a low-carbon economy.

### Indirect Land-use Change

***TAF strongly believes that in order to meet the objectives of the CFS and in line with our guiding principles for a comprehensive and credible CFS, ILUC impacts should be incorporated in the carbon intensity values as soon as possible.*** Failure to include ILUC accounting risks undermining the GHG reduction benefits of the CFS, locking in investment in suboptimal biofuel sources and creating regulatory uncertainty for market participants. Furthermore, the longer ILUC impacts are excluded, the more difficult and contentious it will be to introduce them at a later date. For example, the European Commission did not include

ILUC accounting in the EU Renewable Energy Directive when it was first introduced, and its inclusion became politically unviable afterwards as major investments had already been made in first generation biofuels. Consequently, in some cases the policy incentivized fuel pathways with higher lifecycle GHG emissions than petroleum.<sup>3</sup>

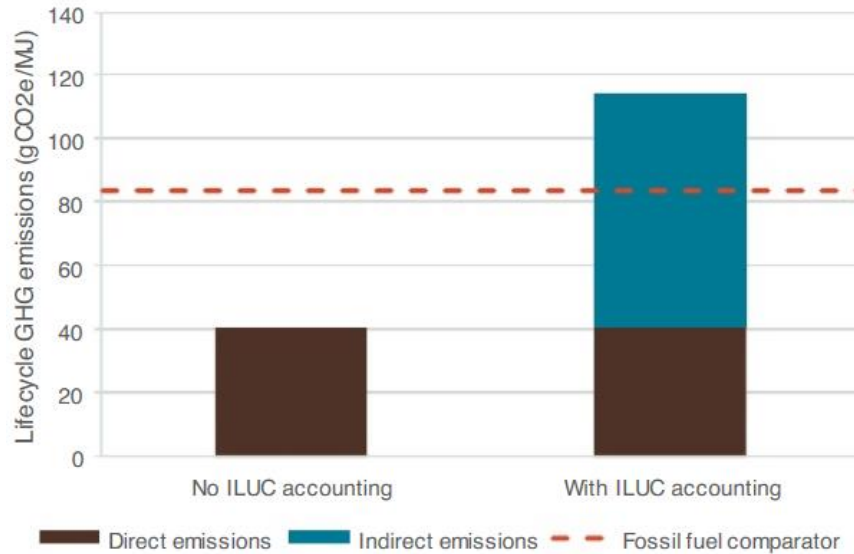



Figure 1: Lifecycle GHG emissions from EU biofuel policy with and without ILUC accounting. Source: ICCT (2017) Valin et al. (2015) and European Union (2009)

**TAF supports the proposal in the RDP to exclude or limit the use of feedstocks associated with high loss of biodiversity and carbon stocks, as well as including mandatory feedstock tracking which will help collect critical data.** However, these measures do not obviate the need for a full accounting of ILUC impacts in carbon intensity values.

While it would be ideal for ILUC accounting to be included in the CFS from the outset, we recognize that this may be challenging at this stage without further delaying implementation of the CFS. ***If ECCC is not prepared to integrate ILUC accounting from the beginning, then it should commit to introducing ILUC at the earliest possible opportunity.*** The current statement that ILUC will be *considered* in the 2025 review creates market uncertainty about whether, and when, ILUC accounting will be introduced. Producers of low carbon fuels will be making important investment decisions before 2025, and they require clearer signals about the Government’s future direction on ILUC in order to make sound business decisions that contribute to the development of a sustainable low carbon fuels industry in Canada.

<sup>3</sup> ICCT comments on Canada's Clean Fuel Standard 20180119. (2018). [https://www.scribd.com/document/375625362/ICCT-Comments-Canada-CFS-Framework-20180119#from\\_embed](https://www.scribd.com/document/375625362/ICCT-Comments-Canada-CFS-Framework-20180119#from_embed)



We strongly suggest that ECCC be explicit in the regulation or elsewhere as appropriate, about the intent to integrate ILUC accounting as soon as possible and provide specific timing so that impacted parties can plan accordingly.

Some stakeholders have argued against ILUC accounting as a result of a lack of Canadian-specific ILUC factors and lack of consensus around the approach to modelling. As such, ***ECCC should initiate the research process immediately to develop an ILUC accounting framework***, to leave sufficient time for research, consultation, consensus-building among stakeholders and ground-truthing the factors well in advance of being incorporated into the regulatory framework. While there is strong work to build on in Canada, the US and EU, and effective modelling could be conducted within a year, initiating the process as soon as possible allows for a more robust process with adequate time to engage stakeholders and experts. In terms of a reasonable timeline, ECCC may consider:

- 2019: Initiate procurement for necessary research and modelling, award contract(s) and begin work
- 2020: Convene technical Working Group to support research team
- 2021: Conduct comprehensive review process, pilot projects/ground-truthing
- 2022: Initiate broader stakeholder engagement process
- 2023: Finalize proposed ILUC approach to be integrated following the 2025 Review

If this research is not completed in advance of the 2025 review, the review will not be able to reach a well-informed conclusion regarding inclusion of ILUC accounting.


While this work is underway, it would be useful to publish reference values or ranges that industry and investors could use to guide research and development (R&D) and investment decisions until final Canadian values are determined. It will also be important to build opportunities to update ILUC values into the program over the longer term. California provides a strong example in this regard; in 2015 the Low Carbon Fuel Standard (LCFS) update included a broad stakeholder engagement process to review available data to revise ILUC factors.

Although this lies outside of the scope of the CFS regulation specifically, it would also be useful to target clean fuels and technologies with zero or low ILUC impacts for federal R&D funding support, to ensure there is sufficient investment in these areas in advance of incorporating ILUC into the CFS.

## Credit Generation

### Revenue Recycling for EVs

***TAF strongly supports the proposed inclusion of electric vehicles (EV) as credit generating activities, and the use of energy effectiveness ratios for electrification and fuel switching to reflect full petroleum reduction benefits.***



**Furthermore, TAF strongly supports a revenue recycling requirement for recipients of EV credits.** Unlike most other credit generating activities, a revenue recycling requirement is necessary for EV credits because there is otherwise no market mechanism linking EV credit revenues with further adoption of EVs. In most cases, the recipients of EV related credits will not be involved in either the purchase or sale of EVs; consequently, there is no direct link between their receipt of credits and incremental adoption of EVs. Therefore, absent a reinvestment requirement, inclusion of EV credits will do little to accelerate adoption of EVs or other low-carbon technologies.

**In line with our guiding principle for an ambitious CFS, it is essential to ensure that revenues generated from EV charging credits are reinvested into initiatives to further accelerate adoption of Zero Emission Vehicles (ZEV).** Given the delay in CFS implementation announced in July 2018, it will be necessary to find opportunities to accelerate progress in order to meet the CFS objective of 30MT emission reductions annually by 2030. Recycling revenues offers a logical opportunity for quick wins.

**Requiring revenue recycling for EV charging credits will also help maintain the public and stakeholder support needed to ensure the policy's long-term durability.** Absent a reinvestment requirement, the transfer of hundreds of millions of dollars in credit revenues to utilities will raise legitimate questions about what actions those utilities have taken to warrant such remuneration. California provides an effective approach wherein utilities are required to use part of the value of LCFS credits to fund rebates for EV purchases.<sup>4</sup>


**TAF recommends a strong revenue recycling requirement where all-or-nearly-all EV credit revenues are reinvested in a range of activities including EV purchase incentives, public education, and charging infrastructure,** with adequate monitoring to ensure additionality. Furthermore, ECCC should play a coordinating role to ensure that these investments are consistent with the forthcoming Zero Emissions Vehicle strategy. Particularly with respect to vehicle purchase incentives, the market impact will be substantially reduced if purchase incentives are inconsistent and fragmented, especially at a sub-provincial level.

**Regarding credit generation for charging of medium and heavy-duty electric vehicles, we propose offering the site host first right of refusal, followed by the network operator.** This approach allows the entity who pays for the charging equipment to benefit. However, if they deem the administrative burden of generating credits to be too high, the operator could then generate credits as part of an aggregation project.

In general, related to credit generation and in line with our principle around transparency, it would be useful to see significantly more detail regarding other potential end-use fuel switching credit-generating activities, such as for heating fuels (e.g. switching from natural gas to electric heat pumps), with suitable energy effectiveness ratios. Given that early action

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<sup>4</sup> See [ww2.arb.ca.gov/news/carb-amends-low-carbon-fuel-standard-wider-impact](http://ww2.arb.ca.gov/news/carb-amends-low-carbon-fuel-standard-wider-impact)  
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credits are proposed to be allowed for all fuel streams starting in 2020, it would be helpful to see them reflected in the same level of detail as the EV charging credits, to seek stakeholder input.

*The proposed 10Kt credit generation threshold for compliance category 1 seems reasonable. However, TAF recommends a smaller threshold for credit generation under compliance categories two and three.* Extending the same threshold to these other categories may unduly restrict market participation. Particularly in the initial phases of the regulation as efforts ramp up, it will be important to avoid creating barriers to entry for market participants.

## Credit Trading and Meeting Obligations

The RDP indicates that ECCC *may* publish information related to the number of credits generated, used and traded as well as the average credit price. ***In line with our guiding principle on transparency, TAF strongly recommends that ECCC commit to sharing information on credit generation and trading publicly to increase market trust.***

***TAF recognizes the importance of providing compliance flexibility for regulated parties, though we have some potential concerns about the proposed emission reduction fund.***

First, such funds are prone to ‘free-rider’ issues, where projects that are highly likely to occur without public funding are invested in by public funds simply because they appear cost-effective. Ensuring true additionality of outcomes will be essential. The proposed fund may also duplicate other federal funds focused on carbon reduction (e.g. Low Carbon Economy Fund). Depending on final regulatory details, the Fund may deter investment in adoption of low carbon fuels and energy sources. Careful consideration is needed regarding the percentage of an obligation that can be met by payment into a fund, and the specific price, in order to avoid undermining investment through the credit market.

It is also worth considering which compliance options under the CFS might have potential for significant cost reductions given additional funding for Research, Development, Demonstration and Deployment and prioritize these technologies as recipients under the emission reduction fund and/or other federal funding to further amplify efforts.

## Review

We are pleased to see that there will be a Review of the CFS in 2025. This will be a crucial opportunity to determine how well it is performing, and to apply findings from the review process to make any necessary improvements. It is important to develop specific criteria and a comprehensive vision for what constitutes success for the CFS (beyond achieving 30MT emission reductions annually), and how success will be attributed to the regulation. The 2025 Review should also consider next steps and intended outcomes post-2030 to provide market certainty and promote the policy’s long-term objectives.



*TAF also recommends that the 2025 review should include consideration of increasing the 30MT target if the CFS exceeds expectations and participants are able to meet carbon intensity targets while credit prices remain within expected limits.*

*We would also like to reiterate that considering whether ILUC should be accounted for as part of the 2025 Review is significantly too late, and that work to determine how to incorporate ILUC impacts should begin this year.*

## EITE

TAF appreciates ECCC disclosing that an EITE Task Group has been established and recognizes the importance of adequately addressing competitiveness concerns to help ensure a healthy Canadian economy and protect against carbon leakage. However, ***we strongly suggest that a clear methodology be established and applied to determine which industries qualify as EITE.***

Emissions intensity is most often measured by emissions per unit of revenue (or a variation thereof). Trade exposure is most often measured as:

$$\frac{\text{Imports+Exports}}{\text{Production}} \text{ or } \frac{\text{Imports+Exports}}{\text{Production+Imports}}$$

Several provinces have created quantitative methods of assessing EITE that could be adapted for use in the CFS context. EITE definitions from Quebec, Ontario, Alberta and California all use a tiered structure to determine which companies can be classified as facing high competitiveness risks, balancing scores for trade intensity and emissions intensity.

Regardless of the approach that is selected, there must be a transparent and rigorous process in place to determine which industries are EITE and how legitimate competitiveness concerns should be mitigated, while balancing environmental integrity and the need to achieve 30MT emission reductions annually by 2030 across the three streams. The evidentiary burden rests with companies to adequately illustrate their competitiveness impacts. In line with our guiding principles regarding a CFS that is credible, straightforward and transparent, the EITE Task Group should operate in a manner that is inclusive of various stakeholder perspectives with a clear mandate.

## Conclusion

Important design decisions remain for the CFS. TAF has outlined above recommendations on ILUC, EV revenue recycling, effective compliance options, and EITE considerations to help ensure the CFS is ambitious, comprehensive, competitive, credible, straightforward, and transparent.

We would like to thank ECCC for the opportunity to provide comments on the RDP and would welcome the opportunity for further collaboration to ensure the successful rollout of the CFS.

## Reference

### Overview of Indirect Land Use Change (ILUC) in California's Low Carbon Fuel Standard (LCFS) and European Union's Renewable Energy Directive (RED)

The following information provides insight into how ILUC issues have been addressed by the California Air Resources Board (CARB) and the European Union (EU).

#### California's Low Carbon Fuel Standard (LCFS)<sup>5,6</sup>

- ILUC accounting was initially included in the original adoption of LCFS in 2009.
- California's LCFS uses a combination of both the Global Trade Analysis Project (GTAP) model and the Agro-Ecological Zone Emission Factor (AEZ-EF) model to estimate the ILUC value of a specific type of biofuel.
- The GTAP is a global network of policy makers and researchers who conduct quantitative analysis of international economic and policy issues. The GTAP model was adopted with LCFS's original adoption in 2009, it estimates the amounts and types of land converted for agricultural use across the world due to the increased demand of biofuels.
- The AEZ-EF model provides GHG emission factors of various types of land conversions (i.e. the amount of "lost sequestration capacity" per unit of land area resulting from the conversion of native vegetation to crops).
- The two models are combined to generate total carbon emissions which are then normalized by total production (i.e. to calculate emissions per MJ of fuel produced) and averaged over 30 years to produce the ILUC value.
- The ILUC values (g CO<sub>2</sub> equivalent/MJ) of six types of biofuels were calculated by staff at CARB and are summarized in the table below.

Figure 2: ILUC values

Biofuel	ILUC values (g CO <sub>2</sub> e/MJ) based on 30 scenario runs	
	Average	Range
Corn ethanol	19.8	10.6-34.3
Sugarcane ethanol	11.8	2.7-25.3
Soy biodiesel	29.1	17.8-46.9
Canola biodiesel	19.4	7.6-24.7
Sorghum ethanol	14.5	12.2-30.7
Palm biodiesel	71.4	58.3-89.1

#### European Union (EU)'s Renewable Energy Directive (RED)

<sup>5</sup> California Air Resources Board - LCFS Land Use Change Assessment. [https://www.arb.ca.gov/fuels/lcfs/iluc\\_assessment/iluc\\_assessment.htm](https://www.arb.ca.gov/fuels/lcfs/iluc_assessment/iluc_assessment.htm).

<sup>6</sup> Detailed Analysis for Indirect Land Use Change. [https://www.arb.ca.gov/fuels/lcfs/iluc\\_assessment/iluc\\_analysis.pdf](https://www.arb.ca.gov/fuels/lcfs/iluc_assessment/iluc_analysis.pdf)



- ILUC accounting was not initially addressed in EU's original version of RED established in 2009. When it was proposed by the European Commission in 2012, as a result of the delay there was significant opposition and political pushback from the biofuel industry against the inclusion of ILUC.<sup>7</sup>
- As a compromise, instead of incorporating ILUC accounting, EU limited the share of biofuels from crops grown on agricultural land (i.e. first-generation biofuels or food-based biofuels) that can be counted towards the 2020 renewable energy targets to 7%, and set an indicative 0.5% target for advanced biofuels (i.e. second-generation biofuels or non-food-based biofuels) for individual member states.<sup>8</sup>
- In the proposal for the revised RED published in 2016<sup>9</sup>, it indicates that the maximum share of food-based biofuels should decrease in 2021 in order to address ILUC emissions. It suggests food-based biofuels be gradually phased out and replaced by advanced biofuels with "low indirect land-use change-risk biofuels" exempt from this limitation<sup>10</sup>.
- As stated in the revised RED, the European Commission may consider issuing certification of biofuels with low indirect land-use change-risk, which are defined as those produced from feedstocks that "avoid displacement of food and feed crops through improved agricultural practices or through cultivation of areas not previously used for crop production". Whereas high ILUC biofuels are those "produced from feedstocks for which a significant expansion onto high carbon stock land is observed. The next step for the European Commission is to set criteria for the classification of both "low ILUC" and "high ILUC" biofuels in 2019<sup>11</sup>.
- The RED has provided provisional estimated ILUC emission factors of biofuels as listed in the table below.

Figure 3: ILUC emission factors

Feedstock group	Mean ILUC (g CO <sub>2</sub> e/MJ)
Cereals and other starch-rich crops	12
Sugars	13
Oil crops	55

<sup>7</sup> The International Council on Clean Transportation - Canada lags the United States in climate accounting of biofuels. <https://www.theicct.org/blog/staff/canada-lags-united-states-climate-accounting-biofuels>.

<sup>8</sup> European Commission - New rules to reduce indirect land use change. <https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/land-use-change>.

<sup>9</sup> Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources. [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016PC0767R\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016PC0767R(01)&from=EN).

<sup>10</sup> The International Council on Clean Transportation - Defining low and high indirect land-use change biofuels in European Union policy. <https://www.theicct.org/publications/analysis-high-and-low-iluc-definitions-eu>.

<sup>11</sup> The International Council on Clean Transportation - Defining low and high indirect land-use change biofuels in European Union policy. <https://www.theicct.org/publications/analysis-high-and-low-iluc-definitions-eu>.