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Prepared By: Erin Danielson

Approved By: Philip Hayes

Report Highlights:

Canada is developing a Clean Fuel Standard (CFS) to reduce the lifecycle carbon intensity (CI) of fuels and all energy used. Proposed regulations for liquid fuels are expected fall 2020 to come into force by 2022. The objective of the CFS is to lower greenhouse gas emissions by setting carbon emission reduction targets and incentivizing the adoption of lower CI fuels. The CFS in combination with carbon tax schemes, provincial policies encouraging the use of renewable fuels, and various grant programs are expected to drive changes to Canada's fuel market, its delivery infrastructure, and vehicle fleet. Assuming a level playing field, U.S. and other foreign suppliers of lower cost reduced CI biofuels are expected to see expanded sales opportunities. This report covers federal and provincial regulations affecting renewable fuel markets. Keywords: Canada, Biofuels, Ethanol, Biodiesel, Hydrogenation-Derived Renewable Diesel, HDRD, Renewable Drop-in Diesel

Executive Summary

In June 2019, Environment and Climate Change Canada (ECCC) published its Proposed Regulatory Framework paper for Canada's Clean Fuel Standard (CFS). It outlines a transition to using carbon intensity (CI) as the metric to assess progress on goal attainment. Canada plans to move away from the current volumetric-only approach with no carbon emission reduction goals in place under federal Renewable Fuels Regulations, which will remain in force until ECCC clarifies how Canada will transition to benchmark CI values.

By setting lifecycle CI standards for various types of fuels, the CFS will encourage the production of clean fuels (those with lower carbon emissions and air toxins) and create incentives for their use. If implemented, this proposal is expected to benefit both domestic and foreign biofuel producers, especially cost-competitive, lower carbon emission fuels, assuming the playing field for both remains equal. The Proposed Regulatory Framework builds upon the Regulatory Design Paper published in December 2018 as well as the Clean Fuel Standard Regulatory Framework published in December 2017.

The Greenhouse Gas Pollution Pricing Act (GGPPA) came into force on June 21, 2018[1]. The Act has two parts: the carbon tax and a credit trading system for large emitters, known as the Output-Based Pricing System (OBPS). In 2016, the federal government established a carbon tax to ensure it applies to a broad set of fossil fuel emission sources throughout Canada. Under the GGPPA, the federal government has implemented a carbon tax (commonly referred to as "the backstop") that applies to any province or territory that does not have one in place which meets or exceeds the federal benchmark (i.e., $10 CDN/ton CO2e in 2018, rising to $50 CDN/ton CO2e in 2022).

The GGPPA gave provinces and territories time to develop their own carbon tax plan before the federal government imposed the backstop on April 1, 2019. Currently, Alberta, Saskatchewan, Manitoba, Ontario, Nunavut, and the Yukon are subject to federal fuel charges and applicable rates, which vary by fossil fuel type. Saskatchewan, Manitoba, and Ontario did not develop a provincial carbon tax that met the federal requirements by the April deadline, while Alberta terminated its compliance model after the deadline.

The second part of the GGPPA, the OBPS, establishes how credits will be created under the CFS for low-CI fuels produced and imported in Canada[2]. Credits may be created for liquid and gaseous low-CI fuels, as of final publication in Canada Gazette, Part II. Gaseous low-carbon-intensity fuel credits may be banked and traded, or starting in 2022, used for compliance with the liquid class regulations within limits.

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[1] The GGPA came into force on assent

[2] https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/pricing-pollution/Clean-fuel-standard-proposed-regulatory-approach.pdf

The credit trading system provides flexibility for large greenhouse gas emitters to find the most cost-effective strategies to meet emissions targets. As a result, biofuel companies may see expanded sales opportunity as increased biofuel adoption is one of several ways to meet emissions targets.

Looking ahead, setting CI standards for various types of fuels, developing a credit trading system, and investing in projects to accelerate the switch to lower carbon fuels will result in changes to Canada's fuel market. This is expected to increase the use of renewable fuels (liquid and gaseous) in the transport sector, including renewable electricity. The regulatory framework aims to pull lower CI conventional and advanced biofuels into the market by providing financial incentives to produce biofuels products at the lowest CI by lowering the price of lower CI fuels sold to consumers. Presently there is no capacity to incentivize the use of early-stage CI-lowering technologies[3] and blending mandates alone with no carveouts for biofuels with particular CI standards had been the case across Canada (except for British Colombia), until the arrival of new policies.

Progress on production of advanced biofuels[4] has been hampered by the slow rate of commercialization. The CFS, working in tandem with the GGPPA and various federal and provincial grant and other support programs, is designed to hasten advanced fuel commercialization.

U.S. biodiesel and hydrogenation-derived renewable diesel (HDRD), as well as ethanol, will likely experience increased demand from Canada, assuming a level playing field for domestic and foreign producers alike, following changes in Canada's fuel market, infrastructure, and vehicle fleet. Further, as in California, biogas could well find large new sales opportunities once separate requirements for gaseous fuels are introduced.

COVID-19 has significantly impacted the renewable fuels industry by reducing demand for transportation fuels, delaying policy implementation, and postponing the inaugural publication of renewable fuel market data from Canada's national statistical agency. In addition, due to the pandemic, the federal government has decided to lower the near-term CI reduction requirements for liquid fuels, potentially leading to more stringent CI goals in the long term.

Due to COVID-19, Quebec and Ontario, Canada's two largest fuel markets, have seen a decline in gasoline demand of up to 60 percent in recent months and subsequently a similar decline in ethanol, according to Renewable Industries Canada (RIC), which implies that blending levels have held steady. According to RIC, one biodiesel plant, accounting for 7.5 percent of Canada's biodiesel nameplate capacity, temporarily stopped production in April. It is the only renewable fuel plant in Canada that has

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[3] https://www.ieabioenergy.com/wp-content/uploads/2020/03/IEA-Bioenergy-Task-39-Implementation-Agendas-Final-Draft-Feb-4-2020.pdf

[4] Advanced biofuels are low-CI fuels with new production technology platforms typically designed to use waste-stream feedstock and not feedstock also used as food or animal feed.

ceased operations. Other plants have slowed output below pre-COVID-19 capacity use and are producing in the 50 to 70 percent range.

The ethanol industry is optimistic the economy will continue to re-open and residual COVID-19 concerns will incentivize people to drive rather than fly; thus increasing demand for gasoline and ethanol faster than might otherwise be expected.

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Preface: Special Note on Publishing Updated Biofuel Supply/Demand Tables on Canada

Because Environment and Climate Change Canada (ECCC) does not expect to publish 2019 data until January 2021 and no other data is available, FAS/Ottawa will be delaying the publication of production, supply and disposition tables and updated market analysis until data becomes available.

While it is not in the scope of this paper to provide an updated report on Canada's biofuel production, supply, and disposition, please see Report CA19017, Biofuels Annual 2019, dated July 17, 2019 for the last biofuels market situation update covering final data up to 2017 with estimates for 2018 and 2019.

Of note, Canada's national statistical agency, Statistics Canada, is in the process of launching the country's first publicly available, biofuel industry production survey. Companies will be obligated to complete the survey each month and the results will be publicly available on Statistics Canada's web site. The survey was launched on time in January and results were expected to be published in March 2020, however COVID-19 has delayed publication of the results and halted the survey in March. Statistics Canada expects to publish a detailed data table late 2020.

Biofuels Annual 2020: Policy and Programs

1. Renewable Energy and Greenhouse Gas (GHG) Emission Goals

In May 2015, Canada indicated its intent to reduce greenhouse gas (GHG) emissions by 30 percent below 2005 levels[5] by 2030. Canada later confirmed this target in its Nationally Determined Contribution (NDC) to the COP -21 Paris Agreement. Canada reports on GHG emissions and trends biannually as part of its international commitments under the United Nations Framework Convention on Climate Change (UNFCCC).

According to a Government of Canada report, after hovering between 700 and 720 megatons of carbon dioxide equivalent (Mt CO2e) in recent years, in 2018 (the most recent annual dataset available) Canada's GHG emissions increased to 729 Mt CO2e. This increase is attributed to higher fuel consumption for transportation, winter heating and oil and gas extraction.

The Government of Canada aims to meet its GHG emission reduction goals primarily through the adoption of two programs. Of importance to renewable fuels, the Clean Fuel Standard (CFS) will aim to reduce the lifecycle CI of fuels and energy used in Canada, while The Greenhouse Gas Pollution Act (GGPPA) puts a tax on the carbon content of fuels and establishes a credit trading system for large emitters, known as the Output-Based Pricing System (OBPS).

The objective of the CFS (still in development) is to achieve 30 million tons of annual reductions in GHG emissions by 2030, making it a significantly important aspect of Canada's plan to meet its commitments under the UNFCCC. The CFS aims to stimulate investments and innovation in low-CI fuels. It proposes CI limits for liquid fossil fuel starting in 2022 and become more stringent over time, capping at a CI reduction requirement of 10 grams of carbon dioxide equivalent (CO2e) per megajoule[6] (MJ) in 2030.

In addition to the CFS, the GGPPA also has the objective of helping Canada meet its emission reduction targets. The Act enabled the Canadian government to implement a carbon tax starting in 2019, which applies to provinces and territories that do not meet the federal benchmark stringency requirements. It also gave provinces the flexibility to enact emission reduction strategies which met provincial needs, as long as they met federal government requirements. The second part of the GGPPA, the OBPS establishes how credits will be created under the CFS for low-CI fuels produced and imported in Canada.

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[5] In 2005, Canada's total GHG emissions were 731 Mt, representing about two per cent of overall global GHG emissions.

[6] Megajoule is a unit of energy equal to 1,000,000 joules. 1 MJ = 0.2778 kWh

2. Emerging Federal Renewable Fuel Policy

2.1 Clean Fuel Standard

The Government of Canada is currently developing the CFS to reduce the lifecycle carbon intensity (CI) of fuels and all energy used in Canada. The CFS regulations will cover all fossil fuels used in Canada, but will set separate requirements for liquid, gaseous and solid fossil fuels.

In June 2019, ECCC published its Proposed Regulatory Framework paper for Canada's CFS, which focuses on the liquid fuel stream regulations. There will be separate requirements for gaseous and solid fossil fuels coming into force at a later date. The 2019 paper builds upon the Regulatory Design Paper published in December 2018 as well as the Clean Fuel Standard Regulatory Framework published in December 2017.

The Proposed Regulatory Framework paper re-states CI limits for liquid fossil fuel will start in 2022 and will become more stringent over time, capping at a CI reduction requirement of 10g CO2e/ MJ in 2030. This 2030 CI reduction requirement represents a decrease of 10 to 12 percent below 2016 levels, depending on the fuel type. The CI reduction requirement will be part of ECCC's spring-summer engagement on the CFS.

The key design elements from the Regulatory Design Paper were CI, credit generation, the auctioning of credits, and indirect land-use change. For a brief summary, see the Government of Canada's backgrounder.

While most elements in the Proposed Regulatory Framework represent further elaboration of the regulatory requirements presented in December 2018, some key elements are new, as described below.

Key New Elements of the Proposed Regulatory Framework

- Annual carbon intensity (CI) reduction requirements for the liquid fossil fuel class: CI reduction requirements for liquid fuels will start in 2022, requiring a 2.4g CO2e/ MJ reduction for all liquid fossil fuels, increasing annually to achieve a 12g CO2e/ MJ CI reduction requirement in 2030[7].
- Biofuel land-use change: The regulations will account for land-use change in two ways:
    - the Fuel Lifecycle Modelling Tool will account for greenhouse gases associated with direct land-use change;

[7] Revised text after ECCC reduced the initial CI reduction target for 2022 and raised the long-term target. The changes are due to COVID-19 and occurred at an ECCC Technical Working Group Committee held June 16, 2020.

- the regulations will identify sustainability criteria for feedstocks that address certain land-use changes – including indirect land-use change – and land management practices. Only feedstocks adhering to these criteria will be eligible for credit creation under the CFS.

 New credit creation opportunities:

- no credit creation threshold (previously proposed a threshold of 10 kt CO2e for emission reduction projects);
- carbon capture and use and carbon capture and storage at industrial facilities in addition to oil and gas facilities;
- the production of biogas, including using biogas on-site; and
- the production and on-site use of biofuels at industrial facilities

 Fund Compliance Mechanism: A regulated party (referred to as a "primary supplier") will be able to meet up to ten percent of its annual compliance requirement by making a payment at a set price into a list of approved funds.

 Credit Clearance Mechanism: Primary suppliers will have to buy credits at a price that cannot exceed the set price under the Credit Clearance Mechanism to clear a credit shortfall before carrying forward a deficit (of up to ten percent of their annual compliance requirement) into a subsequent compliance period.

 Verification, reporting, measurements and records requirements will be set out in the Clean Fuel Standard to ensure consistent quality and robustness of data and information, and to ensure credits are valid.

Source: Environment and Climate Change Canada

The original text of the Framework states, "CI reduction requirements for liquid fuels will start in 2022, requiring a 3.6g CO2e/ MJ reduction for all liquid fossil fuels, increasing by 0.8g CO2e/ MJ annually to achieve a 10g CO2e/ MJ CI reduction requirement in 2030." The proposed CI reduction requirement for 2022 has since been reduced to 2.4g CO2e/ MJ, down from the previous proposed level of 3.6g CO2e/ MJ, in response to COVID-19. The long-term target has increased to 12 CO2e/ MJ CI. The changes were announced at the June meeting of the CFS Technical Working Group.

The baseline Canadian average fossil fuel CI values will be set out in the regulations and will not be updated prior to full implementation in 2030. The CFS will include a requirement for a five-year review, the first of which is expected to occur in 2035, which may include the assessment of baseline fossil fuel values.

In April 2020, the federal government announced a revised timeline for the publication of proposed regulations for the liquid fuel class in Canada Gazette, Part I. Initially planned to be published by mid-

2019 with publication of final regulations in Part II by 2020, the regulations are now expected to be published in the fall of 2020 and published in Gazette, Part II in 2021. Regulations for the liquid fuel class are expected to come into force in 2022. Ongoing consultation will continue throughout 2020 on the gaseous and solid fuel streams.

2.2 Fuel Life-Cycle Assessment Tool

The Fuel Lifecycle Assessment (LCA) modelling tool is being developed to support the development and implementation of the CFS. In order to determine the CI of the various fuels produced in and imported into Canada, the model will calculate GHG emissions using the full lifecycle approach.

In the Fuel LCA Model, the modelling of fossil fuels has two purposes:

i. Calculate the fossil fuel baseline lifecycle CI values used to set the annual CI reduction requirements that primary suppliers will have to meet for the fuels they supply to Canada; and,

ii. Provide background lifecycle inventory data for the CI calculation of low carbon fuels.

Using the Fuel LCA model, if a facility undergoes process changes reducing the CI of the fuels it produces, an application may be submitted for an updated CI value. CI values will also be a part of the facility's annual third-party verification requirements. The approved carbon intensity values will no longer be valid if there are changes increasing the carbon intensity of the fuel.

A Canadian average lifecycle CI value was determined. To calculate this Canadian average lifecycle CI value of each fossil fuel, the modelling took into consideration the CI of different crude oil types and applied a weighted-average representative of the supply chain of the fuel consumed in Canada.

The Fuel LCA Model is scheduled to be launched in parallel with the CFS Regulations as part of Canada Gazette II (Fall 2021). Once launched, the Fuel LCA Model will be made publicly available for download via the ECCC website and can be used with a variety of existing LCA software.

The development of the Fuel LCA Model is ongoing. Methodologies were developed by a contractor (contract completed April 30th, 2020). A few weeks later, the fossil fuel methodologies were finalized, following an ISO 14040 (LCA principles and framework) and 14044 (LCA requirements and guidelines) critical review process. Currently, ECCC is in the process of populating the Fuel LCA Model within the open LCA software and is conducting quality assurance and control of the model and developing supplementary documentation. In addition to the current model development, ECCC has initiated and planned to carry out a critical review of low carbon fuel pathways, testing of the model, and ongoing updates to the model as a result of the current and planned activities scoped out for this year.

To support the ongoing development of the model, the Fuel LCA Model Methodology document will be released publicly as part of the publication of the CFS regulations in Canada Gazette I (fall 2020) and will be subject to a 75-day consultation period.

2.3 Opportunities for Biogas

The first phase of the CFS, covering the liquid class fuels, will provide opportunities for the use of biogas to create credits (biogas used for heating or electricity production, renewable natural gas blended in natural gas, renewable natural gas used in transportation). The next phase of the CFS regulations will cover gaseous and solid fuel classes and is expected to create more demand for renewable natural gas. The federal government has stated more precise timing with respect to the development of gaseous and solid fuel regulations will be shared in the coming months. In general, these regulations will follow the liquid stream regulation timeline, plus 12 months.

2.4. Cost-Benefit Analysis Framework

In February 2019, ECCC released the Cost-Benefit Analysis Framework (CBA) for the CFS. This is part of a regulatory impact analysis statement (RIAS) published in the Canada Gazette along with regulations (and proposed regulations) to estimate the incremental benefit and cost impacts to society attributable to those regulations (and proposed regulations). Emissions reductions and credit supply will also be part of this analysis. This framework accompanies the CFS Regulation Design Paper published in December 2018. Specifically, it outlines the approach for the CBA as part of the RIAS that will accompany the 2019 publication of the proposed regulations.

The CBA identifies compliance cost impacts using one-time costs, and ongoing costs and savings where possible, using available evidence. The CFS would have three main categories of compliance and credit-generating actions:

1. Actions that reduce the CI of the fossil fuel throughout its lifecycle
2. Supplying low-carbon fuels
3. Specified end-use fuel switching

3. Provincial Renewable Fuel Mandates and Other Policy

Ontario and Quebec combined account for 55 percent of Canada's gasoline pool and 47 percent of the diesel pool (on average); therefore, their renewable fuel policies drive a disproportionately large share of total Canadian demand for liquid biofuels as well as the potential for biogas and renewable electricity use in transport.

Since December 2010, federal regulations have required fuel producers and importers to have an average ethanol content of at least five percent based on the volume of gasoline produced or imported. Since July 2011, federal regulations have mandated fuel producers and importers to have at least two percent, on average, renewable content based on the volume of diesel fuel and heating distillate oil they produce or import. The current federal Renewable Fuels Regulations include a trading system and administrative, compliance, and enforcement provisions such as recordkeeping and reporting.

Federal minimum blending requirements protect against provincial-level backsliding. It has always been the provincial mandates (and size of each of their fuel pools) that drives biofuel demand and Canada's total demand is nothing more than this aggregated demand which, due to discretionary blending practices and distribution networks, has in some localities risen above minimum blend requirements

From 2007 through 2020, British Columbia, Alberta, Saskatchewan, Manitoba and Ontario established a blending requirement of five to ten percent for ethanol in gasoline and two to four percent for renewable content in diesel.[8]

Provincial Blend Mandates

Province	Ethanol Blend Mandate for Gasoline	Renewable Blend Mandate for Diesel
British Columbia	5 percent	4 percent
Alberta	5 percent	2 percent
Saskatchewan	7.5 percent	2 percent
Manitoba	8.5 percent	2 percent
Ontario	10 percent	4 percent
Québec	No Blend Requirement	No Blend Requirement

Source: FAS /Ottawa

[8] Biodiesel is the primary renewable fuel blended with diesel, but HDRD is also used in British Colombia and Ontario.

British Columbia

British Columbia's 2008 Greenhouse Gas Reduction (Renewable & Low Carbon Fuel Requirements) Act requires a minimum renewable fuel content of five percent for gasoline and four percent for diesel. These requirements apply to all fuels used for transportation in British Columbia with the exception of fuel used by aircraft or for military operations. Since 2013, British Columbia has maintained six to seven percent renewable content in gasoline and five to six percent in diesel.

In July 2020, B.C. revised the province's Renewable and Low Carbon Fuel Standard (LCFS) to require suppliers to reduce the CI of diesel and gasoline by 20 percent by 2030, as it committed to do in December 2018. B.C.'s LCFS, enacted in 2008 required fuel suppliers to progressively decrease the average life-cycle CI of their fuels to achieve a ten percent reduction in 2020 relative to 2010. In January 2019, British Columbia reported the fuel supply industry was meeting these requirements.

On December 6, 2018, B.C. also announced the objective to increase new production of 650 million liters of renewable fuels by 2030 (about eight percent of B.C.'s total annual fuel use).

In July 2020, the 2020 CI reduction target was reduced to 9.1 percent from 10 percent "to take some of the pressure off the oil and gas sector as it deals with the significant economic impacts resulting from an unprecedented global drop in crude oil prices combined with lower demand due to the COVID-19 pandemic."

Under the new reduction schedule aims to reduce CI by an average of 10.2 percent next year, 11.3 percent in 2022, 12.4 percent in 2023, 13.5 percent in 2024, 14.5 percent in 2025, 15.6 percent in 2026, 16.7 percent in 2027, 17.8 percent in 2028, 18.9 percent in 2029 and 20 percent in 2030. The percentage reduction will remain at 20 percent in subsequent compliance periods.

Fuel producers may apply for a unique CI based on the specific lifecycle parameters of the fuel they produce. Once the carbon intensity of a specific feedstock-production technology-fuel pathway is approved, anyone who supplies the same fuel pathway must use the approved carbon intensity and corresponding B.C. low carbon fuel code. In June 2020, B.C. published a revised list of the carbon intensity for fuels approved by the Director under section 6(6) of the Greenhouse Gas Reduction Act.

In July 2019, B.C. launched discussions with stakeholders based on the paper titled B.C. Low Carbon Fuel Standard: General Amendments Discussion Paper. Proposed amendments concern emerging fuels, new fuel classes, the energy effectiveness ratio (EER), the small supplier exemption, and Part 3 Agreement eligibility. Consultations were completed in the fall of 2019. Provincial government sources state, although there has yet to be confirmation, it is likely the issues consulted on will be delayed due to COVID-19.

Alberta

Alberta's 2010 Renewable Fuels Standard requires an average of five percent ethanol in gasoline and two percent renewable content in diesel sold in Alberta. Alberta's standard

requires renewable fuels must demonstrate at least 25 percent fewer GHG emissions than the equivalent petroleum fuel. Alberta's Climate Change and Emissions Management Act required a five-percent reduction in gasoline vehicle GHG emissions below 1990 levels by 2020. In January 2020 the new provincial government replaced it with the Emissions Management and Climate Resilience Act. A new climate strategy for Alberta is currently under development.

Ontario

Ontario is the most populous Canadian province and leads the country in gasoline, and often diesel, consumption. Ontario's Greener Gasoline regulation came into effect in 2007. It was recently amended to require that, starting January 1, 2020, fuel suppliers must maintain at least an annual average of ten percent renewable content in the gasoline they sell in Ontario. The renewable content component of any blended gasoline must have an average of 45 percent lower lifecycle greenhouse gas emissions than standard gasoline.

The comment period closed in March 2019 on a Ministry of the Environment, Conservation and Parks proposed amendment to Ontario fuel regulations that, if successful, will increase the renewable content in gasoline to 15 percent as early as 2025. The proposed amendment also includes changes requiring reduced GHG emission from renewable content as well as new lifecycle assessment models (e.g. compliance formulas). Prior to 2020, a minimum of five percent renewable content was required in gasoline; however, Ontario regularly blended upwards of eight percent renewable content in gasoline.

Ontario's 2014 Greener Diesel Regulation was phased-in from 2014 to 2017. As of 2017, a minimum four percent of the total volume of diesel fuel must be bio-based, and the renewable fuel must have 70 percent lower greenhouse gas emissions than standard petroleum diesel.

Québec

Although Québec is the second largest market for gasoline and third largest market for diesel, it does not have a provincial renewable fuels requirement for transport fuels. Concern over food vs fuel in Canada is centered in Quebec and the province has resisted goal setting for conventional food and feed-based biofuels preferring to see commercial advancement of advanced biofuels using other feedstock before setting use goals. Quebec is home to Enerkem, a producer of ethanol from wood and municipal solid wastes. That said, however, Greenfield Global operates a large corn ethanol plant in Quebec.

Progress towards a blending mandate began back in 2017 when Phillippe Couillard's Liberal Party released a 2017-2020 Sustainable Development Action Plan, which called for regulations to establish renewable fuels blending requirements starting at five percent for gasoline and two percent for diesel. However, progress on the action plan stalled on the lead-up to the Québec general election in October 2018. The Liberals lost power after 15 years to François Legault's new Coalition Avenir Québec (CAQ) party.

On February 7, 2019, the new Québec Minister of Energy and Natural Resources, Jonatan Julien, spoke at a meeting of the Québec Association for the Production of Renewable Energy (AQPER) suggesting the Ministry's intention to continue pursuing this initiative. Many details are unclear, including the commencement date and whether food and feed-based biofuels are excluded. But the new party appears to support provincial blending mandates for both ethanol and biodiesel.

Québec released a draft policy in October 2019 which would see 10 percent ethanol blending by 2021 and 15 percent by 2025, but those levels would fall to 9 percent and 13.5 percent if the ethanol itself has at least 10 percent cellulosic content. A two percent bio-based diesel mandate was also proposed for 2021, rising to four percent by 2025. These blend rates are under review following comments received from consultation with the industry. The draft regulation is not in force. The proposed regulation was published for consultation and the provincial minister is reviewing to pre-publish a new version of the draft regulation in light of the comments received. The coming into force of the requirements will be delayed, however the date is not yet known.

The Québec government has not yet decided which feedstocks will be prohibited (e.g. food and feed-based) according to sustainability criteria. However, there are already a couple of projects in Québec oriented to produce biofuels and biogas from food waste-based products. La Société d'économie mixte de l'est de la couronne sud (la SÉMECS) has the mission to process organic matter in order to produce renewable energy, to reduce the quantities sent to landfill and reduce GHGs. They are operational.

Manitoba

Manitoba announced its intention to increase the biodiesel content requirement in diesel fuel from 2 to 5 percent and the ethanol requirement in gasoline from 8.5 to 10 percent, however implementation is delayed due to COVID-19. The timeline is still to be determined, but the province is looking at preliminary discussions and drafting regulations in the near future, with proposed regulations released for 45-day public comment sometime during the summer of 2020.

4. Pan-Canadian Framework on Clean Growth and Climate Change and The Greenhouse Gas Pollution Pricing Act

In addition to the CFS, in 2018 the federal government released their Pan-Canadian Framework on Clean Growth and Climate Change which includes a federal carbon tax framework. The Pan-Canadian Approach to Pricing Carbon Pollution was announced October 3, 2016.

The Greenhouse Gas Pollution Pricing Act (GGPPA) came into force on assent on June 21, 2018. The Act has two parts: a carbon tax; and a trading system for large industry, known as the OBPS. The act enabled Canada to implement a carbon tax starting in 2019 applying only to provinces and territories not meeting the federal benchmark stringency requirements.

The taxation strategy provided a year and a half timeline for all provinces and territories to develop some form of fuel tax plan before April 2019. On April 1, 2019, the federal government introduced its own carbon tax (the backstop) in provinces which did not design their own system or elements of the backstop in provinces where the system does not fully meet the federal criteria, adding 4.4 cents per liter plus HST to the price of gas. The benchmark price for 2020 for explicit price-based systems is $30 CDN per ton, rising by $10 CDN per ton per year until it reaches $50 CDN in 2022.

The federal carbon tax exempts gasoline with proportion of bio-gasoline exceeding ten percent as well as light fuel oil with proportion of biodiesel (including hydrogenation-derived renewable diesel, or HDRD) exceeding five percent but taxes renewable fuels blended at lower rates.

5. The Output-Based Pricing System

The second part of the GGPPA, the OBPS, establishes how credits will be created under the CFS for low-CI fuels produced and imported in Canada. Credits may be created for liquid and gaseous low-CI fuels, as of final publication in Canada Gazette, Part II. Gaseous low-carbon-intensity fuel credits may be banked and traded, or starting in 2022, used for compliance with the liquid class regulations within limits.

Eligible fuels in the liquid class may include (but are not limited to): ethanol; HDRD; renewable diesel; biodiesel; low-carbon-intensity jet fuel; synthetic fuels; and renewable methanol. OBPS applies to industrial facilities that emit 50 kt of CO2e or greater per year.

The credit trading system provides flexibility for large emitters to find the most cost-effective strategies to meet emissions targets. As a result, biofuel companies may see expanded sales opportunity as increased biofuel adoption is one of several ways to meet emissions targets.

6. Provincial Carbon Taxation and Cap and Trade Systems

The past few years have seen provinces led by conservative parties push back against cap-and-trade and carbon taxation schemes for fossil fuels. Challenges are playing out in courts, and the federal carbon tax has meanwhile been imposed or re-imposed on provinces who have dismantled their program or whose program falls short of federal requirements.

Currently, Ontario, Alberta, Saskatchewan and Manitoba are subject to federal fuel charges and applicable rates. Prior to the April 2019 deadline, British Columbia, Alberta, Québec, Nova Scotia and Prince Edward Island had developed provincial carbon taxation systems to meet the federal benchmark, but since then New Brunswick has also implemented a provincial system on April 1, 2020 and Alberta dismantled its provincial system May 30, 2020. The federal government subsequently removed its federal fuel charge from New Brunswick and implemented it in Alberta on January 1, 2020.

Ontario had a carbon tax in place until late 2018 when the new Conservative Party of Ontario enforced the dissolution of the provincial carbon tax and the federal government implemented the federal tax April 1, 2019.

Ontario, Alberta, Saskatchewan and Manitoba are all challenging the federal carbon taxation framework in court, but only the Alberta Court of Appeal has ruled against the GGPPA. The federal government has not suspended the tax in any of the provinces.

Québec meets the federal benchmark stringency requirements and the federal carbon tax is therefore not applied in Québec, but provincial leadership has said the province will intervene before the Supreme Court in other province`s challenges to reaffirm provincial jurisdiction.

British Columbia and Québec have issued carbon tax relief initiatives for particular members of industry to assist businesses dealing with the ramifications of COVID-19. Further, British Columbia has put its carbon tax rate on hold until further notice. On March 26, 2020, the Manitoba Premier announced work to explore Manitoba's green levy plan (flat $25 CDN per-ton carbon tax) would be deferred due to the COVID-19 crisis. Other provinces have announced delays to reporting deadlines due to COVID-19 but have not put carbon price rate increases on hold.

In Quebec, all biofuels are zero rated.

Ontario

Ontario passed legislation introducing a cap-and-trade system in May 2016 and held its first carbon allowance auction in March 2017. The Ontario Liberal Party established a standard cap and trade system through the Ontario Climate Change Mitigation and Low-Carbon Economy Act. In July 2018, the newly elected Conservative government, led by Doug Ford, cancelled the cap-and-trade regulation and prohibited all trading of emissions allowances. Ontario had to adopt the federally-imposed backstop on April 1, 2019.

The province challenged the federal government in provincial Court of Appeal and in June 2019, in a 4-1 decision, the court ruled legislating a national price on carbon pollution fell under the federal government's peace, order and good government (POGG) power stipulated in the Canadian Constitution. The court rejected assertions from the Ontario government it infringed on provincial responsibilities. Like the case in Saskatchewan, the Supreme Court is currently scheduled to hear appeals from Ontario in September 2020.

Québec

Québec passed legislation introducing a cap-and-trade system (excluding transport biofuels) in 2012 and held its first carbon allowance auction in December 2013. The first joint California-Québec carbon allowance auction was held in November 2014. Emission units not allocated free of charge are auctioned off by the government four times a year. A minimum auction price of $10.75 CDN per ton was set for 2013 and it was expected to increase at a rate of five percent plus inflation every year until 2020. In

February 2020 (the first auction of the year), the minimum price was set at a record $22.11 CDN ($16.68 USD). For joint auctions with California, the minimum price is set by retaining the higher of the two system's minimum prices at the exchange rate prevailing at the time of the auction.

Annual caps on emission units were set in order to help reach Québec's GHG emission reduction target, notably by encouraging covered emitters to improve their energy efficiency, rely more on renewable energy, and increase use of low-carbon technologies. Starting in 2015, the cap has been gradually lowered each year.

According to the International Carbon Action Partnership:

> The system started in 2013 with a cap of 23.2 Mt CO2e. With the program expanding to include fuel distribution, the cap rose to 65.3 Mt CO2e in 2015. During the 2015-2020 period, the cap annually declined by about 2.11 Mt CO2e per year (about 3.47 percent on average annually). After a slight nominal increase in the cap in 2021 due to an adjustment of the global warming potential of different GHGs, the cap will be reduced annually by about 1.24 Mt CO2e (about 2.47 percent on average annually) until 2030. This will result in a cap of 44.14 million t/CO2e in 2030.

In 2019, the government of Québec proposed phasing out free allocation over the period 2024-2030. The proposal states the intent to gradually reduce free allocation and auction a portion of those allowances setting aside the revenue on a per-facility basis to support investments in projects to reduce emissions. This proposed reform is expected to be introduced via regulation in 2020.

In December 2019, during COP 25 in Madrid, Québec and Chile signed a joint declaration formalizing the desire of both governments to strengthen their cooperation on carbon markets, energy transition, and other measures to fight climate change.

On Oct. 23, 2019, the Trump administration sued California for entering the climate agreement with Québec, claiming in creating a cap-and-trade agreement with a foreign jurisdiction, California violated the country's constitution, which enables the federal government "to speak with one voice on behalf of the United States in matters of foreign policy."

In March 2020, the court ruled in favor of California, stating, "it is well within California's police powers to enact legislation to regulate greenhouse gas emissions and air pollution." The decision could still be appealed to a higher court by the Trump administration. The dismantling of Québec's agreement with California could mean higher permit prices in Québec, but with no change in the partnership Québec's cap and trade system is continuing to function without change.

British Columbia

In 2008, British Colombia introduced a carbon tax on the purchase and use of fossil and renewable fuels. British Columbia was the first Canadian province to create a fuel tax. The tax covers approximately 70 percent of total GHG emissions in BC. Carbon tax rates started at $10 CDN per ton of carbon dioxide equivalent (CO2e) emissions in 2008 and reached the current rate of $40 CDN per ton of CO2e emissions on April 1, 2019.

Effective as of 2010 and still in effect today, motor fuel tax and carbon tax applies to ethanol at the same rate as gasoline. Motor fuel tax and carbon tax applies to biodiesel and straight vegetable oil (SVO) at the same rate as diesel (motor fuel tax) and light fuel oil – diesel (carbon tax).

British Columbia has put further hikes on its carbon tax on hold until further notice due to COVID-19. Despite the delay in increase, BC's $40 CDN per-ton carbon tax still meets and exceeds the federal benchmark requirement of $30 per-ton CO2e for 2020.

Alberta

Alberta is currently subject to federal fuel charges and applicable rates. The province had a provincial carbon taxation system in place by the federal government's April 2019 deadline, but the change of government in mid-April 2019 led to the system's elimination. Jason Kenney, the leader of the newly elected (April 2019) United Conservative Party of Alberta, ran on an election platform promising to throw out the provincial carbon tax policy put in place by the New Democratic Party (NDP) of Alberta. The new provincial government discarded the carbon tax of the previous government in June 2019 and the federal backstop was imposed on Alberta, causing it to join the growing list of provinces led by conservative parties fighting the federal carbon tax in court.

In a 4-1 decision, released February 24, 2020 Alberta's Court of Appeals rejected the federal government's argument that regulation of greenhouse gas emissions is an issue of national concern, citing the division of powers in the constitution giving the provinces responsibility for non-renewable resources. As of yet, the federal government has not suspended the tax in Alberta. The Supreme Court will hear Alberta's appeal at a yet to be scheduled date during the court's fall sitting, which is set to begin Oct. 5.

Under its former carbon taxation system, Alberta began applying a levy of $20 CDN per ton on fossil fuel consumption on January 1, 2017, and raised the levy to $30 CDN per ton in 2018. The tax was implemented under the Climate Leadership Act.

Saskatchewan

Saskatchewan, led by Premier Scott Moe of the Saskatchewan Party (center-right), was the first province to push back on the constitutionality of the federal carbon taxation framework through the provincial Court of Appeal. On the lead up to April 2019, Saskatchewan was asking for a delay on the federal

backstop while it waited for a provincial court ruling. Currently, the province has had the federal backstop imposed on it and it is continuing to fight it in court.

On May 3, 2019, the Saskatchewan Court of Appeal issued a 3-2 decision stating the GGPPA is constitutional. Shortly afterwards, Saskatchewan announced its intent to appeal to the Supreme Court, which has been postponed until September 2020 because the court shut down due to the COVID-19 pandemic.

Manitoba

The federal backstop was imposed on Manitoba in April 2019. On March 26, 2020, the premier announced work to explore Manitoba's Green Levy Plan (flat $25 CDN per-ton carbon tax) would be deferred due to the COVID-19 crisis. There has been no formal submission of the plan to the federal government. The timeline for submission is still to be determined, but the province is looking at preliminary discussions and drafting regulations in the near future, with proposed regulations released for 45-day public comment sometime during the summer of 2020.

On July 30, 2018, Manitoba announced the Made-in-Manitoba Climate and Green Plan, which included a cap-and-trade style carbon tax set at $25 CDN per ton. More recently, Manitoba confirmed its plan to enact a flat $25 CDN per-ton carbon tax on July 1, 2020, offset by a simultaneous one-point cut in the provincial sales tax to six percent. This plan has not been officially approved by the federal government. The benchmark price for 2020 for explicit price-based systems is $30 CDN per ton. Consequently, a flat $25 CDN per ton carbon price is not in compliance with federal benchmark stringency requirements.

Manitoba has sought a judicial review of the federal approach to carbon taxation in the Federal Court of Manitoba. Hearing timing is yet to be determined due to COVID-19 related delays (it was previously anticipated to occur in summer 2020). Manitoba will have the option to have the case heard in the Federal Court of Appeals if their case is not successful in Federal court. Since the case has yet to move forward, it is unknown whether Manitoba will have their case heard by the Supreme Court.

New Brunswick

New Brunswick is the only Atlantic province to have the federal backstop imposed on them (on April 1, 2019) but it was replaced with a provincial carbon tax on April 1, 2020. New Brunswick's fuel levy of $30 CDN per ton of carbon dioxide emitted was passed in Bill 30, An Act to Amend the Gasoline and Motive Fuels Tax Act. The Bill added section 6.3: Imposition of the tax – carbon emitting products, which specifies how it works and what is exempted, and Schedule C, the price list, to the Act.

Bill 30 went through First reading on Dec 12, 2019, second reading on Mar 11, 2020, and third reading on Mar 13, 2020. It received royal assent on Mar 17, 2020. These changes, and thus the tax, were in effect April 1, 2020.

NB's Gasoline and Motive Fuels Tax Act does not currently contain scheduled price increases for the province's fuel charge beyond $30 CDN per ton of CO2e. The federal benchmark price will increase to

$40 CDN per ton in 2021, and $50 CDN per ton in 2022. Assessment of the provincial taxation system against the federal stringency benchmark is done on an annual basis.

Nova Scotia and Prince Edward Island

Prior to the federal backstop coming into effect, Nova Scotia's newly designed cap-and-trade program came into effect January 1, 2019. Prince Edward Island (PEI) had its carbon plan accepted by the federal government prior to April 1, 2019. In both cases, federal requirements were met or exceeded.

7. Federal and Provincial Financial Supports for Producers and Consumers

The provinces and federal government have several initiatives in place intended to spur technology innovation aimed at lowering carbon emissions across different sectors including transport.

Federal Support

In June 2017, the federal government announced a Low Carbon Economy Fund of $2 billion CDN spread over five years to support projects generating clean growth and reduce GHG emissions towards meeting or exceeding commitments under the Paris Agreement. Biofuels are among a list of many sectors eligible to receive funding. The fund includes:

- A Low Carbon Economy Leadership Fund will provide $1.4 billion CDN to provinces and territories that have adopted the Pan-Canadian Framework on Clean Growth and Climate Change to help them deliver on "leadership commitments" to reduce GHG emissions;
- $600 million CDN for a "Low Carbon Economy Challenge" and for implementing the Pan-Canadian Framework on Clean Growth and Climate Change.

Provincial Support

British Colombia

In B.C., the Innovation Clean Energy (ICE) Fund is a special account, funded through a levy on certain energy sales, designed to support the province's energy, economic, environmental and greenhouse gas reduction priorities, and to advance B.C.'s clean energy sector.

Since 2008, the ICE Fund has committed approximately $104 CDN million to support pre-commercial clean energy technology projects, clean energy vehicles, research and development, and energy efficiency programs. As such, the fund covers more than just the transportation sector. ICE Funds, for example, have been used to support the Part 3 Agreement program.

On March 13, 2017, B.C. announced a $40 CDN million partnership with the federal government to support the development of pre-commercial clean energy projects and technologies over three years. The

program utilized ICE Funds while the federal contribution was provided through the SD Tech Fund, managed by Sustainable Development Technology Canada (SDTC). The program ends in 2020. This fund covers more than just the transportation sector.

In B.C., fuel suppliers can obtain low carbon fuel credits by entering into a Part 3 Agreement to undertake actions increasing the use of low carbon fuels sooner than would occur without the agreed-upon action. The number of credits allocated in an agreement is usually related to the expected capital expenditure of the project. All projects must have a reasonable possibility of reducing the amount of greenhouse gas emissions resulting from the use of Part 3 fuels. The credit market creates a financial incentive to reward low-carbon fuels in proportion to the amount of real, measurable emissions reductions they yield when substituted for conventional fuels. This generates revenue for low carbon transportation fuel suppliers and supports investment in clean fuels and vehicles. As of 2019, 23 projects have been awarded over 800,000 credits for compliance with the B.C. Renewable and Low Carbon Fuel Requirements Regulation. These projects have committed to investing over $450 CDN million dollars in emissions reductions in the B.C. fuels industry.

Ontario

The new Conservative Party of Ontario is in the process of "an orderly wind-down of programs funded through the cap-and-trade carbon tax." The provincial government is committed to honoring contracts under the Low Carbon Innovation Fund (LCIF), but no further contracts will be rewarded. The LCIF, introduced in 2017, part of Ontario's Climate Change Action Plan, was funded by proceeds from the province's carbon market. Companies, entrepreneurs and eligible universities and colleges applied for funding to create and commercialize new, globally competitive, low-carbon technologies to help Ontario meet its GHG emissions reductions targets.

Alberta

Alberta had in place a Bioenergy Producer Program, from October 2017 to March 2020, to support the producers of eligible bioenergy products including biofuels. The new provincial government extended the program, with a revised, limited scope through March 31, 2020. The program provided grants to facilities producing transport and stationary energy from biomass covering liquid biofuels, such as biodiesel, ethanol and pyrolysis oil, as well as two additional categories unrelated to transport fuels.

Some research and development funding is also available for biofuels under the Emissions Reductions Alberta (ERA) program. ERA's Partnership Intake Program provides up to about $20 million annually to promising GHG-reducing projects. The projects are not required to be related to transport fuels.

Quebec

In Québec, effective until 2023, producers benefit from a tax credit for the production of ethanol (code 74) at a fixed rate of $0.16 per liter, a tax credit for the production of biodiesel (code 103) at a fixed rate of $0.14 per liter, and a tax credit for the production of pyrolytic oil (code 106) at a rate of a rate of

$0.08 per liter. The monthly ceiling on the production of ethanol, biodiesel and pyrolytic oil for a qualified corporation increased on April 1, 2018 and is expected to remain the same until 2023. Any production beyond this limit is not eligible for a tax credit.

Attachments:

No Attachments