

# Canada's Clean Fuel Standard

## Setting the record straight

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Confusion abounds about how the clean fuel standard will regulate carbon pollution, and the ways it will impact the energy picture across Canada. Here we address common questions about this regulation as they arise. If you have other questions you would like to see addressed, or want more technical information, please contact us at [cfs@pembina.org](mailto:cfs@pembina.org). We will regularly update this document.

## 1 Background

### 1.1 What is the Clean Fuel Standard?

The Clean Fuel Standard (CFS) is a regulation — not a tax — proposed under the Canadian Environmental Protection Act that requires a reduction of carbon content in domestically used liquid fuels, such as gasoline and diesel, on average, by 12 to 14% between 2022 and 2030. The CFS alone will reduce emissions in Canada by more than 20 million tonnes.

Because 36% of energy-related GHG emissions in Canada stem from transportation, the Clean Fuel Standard focuses on liquid fuels, about 80% of which are used for transportation. The policy was also originally intended to apply to solid and gaseous fuels (though these requirements would have followed earlier implementation of rules on liquid fuels). However, with the release of Canada's enhanced climate plan in December 2020, the federal government opted to scale back coverage of the CFS, excluding solid and gaseous fuels, in favour of a long-term increase to the national carbon price. The Clean Fuel Regulations, also released December 2020, constitute the government's official proposal for a comprehensive regulatory program covering liquid fuels.

First announced in 2016, this regulation won't come into play all at once; instead, it will work by setting an annual, gradually declining performance standard for liquid fossil fuels based on their life cycle carbon intensity (which includes extraction, processing, distribution, and use by the consumer) to give Canadian businesses time to adjust. Companies may take advantage of an array of compliance options, including biofuels, hydrogen, electric vehicle charging, and fossil fuel GHG life cycle improvements. Those that aren't able to achieve direct reductions themselves will also have recourse to the compliance credit market, as well as to the option of

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discharging a limited portion (up to 10%) of their annual carbon-reduction obligation through payments into a “Compliance Fund” at a set price per-tonne.

The federal government regulates other fossil fuel pollutants, including sulphur, lead and benzene.

## 1.2 When is the Clean Fuel Standard expected to become law?

The federal government has been working with both the fossil fuel industry and low-carbon energy companies on developing this regulation for more than four years. For liquid fuels, the policy is expected to become law by the end of 2021, after additional consultation, with the regulation itself coming into force in 2022. In December 2020, Environment and Climate Change Canada indicated that regulations on gaseous and solid fuels, previously targeted for release in 2021-22, will no longer be pursued.

## 1.3 Why is Canada doing this?

All of us — corporations, governments, communities, and individuals — have a part to play in reducing the greenhouse gas emissions that are causing climate change. Eighty per cent of Canadian GHG emissions comes from the combustion of the fuels we use to power our industry and drive our cars, SUVs, trucks, boats, and planes. The world is close to a climate change tipping point, which only rapid and significant action can prevent. As a core component of Canada’s national climate plans, the Clean Fuel Standard will achieve the equivalent of taking more than 4.5 million cars off the road, a level of emissions reduction widely considered to be achievable without requiring new technologies or innovations.

## 1.4 What are Canada’s global commitments on carbon reduction and what role will the Clean Fuel Standard play in meeting them?

Under the 2015 Paris Agreement, Canada agreed to cut the amount of carbon it releases into the atmosphere each year by 30% relative to 2005 emission levels — about 511 million tonnes. In the 2020 Speech from the Throne, the federal government committed to “immediately bring forward a plan to exceed Canada’s 2030 climate goal.” In December 2020, the Government of Canada released its enhanced climate plan, A Healthy Environment and A Healthy Economy, which proposes measures to achieve cuts between 32% and 40% versus the 2005 baseline.

The Clean Fuel Standard incentivizes new investment and innovation in existing and new clean-fuel technologies that will be needed in Canada’s energy system as we transition to a lower-carbon energy mix. It also incentivizes oil and gas producers and suppliers to reduce the life cycle emissions of their products, and creates a market incentive to help finance the investments necessary to scale up clean fuel production and use. Notwithstanding future

increases to the national carbon price, a strong signal to fuel markets is needed now if Canada is to accelerate the uptake of clean fuels to achieve the production and consumption levels implied by our national net-zero aspirations. The CFS provides that signal.

## 1.5 Aren't we meeting our carbon reduction goals in Canada? Is this regulation really necessary?

No, we are not yet meeting our goals — and this regulation is necessary if we are to have any realistic chance of doing so. Canada's climate policies are not yet putting the country on a trajectory to achieve the target set under the Paris Agreement by Prime Minister Stephen Harper. After the 2015 federal election, the Liberal government worked with the provinces and territories to establish the country's first national climate plan. However, according to Environment and Climate Change Canada projections (released 2019), in 2030 Canada will still be 77 megatonnes over target even if all current policies are implemented to their fullest degree. With the release of the enhanced federal climate plan in December 2020, that gap will be closed if the additional measures in that plan (notably the annual \$15/tonne increase in carbon pricing from 2022 through 2030) are fully implemented.

For now, our 2020 National Inventory Report to the United Nations indicates Canada is currently emitting 729 million tonnes of greenhouse gases per year. To get to 30% below what we emitted in 2005, we have to cut that to 511 million tonnes of emissions annually. That means we have to close a gap of 218 annual million tonnes in less than a decade.

The federal government has proposed more than 60 measures to meet the Paris Agreement target. The Clean Fuel Standard, when fully implemented, will account for about 10% of the planned carbon-emissions reductions in this country. This is a big piece of Canada's carbon-reduction pie. Apart from a significant increase to the minimum national standard for carbon pricing, no other carbon reduction measure in place, or currently under discussion, can accomplish this depth of reductions in this time frame.

## 1.6 We know we have to reduce emissions across our economy. Why, then, has the Clean Fuel Standard suddenly become controversial?

Though it's been in the works with government, business and industry for four years, the Clean Fuel Standard is getting a lot of attention recently because the date it will be put into effect is fast approaching. Since it was first announced as a policy in 2016, government has undertaken extensive consultations with a wide range of stakeholders, including the oil and gas sector and other indirectly affected industries.

## 1.7 Why should Canada spend so much capital on reducing carbon emissions from fossil fuels when this country's emissions are such a small part of the overall emissions contributing to global warming?

It is actually not the case that Canada produces just a small amount of global emissions.

Yes, Canada is accountable for less than 2% of global greenhouse gas emissions, but that fact alone still places this country in the top 10 global emitters<sup>1</sup> And, in terms of carbon dioxide emitted per person, we're actually in the top three.<sup>2</sup>

Canadians cannot afford to sit back and be content with the easy answer of not being able to change the calculus of climate change on our own. Like a global pandemic, this is a problem requiring individual and collective action on a global scale.

If Canada, as one of the world's richest and most energy-intensive countries (in terms of energy consumed per person), is not willing to take a leadership position on climate change and on energy transition, then it's very unlikely that other countries will be willing to go as far. By not acting, we would undermine not only our own efforts but the global effort we know is needed.

## 2 How the CFS works

### 2.1 So how will the CFS work?

This regulation works by increasing the carbon intensity reduction target every year between 2022 and 2030, to help Canada reduce greenhouse gases, including carbon dioxide, from the production and use of liquid fuel sold in the domestic market.

Unlike other similar policies, the Clean Fuel Standard is designed to be technology neutral — it doesn't tell oil and gas companies how to meet their targets. All options are on the table. For example, to comply with the regulations, fossil fuel suppliers might choose to blend their products with biofuels, which are generally less carbon-intensive than petroleum-based fuels. Increasing the supply of biodiesel, renewable diesel, ethanol, and other renewable fuels would create credits that could be used to meet carbon reduction targets.

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<sup>1</sup> Climate Watch, "Historical GHG Emissions". [https://www.climatewatchdata.org/ghg-emissions?breakBy=countries&end\\_year=2016&regions=BRA%2CCAN%2CCHN%2CIND%2CIDN%2CIRN%2CJPN%2CRUS%2CKOR%2CUSA&start\\_year=1990](https://www.climatewatchdata.org/ghg-emissions?breakBy=countries&end_year=2016&regions=BRA%2CCAN%2CCHN%2CIND%2CIDN%2CIRN%2CJPN%2CRUS%2CKOR%2CUSA&start_year=1990)

<sup>2</sup> The World Bank, "CO<sub>2</sub> emissions (metric tons per capita) - Canada, United States, European Union, Japan, China, World, Mexico, India, Germany, Australia." [https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?end=2016&locations=CA-US-EU-JP-CN-1W-MX-IN-DE-AU&name\\_desc=false&start=1990](https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?end=2016&locations=CA-US-EU-JP-CN-1W-MX-IN-DE-AU&name_desc=false&start=1990)

Oil and gas companies could also invest in facility efficiencies, low-carbon electricity, or carbon capture and storage (CCS) to improve the carbon performance of their refineries, or they could invest in lower-carbon energy technologies outside of refinery operations, such as zero- or low-carbon hydrogen fuelling or electric vehicles.

Finally, companies that can't or won't lower their carbon emissions could instead purchase CFS credits on the regulatory market from other companies that are making renewable fuels, supplying zero- or low-carbon hydrogen for transportation, powering electrical vehicle chargers, or otherwise providing alternatives to petroleum-based fuels.

## 2.2 Some say the CFS will force companies to pay the equivalent of a \$350 carbon tax per tonne of emissions. Since we already have carbon pricing, isn't it fair to call this another carbon tax?

This is an inaccurate (at best) and misleading (at worst) interpretation of how the Clean Fuel Standard works. Environment and Climate Change Canada has proposed that companies that are unable to reduce the life cycle carbon intensity of their fossil fuels to the degree required by this regulatory tool will have the option of paying into a compliance fund, at a cost of \$350 per tonne (up to a limit of 10% of a firm's obligation).

Despite recent claims to the contrary, the existence of this policy feature does not imply every tonne of carbon abated under this CFS is going to cost \$350 over and above the carbon tax. On the contrary, since use of compliance fund payments is subject to a limit, most reductions induced by the standard will be achieved at substantially lower costs.

The suggestion the Clean Fuel Standard is a tax hinges on a misunderstanding of the difference between tax policy and regulatory policy. A carbon tax is a transparent, economy-wide levy or charge on fossil fuels based on their carbon content. Revenue from this charge accrues to government (either federal, provincial, or territorial), depending on which pricing system is in place. By contrast, the Clean Fuel Standard is a regulatory tool intended to directly reduce the average carbon content of the fuel consumed in Canada. Government regulates other fossil fuel pollutants, such as sulphur, lead and benzene, as well.

This regulatory approach has already been successfully employed in British Columbia, California, and the European Union to give fossil fuel producers a broader suite of options for contributing to these jurisdictions' respective plans for decarbonizing transportation.

## 2.3 What happens with the compliance fund payments from fossil fuel companies?

This money will help fund other emission-reducing activities and projects that lower GHGs in the short term. It's even possible that some of these resources could be used to help high-emitting companies undertake the work needed to reduce the carbon intensity of their fuels.

## 2.4 If companies that don't lower emissions have to purchase credits to offset emissions, isn't that a double price on carbon?

Some complain that the Clean Fuel Standard is a “tax” on the same molecules of carbon that are already being priced under federal or provincial carbon pricing systems, prompting concerns that Canada may be putting its industries at a competitive disadvantage compared to companies that are located in jurisdictions without similar requirements. But the CFS is not a tax; it is instead, in the language of economists, a “performance-based” regulation. The expense of complying with the regulation will depend on the unique circumstances and chosen compliance strategy of each obligated firm. If regulated companies lower their own life cycle (or “well-to-wheel”) emissions, they won't generally be in a position of having to purchase credits (since they will then be generating credits themselves for use toward compliance).

It is true that, under the CFS, a relatively small portion of emissions from fossil fuels will be subject to both a price signal (through federal or provincial carbon pricing) and a regulatory requirement that has associated per-tonne costs. At the end of the day, energy prices will reflect both policy inputs. However, it is also important to note that the CFS appears to have been designed to enable credit creation for actions that may also be eligible for compliance credit under the federal output-based carbon pricing system. While the federal government has proposed measures to ensure that credit given for compliance with the CFS corresponds to emissions reductions that are incremental to reductions achieved under other policies, the possibility of double-counting reductions remains. If the same reduction activity is counted under both systems (i.e., industrial carbon pricing and the Clean Fuel Standard), this would have the benefit of lowering overall compliance costs for affected industries, at the risk of weakening intended environmental outcomes. How, and indeed whether, the two policies are complementary will depend on how the CFS is administered over time.

## 3 Impact of the CFS

### 3.1 Other than environmental groups, who supports the CFS, and why?

A whole range of interested parties, including both new and existing energy companies (and businesses in their supply chains), are eagerly following the progress of the standard through to its adoption. Many other groups and industries are also hopeful it will prompt a shift in the way we regulate our energy and fuel sectors in Canada.

### 3.2 What about farmers?

The agricultural sector will likely be called upon to increase production of feedstocks for the biofuel industry. That could help offset the harm farmers have suffered from a recent Chinese ban on the import of canola seed from Canada, by building a stronger domestic market for the consumption of conventional biofuel feedstocks like corn, wheat, soy, and canola. In the long term, it may also increase demand for advanced non-food biofuel feedstocks typically considered to be wastes, such as municipal solid waste, corn stover, sawdust, and other residues from agriculture and forestry. By creating a framework in which these waste materials may be put to productive use and monetized, the Clean Fuel Standard will help entrepreneurial, innovation-minded Canadians build a more circular, less wasteful economy.

### 3.3 What other companies plan to benefit from the CFS?

Beyond agriculture, producers of biofuel and synthetic fuel (ethanol, biodiesel, renewable diesel, and other renewable and emerging fuels) perceive the Clean Fuel Standard as a real opportunity for growth. Other companies are interested in creating new energy supply networks for an increasingly electrified transportation sector that includes both hydrogen fuelling and electric vehicle charging infrastructure. These firms — including utilities and charging networks, industrial chemical suppliers, public and private fleet operators, automobile manufacturers, and others — all see opportunities in the credits that can be created from increased use of battery electric and fuel cell vehicles. Finally, forestry companies are looking to the Clean Fuel Standard to drive new growth and employment opportunities in a sector that has shed nearly 150,000 direct jobs over the past two decades. Policy recognition for the sustainable use of mill and tree residues to produce biocrude oils and refined fuels could help stabilize rural and resource communities across Canada that rely on forest economies.

### 3.4 How do we know the Clean Fuel Standard is going to be effective?

The policy will be effective first and foremost because it doesn't require heroic assumptions about what is technically feasible by 2030: the required reductions can be achieved with



commercial technologies that are already available, and do not depend on any yet-to-be-realized inventions or innovations (though the policy does also promote the possibility of such innovations toward cleaner fuels).

The standard will also have the force of law under the Canadian Environmental Protection Act. The principals of non-compliant companies could theoretically be subject to criminal charges.

Some oil and gas companies have raised concerns about the prospect of their executives facing criminal penalties. But the Clean Fuel Standard has been carefully designed to avoid that kind of result, with multiple mechanisms working together to ensure that, even where a company isn't fully complying, they will have clear pathways to get back on track.

In practice, the design of the regulation clearly reflects government's primary intent to ensure that industry complies with the rule; there is no ulterior agenda to penalize the directors of fossil fuel companies, and to suggest otherwise is to engage in fearmongering. Only a rare situation of extreme, continuous, and willful disregard of a company's regulatory obligation to reduce carbon pollution would be likely to attract criminal investigation and potential enforcement measures by Environment and Climate Change Canada. To be sure, such measures have been taken in response to a small number of regulatory violations of low-carbon fuel standards in other jurisdictions.<sup>3</sup> But penalties levied by the California Air Resources Board, for example, have always taken the form of warnings, fines, credit cancellations, and the like — never the imprisonment of company executives.

Similar arguments were made in 2009 in relation to the Renewable Fuel Regulation, the federal mandate on blending minimum volumes of renewable fuels. Notwithstanding extensive, multi-year non-compliance by some obligated parties with the regulatory requirements (largely technical reporting mistakes and omissions)<sup>4</sup> in the years that followed, no refiner was ever subject to criminal action, and there have been no reports of government ever seeking monetary remedies.<sup>5</sup>

Ultimately, the CFS will provide an annual incentive, backed by enforcement, for fossil fuel producers to reduce the carbon intensity of their fuels. How this reduction occurs is left open to regulated parties to decide. But it is clear that once the decision is required, industry will always attempt to demonstrate compliance with the law — just as it does with other pollutants regulated under the Canadian Environmental Protection Act.

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<sup>3</sup> California Air Resources Board, "CARB cracks down on Low Carbon Fuel Standard violators," (Apr. 25, 2018). <https://ww2.arb.ca.gov/news/carb-cracks-down-low-carbon-fuel-standard-violators>

<sup>4</sup> Environment and Climate Change Canada, *Renewable Fuels Regulations Report: 2010-2012* (2016). [http://publications.gc.ca/collections/collection\\_2016/eccc/En14-244-2016-eng.pdf](http://publications.gc.ca/collections/collection_2016/eccc/En14-244-2016-eng.pdf)

<sup>5</sup> Environment and Climate Change Canada, "Enforcement notifications," (accessed Nov. 17, 2020). <https://www.canada.ca/en/environment-climate-change/services/environmental-enforcement/notifications.html>

### 3.5 Some have portrayed this regulation as being intended to disadvantage Alberta and Saskatchewan, where most of Canada's fossil fuels are produced. What benefits would it provide to those provinces?

We all know that oil and gas are a fundamental part of the western regional economy, and that these resources have provided tremendous benefits to Canadians and our national economy. But so do other industries, including agriculture, forestry, and clean technology. Workers in natural resource sectors, like farmers and foresters, stand to benefit substantially from the Clean Fuel Standard, due to their fundamental role in many existing and emerging biofuel supply chains.

In addition, the CFS will make a more competitive business case for core energy producers who are based in the West and who want to start supplying new forms of lower-carbon energy. With their deep engineering expertise, technical skills, and human resource capacity, the conventional energy companies are in many cases the ones best suited to produce and execute the solutions that the CFS will increasingly require. While firms regulated under the CFS will bear a certain degree of additional risk associated with the need to achieve compliance, they are also likely to accrue many of the job creation and even investment benefits that will flow to jurisdictions that can prove their commitment — through policy — to securing a low-carbon (and ultimately, net-zero) energy transition.

On a more fundamental level, transformations in the U.S. refining sector — where many firms are currently planning conversions to renewable diesel production — cannot go ignored in Canada (see below, “Given that we're in the midst of a global pandemic, is this the right time...”). As indicated in a recent 2050 roadmap (Driving to Zero) published by Canada's refining industry association, Canadian refiners and upgraders understand that the need to respond to shifts in transportation will spur a demand for lower-carbon fuels. The CFS will facilitate an industry-wide transformation that positions Canada to anticipate important changes in continental and global consumer demand, and to supply the increasingly low-carbon fuel markets of the future.

### 3.6 But isn't this really about forcing a decline in the oil and gas industry?

This has been alleged by some parts of the oil and gas industry. The Clean Fuel Standard is not about destroying demand for energy; it's about reducing the carbon intensity of that energy. Yes, it is going to force a decline *in the carbon intensity* of fossil-fuel-based oil and gas. But, although the policy is intended to reduce emissions by about 20 million tonnes, it doesn't have

any necessary implications for the overall quantity of energy consumed, or for the relative shares of consumption between different energy sources.

There's nothing in this policy that says oil and gas companies have to supply less fossil fuel. Instead, the policy creates a structure in which all fuel suppliers will ask to what degree they want to make selling high-carbon fuels part of their corporate calculus. The more high-carbon fuels they supply, the more they will have to compensate by self-generating or acquiring CFS credits (from one source or another).

### 3.7 Given that we're in the midst of a global pandemic, is this the right time to enact a potentially costly measure?

Governments should certainly be sensitive to companies that are economically stressed by the overlapping crises of the day. But, when the pandemic ends, climate change will remain a massive global problem with threatening and costly consequences. For that reason, the federal government has continued consulting on the Clean Fuel Standard with the petroleum sector, other major industries, academia, environmental organizations, provincial and territorial governments, and wide range of additional stakeholders (a process that has been going on for more than four years). It is well understood that a low-carbon fuel standard is an important evolutionary step in the regulation of fuel markets.

Rather than prescriptive (and typically higher-cost) policies that mandate the use of specific technologies or solutions, the CFS puts a suite of options on the table in terms of how companies can comply. For example, regulated firms could process renewable feedstocks into petroleum fuels or biofuels, or invest in carbon capture and storage technology, or simply purchase credits from other companies that are in a position to take those kinds of actions. The CFS will incentivize fossil fuel companies to explore a range of options and will create opportunities for them to design compliance strategies made from any combination of eligible actions. The policy opens up opportunities for new investments in a range of ready-to-go technology options needed to reach, not only the near-term target of 2030, but the more distant necessity of a net-zero-emissions economy.

In addition, increasing the domestic production of lower-carbon fuel will reduce reliance on imported, finished fossil fuels (e.g., gasoline, diesel, kerosene/jet). Western and central Canada depend annually on some 17 billion litres of imported refined petroleum products (equivalent to nearly 20 per cent of annual Canadian demand for refined fuels). The CFS could help alleviate this dependence on (mainly U.S.) refiners.

Finally, as recent news in the U.S. refining sector suggests,<sup>6</sup> competition is already underway for dollars that are now being invested in the production of renewable fuels and other low-carbon fuels. If Canada doesn't get the necessary policy frameworks in place, those considerable investments — and the jobs they create — will go elsewhere. In light of reports that President Joe Biden may act on the recommendations of the U.S. House Select Committee on Climate Crisis, which in 2020 called for a national low-carbon fuel standard for the United States,<sup>7</sup> it's more important than ever that Canada act now to secure a stable policy regime that puts us in a position to compete in the market of our largest trading partner.

Now is definitely the time for the economic incentives that are contained in the Clean Fuel Standard.

### 3.8 Some people say the CFS will kill jobs. Some people say it will create jobs. Which is true?

Many job opportunities lie waiting in the transition to lower carbon fuels. The Clean Fuel Standard is expected to create as many as 30,000 jobs as new clean fuel facilities are built, supplied and operated. While some job losses could result from choices made under the CFS, robust modelling shows a net gain for Canadian workers: Energy-economic modelling suggests the CFS will yield a net employment gain resulting in between 17,000 and 24,000 additional jobs.<sup>8</sup>

On balance, a properly functioning Clean Fuel Standard will create, not destroy, employment opportunities for Canadians. The CFS is about building a more diverse energy economy that positions Canadian industry, including the oil and gas sector, for future success as the world moves in a low-carbon direction. While the December 2020 regulatory impact analysis published by the federal government acknowledged that the oil and gas sector may be expected to face negative employment effects, it also stressed that new employment opportunities may open up in sectors that benefit from generating credit revenue.

In the end, the CFS will help us build the knowledge and expertise that will be needed to keep more Canadians employed. It will provide a platform to foster innovations related to low-

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<sup>6</sup> In recent months, U.S. petroleum refiners including Wyoming-based HollyFrontier Corp., Ohio-based Marathon Petroleum Corp., Texas-based Philipps66 Corp., California-based Chevron Corp., and Iowa-based bio-refiner Renewable Energy Group have all announced major new nine- and ten-figure investments into expanding their production capacity for renewable fuels.

<sup>7</sup> U.S. House Select Committee on the Climate Crisis, *Solving the Climate Crisis: The Congressional Action Plan for a Clean Energy Economy and a Healthy, Resilient, and Just America* (2020), 101.  
<https://climatecrisis.house.gov/sites/climatecrisis.house.gov/files/Climate%20Crisis%20Action%20Plan.pdf>

<sup>8</sup> Navius Research, *Analysis of the Proposed Canadian Clean Fuel Standard: Final Technical Report* (2017), 53.  
<https://cleanenergycanada.org/wp-content/uploads/2018/03/CFS-technical-report.pdf>



carbon fuel production and help develop the know-how to expand new energy economies, like burgeoning markets for hydrogen.

### 3.9 But not everyone will benefit, right?

The Clean Fuel Standard requires companies to figure out how to transition their business models and corporate strategies to create and supply lower carbon fuels. There is a real economic opportunity for those that are willing to do that.

### 3.10 Is the CFS going to drive up heating and transportation costs for households?

Even though the Clean Fuel Standard will not directly cause any cost increases for households, for industries or for other liquid fuel purchasers, market conditions will probably force fossil fuel suppliers (who do face the direct expense of compliance) to pass along some of these additional costs to their different consumer bases. The government hopes to partially offset this cost pass-through by implementing the CFS in concert with other policies that will improve overall energy efficiency.

As a result, one study by Navius Research<sup>9</sup> shows that, on average, Canadians will spend less overall as a household on their energy costs by 2030 because the Clean Fuel Standard is being implemented as part of a package of policies.

### 3.11 What will the CFS do to the GDP?

It is difficult to predict the effects of a single policy on Gross Domestic Product (GDP) 10 years into the future. But multiple studies have shown that the Clean Fuel Standard could drive billions of dollars of new investment into the new production capacity of conventional and advanced biofuels, and the new production capacity of hydrogen.

Other countries have started to apply serious funding commitments toward their national hydrogen and biofuel strategies. The fact that Canada is so far along in its consultations around the CFS increases the opportunity for hydrogen in this country. The CFS regulation will play a role in getting new energy solutions to scale.

Navius Research estimated the net impact of the CFS on Canada's GDP at around \$5.6 billion after full implementation by 2030. More recently, Environment and Climate Change Canada calculated that the CFS would lead to a slight contraction in GDP (-0.2% of total GDP in 2030)

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<sup>9</sup> *Analysis of the Proposed Canadian Clean Fuel Standard: Final Technical Report*, 40-45.  
<https://cleanenergycanada.org/wp-content/uploads/2018/03/CFS-technical-report.pdf>

but that calculation uses a value for the social cost of carbon that is lower than contemporary estimates suggest is actually the case.

### 3.12 Will the Clean Fuel Standard hurt Ontario's auto manufacturing industry given Canadian consumers' current preference for carbon-intensive vehicles?

Consumers across Canada have exhibited a preference for larger vehicles. But there is no specific reason larger vehicles like SUVs or a light-duty trucks have to be powered by the internal combustion engine. Many manufacturers are turning to the next generation of vehicles and it's clear that these new light-duty cars and trucks will be made with electric engines, whether powered by electric batteries or hydrogen fuel cells.

The Clean Fuel Standard will help boost the transition to electric vehicles by providing real incentives for stakeholders in the electricity-charging sector and the hydrogen-refuelling sector. It will help market participants who are already in those spaces to build out their infrastructure to take advantage of the crediting system that the CFS provides. Moreover, some of the CFS credit revenue earned through vehicle charging will be 'recycled' into different EV-boosting investments, like upgrades to local electric grids and purchase incentives that lower the cost of ownership for drivers, further accelerating the national deployment of electric vehicles. Over time, this will likely boost domestic markets for EV sales.

But as long as consumers are going to be driving internal combustion engine vehicles, the Clean Fuel Standard can make the GHG impact of that transportation activity better than it otherwise would have been (because renewable and synthetic fuels can either be blended into or completely replace conventional petroleum fuels).

### 3.13 Is this fuel standard going to put some Canadian companies, especially those that are the largest emitters, at a trade disadvantage?

That's been alleged by certain industry associations, but it's far from clear that the Clean Fuel Standard will put Canadian corporations at a trade disadvantage.

First, it is only the fuel producers who face an obligation under this new rule. Other industry associations have sometime deplored the complexity of the CFS, but they don't face any new requirements or hardship other than possibly having to absorb some increased costs passed down from fossil fuel suppliers. With the recent decision by government (announced December 2020) to cease its development of carbon-intensity reduction requirements for gaseous fuels, heavy industry has largely escaped the cost impacts that would have accompanied a clean fuel standard applied to Canada's natural gas supply.

Second, Canadian companies have, for many years, been able to take advantage of historically and globally low-cost natural gas coming from suppliers in Western Canada and the U.S. That has given them a production advantage over other parts of the world where energy costs are higher. Even if the cost of natural gas had increased under a gaseous-class CFS to the highest end of current estimates in Canada, that energy would still be less, or at least no more, expensive than in other countries.

### 3.14 Is it really fair for governments to increase the market share for some and decrease it for others?

No government is required to step back entirely from its responsibility to assess market share and let a free market economy reign supreme. Government is the only entity that has the power of a public mandate to ensure that important and worthy aims of policy are supported and ensured. Governments have, for example, acted to regulate other products such as tobacco, pesticides and asbestos, and ozone-depleting substances such as chlorofluorocarbons (CFCs).

More pertinent to the fuel market, governments have regulated the lead and sulphur content of gasoline, and they have regulated chemicals that were not just harmful to public health but to the actual systems of fuel distribution.

Fossil fuel companies may argue that they are already among the country's biggest investors in clean technology and renewable energy, yet most of their overall capital expenditures are still spent in the core business areas of oil and gas supply (i.e., exploration and production, refining and petrochemicals, and fuel distribution).<sup>10</sup> By motivating a shift in companies' capital flows toward new energy markets, the Clean Fuel Standard would provide a signal to start shifting that balance toward clean investments. At the same time, the Clean Fuel Standard also ensures a minimum level of market access for the broad range of low-carbon fuels that can each contribute to Canada's overall GHG reduction goal.

### 3.15 Some companies say they aren't being given enough time to figure out how to comply. Is there truth to this?

Industry has had over four years to prepare for the Clean Fuel Standard. The federal Minister for the Environment and Climate Change first met with fossil fuel and low-carbon fuel producers in August 2016 to formally give notice that the Clean Fuel Standard would be a part of the Pan-Canadian Framework, Canada's 2016 climate plan. Canada's fuel refiners and

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<sup>10</sup> International Energy Agency, *The Oil and Gas Industry in Energy Transitions* (2020), 43. <https://www.iea.org/data-and-statistics/charts/capital-expenditures-on-new-projects-outside-of-core-oil-and-gas-supply-by-large-companies-absolute-and-as-share-of-total-capex-2015-2019>

importers also have extensive knowledge of the low-carbon fuel requirements in other jurisdictions, including full visibility on the primary pathways to meet compliance.

Obligated companies have a fiduciary duty to shareholders to comply. Those that have stated their support for the goal of reducing GHG emissions would have taken action to prepare to comply.

Even with this long lead time, the federal government has already made concessions, including delaying implementation to approximately mid-2022, reducing stringency in the early years, and agreeing to focus on liquid fuels first and then on gaseous and solid fuels later.

Furthermore, the federal government is proposing to make fossil fuel efficiency projects dating back to 2017 eligible for CFS credits, even though the policy's regulatory obligations don't get underway until 2022.

### 3.16 Some companies say there simply aren't enough ways to comply, that this regulation is designed for failure. Is there truth to that?

Experience elsewhere shows us this simply isn't true. In 2010, both British Columbia and California implemented similar standards to regulate carbon content of fuel with similar reduction requirements, with compliance options that expanded over time. In both places, the standards resulted in significant emissions reductions that were affordable, feasible, and achieved without market disruptions and with sufficient credit banks to enable industry-wide compliance. Both jurisdictions have since expanded compliance options and now have growing contributions from electrification, renewable natural gas, hydrogen, and other clean fuels.

In contrast, Canada's federal Clean Fuel Standard has even *more* upstream emissions reduction opportunities than any other comparable regulation in the world. Furthermore, since 2010, widely commercialized clean fuel options (including biofuels, electrification, renewable natural gas) have expanded multi-fold. In other words, B.C. and California did it in 2010, and a decade later companies have more ways to comply than ever before.

At this point, oil producers haven't provided any evidence that they won't be able to comply, especially considering the relatively undemanding requirements established for early years of the program. Given these factors, the credit bank is unlikely to face any shortage of supply in the near term. Furthermore, clean energy providers have also profiled 51 million tonnes of potential reductions they can offer by 2030.<sup>11</sup> These would be additional to any reductions achieved along the lifecycle of fossil fuels.

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<sup>11</sup> Canadian Gas Association, "Clean fuel and electric vehicle use in Canada can reduce GHGs by over 50 million tonnes by 2030," press release (Feb. 25, 2020). <https://www.cga.ca/news/clean-fuel-and-electric-vehicle-use-in-canada-can-reduce-ghgs-by-over-50-million-tonnes-by-2030/>



### 3.17 Shouldn't the CFS be implemented under the Greenhouse Gas Pollution Pricing Act, instead of the Canadian Environmental Protection Act?

No — that's a distract-and-delay tactic underpinned by the false claim that this policy is about pricing or taxing fossil fuels when in fact it is about regulating the carbon content of fuels. The Clean Fuel Standard is not a general emissions pricing system. Suggesting that the CFS regulations be recast under the Greenhouse Gas Pollution Pricing Act when all consultations and regulatory design decisions have been conducted under the auspices of the Canadian Environmental Protection Act — without objection until this year — is a delay tactic with no substantive policy purpose.

### 3.18 Why do we need this policy, since we know that some 70 to 80% of carbon pollution comes from the combustion of these fuels and, even with the CFS in place, we are unlikely to get to net-zero?

It's true that deep emissions reductions and a fuel system tending toward net-zero can be achieved only when electric vehicles, biofuels, synthetic fuels, renewable natural gas, and low carbon hydrogen replace crude oil (particularly as a source of transport energy). But we aren't there yet. That will take time — and we're running out. The Clean Fuel Standard will provide a much-needed incentive to take Canada's fuel-switching journey to the next level. This, in turn, will help us reduce dangerous heat-trapping emissions by more than 20 million tonnes as we work to do our fair share in limiting warming to no more than 1.5 degrees Celsius above preindustrial levels.

### 3.19 What makes the CFS exceptional in terms of global efforts to reduce carbon?

Similar types of policies have been successfully implemented in other jurisdictions, notably British Columbia and California. But, in those places, the requirements for GHG reductions have been aimed specifically at the transportation sector. Canada's Clean Fuel Standard will also target liquid fuels used to heat buildings and run industry, and will retain a role for low-carbon gaseous fuels, too. In applying across sectors in this way, it is globally unprecedented.

## 4 Renewable energy

### 4.1 Is this regulation realistic? Are solar or wind energies at the point where they can take over from fossil fuels?

The Clean Fuel Standard does not directly target solar and wind as replacements for fossil fuels. This is a policy focused on moving the needle on the energy transition in sectors of the economy, like transportation, that rely first and foremost on liquid fuels.

Liquid fuels have a number of technical virtues, including transportability and high energy density. Plus, they're easily and reliably substitutable. The CFS recognizes that such fuels will have role in the energy system for a long time to come, and therefore aims at building up a new economy in the many commercial, ready-to-be-deployed substitutes that have some of those same qualities. Hydrogen and electricity used to power battery and fuel cell electric vehicles, as well as a range of biofuel types — including renewable diesel<sup>12</sup>, a key near-term contributor for decarbonizing freight transport<sup>13,14</sup> — will all benefit from the improved economics arising from the Clean Fuel Standard.

Solar and wind are potential beneficiaries of the CFS in multiple indirect ways. For instance, Environment and Climate Change Canada has said it will award fossil fuel producers credits for emissions reductions at refineries or other facilities that are upstream in these firms' production processes. Such credits could be earned through the use of more renewable or low-carbon electricity on-site, so the CFS can help to expand the market for potential investment by oil and gas firms into renewable energy.

Beyond contributions renewable energy might make to improve the carbon intensity of fossil fuel, the solar and wind industries could also take advantage of the CFS by undertaking projects with renewable and low-carbon fuel producers to further improve the carbon intensity scores of renewable fuels or hydrogen. Finally, renewable electricity could also improve the credit-generation potential of electricity used to supply an increasingly electrified vehicle fleet. Operators of these charging networks (including vehicle manufacturers) could enhance their own competitiveness under the CFS by installing renewable generation facilities that lower the carbon intensity of electricity delivered to their vehicle charging stations.

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<sup>12</sup> Also known as hydrotreated vegetable oil (HVO) or hydrogenation-derived renewable diesel (HVRD).

<sup>13</sup> U.S. Energy Information Administration, "Renewable diesel is increasingly used to meet California's Low Carbon Fuel Standard," (Nov. 2018). <https://www.eia.gov/todayinenergy/detail.php?id=37472>

<sup>14</sup> International Renewable Energy Agency, *Recycle: Bioenergy*, Circular Carbon Economy Report 05 (Aug. 2020), 26-27. <https://www.irena.org/publications/2020/Sep/Recycle-Bioenergy>

## 4.2 So there is a window of opportunity here in terms of competitive advantage in renewables?

Yes. Competition for investment and large capital expenditure projects is always going to be fierce. Canada is an important player as a result of our integration into the North American energy system, but investment capital is not unlimited.

It is clear that the market for lower carbon and non-fossil clean fuels is going to be growing globally. The Clean Fuel Standard is designed to be a technologically agnostic way to drive the economics of all of these solutions and let the market figure out what makes the most sense in the Canadian context.

## 4.3 Some people say renewable energy itself is environmentally damaging and carbon intensive. Is there some truth to that?

Environmental and social acceptability concerns have to be taken into account for all types of energy. The Clean Fuel Standard looks at the life cycle of a fuel from production to end use. As a society, we have to consider the full life cycle of fossil fuels' production from the extraction to refining to combustion, and then compare that to something like a biofuel which likewise has emissions associated with production, transportation and combustion.

With those types of analyses, from a climate perspective, it's clear that renewable energy comes out ahead in almost every case. In those rare cases that it doesn't — for example, some biofuel feedstocks, like palm oil, have been linked to environmental issues like extreme deforestation — Canada has made sure that those potential sources of bioenergy will not be eligible for participation (i.e. credits) under this regulation.