Increasing climate ambition with output-based pricing

Pembina Institute and David Suzuki Foundation comments and recommendations

Submitted to: Environment and Climate Change Canada | March 29, 2021

Regarding: ECCC's planned approach to the *Review of the Output-Based Pricing System Regulations*

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Summary

In this submission, we present the carbon price increase, the federal benchmark review and the review of the federal Output-Based Pricing System (OBPS) regulations as a package for increasing climate ambition.

- We strongly encourage the federal government to **confirm the proposed price increase** as soon as possible and before COP 26, in light of the Supreme Court's case ruling on March 25.
- We encourage the federal government to work with Newfoundland and Labrador, P.E.I. and New Brunswick toward delivering a **consistent price signal** with the levy across the country.
- We further urge the federal government to develop **reasonably ambitious and detailed benchmark criteria** for an OBPS. These should prescribe, among other design elements, the types of standards to be used, emissions sources covered, a methodology for assessing leakage risks with prescribed triggers for inclusion/exclusion and additional/dialing back) relief, and annual tightening rates.
- We encourage the federal government to **increase the transparency and stringency of the process for evaluating provincial systems** (levy or OBPS), for example, by including detailed information on provincial systems and comparisons to benchmarks in the annual carbon pricing reports.
- We encourage the government to continue its socialization of **carbon border adjustments** (CBA) and to explore the possibility of transitioning to this tool.

Ideally, a revised OBPS should be limited to sectors that warrant protection against substantiated leakage risks, with relief calibrated using an enhanced assessment framework; however, this scenario is out of reach given the time constraints of the OBPS review. Instead, we provide recommendations on other key determinants of the stringency of the OBPS system toward increasing the contribution of the federal OBPS to Canada's climate target:

- We recommend the **application of tightening rates that drive emissions reductions of 6-8% annually**, aligned with the global carbon budget, informed by the review of emissions reductions technologies.
- Carbon pricing revenues should **promote R&D for technology to reduce hard-to-abate emissions**.
- We recommend **including all sources of emissions** (combustion, indirect, fugitives) in setting the standards.
- We also encourage the federal government to develop **an approach for dealing with ecosystem emissions**, which are currently not priced under the levy or the OBPS.
- We recommend setting a limit on offsets for meeting compliance that is consistent with maintaining a strong price signal (10-25%); emissions from forestry and agriculture should be regulated.
- We strongly encourage the federal government to **remove electricity from the OBPS** and to **set a goal of reaching 100% clean electricity by 2035**, in line with the U.S. If the OBPS system persists for electricity, we recommend that the standards be ratcheted down more rapidly, and that a tightening rate be applied to existing natural gas.

Context

The Pembina Institute and the David Suzuki Foundation are thankful for the opportunity to share our views on Environment and Climate Change Canada's planned approach to the *Review of the Output-Based Pricing System Regulations* as described in a paper released in February 2021.[1]

In 2015, the federal government ushered in a new era of progressive climate action in Canada. Upon returning from the Paris UN climate negotiations, over the course of 2016, federal, provincial and territorial governments negotiated and ultimately delivered Canada's first truly national climate plan: the Pan-Canadian Framework on Clean Growth and Climate Change. When introduced in the framework, among a suite of some 50 measures to reduce emissions across the economy, carbon pricing had already been in application in Canada's four biggest provinces: British Columbia, Alberta, Quebec and Ontario. We commend the federal government for building on provincial leadership in the Pan-Canadian Framework by committing to expand carbon pricing across the country. In general, we support the

government's flexible approach whereby subnational governments were encouraged to implement their own carbon pricing systems, as long as it met a minimum set of benchmark requirements,[2,3] or to apply the federal backstop (officially established via the Greenhouse Gas Pollution Pricing Act[4] (GGPPA) in June 2018). We also support the design of the backstop, which consists of two parts. The *fuel charge* provides a consistent market signal to consumers to lower their emissions. Concurrently, an upstream *output-based pricing system pricing system* (OBPS) can ensure Canada's emissions-intensive and trade-exposed (EITE) industries reduce emissions, while limiting the risks of competitive disadvantage and emissions leakage. We commend the federal government for applying its backstop, partially or in whole, in provinces and territories that requested it or failed to put forward a carbon pricing system that met minimum benchmark requirements. As of April 2019, it is no longer free to pollute from coast to coast to coast.

Ahead of the 26th Conference of the Parties, where countries are expected to show up with beefed-up plans for tackling climate change, we welcome the release of the federal government's strengthened climate plan, A Healthy Environment and a Healthy Economy[5], in November 2020. The new plan contains 64 measures supported by an initial investment of $15 billion. To ratchet up ambition, the plan smartly relies on a significant increase in the price on carbon pollution. In addition, we welcome the federal government's proposal in the plan to review the benchmark criteria for assessing subnational carbon pricing systems.[6] We also welcome the tabling of Bill C-12, which, if enacted, would increase the federal government's accountability to its climate mitigation target and provide a framework for assessing progress toward this goal and reviewing policies to address gaps.

We look forward to participating in the review process of the OBPS regulations and support ECCC's intention to "explore options for increasing the contribution of emission reductions from the OBPS to Canada's GHG emissions reduction goals.[7]" In this submission, we emphasize that this objective requires considering the OBPS in the context of a package for increasing climate ambition through carbon pricing and make recommendations on strengthening each component of this package. Together, the proposed price increase, the benchmark review and the review of the OBPS regulations offer an important opportunity to build on the federal government's efforts on carbon pricing over the last four years to increase climate ambition by delivering more ambitious, consistent application of carbon pricing across the country and to better hold polluters to account. A strong carbon pricing system is an essential tool in increasing Canada's 2030 target toward doing its fair share in the lead-up to COP 26 and will lay the foundations for keeping our 2050 net-zero goal within reach.

Comments and recommendations

A. A carbon pricing package for increased ambition

In this first section, we put forward recommendations on the price increase and the benchmark review and application as necessary conditions for strengthening Canada's carbon pricing system, including the OBPS.

1. Price increase

We applaud the federal government for putting forward a significant increase in the price on carbon pollution in the new climate plan,[8] although the plan introduces this increase as a proposal to provinces and territories.

Recommendation

In light of the supreme court's case ruling in favor of the federal government, we strongly encourage the federal government to confirm the price increase as soon as possible and before COP 26. This will help provide needed policy certainty for investors and send an important message to the international community at a pivotal moment in the international climate process.

2. Benchmark review

The application of carbon pricing across the country in 2019 was a big win for Canada. We support the application of "all elements of the backstop (…) in a jurisdiction that does not have a carbon pricing system in place" and using the backstop to "supplement systems that do not fully meet the benchmark," as put forward in the technical paper on the federal backstop, published in January 2018.[9] We applaud the federal government for holding the line on the benchmark requirements in Ontario, Manitoba, Saskatchewan, Alberta, and Prince Edward Island. Carbon pricing, however, remains inconsistently applied across the country. The benchmark and OBPS reviews offer an important opportunity to ensure this measure more consistently delivers emissions reductions across the country.

Inconsistent carbon levies

While Canada has put forward a strong price on pollution in scope, price and coverage, these benchmark criteria have been inconsistently applied (see Annex 1 for a short description of the federal benchmark criteria and a table of how carbon pricing is applied across provinces and territories). As of today, the federal levy is in application in Ontario, Manitoba, Saskatchewan, and Alberta, provinces that did not put forward a levy that met the benchmark criteria.[10]

However, the federal levy was not applied in Newfoundland and Labrador (N.L.), Prince Edward Island's (P.E.I.), and New Brunswick where weaker provincial levies were put forward and accepted by the federal government. N.L. and P.E.I. levies do not cover the same fuels as B.C.'s levy (per the benchmark criteria). Further, N.L., P.E.I. and New Brunswick put forward a price schedule that is aligned with the benchmark, but decreased the provincial gas tax, effectively weakening the signal to reduce fossil fuel consumption. These exemptions are a missed opportunity to promote fuel switching, energy efficiency, mitigation of methane emissions, innovation in the oil and gas sector, and the growth of associated markets and jobs. Furthermore, the exemptions undermine necessary efforts towards economic diversification.

Recommendations

We encourage the federal government to work with N.L., P.E.I. and New Brunswick as part of its consultation on the new climate plan toward delivering a consistent price signal across the country. In addition, we encourage the federal government to increase the transparency and stringency of the process for evaluating provincial systems, for example, by including detailed information on provincial levies and how the federal benchmark requirements were met in the GGPPA annual reports.

Inconsistent pricing systems for heavy emitters

As of today, the federal OBPS is in application in Saskatchewan,[11] Ontario, New Brunswick and Prince Edward Island.[12] However, Ontario[13] and New Brunswick[14] both put forward their own regulations for pricing emissions for heavy emitters (also OBPSs) after the federally set submission deadline of September 2018 and the application of the federal OBPS in January 2019. The federal government accepted both provincial systems in September 2020 and will stand down its own OBPS in those provinces "as of a date in the future that will be determined in consultation with the provinces."[15] We regret this decision in light of the fact that Ontario and New Brunswick's OBPSs are significantly weaker than the federal OBPS. We briefly highlight some of these weaknesses below in Annex 1. The lack of a detailed benchmark for the OBPS portion of hybrid provincial carbon pricing has led to a wide variability and to low average prices. We note that the regulated entities have endured a lot of policy changes and uncertainty in both provinces, which is detrimental to securing the investments needed to decarbonize heavy emitting sectors. This is especially true in Ontario with the removal of the provincial cap-and-trade followed by the application of the federal OBPS and now the likely application of the provincial OBPS).

Finally, some provinces have been reported to be positioning themselves to request federal funding for CCUS. We stress that a robust carbon price, and other market-based incentives, will make investments in CCUS more attractive and drive new industrial applications, and the need for public funding should be assessed in light of these measures.[16]

Recommendations

To deliver more robust pricing systems for heavy emitters in Ontario and New Brunswick and provide policy certainty to regulated entities, we encourage the federal government to maintain its OBPS until both provinces have deliver enhanced systems under a revised OBPS benchmark.

We support the design principle for the OBPS review articulated by ECCC of ensuring *"the OBPS Regulations can effectively function as a backstop and apply in any jurisdiction in Canada, if required."* We would add a corollary design principles that the federal OBPS should encourage the design and implementation of consistently robust systems for pricing emissions for heavy emitters across the country. To effectively serve as a backstop for pricing emissions from EITE sectors across the country for the 2023-2030 period, we urge the federal government to set reasonably ambitious and detailed benchmark criteria for an OBPS. We look forward to engaging with the federal government on the review of the criteria and preliminarily put forward the following recommendations.

A robust benchmark should provide details on:

- the pricing schedule
- the type of standards to be used, specifically sector-based output-based standards based on international best practice
- emission sources covered, specifically combustion, process, indirect, and fugitives
- the methodology for assessing the level of competitiveness pressures and clear triggers for inclusion/exclusion in the OBPS and for providing additional/dialing down relief
- annual tightening rates to increase system stringency consistent with that necessary to reach Canada's climate targets

These recommendations are consistent with the design principles for robust OBPS we have previously shared with ECCC and reiterate in the next section.

Similarly to our comments on the levy, we encourage the federal government to increase the transparency and stringency of the process for evaluating provincial systems for heavy emitters, for example, by including detailed information on provincial systems (reflecting the information requirements listed above) and how the federal benchmark requirements were met in the GGPA annual reports.

B. Increasing the contribution of the federal OBPS to Canada's GHG emissions reduction goals

This section builds on the recommendations provided above on developing a more detailed and robust benchmark criteria for an OBPS to increase the contribution of emissions reductions

from the OBPS. As previously pointed out, the stringency of an OBPS system is determined by a series of factors including: the sectors included, the type of standards used, the standard values and tightening rate, the sources of emissions covered, and the compliance options.

The comments we share below on these levers are informed by the following principles for well-designed OBPS:

1. Maintain the incentive to reduce carbon pollution: Any measures taken to address competitiveness concerns with respect to carbon pricing for emissions-intensive and trade exposed (EITE) sectors should maintain the incentive to reduce pollution.
2. Be targeted: Mitigation measures should only apply to EITE sectors that may have material competitiveness and/or profit impacts due to carbon pricing policy.
3. Be transparent: Any support for EITE sectors should be justified by data and analysis.
4. Be consistent: The broad framework for assessing and addressing EITE competitiveness issues should be consistent across sectors and firms.
5. Be temporary: Any support should be transitional in nature and be phased out when carbon pricing and/or regulatory equivalency with other jurisdictions is achieved.
6. Be simple: Any EITE mechanism should be simple to implement, administer, and comply with.[17,18]

1. Target subsidies to maximize benefits of climate policy in a quickly evolving policy landscape

We support the application of an OBPS where the aim, as articulated by ECCC, is to "minimize competitiveness and carbon leakage risks for activities for which those risks are high, while retaining the incentives to reduce emissions created by the carbon pricing signal."[19] The OBPS is a subsidy provided to high-emitting facilities and should be targeted only to those sectors that can demonstrate a material competitiveness impact. The subsidy should not protect against competitiveness issues that arise from other factors that the pricing differential, including a shift in the market to low-emissions substitutes.

Under output-based pricing system, the "subsidies reduce the amount of abatement delivered by sources subject to the tax."[20] Hence to increase the contribution of the OBPS toward meeting Canada's climate targets, it is crucial that the OBPS include only sectors that can demonstrate real and material leakage risks. Further, it is equally important that the subsidy provided through OBPS be commensurate with the level of risk for each sector (we speak to the assessment framework for determining the right level of subsidy below). A well-targeted and calibrated OBPS will optimize benefits for Canadians by maximizing innovation and emissions reductions and avoid lose-lose situations where no environmental gains were made globally and economic activity was reduced nationally. A well designed pricing system for heavy

emitters will support regulated facilities to better manage the transition risks and opportunities and position themselves to better compete in a world where carbon footprints are a rapidly growing liability.

For all the attention given to concerns around leakage, it is important to reiterate that the risk of leakage as a result of competitiveness pressures is often overstated. This message is echoed in the 2019 report of the High-Level Commission on Carbon Pricing and Competitiveness, which also states that there is little evidence that carbon pricing has resulted in leakage (i.e. the relocation of the production of goods and services or investment). Similarly, the Ecofiscal Commission found that competitiveness pressures for British Columbia, Alberta, Ontario, and Nova Scotia are "significant for only a few sectors, representing only a small share of total provincial economic activity."[21] The HLCCPC 2019 report puts forward several reasons for this outcome, including "that carbon price levels have generally been moderate and existing programs include protection for at-risk sectors."[22] However, the report also points to the fact that decisions on production and relocation might be more significantly driven by factors other than environmental regulations (including tax rates, labor availability, and infrastructure). We stress that leakage risks should be evaluated on the basis of competitiveness issues that arise from Canada's adoption of stronger climate policy compared to specific competitor jurisdictions and exclude the pressures caused by the array of other economic and policy factors that influence firm performance, including corporate income-tax rates, foreign-exchange rates, the prices of locally supplied inputs, wage rates, etc. If the OBPS is misused to address any other regional, market, resource quality, or technological issue, its success may be constrained. As it stands, the threshold analysis used by ECCC calculates emission intensity as a factor of direct carbon cost and gross value added and trade exposure as a factor of imports, exports and sales without accounting for carbon pricing differentials between foreign competitor jurisdictions.

Sectoral competitiveness analyses should also be revisited as additional jurisdictions apply a carbon price. Globally there are over 60 carbon pricing systems in place or scheduled for implementation, covering about 22% of global emissions.[23] This number is poised to increase. Importantly, the international context for policy design has changed significantly since ECCC first started drafting the OBPS regulations, most notably with the new US administration moving aggressively on climate.

We welcome the conversation on carbon border adjustments (CBA) in the climate plan and encourage ECCC to 1) take steps to understand the risks of the potential application of CBA from the EU or eventually the U.S. on our heavy emitters under different carbon pricing scenarios and 2) explore the option of moving to system where protection is granted through CBAs and heavy emitters pay the full price on emissions.

Set up assessment framework to estimate leakage risks and provide relief

We recognize that assessing leakage risks and targeting relief to match risk level is challenging and encourage the federal government to continue to work with subject matter experts toward refining its approach. Notably, we point to the work of Meredith Fowlie, who is working to advance the theory and improve how emissions leakage is mitigated. The methodology used matters as each methodology may deliver different levels of risks.[24] In a 2020 study Fowlie highlights that the connection between true leakage and the emission intensity and trade exposure metrics, used by ECCC and commonly adopted elsewhere, is "tenuous, (…) raising concerns about the legitimacy and efficacy" of this methodology.[25] We note that absent complete information, the documents shared by ECCC suggest that many sectors received more relief than warranted by ECCC's threshold analysis (see Annex 3 for more details).

Recommendations

For transparency, we encourage the federal government to publish the results of each of the three phases of the leakage risk assessment analyses for output-based values (starting at the 70% output-based standard scenario) for the full list of sectors included in the OBPS. Moving forward, especially in view of the new output-based standards for six sectors envisaged by ECCC, we encourage the federal government to publish the full results of leakage assessment analyses in a way that clearly shows what level of relief was warranted by analysis for each sector and what level of relief was granted.

2. Use other levers within the scope of the revised OBPS

In light of the discussion shared above, an ideal scenario would be a revised OBPS that limits inclusion to sectors that warrant protection against substantiated leakage risks, as determined using an enhanced assessment framework. Reasonable energy policy experts suggest that cement, steel, and chemicals are some of the few sectors are that truly warrant protection through an OBPS.[26] The paper on the OBPS review and recent communications with ECCC suggest, however, that the revision of the OBPS is unlikely to consider this outcome. Therefore, we share below recommendations to strengthen the OBPS in the narrower set of options considered by ECCC in the paper, namely leveraging the tightening rate and revising the treatment of the electricity sector. We also make recommendations on the types of standards and scope of emissions included in the emissions-intensity standard and the compliance options. While these two levers for a robust system fall outside of the review scope under the paper, we argue that they are key to meeting ECCC's goal of increasing the OBPS contribution to Canada's climate target.

2.1 Tightening rate

We are very supportive of ECCC's statement in the paper on considering "adding an annual tightening rate post-2022 to output-based standards."

Recommendation

We recommend the application of tightening rates that drive emissions reductions of 6-8% annually, aligned with the global carbon budget. The review of emissions reductions technologies should inform the tightening rate as well as the reallocation of carbon pricing revenues to promote R&D for technology to reduce hard-to-abate emissions. Markets would also be created through government procurement policies that favor low-carbon products.

2.2 Scope of emissions included in the emissions-intensity standard

Broad coverage of the OBPS ensures that there is an incentive to reduce all sources of emissions. We recommend that ECCC transition to including all sources of emissions (combustion, process, indirect, fugitives).

We note that entities, whether regulated under the OBPS or subject to the carbon levy, do not currently pay the price on carbon on emissions they generate from land use changes. This is inconsistent with the polluter pays principles that underpins carbon pricing and a significant gap in terms of Canada's arsenal to mitigate these important sources of emissions.

Recommendation

We recommend that ECCC transition to including all sources of emissions (combustion, process, indirect, fugitives). In a 2019 report, the David Suzuki Foundation provided recommendations on expanding B.C's carbon price to include methane emissions.[27] Similarly, we recommend that ECCC eventually consider the inclusion of methane emissions in the OBPS.

We encourage the federal government to develop an approach for pricing ecosystem emissions, starting with sectors that are causing deforestation or destruction of peat land.

2.3 Compliance options

Under stringent conditions, offsets are part of the solution, but relying too heavily on reductions elsewhere to compensate for industrial emissions is inconsistent with Canada's long-term economic and environmental goals. There is considerable debate over the certainty and legitimacy of certain types of offsets.[28] A recent article by Rivers, Harrison, and Jaccard raises concerns about Canada's offset system, stating that, in view of the types of offsets being developed, the system could lead to an increase in emissions.''[29] In addition, offsets further

dilute the price signal in the OBPS. The Government of Canada should impose a strict limit on the percentage of the total compliance obligation that can be met with offset credits.

Recommendations

We urge the federal government to impose a limit on offset use for compliance that consistent with maintaining a strong price signal and making offsets available only for those really hard to abate emissions. While we have not undertaken independent analysis to be able to recommend one such limit, we put forward that a range between 10-25% would meet this goal – the lower limit being close to the 8% used in Quebec's cap-and-trade and the upper limit being put forward by our colleagues at CCNB. Anything beyond this level is likely to defeat these principles, leaving cost effective reductions on the table.

While this falls outside of the scope of the review of the OBPS, we nonetheless take the opportunity to stress that Canada's offset program should only allow projects that generate reductions that are real, additional, verifiable, permanent, and enforceable. We strongly support and urge the federal government to stay the course on only allowing projects that have started after January 2017 to be eligible for credit generation for the first compliance period.[30]

We also encourage the federal government to provide assurances that the offset protocols being developed will generate real reductions and to move toward regulating emissions from forestry and agriculture as the best way to generate reductions to meet our targets.

2.4 Revise the treatment of the electricity sector

A rapid transition of the grid to non-emitting sources such as renewables, storage, energy efficiency, and demand side management is required to assist with decarbonization of the economy as different sectors such as transport and heating become further electrified. We are pleased to see the review paper reiterate that the federal government will work with provinces, territories, and stakeholders to ensure that Canada's electricity generation achieves net-zero emissions before 2050.

In the electricity sector, the largest reductions are from the early retirement of coal plants, early conversions to lower carbon fuels, limited use of unabated natural gas, and accelerated penetration of renewable energy. The inclusion of the electricity sector in the OBPS is a lost opportunity to create the conditions to achieve 1) early and substantive GHG emissions reductions in the sector; and 2) an accelerated transition to non- emitting electricity sources.

We wish to amplify comments from the Canadian Council on Renewable Electricity: "as a result of the current treatment of GHG emitting electricity generated from gaseous fuels under the OBPS (OBA = 370 t/GWh) (and in the absence of a complementary regulation that limits GHG emissions therefrom), at least 30% of the total emissions from the electricity sector (21.1 of

69.9 MT in 2018) from existing facilities are completely exempt from meaningful climate policy. This is the case at a carbon price of $50/t and/or $170/t due to the current OBA structure. As a result, there is no meaningful price signal to reduce these GHG from existing gas-fired generation through behavior change (e.g. lower dispatching frequency, or investment in cleaner energy options)…"[31]

The electricity OBS focuses entirely on short-term direct costs of carbon pricing (i.e. the immediate increases on electricity bills). It considers less the long-term indirect benefits from the quicker integration of larger amounts of zero-emission energy technologies into the grid. These are well-known and include grid resilience, shielding against fossil fuel price volatility, social and health benefits of avoided air pollution from fossil fuel generation (coal especially), and local economic and infrastructure development in rural areas hosting renewables. The electricity sector is not emission intensive and has commercially viable, and often cheaper alternatives. In fact, by 2030 at the latest, it will be cheaper to build new wind and solar facilities than to continue operating existing coal facilities.[32] Finally, an OBPS for electricity is inconsistent with dealing with low income households and affordability issues (since it reduces costs for fossil fuel generators, and any price relief that is passed on goes to all consumers, may not fully support those who need it most). We encourage the federal government to work with provinces and utilities to ensure affordable electricity and avoid energy poverty.

We echo comments shared with the federal government by our colleagues at the CCNB-making the argument to remove electricity from the OBPS and ''instead focus on supporting practical solutions that can support rapid decarbonization of the sector.''[33] Canada displayed remarkable climate leadership by setting the nation-wide commitment to phase out coal by 2030. Moving forward, we encourage the federal government to sustain this leadership role by supporting the creation of enabling conditions for electrification. This will require removing barriers to electrification, chief among them outdated regulatory frameworks that prevent investments in grid modernization. In turn, this will require a price signal on electricity, continued leadership on transmission infrastructure, and setting more ambitious goals for renewables.

Recommendations

We strongly encourage the Government of Canada to adopt a treatment of the electricity sector that maintains a price signal for EITE sectors and other consumers, while protecting low-income households and vulnerable Canadians from distributional impacts.

If the OBPS system persists for electricity, we recommend that the emissions standards be ratcheted down more rapidly than the current schedule, and that a tightening rate also be applied for existing generation from natural gas.

In addition, we encourage the federal government to accelerate its plans to achieve 90% non-emitting electricity , i.e. ahead of the 2030 commitment, and to align with the U.S. goal of reaching 100% clean electricity by 2035.

Conclusion

We are thankful for the opportunity to comment on ECCC's paper for the review of the OBPS regulations for application in 2023 and for the consideration that ECCC will bring to our recommendations. We note that the continued calibration of the OBPS (beyond the 2022 review as currently scoped) should also be informed by the assessment of the effectiveness of the current standards and encourage ECCC to provide insights on how this process will unfold.

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[1] Government of Canada, *Review of the federal Output-Based Pricing System Regulations* (2021), https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/output-based-pricing-system/review.html

[2] Government of Canada, *Guidance on the pan-Canadian carbon pollution pricing benchmark* (2018), https://www.canada Government of Canada, *Guidance on the pan-Canadian carbon pollution pricing benchmark* (2018) https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/guidance-carbon-pollution-pricing-benchmark.html

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[3] Government of Canada, *Guidance on the pan-Canadian carbon pollution pricing benchmark* (2018), https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/guidance-carbon-pollution-pricing-benchmark.html

[4] Government of Canada, *Greenhouse Gas Pollution Pricing Act* (2018), https://laws-lois.justice.gc.ca/eng/acts/G-11.55/index.html

[5] Government of Canada, *A Healthy Environment and a Healthy Economy*, (2020), https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/healthy_environment_healthy_economy_plan.pdf

[6] Government of Canada, *Pricing Carbon Pollution* (2020) https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/annex_pricing_carbon_pollution.pdf

[7] Government of Canada, *Review of the federal Output-Based Pricing System Regulations* (2021) https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/output-based-pricing-system/review.html

[8] Under the federal benchmark, the price on pollution started at $20 a ton in 2019, rising by 10$ a year. The new climate plan proposes to increase the carbon price by $15 a year starting in 2023 until 2030.

[9] Government of Canada, *Technical paper: federal carbon pricing backstop* (January 5, 2018) https://www.canada.ca/en/services/environment/weather/climatechange/technical-paper-federal-carbon-pricing-backstop.html

[10] The federal levy is also in application in Yukon and Nunavut, where both provincial governments opted for the backstop

[11] The federal OBPS is applied to the electricity and natural gas transmission sectors in Saskatchewan

[12] In addition, the full backstop is applied in Yukon and Nunavut, who opted for the system

[13] Government of Ontario, *Greenhouse Gas Emissions Performance Standards*, O. Reg. 241/19. https://www.ontario.ca/laws/regulation/r19241

[14] Government of New Brunswick, *Holding Large Emitters Accountable: New Brunswick's Output-Based Pricing System* (2019), https://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/ClimateClimatiques/HoldingLargeEmittersAccountable.pdf

[15]Government of Canada, *Pricing Carbon Pollution* (2020), https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/annex_pricing_carbon_pollution.pdf

[16] Kelly Cryderman, Emma Graney, *Alberta seeks billions in federal funding for carbon capture projects* (2021), https://www.theglobeandmail.com/business/article-alberta-seeks-billions-in-federal-funding-for-carbon-capture-projects/ (Globe and Mail)

[17] Climate Leadership Team, *Recommendations to Government* (2015). http://engage.gov.bc.ca/app/uploads/sites/116/2015/11/CLT-recommendations-to-government_Final.pdf

[18] Canada's Ecofiscal Commission, *Provincial Carbon Pricing and Competitiveness* (2015), https://ecofiscal.ca/wp-content/uploads/2015/11/Ecofiscal-Commission-Carbon-Pricing-Competitiveness-Report-November-2015.pdf.

[19] Government of Canada, *Technical paper: federal carbon pricing backstop* (2018) https://www.canada.ca/en/services/environment/weather/climatechange/technical-paper-federal-carbon-pricing-backstop.html

[20] Meredith L. Fowli, Mar Reguant, *Mitigating Emissions Leakage in Incomplete Markets* (2020), https://static1.squarespace.com/static/595af9e472af65691b788c27/t/5fa5b4b2bce9fd620f74cb23/1604695221135/AERE_manuscript.pdf

[21] Elizabeth Beale, Dale Beugin, Bev Dahlby, Don Drummond, Nancy Olewiler, and Christopher Ragan, *Provincial Carbon Pricing and Competitiveness Pressures- Guidelines for Business and Policy Makers* (November 2015), 2. http://ecofiscal.ca/wp-content/uploads/2015/11/Ecofiscal-Commission-Carbon-Pricing-Competitiveness-Report-November-2015.pdf

[22] Carbon Pricing Leadership Coalition, *Report of the High-level Commission on Carbon Pricing and Competitiveness* (2019), https://openknowledge.worldbank.org/bitstream/handle/10986/32419/141917.pdf?sequence=4&isAllowed=y

[23] Carbon Pricing Leadership Coalition, *Report of the High-level Commission on Carbon Pricing and Competitiveness* (2019), https://openknowledge.worldbank.org/bitstream/handle/10986/33809/9781464815867.pdf?sequence=4&isAllowed=y

[24] Luan Santos, André F.p. Lucena, Rafael Garaffa, *Would different methodologies for assessing carbon leakage exposure lead to different risk levels? A case study of the Brazilian industry* (2019), https://www.tandfonline.com/doi/abs/10.1080/14693062.2019.1627180

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Annex 1 Quick reference: Federal benchmark criteria and its application across the country

Benchmark criteria

The benchmark criteria can be summarized as follows:[34]

1. Scope: carbon pricing should apply to substantively the same sources and fuels as British Columbia's carbon tax
2. For jurisdictions with an explicit price-based system, the carbon price should start at a minimum of $10 per tonne in 2018 and rise by $10 per year to $50 per tonne in 2022.
    a. Emission intensity standards should be at levels that drive improved performance in carbon intensity, and should account for best-in-class performance.
3. Provinces with cap-and-trade need (i) a 2030 emissions reduction target equal to or greater than Canada's 30% reduction target and (ii) declining annual caps to at least 2022 that correspond, at a minimum, to the projected emissions reductions resulting from the carbon price that year in price-based systems.

Carbon pricing systems applied across the country

Province or Territory	System applied	Performance against benchmark criteria[35]
British Columbia	Provincial levy + provincial OBPS	Meets the benchmark requirements
Alberta	Federal levy + provincial OBPS	Provincial OBPS is compliant (The federal government had conditionally accepted Alberta's system in December 2019, which set a fixed price of $30/ton. In March 2020, the province confirmed that the price will increase annually by $10 until 2022.[36])
Saskatchewan	Federal levy + partial federal OBPS	Federal OBPS is applied to the electricity and natural gas transmission sectors
Manitoba	Full backstop	Meets the benchmark requirements
Ontario	Full backstop. Provincial OBPS was accepted in Sept 2020 and	ON OBPS is weaker than federal[37] (see below)

	will be applied at a time TBD	
Quebec	Provincial cap-and-trade	Meets the benchmark requirements
Newfoundland and Labrador	Provincial	Effective increase in carbon tax on gas and diesel is lower than benchmark price (the province repealed the gasoline tax of four cents per litre and replace it with the federal carbon levy of 4.42 cents per litre in 2019[38]); excludes home heating, aviation fuels and offshore gas
New Brunswick	Full backstop was in application. Provincial levy is in application since April 2020 and OBPS was accepted in Sept 2020 and will be applied at a time TBD	New Brunswick OBPS and levy are weaker than federal[39], [40], (see below): In March 2020, New Brunswick reduced the provincial excise tax by 4.63 per litre for gasoline and 6.05 cents per litre for diesel.[41] Net cost to consumers is now two cents, not the 4.4 charged in 2019-20 or the 6.6 cents for 2020-21.2 The federal plan requires the taxing of natural gas for home heating, but the province will hand all of the revenue from that part of the tax back to Liberty Utilities to ensure customers don't pay anything more.[42]
Nova Scotia	Provincial cap-and-trade	Meets the benchmark requirements[43],[44]
Prince Edward Island	Provincial levy + Federal OBPS	The province decrease the tax on gas and diesel, leading to a lower price signal at the pump (only 1 cent) compared to the federal levy[45]; excludes furnace oil and propane[46]
Yukon	Full backstop	Meets the benchmark requirements
Northwest Territories	Territorial	Meets the benchmark requirements Direct rebate of heating fuel dilutes signal to reduce consumption[47]
Nunavut	Full backstop	Meets the benchmark requirements

Application of the benchmark criteria for the levy

Application of the benchmark criteria against Newfoundland and Labrador's levy

Newfoundland and Labrador's (N.L.) carbon pricing system, approved by the federal government, replaces a four-cent per litre gas tax with a 4.42-cent carbon tax and a five-cent per litre diesel fuel tax by a 5.37 cent carbon tax.[48] Effectively, the decrease of the provincial tax and the increase of the carbon tax create a weaker signal to consumers to trigger behavioural changes than the benchmark price of $20 per tonne of carbon, which was intended to add to

existing fuel prices. Even with a generous interpretation of the mechanism to price gas and diesel, N.L.'s system does not meet criteria 1; it does not cover the same fuels as B.C.'s plan, because it exempts home heating and aviation fuels. In addition, N.L.'s system does not cover emissions from off-shore oil and gas activities, which would be covered under the backstop. Off-shore oil and gas represents 100% of oil and gas production in the province and 25% of provincial emissions, the second-largest emitting sector after transportation.[49]

Application of the benchmark criteria against Prince Edward Island's levy

The federal government stated in 2018 that Prince Edward Island (P.E.I.) is "on track to meet the federal benchmark stringency requirements."[50] However, similarly to N.L., P.E.I. will reduce its provincial excise tax by three cents and apply a 4.4 cents and 5.4 cents per litre carbon tax on gas and diesel in 2019, increasing by one cent in 2020. This will result in a weak signal to drive behavioural changes and emissions reductions. Further, P.E.I.'s carbon pricing system contains an exemption for heating oil and propane.

Comments on the variations in OBPSs put forward in Ontario, New Brunswick, and Alberta

Type of emissions intensity standard used: facility versus sector-based

Sector-specific standards are expressed as a percentage of the average emissions intensity for a sector. Facility-based standards are expressed as a percentage of historical emission intensity of individual facilities. Hence, sector-specific standards are more effective at reducing emissions and incentivizing innovation than facility-based standards. New Brunswick's system uses facility-based standards. Ontario's system relies more heavily on facility-based standards than the federal system. Ontario has set sector-specific standards for 13 industrial activities and facility-based standards for about 80 facilities. Under federal OPBS, sector-specific standards were used for 193 of the regulated facilities and facility-based standards were used for 24 facilities.[51]

Emissions intensity standard value

The emissions intensity standard is used to determine the portion of emissions subject to the price for a given facility. The federal system has set 80% standards for 42 sectors, 90% standards for 19 sectors, and 95% standards for 14 sectors. This means that the majority of sectors under the system will pay the price on pollution on 20% of their emissions. New Brunswick's system sets a 99% standard for industry and electricity in year one, with an annual tightening rate of 1% for industry until 2030 and a tightening rate of 1% for electricity for year one. Ontario's system sets a 95% standard for natural gas, and a 98% standard for most activities applicable to combustion emissions, and a 100% standard for all process emissions.

While Alberta's OBPS is stronger than New Brunswick's and Ontario's, the Technology Innovation and Emissions Reduction (TIER), accepted by the federal government and effective as of January 1, 2020, is weaker than the system for heavy emitters established under the previous Alberta government. TIER is weaker than the federal system insofar as it relies more on facility-specific benchmark, instead of product benchmarks, and sets a weaker starting standard of 90%. Overall, TIER was a step backwards for Alberta.

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Annex 2 Comments previously shared with ECCC in our submission on the OBPS draft regulations

To set output-based standards for each regulated activity, the federal government has proposed an initial starting point and implemented a three-phased approach to assessing competitiveness risks to large emitters, providing additional relief by when warranted by analysis. The federal government adopted the Government of Alberta's thresholds approach (used in the CCIR) which calculates a value for the sector's emissions intensity (EI) and for trade-exposure (TE), both expressed as a percentage.

Results of the three-phased approach are summarized as follows:[52]

- *The vast majority of the 38 industrial activities across 23 sectors with 74 output-based standards included in the system will face a standard set at 80% of their sector's weighted average emissions intensity.*
    - According to a document shared at the September 13, 2018 multistakeholder working group, the federal government's approach is to adjust the standard when the combination of the EI and TE values place the sector in the "high" risk category on a grid (where the x axis is TE and the y axis is the EI). Accordingly, only sectors at high risk at 70% in phase 1 or phase 2 should have seen their standard adjusted to 80% after phases 1 or 2 (with the possibility of further adjustment if justified by analysis in phase 3). We note, however, that the federal government's "Overview of Assessment Approach" document only included the results (i.e. the EITE grid) for a limited number of sectors and based on the assumption that the output-based standards equal 80% weighted national average emission intensity.53
    - The "Overview of Assessment Approach" document indicates that at an output-based standard of 80%, only cement, iron and steel mills, lime and nitrogen fertilizers fall under this category in phase 1. No sector is in this category in phase 2. Food processing, gold and silver mining, copper, nickel, lead, and zinc mining, coal mining, potash, iron ore mining and pelletizing, base metal smelting, diamond mining, other metal ore mining all fall in the "low" risk category under phase 1 and natural gas, other mining, food, beverage and tobacco, primary metal manufacturing, non-metallic minerals, chemicals, plastics and rubber manufacturing, and paper manufacturing also fall in the low category. These results suggest that these sectors, and possibly others not absent for the document, received more relief than warranted by analysis. Sectors that cannot demonstrate material competitiveness pressures should face the full carbon price. While we understand and respect the need for the

GoC to maintain the confidentiality of proprietary data obtained through non-disclosure agreements with industry, more transparency with aggregated data and the modelling should have been provided to allow participants to scrutinize adjustments to the OBPS.

- *The standards for the cement and lime sectors were adjusted from 90% to 95% given the higher risks of competitiveness impacts and leakage from carbon pollution pricing.* (results of phase 3)
- *The standard for petrochemicals will be set at 90%.* (results of phase 3)

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Annex 3 Quick reference: Electricity under the output-based pricing system regulations

Coal or converted coal-to-gas plant

Year	CO_2e tonnes/ GWh
2019	800
2020	650
2021	622
2022	594
2023	566
2024	538
2025	510
2026	482
2027	454
2028	426
2029	398
2030 and beyond	370

New natural gas plants

Year	CO_2e tonnes/ GWh
2021	370
2022	329
2023	288
2024	247
2025	206
2026	164
2027	123
2028	82
2029	41
2030 and beyond	0

Diesel plants

CO_2e tonnes/ GWh
550

Existing natural gas plants

CO_2e tonnes/ GWh
370