

Design Principles for B.C.'s Output-Based Pricing System

Comments and recommendations

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Regarding: Technical Backgrounder—B.C. Output-Based Pricing System

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The Pembina Institute, Clean Energy Canada, and the David Suzuki Foundation welcome the opportunity to provide input on the development of a B.C. Output-Based Pricing System (OBPS). This policy, in conjunction with others like the forthcoming 2030 methane regulations, net-zero new industry policy, and oil and gas emissions cap, is essential for meeting B.C.'s 2030 and 2050 climate targets.

Summary

We commend the B.C. government for proposing a stringent OBPS to align with near- and long-term climate targets. We generally support the proposed system, and offer the following recommendations:

- **Alignment with climate targets:** The stringency of the OBPS should be designed to achieve emissions reductions in line with B.C.'s sectoral climate targets and a 40% economy-wide reduction by 2030.
- **Data transparency:** The government should publish emissions intensity data aligned with the proposed benchmarks for transparency and track progress against B.C.'s climate targets.
- **Recognition of early action:** The OBPS should recognize industries that have taken early action and meaningfully reduced their emissions in the last 10 years by using older reference years or establishing benchmarks that recognize early action.
- **Accommodation of industrial decarbonization pathways:** Benchmarks should take into account the feasible decarbonization pathways available to sectors. For instance, where industries are largely reliant on CCS or transmission expansion, both requiring significant infrastructure investments beyond the facility, consideration should be given to how the benchmark is applied to the industry.

- **Carbon leakage** The government should consider exempting industrial process emissions from highly exposed EITE sectors (cement, aluminum, chemical processing, lime) for a limited amount of time while CCS transport and storage infrastructure is built out in B.C. When access is available, industrial process emissions should no longer be exempted.
- **Offsets:** The use of offsets in the OBPS should be regularly reviewed to ensure alignment with B.C.'s net-zero targets. No offsets from voluntary carbon markets should be eligible.
- **Scope:** We support that compressor exhaust emissions from upstream oil and gas production be included in the scope of this pricing system, and a clear policy approach is needed to address compressor engine exhaust, including improved quantification methods and reporting requirements. We also recommend that any hydrogen plants producing hydrogen from fossil fuels should be considered as part of the oil and gas sector, and subject to relevant new policies and regulations including the OBPS.
- **Opt-in:** We recommend that multiple small conventional oil and gas facilities be allowed to opt in to OBPS coverage as an aggregate.
- **Carbon removal:** Facilities that use carbon removal technology on biomass CO₂ emissions should have a mechanism to get credit for those actions, either through offsets or earned credits.
- **Carbon revenues:** Revenues raised by the OBPS should be allocated to promote R&D for technology to reduce hard-to-abate industrial emissions, clean electricity infrastructure, and carbon management. We recommend that a modernized CleanBC Industry Fund become the mechanism to disperse carbon revenues from the OBPS to support industrial decarbonization and should be allocated no less than \$200 million annually.
- **Support for demand-side policies:** Alongside their review of the B.C. OPBS, the B.C. government should increase the scope and ambition of its buy-clean policies.

Stringency

We commend the B.C. government for proposing a comparatively stringent OBPS, and are generally supportive of the proposed OBPS framework. Ultimately, this OBPS and its benchmarks should be designed to achieve emissions reductions in line with B.C.'s sectoral climate targets and a 40% economy-wide reduction by 2030.

The 50% emissions reduction factor for most products is more stringent from the outset than the federal OBPS or Alberta's TIER, and means that 50% of emissions will have a cost when implemented. When combined with the proposed 2% annual tightening rate (from the 50% baseline, ie. 50% in 2024, 52% in 2025, 54% in 2026) this means that 100% of emissions from most industrial sectors will have a cost by 2049.

However, more clarity regarding the impacts of this proposed level of stringency on different sectors is critical. The OBPS benchmarks should be set at such a level, and on such a trajectory, that they help achieve B.C.'s emissions reduction targets while taking into consideration the impacts that they will have on the competitiveness of certain industries.

We recommend that **B.C. publish emissions intensity data aligned with the proposed benchmarks** for transparency and to track progress against B.C.'s climate targets. Data should allow stakeholders to assess the performance of facilities against the benchmarks, similar to what was done in Alberta under the Specified Gas Emitters Regulation.¹

The technical backgrounder proposes setting benchmarks based on emissions data collected via CIIP from 2019-2021. For some sectors and products, this data will be representative of both emissions intensity and the forward-looking feasibility of emissions reductions. However, the use of very recent data will punish first movers. Firms and sectors that invested in emissions reductions prior to 2019 and that have few other immediate options will be subject to a more stringent benchmark than sectors that have not yet meaningfully invested in decarbonization. For instance, cement plants have made consistent improvements in fuel switching and efficiency, but will require other options like carbon capture to address industrial process emissions.

We recommend some flexibility in terms of which data informs these benchmarks; for instance, by allowing some facilities to use longer-term emissions data from B.C.'s industrial greenhouse gas reporting, if those facilities have meaningfully reduced their emissions in the last 10 years. Additionally, the benchmarks **should take into account the feasible decarbonization pathways available to sectors.** For instance, where industries are largely reliant on CCS or transmission expansion (like cement production), both requiring significant infrastructure investments beyond the facility, consideration should be given to how the benchmark is applied to the industry.

Carbon leakage

Concerns about carbon leakage—where emissions-intensive industries face competitiveness pressures due to the cost of complying with climate legislation that is more stringent than in other jurisdictions—are common, as not all climate policies internationally are created to be equivalent.

¹ Government of Alberta, “Specified Gas Emitters Regulation : 2015-2017 data.”
<https://open.alberta.ca/publications/specified-gas-emitters-regulation-2015-2017-data>

However, the empirical evidence for carbon leakage is limited under existing climate legislation.² The Ecofiscal Commission found in 2016 that 2% of B.C.’s economy was considered “more exposed” to competitiveness pressures, and these pressures largely affected extremely emissions-intensive sectors like cement, aluminum production, and lime production. The Commission’s analysis was based on a \$30/tonne carbon price; however, their modelling also showed that competitiveness pressures increases only slightly as the carbon price increases—at a \$120/tonne carbon price, 9% of B.C.’s economy would be considered “more exposed.”

In the context of the proposed OBPS, exposure to the full carbon price can be mitigated if it is feasible to reduce emissions on-site. Limited compliance flexibilities and the investment of carbon revenues back into clean technology (discussed below) can also mitigate leakage concerns. Additionally, as proposed in the technical backgrounder, EITE sectors with high competitiveness pressures and fewer decarbonization options would be subject to a less stringent emissions reduction factor.

A limited number of sectors are considered highly emissions-intensive (especially industrial process emissions) and trade-exposed, and so we support higher reduction factors for those sectors; although we would need to evaluate those factors in the context of each sector’s emissions profile and decarbonization options. Industrial process emissions, like those from chemical reactions, likely need to be addressed via CCUS, for which transport and storage infrastructure is not yet established in B.C. **We recommend that the government consider exempting industrial process emissions from EITE sectors with a high proportion of these non-combustion emissions (cement, aluminum, chemical processing, and lime, as identified in the technical backgrounder) for a limited amount of time while CCS transport and storage infrastructure is built out in B.C.** B.C. should commit to clear timelines to provide access to CO₂ storage in different regions of the province, starting with the Northeast, and when access is available, industrial process emissions should **no longer be exempted** at facilities in those regions.

² Michael Grubb et al, “Carbon leakage, Consumption, and Trade,” *Annual Review of Environment and Resources*, vol. 47 (2022). <https://www.annualreviews.org/doi/abs/10.1146/annurev-environ-120820-053625>

Stefano Verde, “The Impact of the EU Emissions Trading System on Competitiveness and Carbon Leakage: The Econometric Evidence” *Journal of Economic Surveys* (2020). <https://onlinelibrary.wiley.com/doi/abs/10.1111/joes.12356>

Justin Caron, “Empirical evidence and projections of carbon leakage” in *Handbook on Trade Policy and Climate Change*, ed. Michael Jakob (2022).

Canada’s Ecofiscal Commission, *Provincial Carbon Pricing and Competitiveness Pressures* (2016). <https://ecofiscal.ca/reports/provincial-carbon-pricing-competitiveness-pressures/>

Compliance mechanisms

We support the proposed maximum 30% combined compliance unit usage in B.C., and also support the proposal that the direct compliance charge is set at the full carbon price for a given year.

These compliance mechanisms will incentivize on-site emissions reductions that are less costly on a per-tonne basis than the escalating carbon price. Other types of emissions reductions—like those that require off-site infrastructure—could be addressed through revenue recycling, as we discuss below.

Offsets

Previous independent evaluations of offset scheme outcomes have documented serious issues regarding additionality, permanence, verifiability and double-counting across a range of offsetting protocols, especially in voluntary offset markets. Including offsets as a compliance tool within B.C.'s net-zero new industry policy, while reducing compliance costs, could jeopardize the attainment of climate objectives. It could inadvertently discourage the necessary investment in direct emission reductions and lead to a net increase in emissions if the offset projects underperform or suffer from reversals. Thus, we urge a precautionary approach, a limit on the percentage of emissions that can be met via B.C.'s regulated offsets, and careful monitoring. **We support the proposal that only offsets verified through the B.C. offset protocols are eligible as a compliance option**, with the potential to assess linking with other Canadian carbon pricing system offset protocols in the future. No offsets from voluntary markets should be eligible in the B.C. OBPS.

As advised by the Climate Solutions Council in 2020 we recommend that:

- Offsets should represent additional, permanent, verifiable, and quantifiable emissions reductions
- Offset ownership must be enforceable and undisputed to ensure that offset program integrity is maintained
- Offsets should provide co-benefits that assist with the reconciliation and self-determination of Indigenous peoples or assist with other equity and inclusiveness goals
- Offsets must be limited in their role to meet climate targets, in order to prioritize onsite emissions reductions
- Emissions reductions from offsets should be discounted to reflect issues with ensuring additionality
- B.C. should not participate in carbon markets without assurance that human rights and the rights of Indigenous peoples will be protected

We recommend that the use of offsets in the OBPS be regularly reviewed to ensure alignment with B.C.'s net-zero targets.

Scope

- We support including compressor exhaust emissions from upstream oil and gas production in the scope of the B.C. OBPS. Compressor exhaust is B.C.'s largest methane emissions source and is also the most challenging to address. There is a large gap between compressor emissions in B.C.'s methane model, which includes up-to-date science on methane emissions, and industry reported values. B.C.'s model shows 2021 methane emissions from compressor exhaust and flares to be 1.32 Mt CO₂e, while industry reported data shows 0.37 Mt CO₂e from those source categories. We recommend that B.C. update its quantification methods to eliminate this gap.
- B.C.'s Hydrogen Strategy identifies low-carbon hydrogen as having a role in meeting the province's climate targets. We recommend that any hydrogen plants producing hydrogen from fossil fuels should be considered as part of the oil and gas sector and subject to relevant new policies and regulations including the OBPS and the Net-Zero New Industry policy. Given that fossil fuel-derived hydrogen facilities can achieve a 95% capture rate with CCUS, we recommend that they are also subject to accelerated 2030 net-zero requirements under the Net-Zero New Industry policy, similar to LNG.³
- We recommend that multiple small conventional oil and gas facilities be allowed to opt into OBPS coverage as an aggregate.
- Regarding biogenic CO₂ emissions: benchmarks for pulp/wood products will be set as if they had no biomass CO₂ emissions at all, because nearly all of those emissions are absorbed back into the carbon cycle by biomass regrowth.⁴ Facilities that use carbon removal technology on biomass CO₂ emissions should have a mechanism to get credit for those actions, through either offsets or earned credits.

Carbon revenues

Given the initial stringency of the OBPS as proposed in the backgrounder, the B.C. government will raise significant revenues through this system. The B.C. government should clarify its objectives regarding the recycling of these carbon revenues and codify those objectives in the

³ Jan Gorski, Karen Tam Wu, Tahra Jutt, *Carbon intensity of blue hydrogen production* (Pembina Institute, 2021), <https://www.pembina.org/pub/carbon-intensity-blue-hydrogen-production>

⁴ Deloitte and B.C. Centre for Innovation and Clean Energy, *B.C. Carbon Management Blueprint* (2023). <https://cice.ca/knowledge-hub/bc-carbon-management-blueprint-report/>

legislative amendments for the *Greenhouse Gas Industrial Reporting and Control Act* for the creation of the OBPS.

There is already a forum for investing in the development, trial, and deployment of projects that reduce GHG emissions from large industrial operations through the CleanBC Industry Fund (CIF), although more details are needed on how the CIF will evolve to support the new OPBS. We recommend that **a modernized CIF become the mechanism to disperse carbon revenues from the OBPS to support industrial decarbonization** (as opposed to having such a program funded through general revenues). No less than \$200 million should be allocated to this fund annually, based on preliminary calculations of potential revenues from the OBPS and in recognition of the substantial capital investment needed for decarbonization.⁵ Additionally, this funding should require recipients to advance environmental, social, and economic objectives in step with B.C.'s climate targets.⁶ To ensure predictable and consistent program funding, it may be necessary to top up this fund from general revenues from time to time.

We recommend that a portion of the revenue raised by the OBPS be allocated to promote R&D for technology to reduce hard-to-abate industrial emissions. Investing in technology was identified by the Ecofiscal Commission in 2016 as a method of carbon revenue recycling that could help build consensus around long-term carbon pricing and reduce the costs of installing emissions reduction equipment; it is likely to lead to more emissions reductions than other types of revenue recycling.⁷ This type of re-investment would also complement other climate policy developments in B.C.—in particular, the Net-Zero New Industry policy, which requires new industrial facilities to have a credible plan for net-zero operations by 2050.

The British Columbia Regional Energy Tables have identified several areas where additional investment and collaboration is key to meeting climate targets and kick-starting B.C.'s low-carbon economy, which should guide the allocation of revenues for technology development. **Revenues from the OBPS could be used to support carbon management development—for example, CCS pipeline and storage infrastructure for sectors with high industrial process emissions.** This is critical because several sectors (for example, cement production) have

⁵ The current BC Program for Industry had \$143 million allocated in the 2023/24 Budget (when the headline carbon price was \$50/tonne); however, the OBPS as proposed would raise significant revenue both due to stringency of proposed benchmarks and as the headline carbon price increases, justifying a higher allocation annually.

⁶ Vanessa Corkal, Philip Gass, Aaron Cosbey, *Green Strings: Principles and conditions for a green recovery from COVID-19 in Canada* (IISD, 2020). <https://www.iisd.org/publications/green-strings-recovery-covid-19-canada>
Green Budget Coalition, *Preliminary Recommendations for Budget 2024* (June 2023), <https://greenbudget.ca/recommendations/>

⁷ Ecofiscal Commission, *Choose Wisely: Options and Trade-offs in Recycling Carbon Pricing Revenues* (2016). <https://ecofiscal.ca/reports/choose-wisely-options-trade-offs-recycling-carbon-pricing-revenues/>

identified carbon capture as a key decarbonization solution; however, most of the large emissions sources are a long way from their best potential storage in northeast B.C.⁸ Aside from the need for meaningful Indigenous engagement, this infrastructure must create opportunities for Indigenous communities, including for Indigenous ownership, potentially with supportive financing from government.

The government could also explore **utilizing a portion of these carbon revenues to invest in clean electricity infrastructure**. The Regional Tables identified that clean electricity will be essential for both decarbonizing existing industries and supporting new sectors that are essential to the energy transition, including green hydrogen or critical minerals.⁹ As such, a portion of the revenues from the OBPS should be allocated to supporting the clean economy, through investing in clean electricity, to generate additional emissions reductions and support B.C.'s efforts to establish a prosperous net-zero economy.

Support for demand-side policies

Any industrial carbon pricing system should be designed to work in harmony with existing decarbonization policies and practices, so that it maximizes its potential to lower carbon emissions. Policies that drive demand require equal attention to policies that are aimed at supply.¹⁰

One crucial lever is the use of low-carbon government procurement, or BuyClean policies. These can ensure substantial markets that demand lower-carbon industrial materials, and that are willing to pay a premium price that covers the higher cost of decarbonized products. Buy-clean policies can further assist in attenuating the risk of carbon leakage by rewarding firms with production facilities where stringent climate policies avail and that have made investments to reduce emissions intensity.

Fortunately, the B.C. Government has already made some important progress in this space. In its climate plan, the Government of British Columbia committed to developing a Low Carbon

⁸ Geoscience B.C., *Northeast BC Geological Carbon Capture and Storage Atlas* (2022). <https://www.geosciencebc.com/projects/2022-001/>

B.C. Carbon Management Blueprint

⁹ Natural Resources Canada, *British Columbia Regional Energy and Resource Table - Framework for Collaboration on the Path to Net-Zero* (2023). <https://natural-resources.canada.ca/climate-change/regional-energy-and-resource-tables/regional-energy-and-resource-tables-british-columbia/25094>

¹⁰ Felix Whitton et al, *Decarbonizing Industry in Canada and the G7* (Clean Energy Canada, 2023). <https://cleanenergycanada.org/wp-content/uploads/2023/05/WhitePaper-CanadaG7HeavyIndustry-v4.pdf>

Building Materials Strategy by 2023, which would initially emphasize public sector buildings and set embodied carbon targets for public sector buildings by 2030.¹¹

Already since 2007, the government of B.C. has required new public sector buildings to be certified as LEED Gold.¹² The current LEED standard allows developers to earn points towards that certification by using lower-carbon materials, such as timber or Portland limestone cement.

Alongside its review of the B.C. OPBS, the B.C. government should increase the scope and ambition of its buy-clean policies. Such a move can make industrial decarbonization faster and more economically sustainable and increase support for industrial carbon pricing across industry.

¹¹ CleanBC, *Roadmap to 2030* (2021). https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf

¹² B.C. Ministry of Environment and Climate Change Strategy, *LEED and Low Carbon Building Materials* (2017). <https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/resources/lcm-comprehensive-guide.pdf>