

Aug. 2, 2019

Environment and Parks, Government of Alberta

Sent via email to engagement@gov.ab.ca

Re: Pembina Institute comments on the proposed Technology Innovation and Emissions Reduction (TIER) system

To whom it may concern:

The Pembina Institute is thankful for the invitation to share our views on the Government of Alberta's recently released *discussion document on the proposed technology innovation and emissions reduction system*. We are encouraged to see the Alberta government acknowledge the role of pricing pollution to reduce harmful emissions and build a competitive economy by proposing to create a system that sets a price signal through performance standards for heavy industry. However, we are disheartened by the intention to weaken a very strong existing system, the Carbon Competitiveness Incentive Regulation (CCIR). CCIR was developed via thorough engagement with a diverse group of stakeholders including industry, academics, experts and environmental groups. CCIR is a strong carbon-pricing system designed to align the goals of the policy with incentives for facilities to reduce emissions, while preserving competitiveness. CCIR is one of the leading carbon-pricing systems for industry in North America and sets a high standard for how to price carbon in a jurisdiction with a large oil and gas sector. The federal carbon pricing backstop was modelled on Alberta's leading approach, which also influenced the design of B.C.'s system.

General comments

Alberta's oil and gas sector remains the fastest-growing source of carbon emissions in Canada, as rapidly expanding production more than offset the per-barrel improvements. Canada has committed to reduce GHG emissions by 30 per cent below 2005 levels by 2030. The latest Environment and Climate Change Canada emissions report projects the oil sands emissions will have tripled to 106-megatonnes by 2030 from 2005 levels, and would account for more than 20 per cent of Canada's 512-megatonne target. The Government of Alberta must show how it plans to do its fair share to address climate change in a meaningful way to meet Canada's commitments and show we can address climate change before the worst of its affects impact our society.

Unfortunately, Alberta's proposed TIER system is a step in the wrong direction. The TIER system would disrupt the investment landscape, create policy uncertainty, and provide a significantly weaker signal to industry to reduce emissions than is currently provided by the

CCIR. Lowering ambition of a recently implemented and well-designed policy that meets the dual objective of reducing emissions while protecting competitiveness would not benefit industry, nor Albertans.

Design principles for a price system for heavy emitters

Well-designed carbon-pricing systems can ensure industries and economies are more, not less, competitive in the long run. We support Alberta's three principles of supporting competitiveness, encouraging innovation and continuous improvement. Based on our experience engaging in the development of similar systems in Alberta, British Columbia and at the federal level, systems that are well designed will adhere to the following principles:

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. Any shift from sector-based benchmarks to facility-based benchmarks should be justified.
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.^{1,2}

Benchmark design

In the spirit of the government's principles of supporting competitiveness, encouraging innovation, and continuous improvement, performance standards should be based on national best-in-class performance for each sector in terms of emissions intensity. This will create a level playing field for heavy emitters across the country and drive regulated facilities toward

¹ Climate Leadership Team, *Recommendations to Government* (2015).

http://engage.gov.bc.ca/app/uploads/sites/116/2015/11/CLT-recommendations-to-government_Final.pdf

² Canada's Ecofiscal Commission, *Provincial Carbon Pricing and Competitiveness* (November 2015),

<https://ecofiscal.ca/wp-content/uploads/2015/11/Ecofiscal-Commission-Carbon-Pricing-Competitiveness-Report-November-2015.pdf>.

best-in-class performance. We recommend a starting point of a best-in-class benchmark for each sector standard subject to additional relief based on credible analysis of leakage risks. Such a design maintains a financial incentive for all firms to continue to innovate and invest in reducing emissions below the benchmarks.

Sector- vs facility-based benchmark: Alberta proposes facility-specific product benchmarks, equal to 90 per cent of their average 2016 to 2018 emissions intensity, with a one per cent per year tightening rate. Facility based benchmarks should be avoided because they are unfair and inefficient at driving sector wide shifts. Such a system gives high limits to facilities with high emissions and low limits to facilities with low emissions. Effectively, facility based benchmarks penalize facilities that have taken steps to reduce their emissions, while rewarding laggards. We strongly urge Alberta to keep sector-based benchmarks to provide clear incentives for low-carbon production, reward top performers, and provide incentives for new facilities to adopt the best technologies available.

Should Alberta choose to adopt facility-based benchmarks, we recommend that their use be limited to sectors with specific concerns about the impact of sector benchmarks. These concerns need to be analyzed and vetted to ensure that there is legitimate justification. Under this scenario, we support Alberta's proposal to maintain incentives for top performers and new facilities. Top performers should be rewarded while maintaining a signal for continuous improvement by using an ambitious national best-in-class facility benchmark. We also recommend this approach for new facilities, for which facility benchmarks provide the greatest incentive for poor performance.

Baseline year: Alberta proposes to set the baseline years to 2016-2018. Notably, in combination with facility-based benchmarks, this would further penalize facilities that have made investments to reduce emissions prior to 2016. Should facility benchmarks be used, we recommend shifting the baseline back by five years to avoid unfairly penalizing emission-reducing leaders. A shift in baseline will also require a shift in the benchmark stringency or tightening rate to maintain the same level of ambition by accounting for the decline in emission intensities over time.

Stringency and tightening rate: The proposed start point of a 90 per cent benchmark intensity decreasing by one per cent per year is less ambitious than CCIR. Reducing stringency will reduce the signal to companies and investors to innovate and implement low-carbon methods of production. Given that Alberta oil production overall is the fourth most carbon intensive in the world, this reversal of ambition sends the wrong message to industry, investors and poses a significant risk to Alberta's economic future.⁵ The tightening rate is more

⁵ Mohammed S. Masnadi et al, "Global carbon intensity of crude oil production," *Science* 361, 6405 (2018) <https://science.sciencemag.org/content/361/6405/851>

important than the initial benchmark. We recommend increasing the tightening rate to at least two per cent and setting this as the default long-term policy, with a regular review period that examines the tightening rate.

Setting the tightening rate as the long-term policy is critical to providing a long-term signal to investors. Even large oil companies like CNRL are making ambitious commitments to decarbonize their operations.⁴ Long-term signals are needed on the pathway to decarbonization in line with Canada's long-term strategy to reduce greenhouse gas emissions 80 per cent by 2050.⁵

First Year of Compliance for New Facilities: We recommend providing at most a two-year exemption to new facilities, combined with a sector-based benchmark for new facilities. A shorter exemption period provides earlier incentives for reducing emissions.

Addressing competitiveness concerns: There may be cases where adjusting the policy stringency to address competitiveness concerns is appropriate. Competitiveness concerns should be addressed using the framework and criteria that was used for CCIR, which was also used for the federal system. Provincial and federal carbon pricing systems must be taken into account when addressing competitiveness, because all jurisdictions within Canada now have a carbon pricing system for industrial emitters. Using this framework, the starting point should be set as the best in class sector benchmark. Additional relief should only be provided if the analysis reveals a sector to be at "high" risk based on its emissions intensity and trade exposure at the initial level of stringency. Additional relief should be provided by increments of 5-10% until the analysis determines the sector is no longer in the "high" risk category.

Electricity

We commend Alberta for maintaining a "good as best gas" benchmark for the entire electricity sector. CCIR played a significant role in reducing emissions from the electricity sector by over 7 Mt CO₂e from 2017 to 2018.⁶

⁴ Kyle Bakx, "Oil and gas giant sets big target of net zero oilsands emissions", CBC News, July 24, 2019, <https://www.cbc.ca/news/business/cnrl-steve-laut-ghg-net-zero-1.5221740>

⁵ Government of Canada, *Canada's mid-century long-term low-greenhouse gas development strategy* (2016), <https://www.canada.ca/en/environment-climate-change/news/2016/11/canada-submits-century-strategy-clean-growth-economy.html>

⁶ Alastair Sharp, "Alberta's NDP government says emissions reductions prove carbon pricing works," National Observer, February 20, 2019, https://www.nationalobserver.com/2019/02/20/news/albertas-ndp-government-says-emissions-reductions-prove-carbon-pricing-works?fbclid=IwAR2GazM_h4sjPBJ1haaEBZ8F-b2g8oGCjnYfqYsDmL3KOBUDStu4EP8nXks

It should be recognized that electricity fails both tests for inclusion in an output-based pricing system (OBPS). It is not of necessity “emissions intensive,” as low- or non-emitting alternatives exist and are now cost competitive with fossil fuel alternatives. And it is not “trade exposed,” as many jurisdictions have already implemented either explicit carbon taxes on electricity generation, or implicit carbon taxes via policies such as renewable portfolio standards, and also because grid constraints (including the current design of electricity transmission) for replacing massive amount of our power with imported power is not possible. That said, it is important to maintain policy consistency and use the same benchmark as CCIR.

Renewable opt-in: Alberta should seize economic opportunities associated with fostering a strong renewable energy sector that can then compete in global markets as nations step up efforts to decarbonize their economies. Alberta’s recent procurement of wind energy has shown that renewables are cost effective and can compete with fossil fuel generation. Grid optimization (e.g.: energy storage, load shifting, better forecasting) will also greatly reduce the need for gas-fired backup. While natural gas has a limited role to play in the energy transition in fossil-fuel-heavy grids that have limited interconnection capacity, it is important to recall that the GHG merits of natural gas are diminished when considering upstream fugitive methane emissions, especially as recent research shows that these emissions have largely been underestimated and underreported by industry and government. Further, relying heavily on natural gas exposes the electricity market and consumers to price volatility.

As such, we recommend allowing all renewable electricity providers, both new and existing to opt-in to the electricity benchmark. Given the sector-wide approach on electricity, all sources of electricity generation should be treated fairly. Allowing opt-in for renewables creates a level field and equitable incentives for all generation sources. Encouraging renewable electricity development can play a significant role in reducing provincial emissions as Alberta phases out coal-powered electricity.

Tightening rate: Appropriate price signals allow decisions made today to create the electricity grid of tomorrow — one that is consistent with Canada’s commitment under the Paris Agreement, its commitment to reaching 90 per cent clean energy by 2030, and its longer-term decarbonization goals. We recommend a tightening rate of at least two per cent on the electricity benchmark to create a long-term signal to investors that carbon intensity is and will continue to be an important metric in the development of electricity systems in the province. The province should consider increasing the tightening rate in the future to achieve a benchmark of zero by 2030 in the electricity sector. This would send a strong signal to industry on the need to decarbonize the electricity grid.

Indirect emissions

We recommend treating indirect emissions in a similar manner as in CCIR. This will provide incentive for facilities to seek out low emissions sources of electricity and heat, and may help motivate companies to purchase non-utility renewables.

Industrial process emissions and formation CO₂

Industrial process (IP) emissions are currently included under many greenhouse gas emissions trading schemes and carbon levies globally, including Quebec, California, and China. IP emissions are an important source to target for carbon capture, and typically represent a lower cost stream of carbon dioxide compared with combustion sources. Without application of a price to these emissions, there will be less financial motivation to identify and capture low-cost industrial process emission sources and to incent innovation in finding new ways to reduce emissions. Providing full allocations for IP emissions will reduce overall revenues collected, while still requiring special financial programs to incent carbon capture, creating a substantial challenge for development of the technology in Alberta. We recommend including industrial process emissions and formation CO₂ in the benchmarks, especially given the government's focus on carbon capture, utilization and storage. This would maintain consistency with the treatment of these sources under CCIR.

Conventional oil and gas

Benchmarks: We recommend the development of benchmarks for conventional facilities to provide regulatory certainty to these facilities given that they may seek to opt in to CCIR. This is one sector where it may be valid to use facility benchmarks temporarily while the government collects enough data to set sector-based benchmarks. Current facility-level data from small oil and gas facilities has lower accuracy due to the large contribution of methane emissions, which are currently underreported in provincial inventories due to a lack of accurate quantification protocols and lack of coverage for all sources of methane emissions. The use of facility benchmarks should be temporary and limited to a few years to allow the government to collect data to ensure that accurate sector-based benchmarks can be defined.

Emissions scope: Methane emissions should be included because they are some of the most economical reduction opportunities available. Including methane will also allow Alberta to collect quality data on methane emissions at a facility level. We urge Alberta to ensure that quantification-accurate protocols for fugitive and methane emissions are developed as a part of TIER. A specific area of concern is the estimation of venting emissions from cold heavy oil production with sand (CHOPS) facilities. Academic studies have shown that this particular

emission source is grossly underreported. We recommend that Alberta improve protocols for measuring venting of surface casing gas from CHOPS facilities.

Treatment of methane: We recommend that a higher global warming potential (GWP) be used in converting methane emissions to carbon dioxide equivalent. The output-based allocation protects competitiveness even though overall facility emission will be higher when a higher GWP is used. At the same time, a higher GWP gives more incentive to reduce methane and improves the cost effectiveness of the reductions. We recommend using a 50-year GWP which aligns more closely with Canada’s long-term decarbonization goals than a 100-year GWP. The most recent literature states that a 50-year GWP for methane is 57.⁷ Even the updated 100-year GWP of 34 is significantly higher than the current value of 25.

Reporting: To ease the administrative burden, we recommend that companies be allowed to combine reports for multiple facilities, but the report should show emissions at each facility. Allowing companies to combine facilities into one paper facility would cause a loss in the data granularity necessary to develop quality sector-based benchmarks in the future. We recommend that Alberta update reporting requirements to obtain adequate granularity on the major methane emissions sources. These should include, at a minimum, fugitives, pneumatic instruments, pneumatic pumps, storage tanks, surface casing venting, and surface casing vent flows.

Tightening rate: Given that small oil and gas facilities will experience a large change in emission profiles due to methane reductions, we recommend a higher tightening rate scaled to align with reduction targets in the various sectors (natural gas production, processing, light/medium oil, heavy oil). These should be based on Alberta’s commitment to reduction methane emissions by 45 per cent by 2025.

Revenue recycling

We support the use of TIER revenue to fund emissions-reducing technologies. We urge the Alberta government to ensure that use of funding is fair and efficient and results in real reductions across the entire Albertan economy. In addition to using revenue to fund emissions-reduction technology, revenue should be used to invest in future growth sectors that can facilitate the transition to a clean economy, while also providing strategic economic growth opportunities (such as by investing in scientific research, and research and development, for clean-tech solutions); and by investing in projects that yield a demonstrable reduction in carbon pollution (such as green infrastructure, including public transit and energy-efficient public buildings). The following guidelines should be considered when allocating revenue:

⁷ Thomas Gasser et al, “Accounting for the climate–carbon feedback in emission metrics,” *Earth System Dynamics* 8, (2017), 245, <https://core.ac.uk/download/pdf/132092586.pdf>

- Funding should target the most significant, real reductions that would not happen under a business as usual scenario in addition to funding research and development of new technology;
- Funding should be spread out amongst a broad range of sectors to maximize the chance of success and not act as a subsidy for one sector alone. These sectors should include oil and gas, electricity, and energy efficiency;
- Funding should fit into a broader plan for strategic innovation support.

Energy efficiency

We suggest that the Government of Alberta use the revenues collected under TIER to deliver industrial energy efficiency programs. Over 70 per cent of Alberta's energy demand comes from the industrial sector. Strategically managing energy consumption of industrial businesses can reduce operating costs, make Alberta's industries more profitable, and create new job opportunities. Previous residential/commercial energy efficiency programs in Alberta have proven to be rewarding; in only a year of efficiency programs the province's economy grew with the creation of 2,300 jobs, and each dollar invested in energy efficiency returned \$3 in economic benefits. Improving industrial energy efficiency however is complex; energy monitoring and verification is much more technical, industrial processes can be quite unique, and facilities can have varying production schedules leading to a difficulty in estimating the fluctuating energy demand. As a result, industrial energy efficiency presents opportunities for larger industrial-scale savings, and more long-term and higher-paying jobs in the industry.

Examples of industrial energy efficiency programs include: funding for companies to hire a full-time industrial energy manager to help improve energy usage, investment in energy efficiency measures, and long-term tracking of savings; hiring an industrial cohort that brings together industrial customers to work together and share knowledge related to management in their business with the goal of translating insights into changes in daily business operations; and hiring a regional energy manager that works with businesses to identify operational energy efficiency opportunities and introduces businesses to the programs and resources available to help them manage their electricity use. British Columbia's industrial efficiency programs are a great example of best practices in advancing efficient energy use in the industrial sector.

Compliance flexibility and carbon price

The compliance mechanism should offer flexible compliance options toward prioritizing reductions at the facility, and reducing overall costs of compliance for regulated entities while encouraging voluntary (i.e. out of system) emissions reductions. The appropriate combination of the following three compliance options can deliver this outcome:

1. Paying an emissions charge;
2. Submitting OBPS surplus credits;
3. Submitting eligible offset credits.

Comments on specific components of offset system and fund price are outlined below.

Credit expiry

We recommend maintaining the same system for credit expiry as in CCIR. This will ensure that the system will not have a surplus of credits, especially if the portion of emissions covered under the policy decreases, reducing the amount of credits needed.

Credit usage limit

The goal of any compliance flexibility provisions must be aligned with the policy objectives of either generating greater emission reductions or reducing the cost of emission reductions while maintaining the marginal price of the policy. Accordingly, to maintain the incentive on OBPS-regulated entities to reduce facility emissions, **we recommend that Alberta maintain strict limits on the percentage of the total compliance obligation that can be met with credits to match the limits under CCIR.** This is especially important if the stringency of the policy changes creating a shift in ratio of available credits to required reductions.

Carbon pricing vintaging

Rules around banking of surplus credits should be designed with a view to increasing flexibility in the system to lower the cost of emissions reductions or to increase emissions reductions, while maintaining policy stringency and efficiency. Unrestricted banking of surplus credits diminishes the likelihood of these desired outcomes, leading to a less economically efficient policy.

The carbon price ramp in the first years of the OBPS system, which is intended to provide a smooth phase-in of the price, creates the potential for windfall profits that do not contribute to policy goals that must be addressed. New banked credits will appreciate in value much more quickly than a typical market return, because the starting price is low and the price is scheduled to rise by more than typical rates of return. Also, the certainty of this return is high because the price is set exogenously by policy. In cap-and-trade systems, the appreciation of allocations is beneficial as it incentivizes early action, while the firm cap ensures that the targeted emissions reductions are achieved. The OBPS system has no firm cap, so the extent to which the rising value of surplus credits incentivizes additional early action must be weighed against the risk of lowering the marginal price and reducing the economic efficiency of the policy.

The carbon value of a surplus credit should be vintaged to the price at which it was created plus a reasonable rate of return per year. The goal of carbon price vintaging is to retain the full value of the surplus credit without providing windfall profits. See Annex 1 for an example. For a full discussion of our position on credit vintaging, see our 2017 technical note.⁸

Price of carbon

We recommend aligning the initial price on carbon and ramp-up schedule with the federal carbon policy to ensure that Alberta's system meets the minimum benchmark requirements. The price should start at \$30/t CO₂e in 2020, rising to \$40/t in 2021, and \$50/t in 2022.

Compliance cost containment

We do not recommend implementing cost-containment measures because they are a subsidy to high-intensity facilities. These types of measures do not send a strong signal to industry to reduce emissions. In fact, they may send the opposite signal, that if the performance of a facility is close to receiving cost containment, they should reduce performance to capture the subsidy.

Review and update

We adhere to the High Level Commission on Carbon Prices' view that "policy adjustments should be made based on criteria that are transparent and sound: policies should be 'predictably flexible'."⁹ Alberta should have a clear schedule and criteria for reviewing and updating TIER. The reviews and updates should integrate the following elements:

- The evolution of emissions, emission intensities, and production should be monitored so that benchmarks can be adjusted to trigger the required changes — whether it be to increase emissions reductions or reduce leakage risks by adjusting the benchmarks.
- Technology — both cost and diffusion — should be monitored with a view to offer an opportunity to respond to lessons learned and new knowledge.
- The stringency of the benchmarks should increase by a pre-determined schedule, unless otherwise justified by sector-specific competitiveness pressure analysis.

⁸Pembina Institute, *Carbon price vintaging of credits in the Output Based Allocation System* (October 2017), <https://www.pembina.org/reports/technical-note-carbon-price-vintaging-2017-11.pdf>

⁹ High-level Commission on Carbon Prices, *Report of the High-Level Commission on Carbon Prices* (2017), p.4. https://static1.squarespace.com/static/54ff9c5ce4b0a53deccfb4c/t/59b7f2409f8dce5316811916/1505227332748/CarbonPricing_FullReport.pdf

Conclusion

We welcome the opportunity to share with the Government of Alberta our views on carbon pricing.

The authors are happy to discuss any questions.

Contacts

Duncan Kenyon
Regional director, Alberta, Pembina Institute
duncank@pembina.org
c: 403-999-2036
300-9804 Jasper Ave., Edmonton, AB, T5J 0C5

Jan Gorski
Analyst, Pembina Institute
jang@pembina.org
c: 587-586-5730
219-19 St NW, Calgary, AB, T2N 2H9