Oil Sands Transition – Compliance Risk

Regulatory & Policy Environment

Publicly traded companies are no strangers to evaluating the materiality of climate policy and regulatory changes on their business. Further, and under current disclosure requirements, companies must disclose any material effects that compliance with environmental regulations may have on capital expenditure. To date, disclosure has focused on the impact of carbon pricing. For oil sands companies who operate almost exclusively in Alberta, this means understanding the impact of Alberta's Technology, Innovation and Emissions Reduction (TIER) regulation on company operations. Under the TIER system, compliance obligations are determined based on a facility's benchmark(s), which establishes allowable emissions. Facilities have several options to meet compliance obligations: reducing onsite emissions, utilizing offset credits, utilizing performance credits, or paying into the TIER fund. To date the TIER system has not created the regulatory incentive for significant action to reduce GHG emissions largely because the price signal has been so small. In 2020, The Canadian Climate Institute (CCI) conducted analysis on the cost impact of TIER regulation on Alberta oilsands facilities finding Alberta's industrial carbon pricing results in carbon costs of only a few cents to a few dollars per barrel - using Alberta facility data and as a base case, under the 2019 price of carbon (i.e. $30/tonne), the Alberta TIER regulation resulted in an average cost of $0.18/bbl. Additional analysis by CCI on changes to the federal benchmark shows that the total impact of compliance obligation will remain at a fraction of the posted carbon price despite the proposed changes that close some regulatory loopholes.

Materiality Check

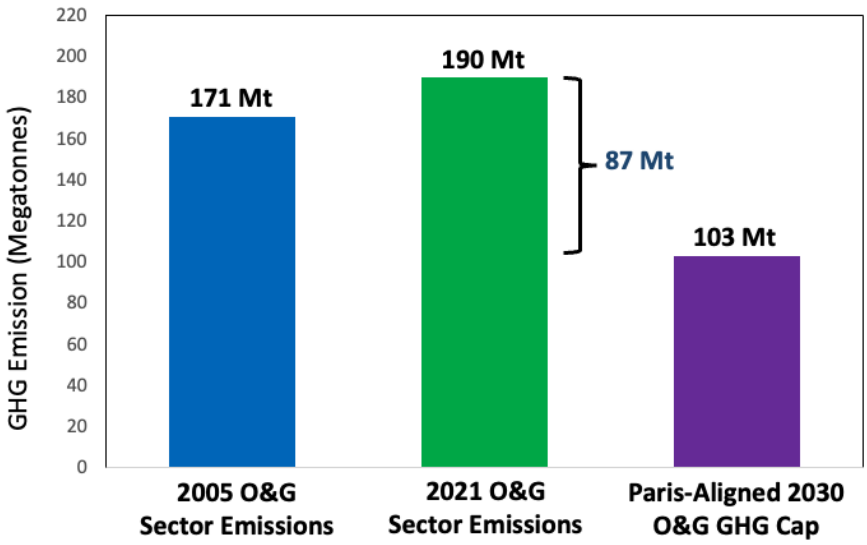
While the TIER large emitter regulation does not currently represent a material risk to ongoing oil project operations in Alberta, the federal government's sectoral specific cap on GHG emissions certainly could. Design details of the emissions cap are still being discussed with stakeholders[1] however the goal of this program is to identify emissions caps in 5-year increments with a proposed 2030 reduction of 45% off a 2019 baseline and reaching net zero emissions in 2050. Central to these discussions is the *trajectory* of the emissions cap to 2050. A front-loaded approach, for example, would ensure that oil and gas emission caps are in alignment with the new Canada Nationally Determined Contribution (NDC) of 40-45% below 2005 levels by 2030.

As a sector, oil & gas GHG emissions were 171 Mt in 2005. To align with the Paris target and Canada's new Canada Nationally Determined Contribution (NDC) of 40-45% below 2005 levels by 2030, the oil & gas sector would therefore have to reduce emissions to at least 103 Mt by 2030 (i.e., a "cap" of 103 Mt by 2030). An emissions cap for the sector above this level would require other portions of the economy to reduce their emissions even further to make up for the shortfall.

[1] The federal Minister of Environment and Climate Change (ECCC) has committed to publish the draft regulation in Spring 2023.

This would mean the oil and gas sector would need to reduce absolute GHG emissions by roughly 87 Mt by 2030 (see Figure 1 below) from estimated 2021 emissions levels[2] or 68 MT (roughly 40%) from 2005 levels.

Figure 1: Potential trajectory of oil and gas sector GHG emission reduction caps to net-zero GHG emission by 2050.



A reduction of 87 Mt by 2030 is both material and a significant challenge as some abatement options require seven or more years to develop due to project complexity and high abatement costs. To comply with a Paris-aligned GHG emission reduction obligation, oil and gas companies would either need to significantly reduce absolute facility GHG emissions, or potentially pursue other compliance mechanisms such as the sourcing of recognized, credible and verifiable carbon credits. Both compliance pathways come with a high price tag as abatement projects increase capital costs and the purchase and use of credits to meet regulatory compliance obligations will increase operating costs.

Considering the magnitude of GHG emission reductions needed for the sector to meet Paris aligned targets and, ultimately, reach net-zero emissions by 2050, the proposed regulation will likely have significant direct cost impacts on upstream oil production in Alberta and could usher in an era of increased regulatory and compliance risk. The level of impact will be determined, to a certain extent, by the number of low-cost marginal abatement options available to the sector.

Marginal Abatement Options

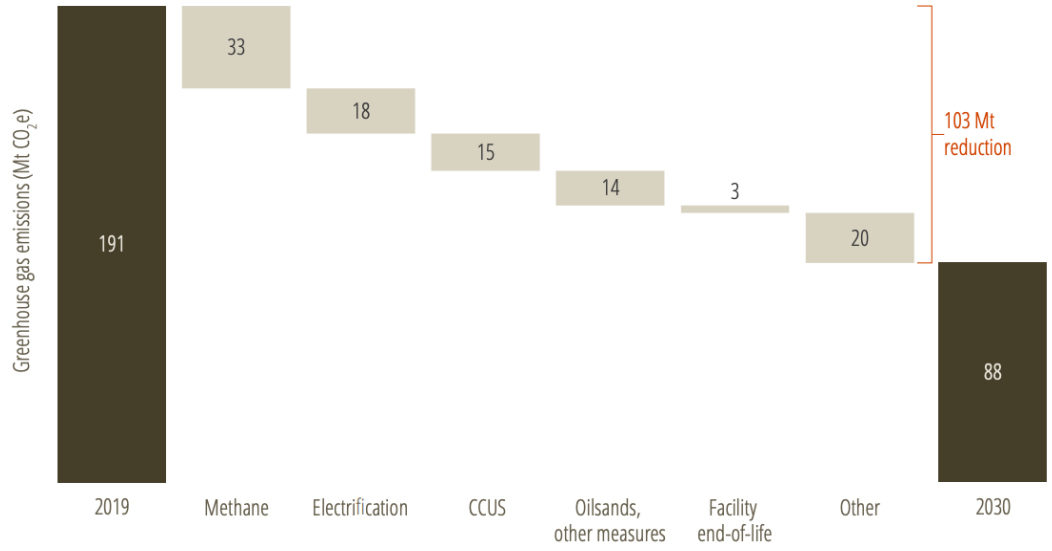
As part of its consultation on the proposed oil & gas GHG emissions cap, the federal government has published a discussion document that identifies several decarbonization opportunities that could be available to oil and gas proponents. These opportunities include:

[2] Using CCI early estimate of national GHG emissions for 2021 Available via link here as ECCC is not expected to report 2021 GHG emissions until Spring 2023

- **Methane abatement**- addressing fugitive emissions and leaks & switching-out of pneumatic devices.
- **Carbon capture and storage**- permanent geologic storage of CO_2 emissions.
- **Electrification**- deployment of cogeneration and non-emitting electricity sources.
- **Fuel switch opportunities**- replacement of high carbon-intensity energy sources.
- **Energy efficiency and process improvements**- upgrades to equipment and processes.
- **Steam displacement**- use of solvents rather than steam in in-situ projects.

To understand the emission impacts of these abatement options more fully, the Pembina Institute (Pembina) published a report identifying GHG reduction opportunities for the oil & gas sector in Canada. While the list of abatement opportunities is very similar to those published in the federal discussion document, Pembina has highlighted methane reductions, electrification, carbon capture and storage as the key abatement opportunities available to the sector. As demonstrated in figure 2, Pembina estimates the opportunity for the sector to achieve as much as 103 Mt in GHG reductions by 2030 if these abatement projects are deployed, in aggregate, across the sector. If realized, these emission reductions would cut sector emissions by more than half and would allow the sector to deliver GHG reductions in-line with the national Paris Agreement commitment.

Figure 2: Potential to reduce GHG emissions from oil and gas sector by 2030.



Source: The Pembina Institute 2022

Higher Compliance and Competition Risk for Oilsands?

It is worth highlighting a couple of areas that are likely to increase the risk profile for oil sands operators specifically. First, even within the oil and gas sector itself there are material disparities in terms of low-cost emission reduction opportunities. Abatement projects like carbon capture utilization and

storage (CCUS) are largely unproven when applied to oil sands production and are likely to take seven or more years to develop due to project complexity and high abatement costs. Therefore, final financial decisions and approvals are imminently required if these projects are going to meaningfully contribute towards meeting a 2030 GHG target. Consequently, and to date, emission reductions within the oil and gas sector have relied primarily on lower marginal cost abatement opportunity areas such as methane reductions. These reductions have largely come from conventional oil and gas players and, as figure 2 above shows, this will likely continue to be the case for the remainder of the decade. Taken together, and as noted in figure 3 below, oil sands players will be unable to make significant contributions to meeting the cap on the front end and will, therefore, require a heavier lift post-2030 to meet net zero by 2050.

Figure 3: Potential emissions reduction trajectory for oilsands based on a cap and decline from 2019 emission levels

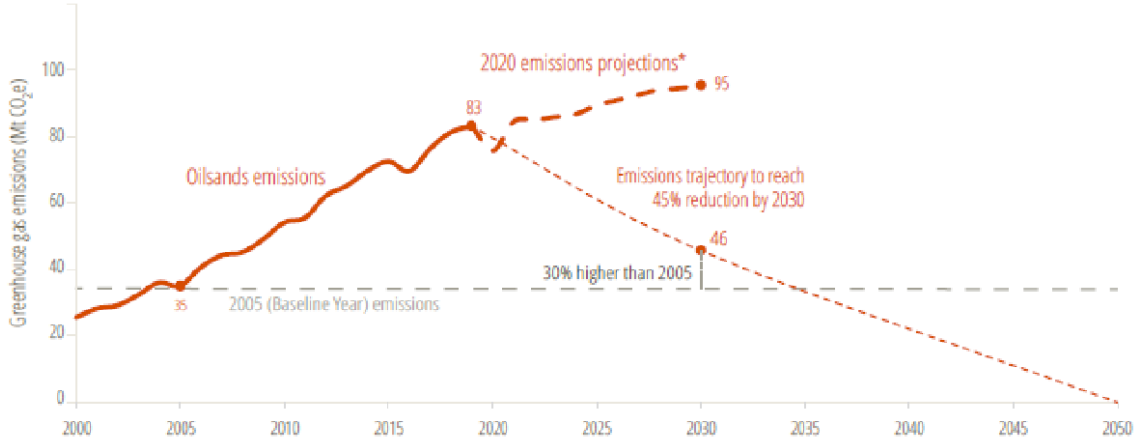


Figure 1. Potential emissions reduction trajectory for oilsands based on a cap and decline from 2019 emissions levels

Data source: ECCC[7]

* This projection is based on the old climate goal of reducing emissions only by 30% by 2030 which depended on larger emissions reductions from all other sectors. New projections are expected to be published by ECCC in April/May 2022.

Source: Pembina Institute – Getting on Track report

Secondly, and as the world looks to reduce global emissions, this approach will not be unique to Canada. The oil and gas sectors in other nations will also pursue opportunities with the lowest marginal cost of abatement. Seen through this lens, the oil sands sector has a competitiveness challenge as its GHG abatement disadvantage relative to its peers (both within and outside of Canada) elevates the risk profile even more for oil sands operators attempting to remain competitive in a carbon constrained world.