Direct Compliance Costs of Federal Climate Policies in Saskatchewan

Prepared by the Ministry of Finance

Saskatchewan

Overview

This analysis provides a summary of the estimated direct costs in Saskatchewan of complying with nine of the federal government's current and proposed climate change policies that are most relevant to the provincial economy and households over the period 2023-2035.

The federal government has proposed additional climate policies that will also impact Saskatchewan's economy and Saskatchewan households outside of the policies considered in this analysis.

Most notably, this direct compliance costs analysis does not include the impact of the federal government's proposed Clean Electricity Standard, which would require the elimination of conventional fossil fuel produced electricity in Saskatchewan by 2035. SaskPower has stated it is not possible to meet this target, given the sources of electricity generation available at a commercial-scale in the province by 2035.

Impacts

- The nine federal climate change policies outlined in this analysis are estimated to have a total cumulative direct compliance cost to Saskatchewan households and industries (including Crown Corporations) of $111.3 billion from 2023 through 2035.
- The annual direct cost of complying with federal policies in 2035 is $16.0 billion or approximately 14 per cent of Saskatchewan's forecasted economy of $111.1 billion in 2035 (Real GDP). For context, this represents a cost of roughly $11,023 per resident, in 2035 alone.
- The cumulative direct compliance cost impact by household and select sectors from 2023 through 2035:
  - Households: $24.5 billion
  - Agriculture sector: $32.6 billion
  - Transportation sector: $19.8 billion
  - Upstream Oil and Gas sector: $15.5 billion
- The annual direct compliance cost impact by household and select sectors in 2035:
  - Households: $3.4 billion
  - Agriculture sector: $4.5 billion
  - Transportation sector: $3.4 billion
  - Upstream Oil and Gas sector: $2.3 billion

Direct Compliance Costs, 2023-2035

(Billions of Dollars)

	Cumulative Total 2023-2035	Annual Average 2023-2035
Federal Carbon Tax	$24.7	$1.9
Oil and Gas Methane Mandate	$6.3	$0.5
Oil and Gas Emissions Cap Mandate	$2.6	$0.4
Fertilizer Use Mandate	$19.3	$1.5
Clean Fuel Regulations	$34.9	$2.7
Zero Emission Vehicle Mandate	$10.3	$0.8
Federal Output Based Pricing System	$12.5	$1.0
Agriculture Methane Initiatives	$0.5	$0.04
Landfill Methane Mandate	$0.2	$0.01
Total Compliance Cost	**$111.3 Billion**	**$8.8 Billion**

Impact of Federal Policies

Federal Carbon Tax (Fuel Charge)

- The Federal Carbon Tax cost assumes a price of $65 per tonne carbon dioxide equivalent (CO_2e) in 2023, with increases of $15 per tonne annually to $170 per tonne in 2030, per the current federal schedule, and then continuing up by $15 per year to $245 per tonne in 2035.
- Direct cost estimates reflect the federal government's projected Federal Carbon Tax revenue collections in Saskatchewan to 2030.
- Beyond 2030, Federal Carbon Tax estimates are projected to increase in line with the average calculated growth rate between 2023-2030.
- The Federal Carbon Tax targets households and small to mid-sized businesses.

Cost Summary:
- Direct Compliance Cost (2023-35): $24.7 billion
- Annual average: $1.9 billion

Oil and Gas Methane Mandate

- The federal government has pledged to reduce national oil and gas methane emissions by 75 per cent from 2012 levels by 2030. There are three main paths to reach compliance:
  - Leak Detection and Repair (LDAR);
  - Deployment of combustors at sites currently venting methane; and
  - Conservation (methane capture for use/sale).
- Direct cost impacts include capital costs, operational costs, and Output-Based Pricing System (OBPS) compliance payments associated with increased combustion emissions.
- Significant capital investment in combustors would be required on a scale never before undertaken in the province. For example, the historical maximum number of combustors installed in one year, in Saskatchewan, is 253 – while the analysis results require peak installations of nearly 2,200 combustors in one year.

Cost Summary:
- Direct Compliance Cost (2023-35): $6.3 billion
- Annual average: $487 million

Oil and Gas Emissions Cap Mandate

- The federal government has announced the intention to create a national cap on oil and gas emissions set at 110 million tonnes (Mt) CO_2e in 2030. The federal government reports total national emissions from the sector in 2019 were 203Mt CO_2e.
- Assuming the province maintains a constant share of oil and gas production, Saskatchewan's upstream oil and gas emissions will be capped at 13.5Mt CO_2e in 2030 and 10.1Mt in 2035.
- Downstream activities (petroleum refining and natural gas distribution) were excluded from this cost analysis.
- The federal government's Oil and Gas Methane Mandate will drive the majority of the emission reductions necessary to meet the cap starting in 2030. As such, the cost of the cap is calculated based on the additional compliance measures and emission abatement investments needed to get from the emissions level under the methane mandate to the cap's mandated level.
- Compliance will primarily come from:
  - Additional methane conservation; and
  - Compliance payments via either a cap-and-trade auction or an increased OBPS price per tonne.
- Premature shut-in of lower productivity wells is also anticipated.
- The Oil and Gas Emissions Cap and the federal government's Oil and Gas Methane Mandate will likely prevent Saskatchewan from realizing the provincial Growth Plan target of 600,000 barrels of oil per day production by 2030.

Cost Summary:
- Direct Compliance Cost (2030-35): $2.6 billion
- Annual average: $433 million

Lost Production and Impacts on the Oil and Gas Sector

- While not fully accounted in the overall provincial direct costs of complying with federal policies, there will be an inevitable shift in investor confidence and redeployment of growth capital to meet new regulatory requirements in the oil and gas sector.
- Assuming even a modest five per cent reduction in investment, in combination with capital redirection, for emissions abatement rather than the replacement and expansion of production, the results are significant:
    - 222 million barrels of lost oil production.
    - $19.2 billion loss in value of oil production.
    - $12.7 billion lost or diverted capital expenditures from 2023 to 2035.
    - $894 million loss in provincial royalty/production tax revenue.

Fertilizer Use Mandate

- The federal government has announced a fertilizer emissions reduction target of 30 per cent below 2020 levels by 2030.
- The National Inventory Report indicates that direct and indirect synthetic fertilizer emissions in Saskatchewan were 3.9Mt CO_2e in 2020. A 30 per cent reduction below 2020 levels by 2030 would reduce absolute emissions by 1.18Mt CO_2e in 2030.
- A study undertaken by MNP LLP for Fertilizer Canada indicates this could cost Canadian farmers nearly $48 billion in farm revenue between 2023 and 2030.
    - According to the Western Canadian Wheat Growers Association, this would result in a $4.6 billion loss in Saskatchewan growers' canola and spring wheat crops.
- However, Fertilizer Canada has also indicated that 18 per cent of the target could be reached by implementing 4R practices (right rate, right source,right placement, right timing). Therefore the costs in this analysis consists of two components:
    - The costs associated with investments necessary to implement 4R practices that reduce emissions by 18 per cent by 2030 from a 2020 baseline; and
    - The impact on farm cash receipts associated with reducing fertilizer usage based on the MNP report to reach the remaining 12 per cent of the targeted emissions reduction by 2030.
- From 2030 to 2035, compliance actions are assumed to be the same as in 2030.

Cost Summary:

- Direct Compliance Cost (2023-35): $19.3 billion
- Annual average: $1.5 billion

Clean Fuel Regulations

- Clean Fuel Regulations (CFR) require lifecycle carbon intensity reductions for gasoline and diesel annually.
- Compliance is expected to occur via:
    - Increasing ethanol blending from 7.5 per cent to 10 per cent;
    - Increasing bio-diesel blending from 2.5 per cent to 5 per cent;
    - Replacing standard diesel with hydrogenation-derived renewable diesel (HDRD); and
    - Purchasing compliance credits, where available.
- Compliance costs include the cost of biofuels, the cost of increased fuel consumption (due to the lower energy content of higher biofuel blends), and the cost of purchasing compliance credits.
- Fuel prices are highly variable. This analysis has assumed a high ethanol price and a high HDRD price given the demand for these fuels is likely to grow much faster than the supply. A medium unblended gasoline price was assumed along with low bio-diesel and unblended diesel prices. Bio-diesel and unblended diesel are likely to face substitution/competition pressure from HDRD diesel which will keep prices lower.
- The CFR analysis takes into account the reduced fuel demand per the federal Zero Emission Vehicle (ZEV) Mandate.

Cost Summary:

- Direct Compliance Cost (2023-2035): $34.9 billion
- Annual average: $2.7 billion

Zero Emission Vehicle Mandate

- The federal government is developing a light-duty ZEV sales mandate for new vehicle purchases. The mandate will set annually increasing requirements towards achieving 100 per cent ZEV sales by 2035.
- Compliance with the ZEV mandate implies that 40 per cent of Saskatchewan's vehicle fleet will be electric by 2035.
- The forthcoming federal mandate for zero emission medium-heavy duty vehicles sale was not accounted for in the analysis.
- Compliance includes:
  - The cost to consumers to purchase of ZEV at an average premium of $18,500 per vehicle;
  - Installation of charging infrastructure in homes;
  - Investment in support infrastructure for charging stations; and
  - Investment in electricity grid reinforcement per expansion to meet new distribution demand.

Cost Summary:

- Direct Compliance Cost (2023-35): $10.3 billion
- Annual average: $789.6 million

Federal Output-Based Pricing System

- Included in the analysis is the direct compliance cost for Saskatchewan industries to meet requirements under the federal OBPS. However, the Government of Saskatchewan has submitted a provincial OBPS proposal to the federal government that should meet federal OBPS requirements for equivalence while significantly reducing compliance costs for Saskatchewan industries.
- Direct costs were calculated on a facility-by-facility basis and then rolled up by industry. Each facility is required to improve emission intensity annually by a prescribed amount.
- If a facility's emissions intensity exceeds the regulated level, a compliance payment is applied to excess emissions for that facility in that year, assuming no performance credits are used instead. Alternatively, where emissions intensity is sufficiently below the regulated level, performance credits can be earned for that facility in that year to be used for future compliance.
- It is assumed that facilities can trade all credits within the year of compliance. Compliance payments are therefore the net cost to industry after accounting for inter-facility credit trading.
- The price schedule for OBPS compliance payment is harmonized with the Federal Carbon Tax increasing by $15 per tonne annually until it reaches $245 per tonne in 2035; however, after 2030, the carbon price for the oil and gas sector increases at $30 per tonne in order to drive compliance with federal government sector-specific announcements and policies.

Cost Summary:

- Direct Compliance Cost (2023-35): $12.5 billion
- Annual average: $965 million

Agriculture Methane Initiatives

- A national target for the reduction of agricultural methane emissions is under development. It will likely be based on what is deemed achievable by 2030 based on producer economics, technological feasibility, and health and safety regulatory approvals.
- For enteric fermentation - seeding legumes into tame pastures is the most viable practice. For methane from manure, the most viable practices are solid-liquid separators and synthetic manure covers.
- Based on these three practices the federal target is assumed to be a 11.6 per cent emissions reduction by 2030 based on 2019 emission levels.
- The opportunity to meet federal emissions targets will be more difficult in Saskatchewan, compared to other regions of the country, where a higher percentage of dairy and swine operations offer lower relative cost compliance.

Cost Summary:

- Direct Compliance Cost (2023-35): $501 million
- Annual average: $38.5 million

Landfill Methane Mandate

- The federal government commitment to reduce methane emissions also applies to landfills.
- Approximately 15 landfills in Saskatchewan may be subjected to federal requirements assuming the threshold is sites with over 100,000 tonnes CO_2e annually.
- Compliance will occur through the deployment of methane conservation and methane-to-power facilities.
- The capital cost and operating cost of these types of facilities were derived from information on two existing provincial landfill facilities. Investments are assumed to occur over a three-year period prior to 2025 when the regulations are set to take effect.
- Revenue from electricity generation has only been estimated for four sites as this compliance option may not apply to all new future sites that may be regulated.

Cost Summary:

- Direct Compliance Cost (2023-35): $182 million
- Annual average: $14 million

Summary of Overall Assumptions

Direct cost estimates include:

- Capital costs of deploying new technologies (e.g. methane combustors in the oil and gas sector).
- Higher operating costs for new technologies and increased emissions monitoring requirements.
- Reduced output associated with changes in practice (e.g. lower yields from reduced fertilizer use).
- Federal Carbon Tax and OBPS compliance payments, other compliance credit purchases, where emission reduction requirements cannot be met by new technology or practices.
- The further impact of federal policies and behavioural interactions on GDP, labour, trade flows or investment have not been included in this analysis.
- For the purpose of calculating the impact of federal policies relative to Saskatchewan's GDP and population from 2023 to 2035, it's assumed:
  - 2025: GDP grows to $91.1 billion and Saskatchewan's population grows to 1,252,000;
  - 2030: GDP grows to $100.6 billion and Saskatchewan's population grows to 1,356,000; and
  - 2035: GDP grows to $111.1 billion and Saskatchewan's population grows to 1,451,500.