

Health Implications of Saskatchewan's Delayed Coal Power Phaseout

Technical backgrounder

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Introduction

The health impacts of burning coal have been well documented, and include asthma, premature deaths, and cardiovascular and respiratory ailments, resulting from particulate matter, sulphur and nitrogen oxides and mercury pollution. Despite this, Saskatchewan is proposing to extend the life of its coal-fired power plants from 2030 to 2050.

This extension on burning coal will result in a wide range of health impacts felt to varying degrees. These adverse impacts on human health are avoidable and costly. A timely coal phase-out is critical to minimize the strain on people and health care systems across the province.

This technical backgrounder estimates and compares Saskatchewan's future coal-fired electricity generation under two pathways. It also highlights health outcomes of coal-fired electricity generation based on these same scenarios.

Policy background

Saskatchewan plans to reach a net-zero electricity grid by 2050. This commitment was reaffirmed last year when the province signed an equivalency agreement allowing it to continue using coal-fired electricity beyond 2030 as long as its electricity-sector emissions remain as low as they would have under the Federal Coal Regulations.¹ Since 2015, generation from SaskPower's three coal power plants (Boundary Dam, Shand and Poplar River) has decreased by about half, with a temporary reversal in this trend during the COVID-19 pandemic (shown in Figure 1).

In October 2025, the Government of Saskatchewan released a new energy plan with the stated goal of “affordability, reliability economic growth and strong fiscal management.”² The plan includes, among other things, a revised retirement and refurbishment schedule for SaskPower's coal-fired power plants. This makes Saskatchewan the only province in Canada without a coal-phase out plan or equivalency agreement compliant with federal law.³

¹ ECCC, “Canada-Saskatchewan Equivalency Agreement Regarding Greenhouse Gas Emissions from Electricity Producers” (2025), 4. <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/agreements/equivalency/canada-saskatchewan-greenhouse-gas-electricity-producers-2025.html>

² Government of Saskatchewan, “Government Releases the Saskatchewan First Energy Security Strategy and Supply Plan,” Media release, October 20, 2025. <https://www.saskatchewan.ca/government/news-and-media/2025/october/20/government-releases-the-saskatchewan-first-energy-security-strategy-supply-plan>

³ SaskPower, *Complete Responses to Interrogatories from the Saskatchewan Rate Review Panel: 2026 and 2027 rate application* (2026), 139. <https://saskratereview.ca/storage/593/01KKM0BHATXEX2B6X2G7V4121Q.pdf>

How we estimate health outcomes

The health impacts of coal-fired electricity

In addition to being the most carbon dioxide intensive way to generate utility-scale electricity, coal-fired power plants rank among the largest stationary sources of air pollution in Canada. They release fine particulate matter (soot), sulfur oxides, nitrogen oxides, mercury and other heavy metals.

Mortality represents the most severe and visible health consequence of burning coal. However, the quieter impacts of coal combustion are also profound, including increased asthma episodes and more days of difficult breathing. These respiratory impacts affect a larger share of the population.

The continued use of coal has a significant impact on health outcomes, especially for children, seniors, and those with heart and lung conditions, and risks a timely transition to safe and clean power for residents across Saskatchewan.⁴

Extrapolating coal use to 2050 under two phaseout scenarios

We considered two emissions scenarios for Saskatchewan's future coal-fired generation:⁵

- The **federally mandated** retirement schedule, based on the equivalency agreement between the governments of Saskatchewan and Canada.
- The Government of Saskatchewan's **new proposed** retirement (and refurbishment) schedule.

For the purpose of this analysis, we assume a capacity factor of 60% for all coal power plants, which aligns with the most recently available generation data from SaskPower.⁶ The resulting estimate of annual coal generation, and the difference in cumulative coal generation, between scenarios is shown in Figure 1.

⁴ Environment and Climate Change Canada (ECCC), "Sources of Pollution: Electricity." <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/electricity-generation.html>

⁵ Government of Saskatchewan, *Saskatchewan First: Energy security strategy and supply plan (2025)*, 5. <https://www.saskatchewan.ca/-/media/news-release-backgrounders/2025/oct/saskatchewan-first-energy-security-strategy-and-supply-plan-5114.pdf>

⁶ Canadian Centre for Energy Information, "High-Frequency Electricity Data: Visualization tool (beta)." <https://energy-information.canada.ca/en/resources/high-frequency-electricity-data>

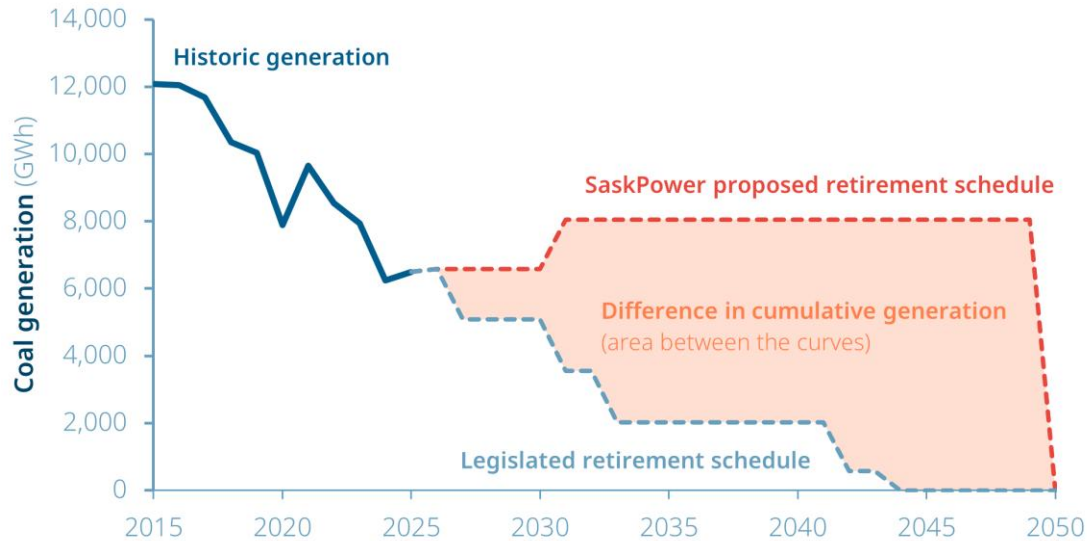


Figure 1. Difference in Saskatchewan coal-fired generation based on retirement schedule

Historic generation data from ECCC⁷

Converting from coal generation to health outcomes

Incremental health impacts related to increases in coal-fired electricity generation are modelled by interpolating data published by Environment and Climate Change Canada.⁸ Here, we use the same methodology as our 2016 *Breathing in the Benefits* report, focusing on Saskatchewan instead of Alberta.⁹ It is worth noting that the health impact factors (summarized in Table 1) for Saskatchewan are notably lower than those for Alberta, primarily driven by the differences in population density in the regions surrounding the power plants. However, given the high volumes of pollution from coal plants, the negative local human health impacts and costs are still significant.

⁷ ECCC, *Canada's Official Greenhouse Gas Inventory (2025)*, Table A7-9. <https://data-donnees.az.ec.gc.ca/data/substances/monitor/canada-s-official-greenhouse-gas-inventory?lang=en>

⁸ Environment Canada, Regulatory Impact Analysis Statement (RIAS), *Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations (2012)*. Available in Canada Gazette Part II, Vol. 146, No. 19. http://publications.gc.ca/collections/collection_2012/gazette/SP2-2-146-19.pdf

⁹ Benjamin Israel, Kim Perotta, Joe Vipond, Leigh Allard and Vanessa Foran, *Breathing in the Benefits: How an accelerated coal phase-out can reduce health impacts and costs to Albertans* (Pembina Institute, 2016), 20-21. <https://www.pembina.org/pub/breathing-benefits>

Table 1. Health impact factors per 1,000 GWh of coal-fired generation in Alberta and Saskatchewan

Outcome	Health impact per 1,000 GWh of coal-fired generation	
	Alberta	Saskatchewan
Premature deaths	2.3	0.2
Emergency room visits and hospitalizations	2.1	0.2
Asthma episodes	317	15
Days of breathing difficulty and reduced activity	7,540	514
Socio-economic value of health outcomes (2025\$)	\$15,930,000	\$1,197,000

The Pembina Institute acknowledges that the work we steward and those we serve span across many Nations. We respectfully acknowledge the space our organization is headquartered in as the traditional and ancestral territories of the Blackfoot Confederacy, comprised of the bands Siksika, Piikani, and Kainai, the Îyârhe Nakoda Nations, including the bands of Goodstoney, Chiniki, and Bearspaw, and the Tsuut'ina Dené. These Lands are also home to the Métis Nation of Alberta — Region 3 whose Peoples have deep relationships with the Land.

These acknowledgements are some of the beginning steps on a journey of several generations. We share them in the spirit of truth, justice, reconciliation, and to contribute to a more equitable and inclusive future for all of society.