



Saskatchewan First Energy Security Strategy and Supply Plan

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Energy security means having reliable and affordable supplies of energy to ensure the uninterrupted production and availability of resources to meet people’s needs.

Saskatchewan sustainably produces food, fuel and fertilizer for our own security and the needs of others. Saskatchewan exports agri-food to over 160 countries, is the world’s second largest producer of uranium, and sends more potash into the world than any competitor. All this requires secure sources of energy.

Saskatchewan has the authority, resources, capability, and ambition for energy security. At the same time, Saskatchewan is similar to other jurisdictions in facing challenges of security of supply, meeting demand for power, and covering costs.

Saskatchewan has tremendous opportunities in electrical power generation if the right policies are pursued. But realizing that future means making tough decisions to balance costs, operability and sustainability for the provincial electrical grid. That is precisely what the *Saskatchewan First Energy Security Strategy and Supply Plan* does.

Saskatchewan’s transmission infrastructure needs to be built to anticipate future resource projects. Utilities have historically been prepared to maintain reliability and build transmission for specific customer demand. But policy direction is required to facilitate long-term economic growth for resource development and community energy security. The *Saskatchewan First Energy Security Strategy and Supply Plan* provides that policy direction.

In Saskatchewan, electricity has often been thought of as an input to growth and not as a source of growth. As the province generates more electricity from fossil fuels, renewables and nuclear power, electrical energy can also be a source for economic growth. Clear direction is needed for SaskPower to prepare the mindset, mechanisms and markets to benefit the province from abundant electricity production.

The *Saskatchewan First Energy Security Strategy and Supply Plan* is a vision and long-term strategy for electricity in Saskatchewan that prioritizes energy security. It involves a significant change in policy and thinking for Crown energy utilities.

- **Power from Strength:** Saskatchewan will use its constitutional authority, geographic position, and natural resource strengths guided by the principles of reliability and affordability for energy security and economic growth.
- **Powering Growth:** Saskatchewan will be strategic in developing its nuclear capabilities, transmission infrastructure, resources and partnerships to further the provincial Growth Plan.

Saskatchewan First
Energy Security Strategy and Supply Plan





SaskPower partnered with more than 300 Saskatchewan companies to build the gas-fired Great Plains Power Station near Moose Jaw, awarding previously unprecedented contract values to local and Indigenous businesses.

Power from Strength

Authority to Decide

The Government of Saskatchewan has the authority to decide the future of its electricity system and energy security.

The Constitution Act, 1867 gives exclusive jurisdiction to the provinces under section 92A(1)(c): for “development, conservation and management of sites and facilities in the province for the generation and production of electrical energy.”

The Constitution assigns to provinces authority over the development, conservation and management of sites and facilities in the province for the generation and production of electrical energy. Saskatchewan will exercise this authority to develop power from our strengths.

An All-of-the-Above Approach

Reducing reliance on any single source of energy enhances resilience. Electrical utilities in provinces that rely on hydro-electric production are facing future power shortfalls; meanwhile, utilities in provinces reliant on natural gas, are subject to price volatility. Saskatchewan has diversified its sources of electricity over recent decades. Whereas power was once generated almost exclusively from coal, Saskatchewan has heavily invested in natural gas-fired and hydro-electric generation, gets more power from renewables such as wind and solar, and is exploring sustainable sources of power such as biomass and nuclear.

Natural gas accounts for about 50 per cent of the annual electricity generation in Saskatchewan.

Natural gas is the largest source of power generation in Saskatchewan and remains strategically important to overall provincial energy systems. At the same time, Saskatchewan imports over 80 per cent of its natural gas. Over the next 10 years, North American demand for natural gas-fired generation is expected to rise by an additional 10 gigawatts. Suppliers of turbines for natural gas-fired generation are already raising prices and extending timelines for delivery, and global demand for liquefied natural gas may further accelerate pressures. Saskatchewan cannot rely on a single fuel source, especially one the province does not control, as the dominant source for electricity generation.

Renewables and other low and non-emitting sources of electricity already comprise 35 per cent of provincial generating capacity. In fact, SaskPower has added 635 megawatts (MW) of wind, solar and storage capacity over the past five years. SaskPower has significant hydro generation and is invested in biomass and waste heat facilities, battery storage, and other emerging technologies. SaskPower projects such as Bekevar Wind, Awasis Solar, and the Turning Sun Solar facilities attracted investment from Independent Power Producers and Indigenous equity partnerships. These projects produce benefits that go beyond energy security, towards Indigenous economic reconciliation and community investment. All the same, wind and solar power is less reliable, requires large amounts of land to develop, and the infrastructure is relatively short-lived. The province respects growing local concerns about how extensive renewables development could impede the availability of productive farmland and be misaligned with community interests.

Coal as a Secure Bridge to Nuclear

Saskatchewan will continue to use coal-fired generation as part of an all-of-the-above approach to energy security. Ending coal-fired generation by 2030 would risk the reliability and affordability of the provincial electrical system. Extending the life of our coal-fired assets will ensure that we have reliable baseload power as a secure bridge to nuclear power generation.

There is no question as to the reliability of coal as a source for electricity generation. In fact, Saskatchewan’s coal-fired units have averaged between 79 to 86 per cent availability over the past decade. Comparatively, intermittent renewable energy sources such as wind and solar can be available as little as 20 to 25 per cent of the time. Wind has lengthy periods of nil production, solar production is minimal during short winter days, and current technology for energy storage has ‘long-duration’ at 8-12 hours, but in practice is significantly shorter. At the same time, SaskPower is forecasting electricity demand to increase by 40 to 100 per cent by 2050.



Government policy direction to SaskPower to extend the life of existing coal assets has several advantages for energy security. Saskatchewan already owns the power stations it needs to generate reliable baseload power. Maintenance and sustainment over decades by SaskPower means that provincial coal assets are ready for life-extension. We have a workforce of nearly 1,100 people who know how to operate and sustain coal power stations and mine the coal that fuels them. We have energy communities such as Estevan and Coronach with the services and supplies to maintain our power. It is a credit to these workers that Saskatchewan is in a position to extend the life of coal generation. We have over a 100-year supply of coal in southern Saskatchewan, a resource owned by the people of this province.

Clear government policy direction will ensure that SaskPower has sufficient time and resources to plan accordingly and avoid a shortfall of baseload power at the end of this decade.

» **SaskPower will extend the life of up to 1530 MW of existing coal-fired power assets beyond 2030 and out as far as 2050.**

SaskPower Coal Generation Fleet						
Community	Facility		Net Capacity (MW)	End of Service Life	Service Life with Extension	Number of Employees
Estevan	Boundary Dam Power Station	Unit 3	110	2044	2050	800
		Unit 4	139	2021	2050	
		Unit 5	139	2024	2050	
		Unit 6	284	2027	2050	
		Total:	672			
	Shand Power Station		276	2042	2050	
Coronach	Estevan Mine		-			
	Poplar River	Unit 1	291	2033	2050	300
		Unit 2	291	2031	2050	
		Total:	582			
	Poplar River Mine		-			

Nuclear Power as the Future

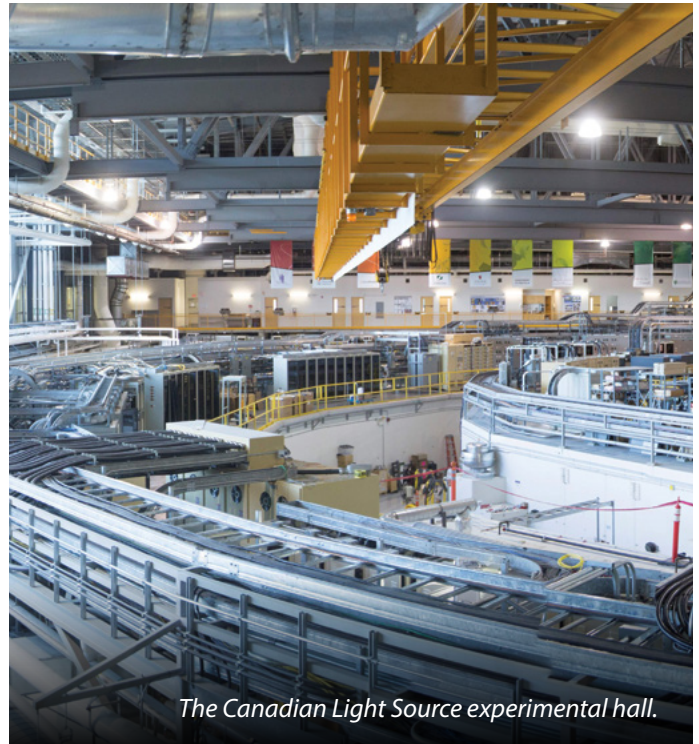
Saskatchewan is committed to building a provincial electricity system powered by nuclear energy.



Global innovation in the nuclear field now makes it feasible to add nuclear power generation to the Saskatchewan electrical grid. Through this Strategy, the provincial government reiterates its commitments to nuclear power communicated in the provincial *Growth Plan* and the *Interprovincial Strategic Plan on Small Modular Reactors (SMRs)*.

The Government of Saskatchewan will:

- » continue to examine the feasibility of two SMR units near Estevan;
- » evaluate the feasibility of large reactors and/or advanced SMRs to meet industry demand for electricity and heat to identify if either can be economically deployed in Saskatchewan.



The Canadian Light Source experimental hall.

SaskPower is working through its subsidiary, SaskNuclear, on licensing to deploy the grid-scale GE-Hitachi BWRX-300 SMR in Saskatchewan. The provincial utility is engaged with Ontario Power Generation, an experienced nuclear operator, to learn from Ontario's deployment of the first BWRX-300 reactor at its Darlington site in 2030.



The rendering shows SaskPower's chosen technology, the GE Hitachi BWRX-300 nuclear reactor.

The Saskatchewan Research Council (SRC) is invested in developing micro-reactor technologies. These comparatively smaller reactors (typically 5 -15MW) are most suited for individual community or industrial site demands. SRC Nuclear seeks to advance global knowledge of the development and deployment of nuclear micro-reactors for industrial decarbonization as well as community and commercial use. It is essential that provincial Crown corporations and ministries work closely together on planning, public engagement, investment attraction, regulatory and intergovernmental coordination for nuclear power. This means strengthening and broadening coordination in areas such as supply chain and workforce development, emergency planning, environmental review, and complementary infrastructure. This all requires clear roles and responsibilities.

The Government of Saskatchewan will:

- » coordinate provincial nuclear policy, in alignment with government-wide policy for energy security and economic growth, to ensure sufficient oversight and governance, investment attraction, supply chain and workforce development;
- » conduct a governance review to determine the optimal provincial structure and mandate for nuclear power ownership, operation, and deployment within and beyond the provincial electrical grid.

The development of nuclear power in Saskatchewan could create a new industry that generates billions of dollars in annual economic activity for the province, but will require prudent decision making, careful assessment of long-term benefits and costs, planning, and the discipline to adhere to budgets and timelines.

In 2024, 89,000 people were in the Canadian nuclear workforce, contributing \$22 billion to Canada's GDP.

Source: <https://cna.ca/2024/09/24/canadian-nuclear-industry-a-powerhouse-of-job-creation-and-economic-growth/>

As Saskatchewan bridges to a nuclear future and builds the infrastructure to move this new source of electricity to businesses and homes, it will enhance provincial sustainability. The province will reduce greenhouse gas emissions at a pace that prioritizes reliability and affordability for energy security.

- » **SaskPower aims to reduce emissions towards a carbon neutral electricity sector by 2050.**



Construction activity at the Great Plains Power Station peaked in 2023 with more than 700 workers on site each day.



The 200-kilometre transmission line, connecting the Pasqua Switching Station east of Moose Jaw to the Swift Current Switching Station was completed in 2019, taking 200,000 work hours to construct the line.



Powering Growth

Transmission Infrastructure

Transmission infrastructure is crucial to energy security and economic growth. Governments have an interest in new or expanded transmission infrastructure to improve grid reliability, attract investment to resource projects, and generate revenue. Government must be willing to consider public investment in transmission infrastructure where there is an overriding public policy interest for energy security and economic growth.

Saskatchewan is deepening cooperation with its neighbours to explore strengthened transmission networks. For example, Alberta and Saskatchewan signed a memorandum of understanding in 2024 to work together on nuclear power, grid reliability, and industrial decarbonization. Saskatchewan is deepening interconnections with markets in the United States to prepare for the potential to further export power.

In Saskatchewan:

- Intra-provincial transmission reinforcement is needed for safety and reliability.
- Northern transmission infrastructure is needed for provincial energy security and economic growth.
- Interprovincial and international transmission infrastructure is needed to enhance the resilience of the provincial electrical grid and to enable the export of excess power for revenue to sustain power systems.

Transmission in Saskatchewan must be reinforced to renew aging infrastructure as well as fulfill the buildout of renewables, flare-to-gas power projects, natural gas-fired generation, and life-extended coal assets. These infrastructure investments will help diversify and integrate a mix of all-of-the-above generation sources as well as mitigate risks from power outages during extreme weather events.

SaskPower will

- » invest in transmission infrastructure to ensure safety, reliability, and regulatory compliance, as part of its annual capital sustainment program.

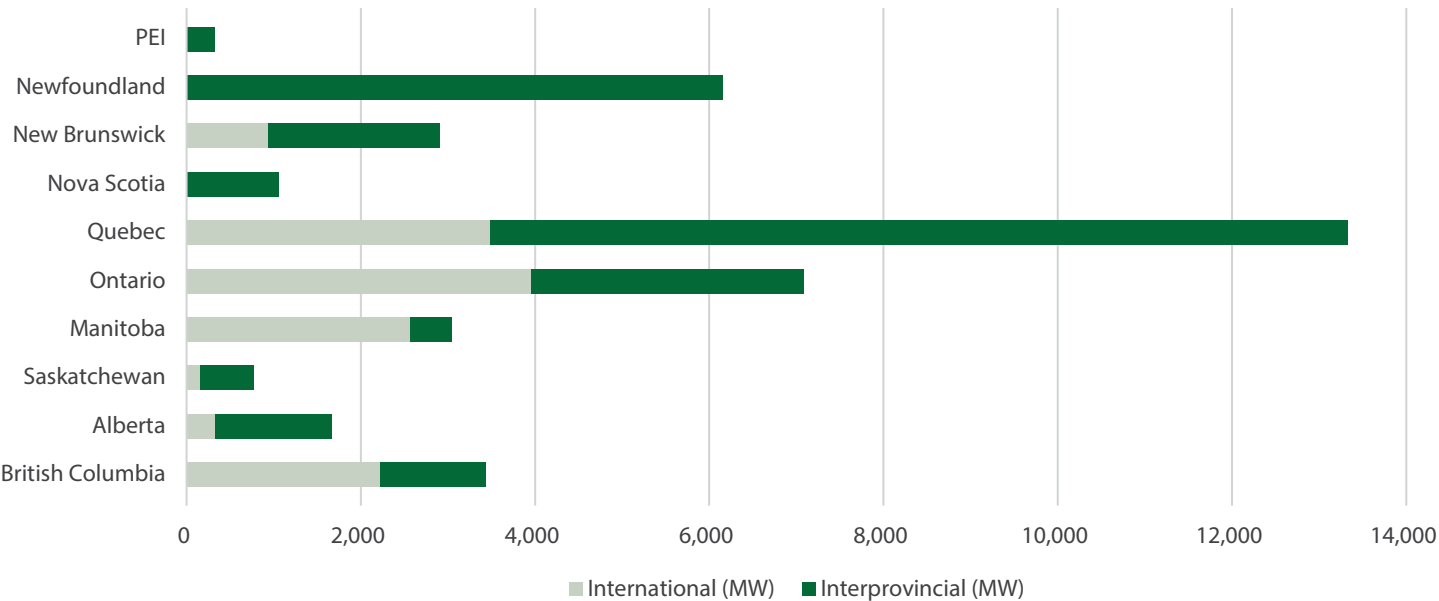
Saskatchewan has two electricity grids: mostly south and some north. There is no connection between these grids within the province. In order to get power into the northern system, electricity is wheeled into Manitoba east of the E.B. Campbell Hydroelectric Station and re-enters Saskatchewan near Flin Flon/Creighton. On the western side of the province, there are no large lines north of Meadow Lake. The current state of northern transmission infrastructure has implications for energy affordability for communities, the development of critical minerals, and provincial energy security.

Transmission interties between neighbouring provinces help to mitigate unplanned shortages and manage the electricity system across increasingly diverse power sources. The more interties, the more resilient the electrical grid. The McNeill Converter Station on the Alberta-Saskatchewan border currently has capacity to transfer only 150 MW between provinces; given that this is the only tie between the west-east systems in Canada, there may be a national interest to build this or other east-west interties at a larger capacity.

The Government of Saskatchewan will:

- » identify transmission projects of priority to Saskatchewan for energy security and economic growth, to complement the business case and forecasted return on investment for any specific transmission infrastructure project;
- » advocate for federal money to be invested in Saskatchewan for intra-provincial and inter-jurisdictional transmission to enhance reliability, affordability, energy security, and economic growth.

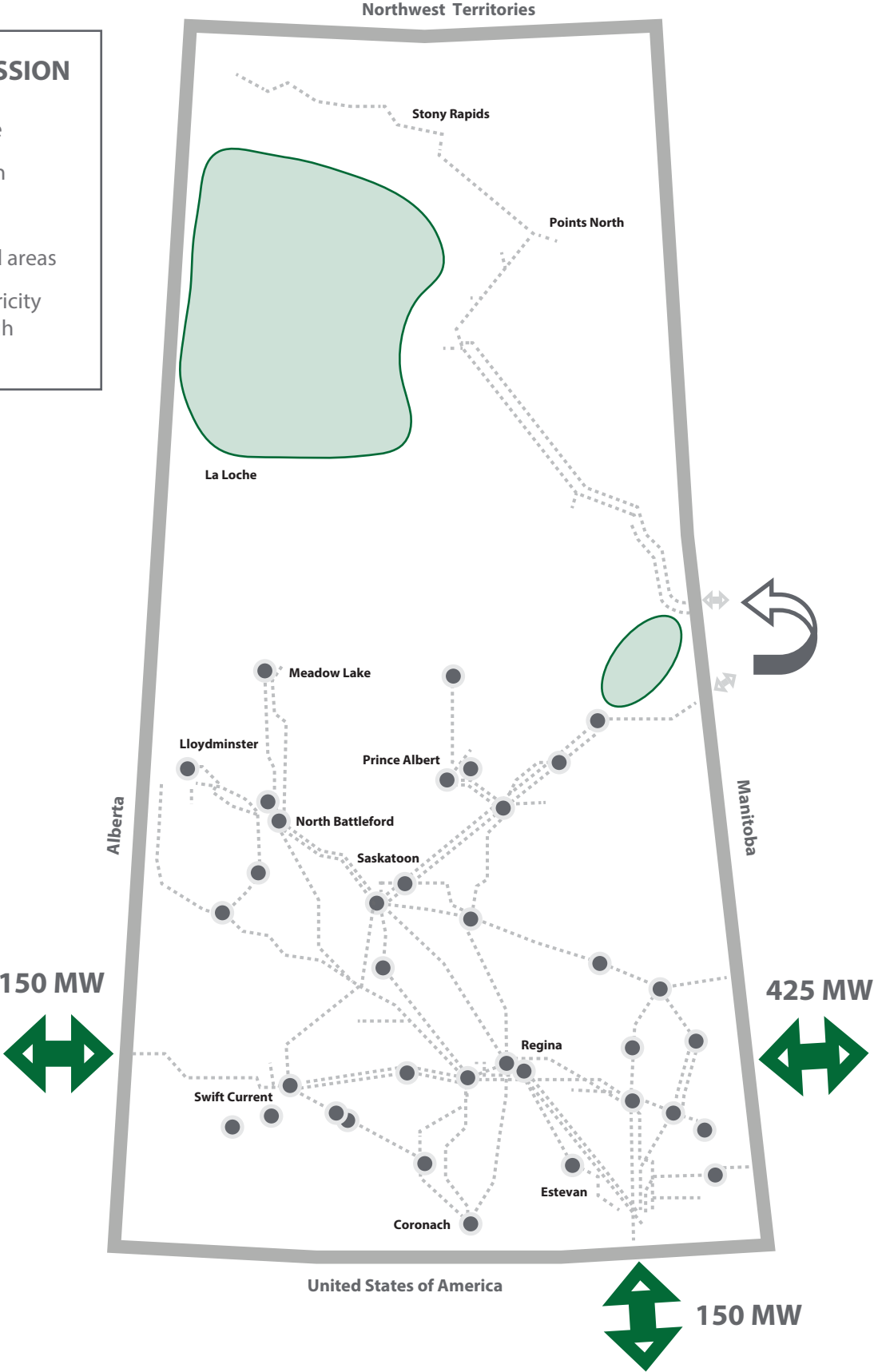
Intertie Capacity in Provinces



Saskatchewan Transmission Infrastructure

EXISTING TRANSMISSION

Transmission line

Switching station



As Saskatchewan extends the life of its coal assets for immediate energy security and builds nuclear assets for future power, capacity may exceed demand. Expanded interconnections with neighbouring jurisdictions could enable power exports for commercial revenue. SaskPower is already expanding total intertie capacity to the United States Southwest Power Pool from 150 MW to 650 MW by 2027. This better connects Saskatchewan with electricity markets spanning 14 states. Further connections with Manitoba could enable additional export to the U.S. mid-west. Exporting power for profit by way of firm capacity would require cooperation between power authorities and governments.

Exporting power for profit is not simple. Power can be sold on a spot market, where there is risk of price volatility, or through firm contracts, where power must be available. Activity in power markets requires sufficient market intelligence and capacity. Fortunately, Saskatchewan has time to develop the surplus power, transmission infrastructure, and market intelligence that would be required for export. What is needed is a clear policy direction to pursue electricity export revenues.

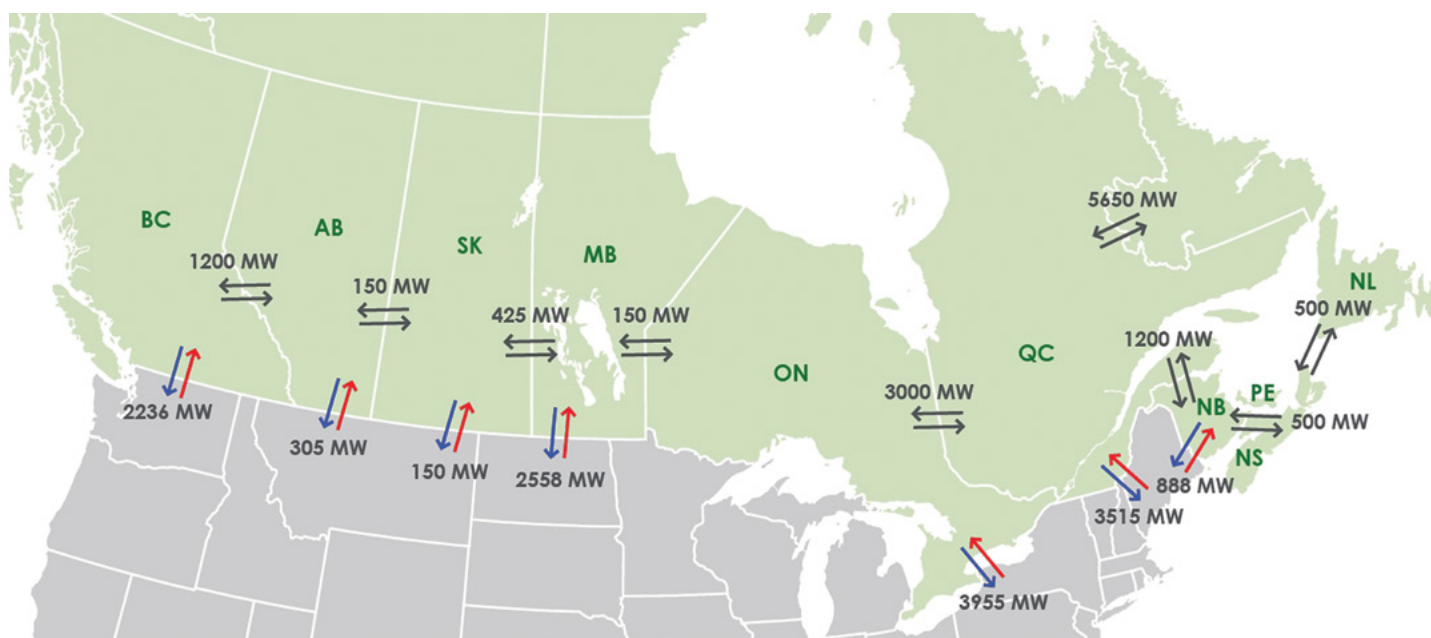
The Government of Saskatchewan will:

- » direct SaskPower to explore options for exporting excess energy for revenue;
- » collaborate with neighbouring jurisdictions to explore stronger intertie capacities;
- » establish appropriate provincial policies, regulatory systems, and corporate structures to facilitate electricity sales, as additional exports are planned.

Saskatchewan stands at the centre of the North American electrical grid. To the west of Saskatchewan is a global source for secure oil and gas reserves in Alberta and British Columbia; to the north, there are rare earths plus oil and gas; to the east, some provinces are facing power shortfalls to meet demands from manufacturing and knowledge economies. South of Saskatchewan is an interconnected network of electricity markets in the United States where electricity demand is forecasted to double.

Saskatchewan's ability to be at the centre of power in North America is currently limited by being a relative power island. Intertie capacity is limited to 425MW with Manitoba, 150MW with Alberta, and 150MW to the United States.

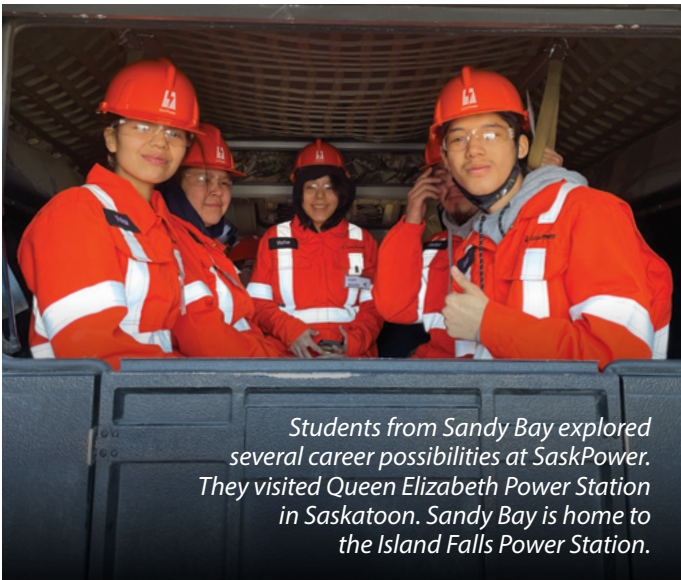
Map of Provincial Intertie Capacity (MW)



Data Source: https://www.rec-cer.gc.ca/en/data-analysis/energy-markets/market-snapshots/2024/market-snapshot-new-canadas-energy-future-net-zero-analysis-the-role-of-inter-provincial-transmission-expansion.html?utm_source=cerwebsite&utm_medium=rss&utm_campaign=fall_clicks&utm_id=4563456&wbdisable=true

People and Partnerships for Growth

Saskatchewan needs people and partnerships to accomplish its strategic objectives in the *Growth Plan* and through this strategy.



Students from Sandy Bay explored several career possibilities at SaskPower. They visited Queen Elizabeth Power Station in Saskatoon. Sandy Bay is home to the Island Falls Power Station.

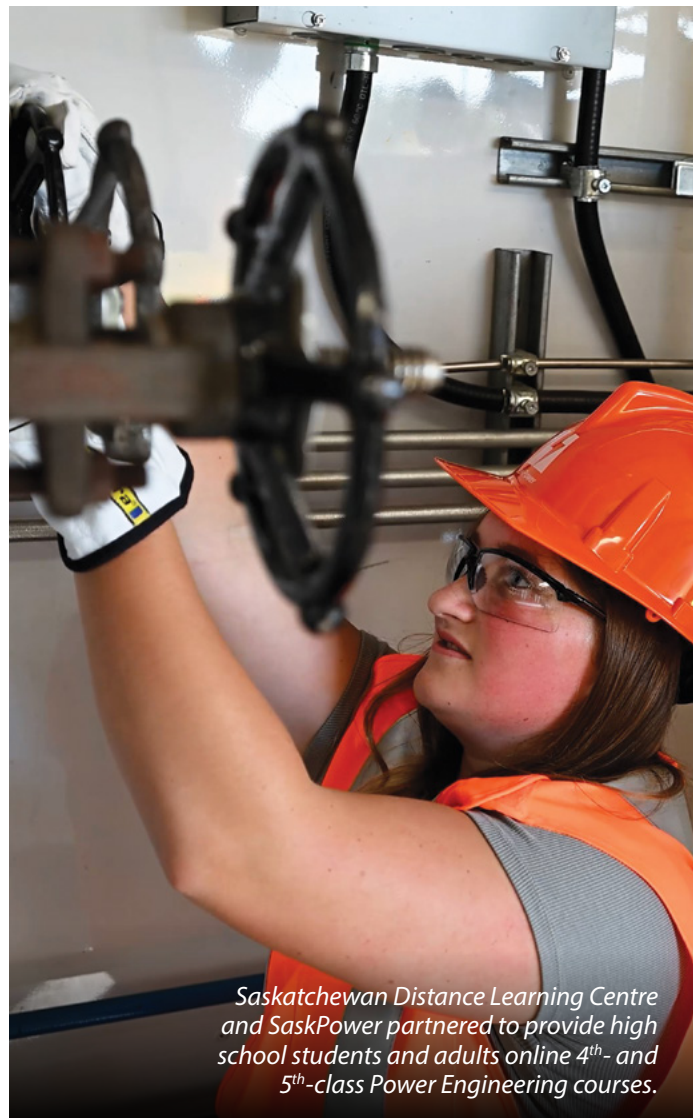
Extending the life of coal-fired electricity generation may incentivize new investments and additional economic benefits. This could include further investments in research and education in a mix of energy systems. Saskatchewan will need construction, engineering, and manufacturing labour and businesses for the electricity sector. This could include the attraction of data centres and related knowledge economy businesses that demand reliable baseload power. The province will have additional power to supply the demand of new and growing economic sectors.

Saskatchewan may also attract next generation carbon capture technologies, especially from the oil sector. Carbon dioxide-based enhanced oil recovery (CO₂-EOR) is an important pillar of oil production in Saskatchewan. To further enable EOR, the Ministry of Energy & Resources is clarifying policy questions such as surface rights access and pore space ownership. Meanwhile, SaskEnergy is pursuing further Crown sector capacity to support the transportation and storage of carbon.

Saskatchewan needs an estimated 2,500 – 3,500 skilled workers, mostly in the trades, to build and operate nuclear energy. Skilled trades will account for the largest share of Saskatchewan's future nuclear workforce. Even with SMRs being constructed and deployed in the 2030s, education and training will take years of preparation. Tradespeople working in the nuclear sector often must be nuclear qualified and could work in other sectors. For example, overlapping trades for nuclear and mining include electricians, boilermakers, pipefitters, and ironworkers. Hiring and retaining skilled tradespersons could be challenging due to competition across sectors and jurisdictions, so we need to act now.

The Government of Saskatchewan will:

- » deliver an 'Energy and Mines – Energy Production 20' high school elective course that covers nuclear, coal, natural gas, renewables, and Saskatchewan-relevant electricity content to be delivered by Saskatchewan Distance Learning Centre and made available to all Saskatchewan school divisions and schools;
- » ask the University of Saskatchewan, University of Regina, and Saskatchewan Polytechnic to take a leadership role in training for nuclear power through collaboration and partnerships with each other and with leading national and international institutions;
- » examine policy changes for simplified pathways for skilled trades training through regional colleges, Indigenous institutions, organized labour, and on-the-job training to meet future demands for the construction of nuclear power plants.



Saskatchewan Distance Learning Centre and SaskPower partnered to provide high school students and adults online 4th- and 5th-class Power Engineering courses.



The Rose Valley Wind and the Southern Springs Solar facilities will bring 300 megawatts of renewable power to Saskatchewan's power system. These facilities have the highest level of Indigenous ownership for wind and solar projects of their sizes in the province to date.

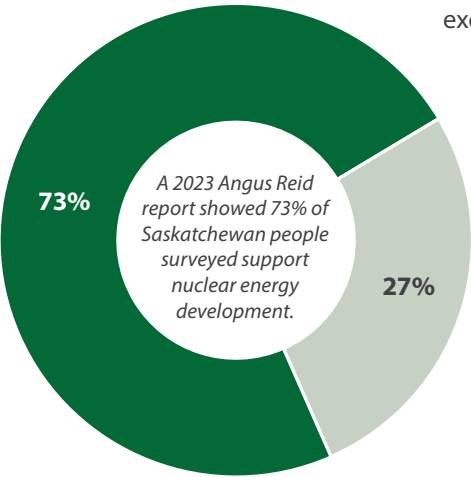
SaskPower is working with Indigenous nations as well as organizations such as the First Nations Natural Resource Centre of Excellence to establish a framework for inclusion in future energy projects. Indigenous equity investments, culturally-relevant workforce training and employment opportunities, and increased procurement from Indigenous-owned businesses will help deepen partnerships between the province and Indigenous communities.

SaskPower will

- » prioritize Indigenous partnerships, procurement from Indigenous-owned businesses, and the training and hiring of Indigenous peoples in the development of electricity projects.

Saskatchewan has the highest levels of public support for nuclear energy in the country. With the second largest uranium reserves in the world, Saskatchewan people have been mining and milling nuclear fuels for decades. Our post-secondary and research

institutions display excellence in medical isotopes, nuclear waste management, as well as mining and advanced manufacturing research. Saskatchewan is well positioned to be a leader in nuclear power production, supply chains and workforce training.



As Saskatchewan becomes more advanced in its nuclear capabilities, the province will capitalize on its existing strengths to build an innovative nuclear sector of the provincial economy. This means Saskatchewan-based businesses contributing to global supply chains for goods and services in the nuclear industry.

Saskatchewan aims to be a leader for nuclear power in Western Canada and a global centre for excellence in nuclear research and training. This builds upon historic investments in the Sylvia Fedoruk Canadian Centre for Nuclear Innovation and the Canadian Light Source synchrotron, as well as in nuclear fuels mining, milling, conversion, fabrication and transportation. The Global Institute for Energy, Mines and Society – a collaboration between the University of Saskatchewan (U of S), University of Regina (U of R), and Saskatchewan Polytechnic – will feature nuclear energy prominently in its mandate. Meanwhile, all three institutions are pursuing research chairs and new facilities in nuclear engineering, safety and advanced research.

SaskPower will invest:

- » \$3.3 million to establish two Industrial Research Chairs in Nuclear Engineering, one at the U of S and one at the U of R, in partnership with the national University Network of Excellence in Nuclear Engineering;
- » \$3.0 million to establish two Fedoruk Centre Nuclear Research Chairs; one at Saskatchewan Polytechnic and one at First Nations University of Canada;
- » Up to \$4 million to establish the SMR Safety, Licencing and Training Centre and construct two SMR flow test loops at Innovation Saskatchewan's Research and Technology Park on the University of Regina campus.

The federal government has shown extensive interest of late in electricity policy and energy corridors. Saskatchewan needs the federal government to recognize how secure provincial electricity systems make the country more resilient. There may be creative financing options that include private sector capital and Indigenous equity investments to accelerate and de-risk investments in nuclear power and transmission infrastructure. Investing in national strengths such as transmission and nuclear could further national economic growth.

The Government of Saskatchewan:

- » calls upon the federal government to invest in 75 per cent of the costs for the first nuclear reactor in the province;
- » calls upon the federal government to work with provinces on fiscal mechanisms for investments in nuclear power, nuclear supply chains and workforce development, and for a national nuclear industry that delivers domestic energy security and global exports;
- » calls upon the federal government to invest in intra-provincial and inter-provincial transmission infrastructure for benefits such as critical mineral production, community energy security, grid reliability, and national economic growth.

Saskatchewan for Energy Security and Economic Growth

Energy security requires strong and clear government policy. The *Saskatchewan First Energy Security Strategy and Supply Plan* is a vision and long-term strategy for electricity in Saskatchewan that prioritizes energy security. This vision is guided by the twin pillars of reliability and affordability.

Saskatchewan has the resources, expertise, and proximity to produce enough electricity for the province's own use and to help meet the demand of others. Past investments in mining, agriculture, oil and gas, and advanced manufacturing make the province an industrial and export leader. The Province is fortunate in its geographic place in North America, abundance of natural resources, and people for innovation. Saskatchewan has the networks and reputation to export goods, recruit talent, and attract investment – including in the electricity sector. With a vision for being at the centre of power, provincial energy can be available not only to augment the Growth Plan, it can also be a source for growth.



The Canadian Light Source is Canada's national synchrotron light source facility, located at the University of Saskatchewan.

