Saskatchewan
Wind Market Profile

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CANADIAN WIND ENERGY ASSOCIATION | ASSOCIATION CANADIENNE DE L'ÉNERGIE ÉOLIENNE

Wind Energy in Canada

Wind energy is one of the fastest growing major sources of new electricity around the world, and Canada is no exception.

Canada is a major player on the global scene ranking ninth in the world for total installed wind energy capacity. Since 2008, Canada's wind energy capacity has grown by an average of 20 per cent annually, and over the past 10 years, more wind energy was installed in Canada than any other form of electricity generation, according to Statistics Canada.

Canada's wind industry is poised to make a major contribution to ensuring that Canada's future electricity grid is affordable, reliable and environmentally sustainable.

Wind Energy in Saskatchewan

Saskatchewan has a tremendous untapped wind energy resource, a fact the provincial government recognized in 2015 when it unveiled a plan to expand wind energy in the province. The province's plan is driven by the recognition that wind energy is a low-cost, emission-free way to meet demand and diversify Saskatchewan's supply mix.

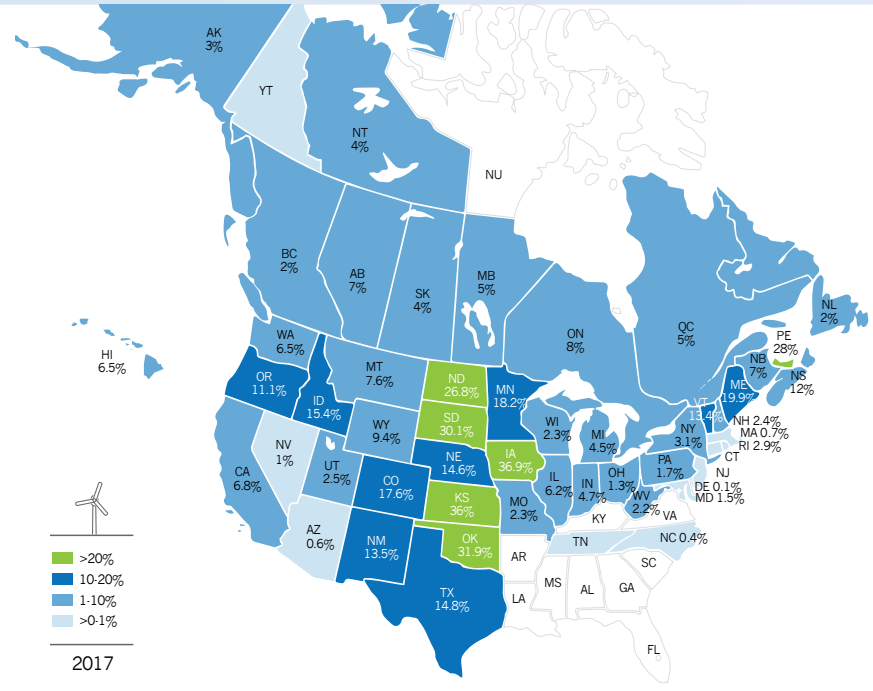
Saskatchewan currently has 221 megawatts (MW) of installed wind energy capacity, about four per cent of all generation. In 2018, the Government of Saskatchewan made commitments that will add nearly 400 MW of wind energy capacity to its grid. In September, the Ministry of Environment approved the 177 MW Blue Hill Wind Energy Project and in October, SaskPower announced that it had signed a power purchase agreement with Potentia Renewables for its 200 MW Golden South Wind Energy Facility. Both facilities are expected to be operational in 2021. These new projects will generate significant economic benefits for the province and for communities that host wind energy projects.

Part of Building a Modern and Reliable Electricity System

There is no doubt that Saskatchewan's high-quality wind energy resource represents a huge opportunity to build a modern electricity system – one that contributes low-cost power and flexibility.

It is a myth that equal amounts of back-up power, such as natural gas or hydro generation, must be available to manage the variability of wind energy generation. Independent of wind energy, a level of reserve power is always maintained to manage existing grid variability – this reserve power is necessary for all types of electricity generation on the grid. The amount of additional generating capacity required to manage the variability of new wind projects represents only a small fraction of the total amount of wind energy added to the grid. In fact, a 2016 technical study prepared by GE Energy Consulting with the input of SaskPower and other grid operators in Canada found Saskatchewan's electricity system could handle twice as much wind energy as it is targeting without compromising grid reliability[1].

1 GE Energy Consulting Pan-Canadian Wind Integration Study, 2016



Meeting about four per cent of electricity demand, wind energy in Saskatchewan has room to grow.

Levels of wind energy integration are going up, and in many jurisdictions around the globe, large amounts of wind energy are being reliably and cost-effectively integrated within the electricity grid. In fact, five U.S. states (Iowa, Kansas, Oklahoma and North and South Dakota) already have wind energy reliably providing more than 20 per cent of electricity.

Diversifying Electricity Supply Stimulates Investment and Creates Jobs

Saskatchewan stands to benefit from increased world-wide investment in clean energy. **It has been estimated that almost 750 billion dollars will be invested globally in renewable energy sources by 2040 – almost three quarters of all new power investment**[2].

Diversifying electricity generation with wind energy stimulates investments and creates jobs in one of the key technologies associated with the transition to lower carbon energy production and use. Host communities also realize significant economic and social benefits through new municipal tax revenues, plus stable income for farmers and landowners from land lease agreements.

Did you know…

Wind turbines occupy a small fraction of the land on which they are sited, so they work in harmony with existing and established land uses. Generally, each tower base is about eight to 10 metres across and spaced from 250 to 800 or more metres apart. Crops can be planted right up to the base of the turbines and harvested with the usual farm machinery. Livestock can continue to graze around the towers.

2 Bloomberg New Energy Outlook 2017

Lowest Cost Option for New Electricity in Canada

Wind energy has many attributes that make it a great choice for new electricity generation in Canada, but one attribute stands apart – price.

Around the world, competition and innovation have dramatically driven down the costs of wind energy to unprecedented levels and Canada is reaping the benefits. A December 2017 power auction in Alberta established wind energy as the most cost-competitive source of new electricity generation in Canada today, with a weighted average cost of $37 per megawatt hour. In October 2018, SaskPower announced the results of its first competitive procurement and the results were similar, with an average interconnected bid price from all 29 participants at $42 per megawatt hour. The successful bid came in below $35 per megawatt hour, ensuring low-cost price certainty for the long-term benefit of Saskatchewan electricity consumers.

With wind energy costs projected to continue falling, it is expected that new wind energy facilities will surpass yet another milestone within the next decade – they will begin to produce power even more cost effectively than many existing generating facilities.

As with many other renewable energy technologies, there are no fuel costs for wind energy which means stable pricing over the long-term.

Canada's wind energy industry has…

Attracted more than **$23 billion in investment**

Created nearly **58,000 person-years of employment** in construction and operations

Directly benefited more than **299 communities** in **12 provinces and territories**, including involvement with over **35 Indigenous communities**

Manufactured blades, towers and other components in the wind turbine supply chain

Reducing Emissions in Saskatchewan's Electricity System

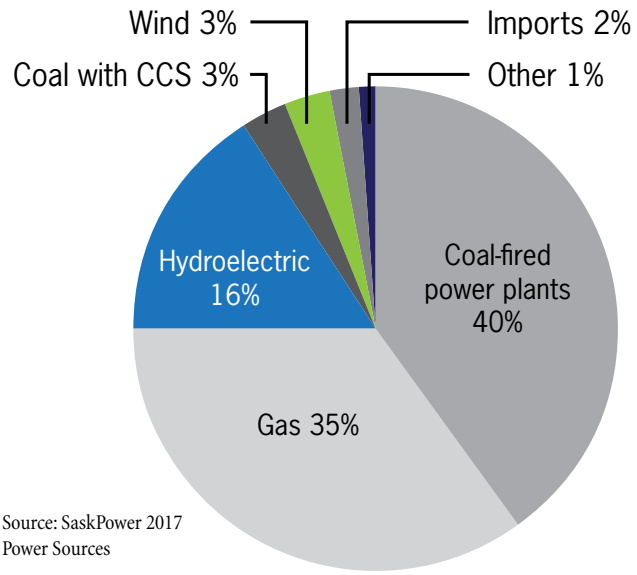
By replacing a portion of coal-fired generation with wind energy Saskatchewan can reduce greenhouse gas (GHG) emissions in the electricity sector and lay a foundation for deeper cuts through electrification of other sectors of the economy.

How can wind energy benefit the environment?

- Wind energy generates electricity without emitting air pollutants, particulate matter, or waste of any kind.
- Wind energy uses significantly less water than conventional power plants.
- Coal-fired electricity releases about 20 times more GHGs per kilowatt-hour than wind-powered electricity on a life-cycle basis[3].

SaskPower's ambitious renewable energy targets put Saskatchewan well on its way to achieving long-term and sustained reductions in GHG emissions.

Where does Saskatchewan's power come from today?



Source: SaskPower 2017 Power Sources

Get the Facts!

Fact: Wind energy is a cost-effective solution for Saskatchewanians

Fact: Wind energy is providing significant economic benefits to local communities across Saskatchewan

Fact: Wind energy is helping Saskatchewan diversify the economy, create local green jobs, reduce greenhouse gas emissions, improve air quality and fight climate change

Fact: Public opinion polling in Saskatchewan in 2018 shows that 84 per cent of respondents support government policies that encourage the development of wind energy in Saskatchewan[4]

Fact: Saskatchewan has a tremendous untapped wind energy resource and meeting its current targets will make it a Canadian wind energy leader

Visit canwea.ca for more facts, infographics and success stories related to wind energy in Saskatchewan

3 Life Cycle Greenhouse Gas Emissions from Electricity Generation, https://www.nrel.gov/analysis/life-cycle-assessment.html

4 November 2018 SaskWatch Research by Insightrix Research Inc.