# **Centennial Wind Power Facility**

Generating capacity-nominal 150 MW
Generating capacity-nameplate 149.4 MW

Mean annual output 540 GWh

Mean annual wind speed 30 km/hr

#### Wind turbine characteristics

Number and Model 83 Vestas-V80

Manufacturer Vestas Wind Systems A/S

70 tonnes

Rated output 1.8 MW/turbine
Operational wind speed 15 to 90 km/hr

Full power achieved at 50 km/hr
Nacelle height 4 metres
Nacelle width 3.3 metres
Nacelle length 14.4 metres

Number of blades

Blade length 39 metres
Rotor diameter 80 metres
Rotor weight 35 tonnes

Rotor speed 17 revolutions/minute

Speed at blade tip 256 km/hr Overall height to blade tip 107 metres

### Support towers

Nacelle weight

Height 67 metres
Diameter at base 4 metres
Diameter at top 2.3 metres
Weight 117 tonnes

Anchor bolts 144

Tower Manufacturer Hitachi Canadian Industries (Saskatoon)

Glossary Kilowatt (kW)

A unit of bulk power; 1,000 watts.

#### Kilowatt hour (kWh)

A unit of bulk energy; 1,000 watt hours. The measurement is generally used for billing residential customers.

#### Megawatt (MW

A unit of bulk power; 1,000 kilowatts. The unit generally used to describe the ouput of a commercial generator.

#### Gigawatt (GW)

A unit of bulk power; one billion watts or one million kilowatts.

#### Kilovolt (kV)

A unit of pressure, or push, of an electric current; 1,000 volts.

# POWERING SASKATCHEWAN

## **Economic Benefits**

Construction and operation of the Centennial Wind Power Facility also has a significant impact on the Saskatchewan economy:

- \$70 million of Saskatchewan goods and services were used during construction
- \$19 million in provincial sales tax will be paid during construction and operations
- \$5 million in Saskatchewan capital tax will be paid during the project's life
- \$6 million in land lease payments will be paid during construction and operations
- 200,000 person-hours of Saskatchewan tradespeople were utilized during fabrication and construction
- Over 20 construction and service contracts were awarded to Saskatchewan companies
- 12 new, full-time, permanent employment positions were created

The Government of Canada will provide approximately \$54 million over 10 years to the Centennial Wind Power Facility through the Wind Power Production Incentive Program.

Le gouvernement du Canada versera environ \$54 million sur une période de 10 ans pour le parc éolien Centennial sous le programme d'Encouragement à l'énergie éolienne.

# A Lasting Environmental Legacy

The Centennial Wind Power Facility is the cornerstone of SaskPower's commitment to introduce new electricity sources that have a low impact on the environment. Our long-term plans also call for a mix of energy conservation programs and new environmentally sensitive generation projects.

As we evaluate generation options into the future, SaskPower will continue to pursue wind power where it makes economic and environmental sense.

# **Our Commitment to Safety**

Safety is part of everything we do at SaskPower and the responsibility for doing business safely is shared by employees across the corporation.

Sask**Power** 

Powering the future

6372/Apr09

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# CENTENNIAL WIND POWER FACILITY





# WELCOME TO SASKPOWER

# HOW A WIND TURBINE WOORKS

Saskatchewan is known for the wide-open prairie, and for the wind that blows strong and free.

In 2005, as the province celebrated its first century, SaskPower created a legacy – the Centennial Wind Power Facility – that not only harnesses the wind, but also brings long-lasting environmental and economic benefits to the people of Saskatchewan.

# **Generating Capacity**

SaskPower's Centennial Wind Power Facility is a milestone in wind power generation in Canada. At the time it was commissioned in March 2006, the 150-megawatt (MW) facility was the largest operating wind power facility in the country, generating enough electricity to supply about 69,000 homes.

### Location

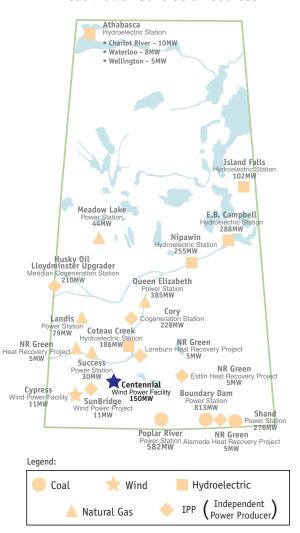
The Centennial Wind Power Facility is located approximately 25 kilometres southeast of Swift Current, Saskatchewan in the Rural Municipality of Coulee (RM #136).

#### **Control And Transmission**

Each of the 83 wind turbines at the Centennial Wind Power Facility are connected via an underground cable to overhead 34.5 kV distribution lines, which connect to the province-wide electrical grid.

This is the third wind power facility in the province. SaskPower operates the Cypress Wind Power Facility, which has 16 turbines that are able to produce 11 MW of electricity. SaskPower also purchases 11 MW of electricity from the SunBridge Wind Power Project.

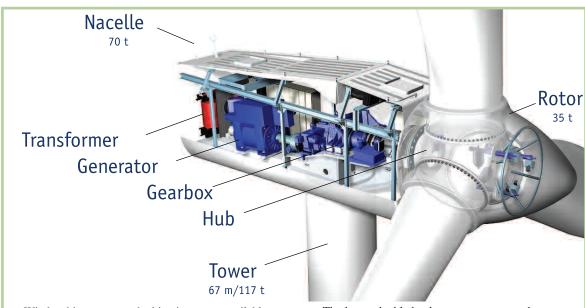
### SaskPower Generation Sources



SaskPower generation - net capacity 3,214 MW

Independent power producers - net capacity 469 MW

Total generation in Saskatchewan - net capacity 3,683 MW



Wind turbines capture the kinetic energy available from the wind and convert it into electrical energy. The wind turns the blades, which spin a shaft connected to a gearbox and a generator that makes electricity.

The larger the blade, the more energy can be extracted from the wind. The blades change pitch to cope with varying wind speeds. The nacelle and rotor automatically turn to face the wind to maximize energy production.

Image courtesy Vestas Wind Systems A/S

# **Visiting the Centennial Wind Power Facility**

Our designated point of interest is the best place to see the Centennial Wind Power Facility. It is located on grid road #628 near the northern tip of the facility. This is your best opportunity to view the turbines in operation. For your own safety, and out of respect for local landowners, please do not trespass on private property where the wind turbines are located.

