GREAT PLAINS POWER STATION

Overview

Great Plains Power Station (GPPS) is a 377-megawatt (MW) combined-cycle facility with two generators that each send power out to the grid.

1. **Natural gas-fired generator** – compressed air and natural gas are combusted together. The combustion drives a turbine and a generator, which then sends power to the grid.

1. **Steam generator** – after hot gas drives the natural gas generator, the heat is used to make steam. That steam is used to turn another turbine and another generator.

We're committed to achieving a net-zero greenhouse gas (GHG) emissions power system by 2050 or sooner. A combined-cycle facility uses the most efficient technology and is held to stricter emission regulations than other plants, which can help us meet our GHG emission reduction goals and provide the necessary baseload power we need.

Quick facts

- Generation capacity: **377 MW**
- Anticipated lifecycle: **25 years**
- Size of facility footprint: **108.13 acres**
- Height of stack: **52 metres (170 feet)**
- Estimated duration of construction: **40-42 months (Started March 2021)**
- Peak # of workers during construction: **600+**
- Local business support: **$257 million (as of September 2023)**
- Indigenous support: **$46 million (as of September 2023)**
- Number of on-site employees for operation: **25**
- Associated economic impact: About **$60 million** in additional revenue generated for Saskatchewan businesses and **35 jobs** created from the provision of services to the plant and spending of plant employees.
- Planned in-service date: **Fall 2024**

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Why did SaskPower build another natural gas facility?

Great Plains is an important part of SaskPower's plans to significantly reduce greenhouse gas emissions and continue to provide reliable, cost-effective power to our customers. As a natural gas power station, it will generate less than half the emissions of a conventional coal facility and is a bridging source of power generation to help us transition from coal to an emissions-free future. Natural gas-based power generation provides efficient and flexible baseload power that can support more variable types of non-emitting generation such as wind and solar power.

This new natural gas power station will help offset retirement of coal units that have reached their end of life. It will also help support growing demand for electricity in the province. The forecast for load is also expected to grow, this new station will help meet that future demand as well.

How does natural gas fit into SaskPower's renewables strategy?

Our goal is 50 per cent of our power generation capacity from renewable sources by 2030. However, wind and solar are intermittent and do not provide electricity 100 per cent of the time. With Federal regulations requiring the retirement of conventional coal by 2030, we need to use natural gas as a bridge until new baseload power options are available for deployment in Saskatchewan. Natural gas generation provides reliable baseload power and supports expansion of renewables, allowing us to use more wind and solar in the future and will help meet our goal to reduce our emissions by 50 per cent from 2005 levels by 2030 and achieve net-zero power generation by 2050 or earlier. We plan to add up to 3,000 MW of wind and solar by 2035.

How will Great Plains help get SaskPower to a net-zero greenhouse gas (GHG) emissions system?

Natural gas has lower emissions than conventional coal and depending on the age of the natural gas facility, these differences can be significant. For example, conventional coal emits around 1,100 tonnes of CO2 per gigawatt-hour (GWh) while a new combined cycle gas plant like Chinook emits around 360 tonnes of CO2 per GWh. Also, having natural gas in our power mix enables additional renewables. That's because power must be used in real time so on the days when wind is high, we won't run the gas plants as much. But when it's not windy or sunny, we use natural gas.