

PROJECT PROFILE / **GREAT PLAINS POWER STATION**

# POWER STATION EXPANDS NATURAL GAS GENERATION CAPABILITIES

SaskPower's new natural gas power station is needed to support Saskatchewan's generation demands and integrate additional renewable generation into the utility's system. Based on a successful track record at the Queen Elizabeth and Chinook power stations and through a competitive process, our firm was selected to execute the design and construction of the next natural gas-fired combined-cycle power plant for SaskPower.



# INTEGRATED EPC TEAM DEVELOPS A 360-MW PLANT FOR LARGE CANADIAN COMMUNITIES

A new power station will provide reliable power for the Canadian province of Saskatchewan. An efficient engineer-procure-construct (EPC) collaborative approach is being utilized to keep the project on schedule and on budget.

## PROJECT STATS

### CLIENT

SaskPower

### LOCATION

Moose Jaw, Saskatchewan

### ANTICIPATED COMPLETION

April 2024

**360**  
MW NATURAL GAS  
GENERATION

**1M+**  
HOURS ON-SITE

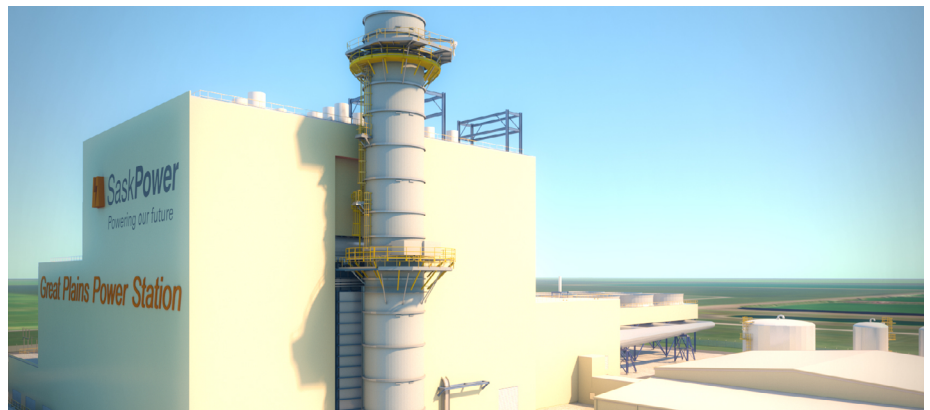
**500**  
WORKERS ON-SITE

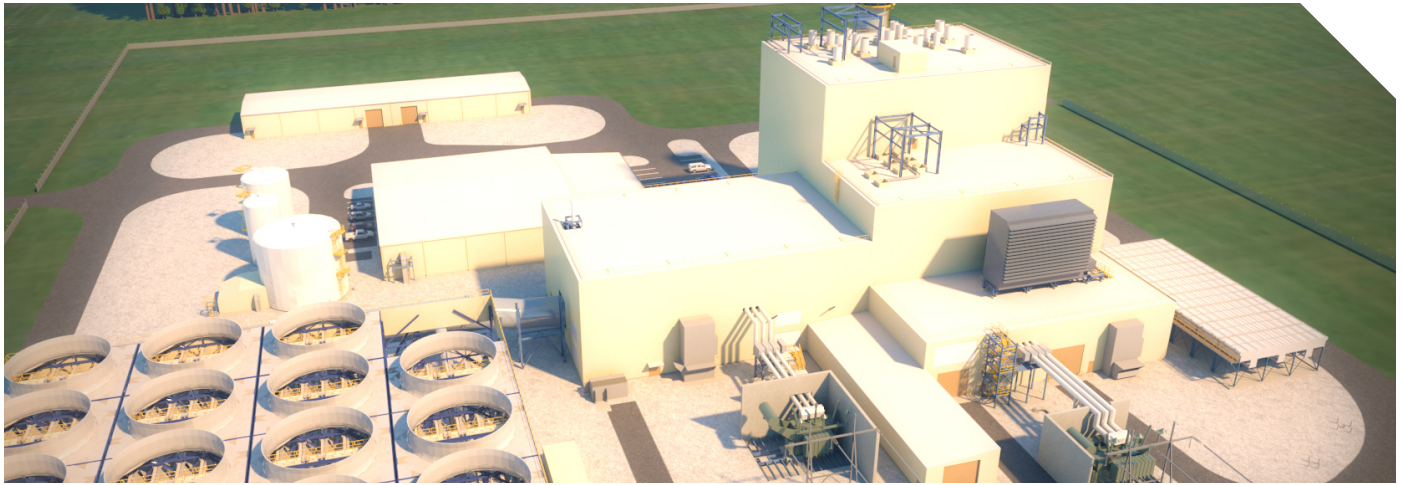
SaskPower needs a new power plant to provide reliable, cost-effective generation to the province of Saskatchewan. To meet this need, SaskPower hired us to design and construct the Great Plains Power Station as a thermal electric generating facility providing 360 megawatts of natural gas generation to the city of Moose Jaw and nearby communities to expand natural gas capabilities.

The project involves a single-gas turbine generator, a triple pressure heat recovery steam generator, a steam turbine generator, an air-cooled condenser and two generator step-up transformers. Other plant components include a combined water treatment/maintenance shop/warehouse/administration building, as well as a new switchyard connecting the facility to an existing transmission line.

Burns & McDonnell initially completed the early contractor involvement, which provided the scope definition and the regulatory approval for the power station. We then responded to the competitive EPC process and were awarded the project in November 2020. Burns & McDonnell is currently providing full EPC services for the Great Plains Power Station project, including:

- Engineering design of all equipment, plant systems and plant facilities
- Equipment and construction subcontract procurement
- Project management, site construction management, quality control and safety management
- Facility commissioning and startup





The single-gas turbine generator, heat recovery steam generator, steam turbine generator and associated auxiliary equipment, piping and electrical equipment will all be housed in an engineered power generation building. The process water used in the steam cycle will be generated using an on-site water treatment plant, and steam from the process is being condensed via an air-cooled condenser.

The project poses a variety of unique challenges the team is addressing in our detailed design and through project execution. Due to the extreme cold temperatures in the region, much of the piping has to be buried

2.5 metres to 2.8 metres below the surface, to provide added insulation and prevent waste and wastewater from freezing. Additionally, plant wastewater will be routed to the city of Moose Jaw's wastewater lagoons adjacent to the facility to take advantage of the nearby wastewater treatment facility.

Logistically, to facilitate an efficient on-site construction schedule, a number of plant components are planned to be fabricated and assembled off-site and shipped to the project in larger pieces. This will include the heat recovery steam generator stair tower and stack and the demineralized water storage tank.

The Great Plains Power Station project also has a strong commitment to supporting the local and Indigenous workforce. Throughout every phase of the project, the team has strived to employ local and/or Indigenous firms and other local labor to fulfill project needs. Construction began in March 2021, with over 1 million hours expected to be logged on-site. The project has an anticipated completion date of April 2024.

