

CASE STUDY

EPC Services Help Create a Cleaner Energy Future

Southwest Saskatchewan is home to a new 353-megawatt natural gas-fired power facility. The combined-cycle plant is not only instrumental in meeting the growing demand for power, but also in providing cleaner energy for the surrounding area.



Challenge

Southwest Saskatchewan in Canada is home to a varied landscape of fields, rivers and rolling hills. The region is also known for its cold, rugged winters.

Regulations in Saskatchewan are phasing out conventional coal-fired generation and requiring the integration of intermittent renewables. SaskPower, the province's sole energy provider, sought to provide cleaner energy to the surrounding area by constructing the Chinook Power Station, a new 353-megawatt natural gas-fired power facility.

SaskPower needed an engineer-procure-construct (EPC) team that could maintain and progress the project schedule, despite the area's brutal winters.

Project Stats

Client

SaskPower

Location

Saskatchewan, Canada

Completion Date

November 2019

\$143M

LOCAL AND ABORIGINAL
CONTRACTOR PROCUREMENT
(CANADIAN DOLLARS)

40%

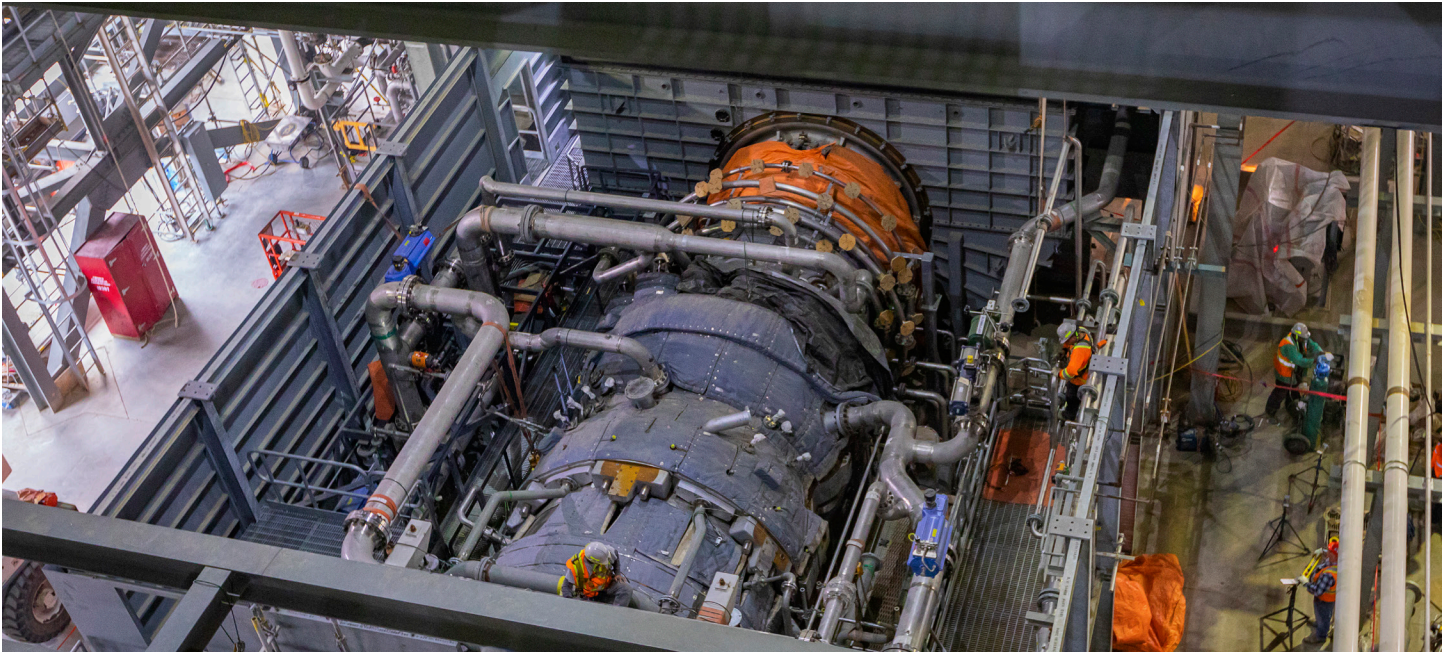
GHG REDUCTION
GOAL SUPPORTED

353

MEGAWATT POWER
FACILITY

2M+

ON-SITE HOURS
WORKED



Solution

The company chose Burns & McDonnell to provide comprehensive EPC services for the new power facility. The project sought to engage Saskatchewan skilled trade workers, who comprised 44% of the on-site workforce. Offsite prefabrication offered many benefits to the project. Due to the area's rugged winter conditions, large portions of the natural gas facility were built off-site in a controlled environment before being transferred to the main construction site. Everything from air-cooled condenser modules and pipe racks to electrical enclosures and other equipment were all built off-site.

The facility installed a Siemens SGT6-5000F gas turbine, a heat recovery steam generator (HRSG) and a Siemens SST6-900 steam turbine to boost power output and maximize energy efficiency while reducing the overall emissions footprint. A highly efficient combined-cycle operation that utilizes exhaust heat that would otherwise be lost in a simple-cycle configuration was selected for this project. The hot exhaust from the initial cycle is captured to boil water into steam in the HRSG to spin an additional generator, producing more power. The plant also utilizes advanced air cooling, making it more water-efficient than traditional combined-cycle designs.

Results

Off-site prefabrication allowed for the Chinook Power Station project to be completed on time and under budget. The facility is now a key component of SaskPower's

commitment to support Saskatchewan's growing electricity needs. It provides highly efficient baseload power that is cost-effective and generates fewer carbon emissions than coal. This baseload power supports the intermittent renewable power, such as wind and solar.

The power station generates enough electricity to meet the growing demand for power in the area, providing power for at least 350,000 homes. It supports the electric utility's goal of a 40% reduction in greenhouse gas emissions by 2030, exceeding the national target of a 30% reduction.

This new facility will be an integral part of the power generation mix as SaskPower works to reduce greenhouse gas emissions. In addition, the power station's advanced gas turbine is a critical base supply for the province when environmental barriers hinder renewable power generation.

About Burns & McDonnell



Burns & McDonnell is a family of companies bringing together an unmatched team of engineers, construction and craft professionals, architects, and more to design and build our critical infrastructure. With an integrated construction and design mindset, we offer full-service capabilities. Founded in 1898 and working from dozens of offices globally, Burns & McDonnell is 100% employee-owned. For more information, visit burnsmcd.com.