BURNS McDONNELL

PROJECT PROFILE / **INCREASING GENERATION CAPACITY**

CREATIVE SOLUTION OVERCOMES CHALLENGES TO POWER A COMMUNITY

Facing a quick timeline to accommodate the harsh winter months and accompanying bitter cold temperatures, as well as adjust to the challenges posed by the ongoing COVID-19 pandemic, our firm implemented a forward-thinking approach to provide a feasible solution.

GAS TURBINE GENERATOR INSTALLED USING STRATEGIC TECHNOLOGY SOLUTION

To meet growing energy demands and minimize environmental impact in Medicine Hat and the surrounding area, a new aeroderivative gas turbine engine and selective catalytic reduction system will be installed to power the region.

Challenged with a variety of obstacles, including an aggressive project schedule to avoid the harsh winter months and limitations related to the ongoing pandemic, the City of Medicine Hat needed a solution to power its community. The project will use a new General Electric (GE) LM6000 aeroderivative gas turbine engine and a selective catalytic reduction system to meet energy demand.

Burns & McDonnell was brought in to perform detailed design engineering for the entirety of the project retrofit to the existing generation fleet, and resolve any challenges. Providing the detailed design for the facility, our firm will coordinate with GE, develop specifications for the balance of plant equipment and construction and produce issued-for-construction drawings to meet an aggressive project schedule.

To minimize the environmental impact of the gas turbine emissions from the new generator, the new unit will utilize a selective catalytic reduction system. The generator will also feature a waste-heat recovery unit to harness exhaust heat to prevent icing in the inlet air system during the region's bitter cold months. Additionally, to allow for enhanced gas turbine performance in high ambient temperatures, the team will expand the existing facility's glycol cooling system.

The COVID-19 pandemic prompted the team to devise creative solutions and innovative technology to maintain the health and safety of all project stakeholders and limit in-person interaction when feasible. The RealWear system — a wearable technology solution that combines and connects a pair of glasses with a voice-activated computer tablet — is being used to complete site walkthroughs, requiring only one person on-site. This allows crucial project information to be relayed back to professionals throughout North America in real time, helping protect the health of workers at the site. The wearables are proving to be extremely effective in collecting field data while reducing the number of potential exposures.

The new LM6000 unit will add 44 megawatts of power to an existing generation facility in Medicine Hat. Detailed design work on the project began in September 2020, with construction completion expected in April 2022. The new generating unit will increase the city's total generation capacity to meet the greater energy needs of Medicine Hat and surrounding communities.

PROJECT STATS

CLIENT
City of Medicine Hat

LOCATION
Medicine Hat, Alberta

ANTICIPATED COMPLETION
April 2022

44
MW POWER ADDED

24
MONTHS AGGRESSIVE SCHEDULE

66K+
MEDICINE HAT RESIDENTS

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