Capital Power

RESPONSIBLE ENERGY FOR TOMORROW

Fact Sheet | Shepard Energy Centre

Facility Details

Location: Alberta, Canada

Year Commissioned: 2015

Owned/Operated: 50/0*

*860MW facility jointly owned by Capital Power and ENMAX Corporation (the operator)

Fuel Type(s)

Natural Gas

Owned Capacity

430* MW

In December 2012, Capital Power and ENMAX Corporation signed a joint agreement to build, own, and operate the 860MW Shepard Energy Centre in Calgary, Alberta. Commercial arrangements for the facility with ENMAX include a 20-year tolling contract where 75% of Capital Power's capacity is contracted from 2015 to 2017 and 50% thereafter to 2035. ENMAX operates the facility and Capital Power's Energy Management Operations Centre (EMOC) administers the dispatch of electrical output with each party having rights to their own blocks of power.

Quick Facts

- Facility produces energy from two natural gas turbines and one steam turbine
- Waste heat produced from the natural gas turbines is captured and used to produce steam for the third turbine
- Turbine configuration makes the gas-fueled facility approximately 30% more efficient than conventional coal plants, all while reducing overall fuel costs
- Emits less than half the CO_2 emissions per MW hour of a conventional coal plant as well as fewer carbon monoxide, sulphur dioxide and nitrogen dioxide gases
- Facility cooling towers use reclaimed water from The City of Calgary's Bonnybrook Wastewater Treatment Plant
- This is the first facility in Canada to use Mitsubishi's G-Class turbine technology and is currently the lowest-cost, non-cogeneration, natural-gas generator in Canada

NRG COSIA Carbon XPRIZE – Generating Even Greater Innovation

Shephard Energy Centre is already showing how innovation can lead to more effective, efficient and environmentally friendly ways to generate electricity. Thanks to NRG and Canada's Oil Sands Innovation Alliance's (COSIA) Carbon XPRIZE, Shepard is home to leading research in how CO_2 emissions can be converted into other useful products.

The competition is hosted at the Alberta Carbon Conversion Technology Centre (ACCTC) in the Shepard facility. The ACCTC is an exciting collaboration between the governments of Canada and Alberta, Canada's Oil Sands Innovation Alliance (COSIA), Shepard, InnoTech Alberta and academia for accelerating CO_2 reduction, carbon utilization and value-added economic development. Shepard is the only operating natural gas-fueled power plant in the world where advanced carbon utilization technologies can be demonstrated by companies in a full-scale production environment; a critical step for innovators globally to bring their breakthrough technology to market.

Shepard emits less than half the CO_2 per MW of conventional coal plants already and the research supported by NRG COSIA Carbon XPRIZE is using that CO_2 to unlock innovation that will lead to new, valuable uses for carbon emissions.

"We are pleased to work with ENMAX on the Shepard facility. It is an excellent fit with our business strategy and strengthens our position in Alberta, where we have extensive experience and a well-established portfolio of assets."

Brian Vaasjo
President and CEO

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