



# **ATCO HEARTLAND GENERATING STATION PHASE 2**

**Project Information Package  
August 2015**

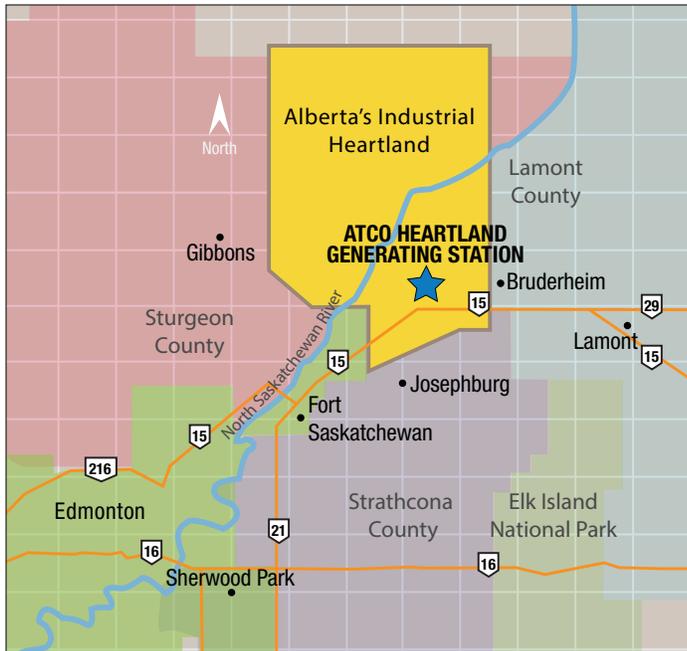


*Conceptual drawing of ATCO Heartland Generating Station with Phase 2 on the upper left*

## Project Overview

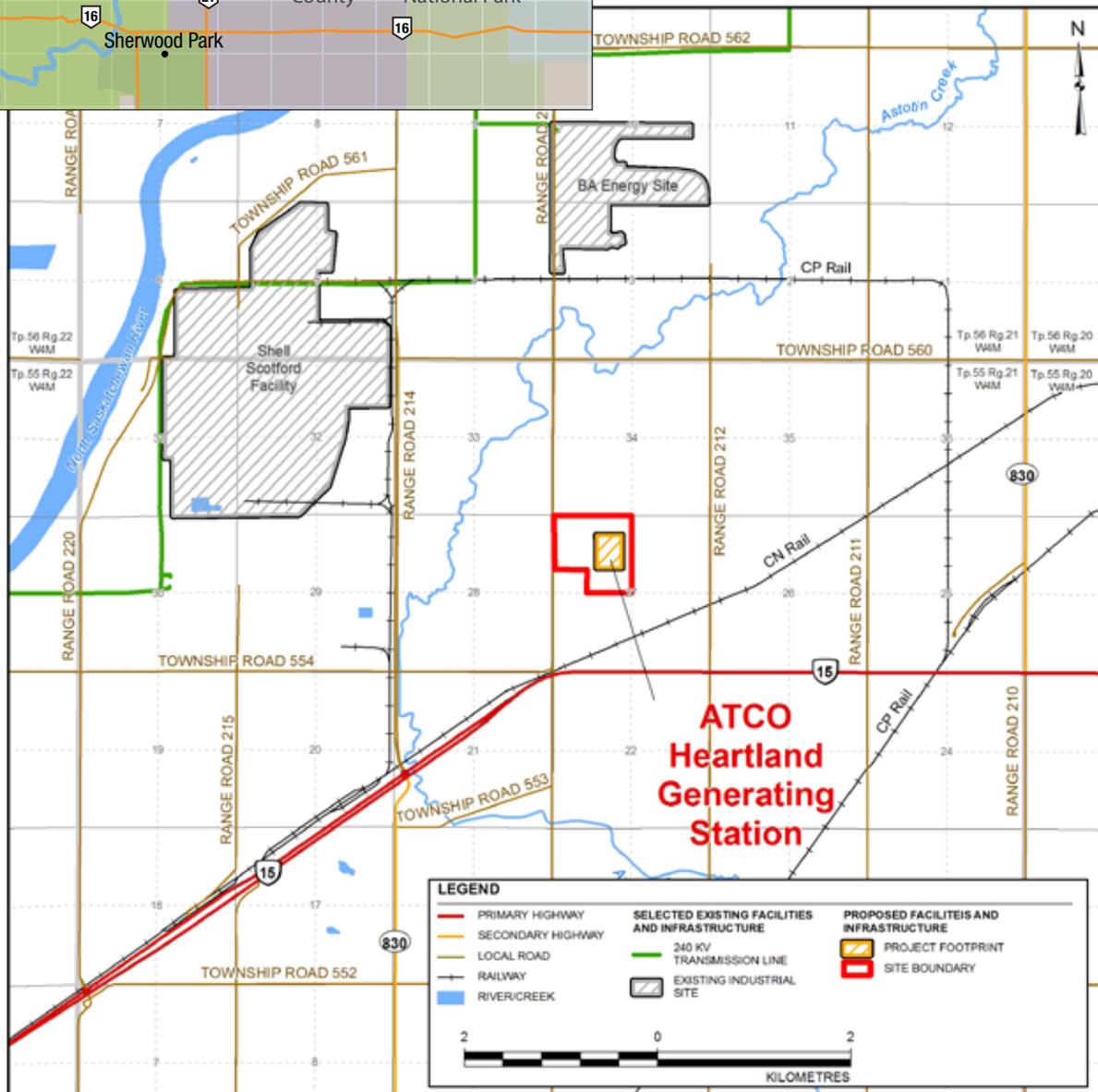
ATCO Power is proposing to build and operate a natural gas-fired power plant called the ATCO Heartland Generating Station in Strathcona County, Alberta. The project has two phases; each phase will have a 400 megawatt (MW) generating unit and two substations. Phase 1 was introduced to landowners in 2013.

ATCO Power is currently applying to construct and operate Phase 2. As part of the regulatory process for power projects and substation developments, this information package has been prepared to inform the public, local authorities, agencies, industry and government about Phase 2 of the project, and to provide an updated timeline for Phase 1.



## Location

The ATCO Heartland Generating Station will be located 14 kilometres northeast of Fort Saskatchewan in Strathcona County within Alberta's Industrial Heartland. The 140 acre (57 hectare) site is owned by ATCO Real Estate Holdings Ltd. Thirty acres (11 hectares) of the site will be used for Phase 1 and 19 acres (8 hectares) for Phase 2. The Phase 1 area includes administration facilities that will be used by both phases.



## Equipment Description

The ATCO Heartland Generating Station Phase 2 is the addition of a second 400 MW unit to the proposed Phase 1. Each phase is one natural gas fueled combined cycle power block that will achieve high energy efficiency while producing lower air emissions for the amount of electricity produced.

A combined cycle power block combusts natural gas in a gas turbine to produce electricity and heat; the heat is then converted to steam in a heat recovery steam generator and that steam is used to produce additional electricity in a steam turbine. To maximize performance of the steam turbine, steam is cooled and condensed back into water using a closed loop cooling tower.

## Siting Considerations

The ATCO Heartland Generating Station is located in the Alberta Industrial Heartland near large electricity consuming industries. Locating electricity generation near consumers increases the efficiency of the Alberta Interconnected Electricity System (AIES) and reduces the system's environmental impact thereby reducing electricity costs for all Albertans.

The site of the power plant has been selected due to nearby third party infrastructure. This reduces the impact on the environment by not requiring new infrastructure to be constructed and it is more effective when more than one company can use the same infrastructure. The site selected

Each phase of the project will have a gas turbine substation and a steam turbine substation. Each substation will contain electricity transformers to step-up the voltage and switches to connect to the transmission lines so that the electricity can be transmitted to customers.

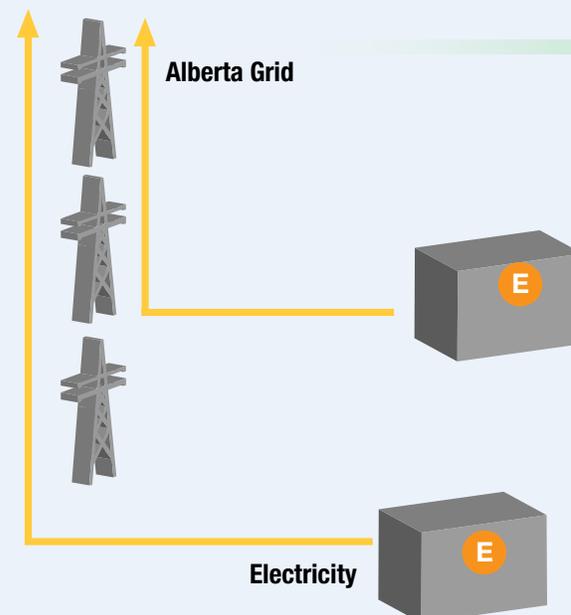
Neither Phase 1 or Phase 2 of the ATCO Heartland Generating Station is expected to result in setback to adjacent lands. These facilities should not impact other landowners' use of their land.

is adjacent to a high pressure natural gas pipeline. Water for the project will be withdrawn from an existing structure on the North Saskatchewan River and transported to the site in an existing raw water corridor. High voltage transmission lines are within five kilometres of the site. A wastewater pipeline extends from the site to within one kilometre of the river. A third party will extend the pipeline to the river and construct an outfall structure.

The site of the power plant is currently being used for agriculture and as much as possible of the site will be returned to agricultural use once construction of the power plant is complete.

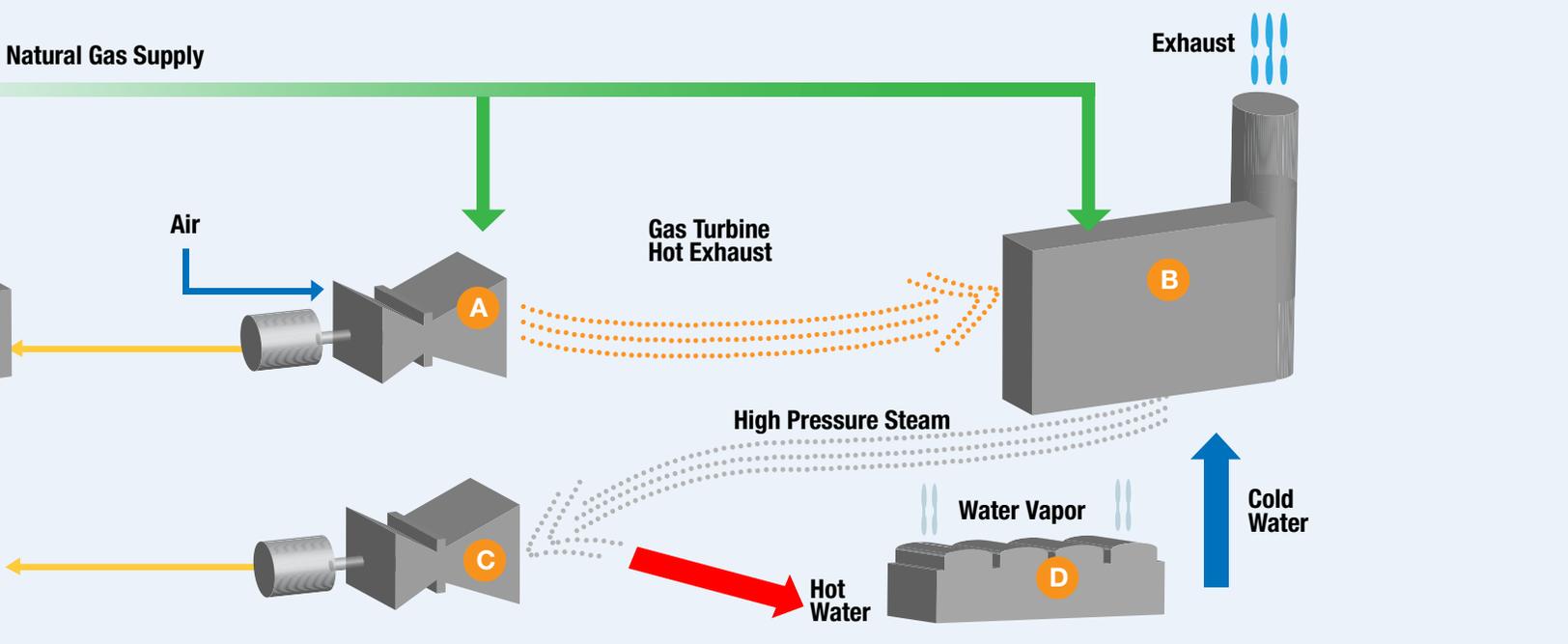
## HOW A COMBINED CYCLE

- A** Gas Turbine
- B** Heat Recovery Steam Generator
- C** Steam Turbine
- D** Cooling Tower
- E** Substations





## THE POWER PLANT WORKS



## Environmental Considerations

ATCO Power has and is currently conducting environmental studies to assess the impact of Phase 2 on the environment for example:

- The Industrial Approval Application, to be submitted to Alberta Environment and Parks (AEP), will include an air quality assessment to demonstrate that emissions from Phase 2 will be in compliance with air quality standards. The proposed project is being designed with technology that will reduce the emission of nitrogen oxide (NO<sub>x</sub>) gases (a byproduct of natural gas combustion). Control technology selected includes low NO<sub>x</sub> combustion technology and a Selective Catalytic Reduction system.
- The Power Plant Application, to be submitted to the Alberta Utilities Commission (AUC), will include a noise impact assessment to predict noise levels from Phase 2 and ensure that the Project will be in compliance with noise standards. Noise mitigation technology selected includes the use of buildings to shield equipment, a stack silencer and noise mitigating louvers.
- The station is being designed to recycle cooling water and reuse wastewater to minimize the quantity of water withdrawn from the North Saskatchewan River. Studies have been and continue to be conducted to determine the specific water treatment needed to ensure optimal recycling of wastewater and to ensure that the quality of water returned to the river conforms to the specifications set by AEP.

## Transmission Interconnection

The Alberta Electric System Operator (AESO) administers the process for connecting power plants, like the proposed ATCO Heartland Generating Station, to the Alberta Interconnected Electrical System (AIES). The AESO is responsible to the AUC to ensure the power line and point of interconnection best suit the electrical system needs of today and in the future. The AESO will direct the regional Transmission Facility Operator, AltaLink, to design, permit, build and operate the required power line and related equipment to interconnect the ATCO Heartland Generating Station Phase 1 and 2 with the AIES.



## Project Schedule

The final investment decision on the ATCO Heartland Generating Station is pending after close consideration and monitoring of the current electricity market in Alberta. ATCO Power's earlier plan had been to construct Phase 1 starting in 2014, with full commercial operation in 2017. We continually monitor the electricity market to identify the optimal time for Alberta electricity consumers and our shareholders to build the Heartland project. The revised Phase 1 schedule is to start construction in 2016 and operation in 2019.

In 2015, ATCO Power will be applying to the AUC and AEP to build, own and operate Phase 2 of the ATCO Heartland

Generating Station as part of the standard regulatory process for power project and substation development (Phase 1 has been issued AUC and AEP approvals). By obtaining the required environmental permit for Phase 2 now, this ensures that once the electricity market becomes more favorable, and a final investment decision on the Heartland Generating Station is made, ATCO Power will be in a position to begin construction of the ATCO Heartland Generating Station to deliver reliable, efficient and clean electricity to Alberta consumers. The current proposed schedule is to submit the Phase 2 regulatory applications in 2015, start construction in 2018 and start operation in 2021.

## ATCO in the Heartland

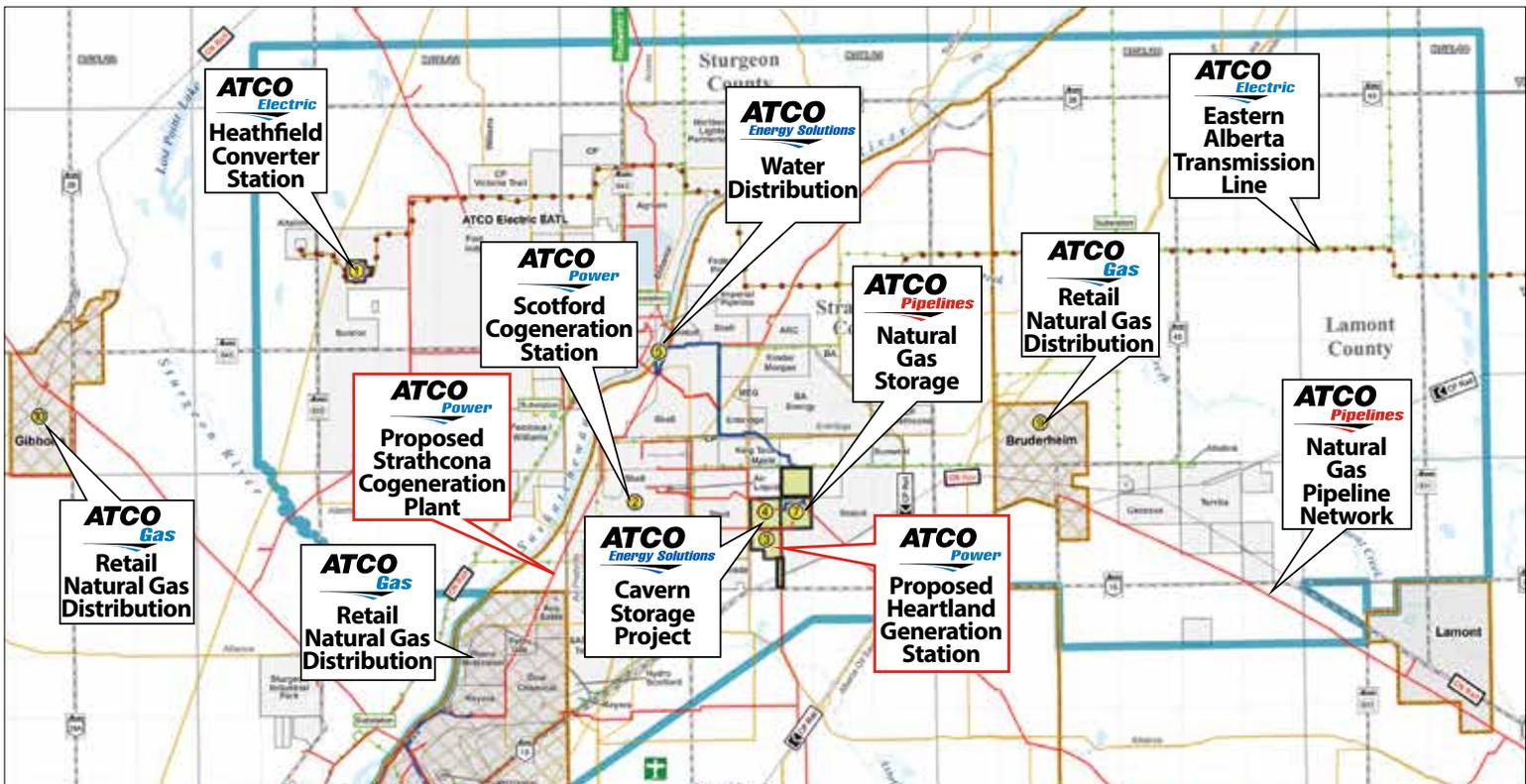
ATCO Power is part of the ATCO Group of Companies. For more than 100 years, ATCO companies have been providing energy and other services to more than 300 communities and more than one million customers in Alberta, demonstrating the “can-do” spirit that has made this province a great place to live.

ATCO’s involvement as part of the Strathcona County community began in 1948 with ATCO Gas providing natural gas service to the Fort Saskatchewan area. Today ATCO has many employees in the area providing natural gas services, operating power stations and industrial facilities as well as pipeline systems.

ATCO Power is an experienced, industry-leading expert in developing, building and operating independent power

generation facilities. ATCO Power has been operating power plants in Alberta for almost 60 years to provide low cost and efficient electricity for Albertans and to support Alberta’s economy. ATCO is known for its strong safety record and the reliability of its generating units with an ownership position in 13 power plants in Alberta, British Columbia, Saskatchewan and Ontario. ATCO Power is operating or proposing three power plants in the Alberta Industrial Heartland:

- The 170 MW Scotford Cogeneration Plant at the Shell Upgrader Facility (commissioned in 2002);
- The proposed 800 MW ATCO Heartland Generating Station (Phases 1 and 2); and,
- The proposed 90 MW Strathcona Cogeneration Plant at the Williams PDH Complex.



ATCO in the Industrial Heartland

## Consultation Process

ATCO Power is committed to engaging in a timely and meaningful consultation with the community regarding the ATCO Heartland Generating Station Phase 2.

We will work in a transparent, receptive, responsive, collaborative and accountable manner to share information about Phase 2 and listen to, understand and address questions and concerns from landowners and other interested parties.

During the summer and fall of 2015, we will be contacting local landholders to discuss the proposed project and to gather input into the project.

### For questions regarding ATCO Heartland Generating Station:

**Call:** 403-209-6951 or  
1-855-909-6951 (toll free)

**Email:** [heartland@ATCOPower.com](mailto:heartland@ATCOPower.com)

[www.ATCOPower.com/Projects/Heartland](http://www.ATCOPower.com/Projects/Heartland)