

# Genesee Generating Station

Units 4 & 5

A New Power Generation Opportunity for Alberta

Fall 2013



## A New Power Generation Facility for Alberta

Capital Power is proposing to build the Genesee Generating Station Units 4 and 5 (the Project), a combined cycle natural gas-fired generation facility. Capital Power, together with potential partner(s), plans to construct and operate the Project on a site adjacent to the existing Genesee Generating Station. The Project's generation capacity will be up to 1,050 megawatts (MW), and construction will be in two phases with each phase being approximately equal. The in-service date for both units is currently expected to be in the 2017-2020 range. The expected life of a natural gas-fired facility is generally 35 years.

## Utilizing the Existing Genesee Generating Station Lands

The proposed Project is located 50 kilometres west of Edmonton (Section 25, Township 50, Range 3, west of the 5th Meridian) and is within the County of Leduc. The building area is entirely within the boundaries of the existing Genesee Generating Station, which is owned by Capital Power. Previously used as a construction laydown area, the Project site is considered 'brownfield.' Construction will occur in an area of about 5 hectares (14 acres).



## Helping Meet Alberta's Power Generation Needs

The Project is being developed to meet anticipated increases in Alberta's power requirements arising both from continued economic growth in the province and from the expected retirement of existing coal generating units in the 2020 timeframe. According to the Alberta Electric System Operator (Feb 2013), peak demand will grow from 10,600 MW to 14,600 MW by 2020 or by an average of 500 MW per year. Situated in central Alberta, the Project is close to existing transmission infrastructure, as well as important electrical load centres such as Edmonton and outlying industrial areas. Using an abundant fuel such as natural gas, this facility will provide a reliable, clean and efficient alternative for new generation in Alberta.



1—Proposed Project Site; 2—Genesee Units 1, 2 and 3; 3—Genesee Switchyard; 4—Genesee Cooling Pond; 5—Hwy 770.



Rendering of proposed Genesee Units 4 & 5.



## Generation Technology

Capital Power is proposing to utilize advanced combined cycle natural gas-fired turbine technology (CCGT) for the Project. The CCGT process begins with a natural gas turbine generator which produces power and heat when in operation. The heat creates steam which drives a steam turbine generator. As a “combined” process, the gas turbine and steam turbine together generate power with greater efficiency and lower emissions than with a single process.

The Project is proposed as two identical combined cycle systems which could achieve a combined gross capacity of up to 1,050 MW. Each generating unit consists of a natural gas-fired turbine and generator, a heat recovery steam generator, and a steam turbine and generator. The structures housing the generating units will be approximately 200 metres by 500 metres, and about 30 metres high. Cooling water for the generation units will be obtained from the inlet channel of the existing Genesee Cooling Pond, and will pass once through the plant and then be released through the outlet channel back into the pond. Changes will not be required to the current water intake and return channels to the North Saskatchewan River.

Electricity generated by the Project will be transmitted to the adjacent Genesee Substation. In order to deliver the power to Alberta’s power grid, a minor expansion will be completed on the existing Genesee Substation. No new transmission lines are proposed for this Project to transfer the energy from the Genesee Substation to the provincial power grid.

An underground natural gas pipeline will be developed for the Project and will be approximately 78 kilometres in length. The pipeline will connect to an existing high-pressure line in the area and will require a separate regulatory approval process prior to construction.

## Environmental Performance

The Project will be one of Alberta's most advanced generation facilities and will feature a number of environmental attributes:

- No additional diversion of water from the North Saskatchewan River is required for the Project.
- Advanced combined cycle natural gas-fired turbine technology ensures greater efficiency and will help Alberta continue to reduce greenhouse gas emissions.
- The facility will use advanced emission-control technology, significantly reducing emissions such as nitrogen oxides (NO<sub>x</sub>).
- The facility will be constructed on a ‘brownfield’ (i.e. previously disturbed) site and will utilize existing infrastructure (i.e. substation, transmission and water intake/discharge structures).
- The Project will use advanced generation technology and will be designed to meet Alberta’s air emission standards and performance expectations.

*The lands comprising the Genesee Generating Station have been in use for power generation since 1989. There are currently three generating units on the site, with a combined maximum capacity of 1,266 MW.*

## Participant Involvement Program

Capital Power is committed to sharing information on the Project and receiving input from our neighbours and stakeholders. Capital Power has commenced this process by developing several opportunities for information exchanges. These include:

- Project information mailed to local landowners and other stakeholders.
- Project information on Capital Power's website ([www.capitalpower.com](http://www.capitalpower.com)).
- An open house to discuss the Project directly with project team members.
- An opportunity for all interested stakeholders to provide comments to Capital Power by phone, e-mail and mail.
- An Aboriginal Engagement Program.

Capital Power will document stakeholder comments to ensure all questions and concerns are addressed.

## Project Schedule

Capital Power anticipates submitting regulatory applications for the Project by late 2013 or early 2014. Separate applications will be made to the Alberta Utilities Commission and Alberta Environment and Sustainable Resource Development. Prior to construction, we will apply to Leduc County for building and other development permits.

A number of key environmental studies for the Project have commenced including air, water and noise assessments. We will be sharing information on these studies with stakeholders at an open house on November 27th, 2013 at the Genesee Community Hall.

Pending a successful outcome of the regulatory review, we anticipate construction to begin in late 2014 or early 2015. Construction of the first phase of the Project is expected to take three years, with the second phase taking an additional year to complete.

## Jobs and Contracting Opportunities

The on-site construction employment will occur over a three to four year period, creating approximately 1,200 person-years of employment. At peak construction, there will be about 850 people working on the Project. During operations, 25 to 30 full-time positions will be required.



## Capital Power – Alberta Experience and Commitment

Capital Power is one of Alberta's largest and most experienced power generation companies, both in terms of building and operating energy facilities. We currently own over 1,900 MW of power generation in Alberta. These facilities are fuelled by coal, natural gas and wind, including Alberta's largest wind farm, the 150-MW Halkirk Wind Operation. In late 2012, Capital Power announced that it had acquired a 50% interest in the Shepard Energy Centre, an 800-MW gas-fired facility being constructed by Enmax in Calgary. Our construction expertise has been strengthened over the last three years with the completion of the Keephills 3 Generating Station near Lake Wabamun and wind power facilities in Alberta, British Columbia and Ontario.

*Capital Power's 2012 Corporate Responsibility Report can be found at [www.capitalpower.com/corporateresponsibility](http://www.capitalpower.com/corporateresponsibility)*



*Capital Power owns and operates Alberta's largest wind farm, the 150 MW Halkirk Wind Project.*



*Capital Power's vision is to be recognized as one of North America's most respected, reliable, and competitive power producers.*

## We Want To Hear From You

Capital Power values your input into the proposed Genesee Units 4 & 5 Project. We have launched a participant involvement program to share information with stakeholders and obtain input on our proposal.

### Contact by phone or e-mail:

Toll Free: (Alberta) 1-866-348-3946  
Local: 780-848-8474  
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publicconsultation@capitalpower.com

### Contact by mail:

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### Website:

[www.capitalpower.com](http://www.capitalpower.com)

### Open House

4:00 pm to 8:00 pm  
Wednesday, November 27, 2013  
Genesee Community Hall  
Genesee, Alberta

