

# SPRING 2015 CONNECTION

## Hello Neighbours and Friends,

We are moving into an exciting time at the Genesee Generating Station, with lots of anticipated activity around the plant over the upcoming months.

We are looking forward to advancing the development of the Genesee 4 & 5 project as the next large natural-gas-fired generation project built in Alberta.

The project has received all required major regulatory approvals from the Alberta Utilities Commission and Alberta Environment and Sustainable Resource Development to proceed with construction. In advance of construction, the area around the entrance to the station (outside and inside the site) will start to undergo preparatory work, including relocating site infrastructure (e.g. utilities, trailers, etc.) and relocating parking.

The roads leading into the site area are also being assessed to determine the required improvements to provide the safe and efficient access to the site. This will likely involve a modification to the site entrance. Capital Power will provide advanced notice of any temporary road disruptions.

In May, our annual maintenance (i.e. shutdown) is scheduled for the G1 unit for three weeks. During that time, there will be an increase in the number of contractors on site. Bussing will be provided to minimize disruption to local traffic.



**Sean Furey**

We are also very excited to bring you another way of connecting with the company, in addition to all the ways you can currently connect with Capital Power. Read on to learn more about how we're continuing to find new ways to connect with local residents.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Sean Furey'.

**SEAN FUREY, Plant Manager**  
**Genesee Generating Station, Capital Power**

## GENESEE STATION

BOX 20, SITE 2, RR #1  
WARBURG, ALBERTA T0C 2T0 CANADA

## Construction of Genesee 4 & 5 Set to Begin in 2015

With all major regulatory approvals granted, construction of Genesee 4 & 5 is set to begin in mid-2015, with a targeted completion date as early as late 2018, depending on market conditions. Construction will be in two phases with each phase being approximately equal.

The project, a 50/50 joint venture with ENMAX Corporation, is being developed to meet the need for additional generation resulting from growing demand and to replace generation from the retirement of some existing coal generating units in Alberta in the 2020 timeframe. Capital Power's coal-fired units located at Genesee will continue to operate until the end of their legislated end-of-life.

Genesee 4 & 5 will be the largest and most efficient natural gas-fired combined cycle generation facility in Canada with a nominal combined generation capacity of 1,060 megawatts. The facility will use Mitsubishi Hitachi Power System's J-Class natural gas turbine technology, comprised of two 530 megawatt units each. The facility consists of two one-on-one, single shaft power islands, each incorporating a 501 J-class natural gas turbine, steam turbine, generator and heat recovery steam generator.

Compared to previous combined cycle technology, Genesee 4 & 5 will have a lower heat rate resulting in higher efficiency and an approximate four per cent reduction in CO<sub>2</sub> and NO<sub>x</sub> emissions. The J-Class technology also provides superior flexibility to respond to sudden fluctuations in supply and demand that makes it well-suited for the Alberta power market.

The facility will be located on a brownfield site (previously disturbed) adjacent to the east-side of the Genesee 3 unit within the existing station site, with no additional lands purchased or disturbed for the project. The structures housing the two units will be approximately 200 metres by 500 metres, and about 40 metres high with two 80 metre high stacks. It will have the same blue colour, uniformly blending it with the existing environment.

The site is ideal for Alberta's next large scale generating facility, as it will use the existing water intake/discharge structures and the existing transmission interconnection and connect to the new 500kV DC line located within 500 metres of the project. 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. Wherever possible, Capital Power will hire local contractors.

### COLOUR OF PLUME FROM THE G3 STACK

You may have noticed the colour of the plume coming from the G3 stack looks different recently; rest assured everything is running as it should at the plant. After the last shutdown in October 2014, and as part of ongoing work to further improve sulfur capture from the G3 flue gas, the stack gas is now quite a bit cooler – by almost 10 degrees Celsius. Moisture now condenses almost right off the stack cone, and the droplets scatter light very differently than they used to.

From a low angle (e.g. at ground level and at a distance), observers may notice a shadow from the brightly lit foreground of the plume – that foreground shows bright white and reflects light back to an observer strongly – leaving a shadow on the part of the plume behind it. This has the effect of darkening the appearance of the back side of the plume.

And while talking about moisture, how much water from coal is released as steam from the G3 stack in one year?



In 2014, it was 205,195 tonnes or enough to fill that many 1 m<sup>3</sup> boxes, the size you'll see many people haul water with in the back of a pickup truck. Put end-to-end, the trail of boxes would reach 205 km.

## Creating More Opportunities for Dialogue with the Genesee Community

Capital Power has enjoyed its strong relationship with the Genesee community over the past 30 years. Our efforts to build trust and communication opportunities help to ensure community members are comfortable in bringing concerns forward, asking for information and engaging with us. This enables us to address community issues, make adjustments as needed and operate with a strong foundation of community support.

Communities, in general, expect to be able to access information, relay concerns, and receive responses quickly and efficiently. The ways we already connect with you include:

- ▣ Maintaining the Genesee hotline (780-848-8474) and email ([publicconsultation@capitalpower.com](mailto:publicconsultation@capitalpower.com));
- ▣ Providing detailed info about proposed activity or operations on our website and in the Genesee Connection Newsletter;
- ▣ Supporting local initiatives and organizations;
- ▣ Meeting with Leduc County Council and Warburg Council 2-3 times annually;
- ▣ Hosting project-specific open houses/community meetings;
- ▣ Hosting the Community Advisory Task Group (CATG) meetings;
- ▣ Hosting annual mine, station or crop tours; and
- ▣ Maintaining the Land Management Office that provides opportunities to speak with us about stakeholder priorities, issues, and concerns.

With the start of construction work of Genesee Generating Units 4 & 5, we want to expand the opportunities for you to connect with us in-person in a more immediate way.

- ▣ **Increased web presence:** We plan to create and increase our use of social media, as well as the info on our website, to provide timely updates on what's happening at Genesee. This will allow us to get time-sensitive messages out to the community quickly. See our social media info on back page.
- ▣ **Monthly coffee sessions:** Starting in March on the last Wednesday of each month, Capital Power will host an informal drop-in session at the Genesee Land Office, from 3-7 p.m. Anyone from the community is welcome to attend, have coffee, and ask questions about upcoming construction, operations, land management or other issues.

## Community Advisory Task Group

Capital Power values the opportunity to connect face-to-face with Genesee residents. History is showing a continued decline in CATG membership and interest, even with significant recruitment efforts.

As well, community members expect to be able to get information, raise concerns, and get responses quickly, and so we will put the CATG process (formal meetings, minutes, submitting questions) on pause until there is renewed interest in re-establishing this forum of community interaction. Individuals interested in joining the CATG may contact us at [publicconsultation@capitalpower.com](mailto:publicconsultation@capitalpower.com).

## JOIN US!

On **March 25**, stop by the **Genesee Land Office from 3-7 p.m.**, have coffee, and discuss any issues or questions you may have about our operations or upcoming construction with Genesee staff. If you would like specific information, call/email ahead with your desired topic so we can work to have the appropriate resource available. Our contact info is on back page of this newsletter.



## PUBLIC COAL SALES

Many people use coal as an economical source of fuel for heating their homes or greenhouses. Again this winter, public coal sales are available at Genesee Station by appointment only on Saturday mornings. **Please contact Lorne or Sharon Lawrence at 780-789-2117 to book an appointment.**

The coal is sold in "mini bulk" bags containing a minimum of one tonne of coal at a cost of \$45 including GST per bag. The lump coal is screened and is approximately three inches in size and larger.



## Genesee Land Management and Reforestation Spotlight

Each year, research in the Genesee area becomes more sophisticated and varied. Re-establishing wetlands, natural creek bodies and wildlife corridors are all important recent developments that focus on biodiversity and a big-picture view of Alberta's ecosystem.

### Industry experts gather for tour and workshop



The chilly, blustery weather didn't affect turnout, which was a crowd larger than we see for most public mine tours. The group is surrounded by some of the early aspen plantings.



George Greenhough (left) stands in front of one of the interpretive signs created to help guide tour groups. Our chief consultant on the reforestation efforts, Eckehart Marenholtz, stands to his left.

In October, Genesee Hall hosted the Canadian Institute of Forestry's (CIF) reclamation and remediation workshop, which gave attendees a chance to tour the mine area and the work underway there. The workshop included participants from close to a dozen industry, stewardship and academic organizations, by invitation from the CIF.

Participants experienced a mine tour that included stops to review aspen and poplar grow trials and deep tillage work and artificial wetlands before returning to the hall for presentations, information on the future of remediation work in the province, and a tradeshow.

Capital Power's pioneering work with its partnership organizations was emphasized as an example of responsible industrial operations. Chief researcher Eckehart Marenholtz, a long-time collaborator on Capital Power's reforestation work, spoke to the employees to update them on the work.

## Mini-series highlights research at Genesee

In late 2014, Capital Power signed on as a sponsor of “Innovation Anthology” – a multi-media production based on interviews with scientists and innovators. Five interviews will focus on land initiatives at Genesee, with each airing multiple times as 90-second commentaries.

The first interview with Genesee Land Services Manager George Greenhough, aired Feb. 19 and overviews land reclamation and reforestation at Genesee. The second interview, also with George, aired Feb. 24 and discusses Capital Power’s partnerships with the University of Alberta and efforts to move mine reclamation into forest landscape.

“Our involvement with the program is a great way for Capital Power to increase public awareness and to profile the unique research initiatives underway at the Genesee Mine,” said George.

The program – currently in its eighth season – is broadcast throughout Alberta on CKUA Radio and can be streamed live online. All full interviews will be available on Innovation Anthology’s website ([www.innovationanthology.com](http://www.innovationanthology.com)).

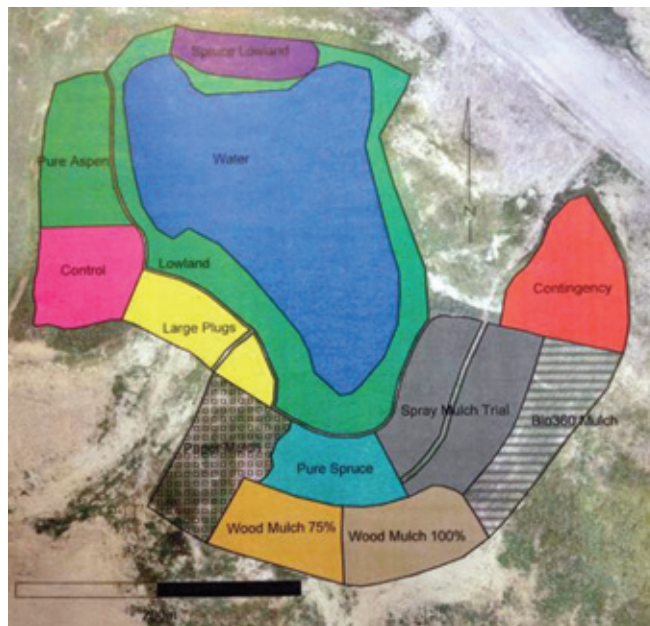
View the full commentary or listen to the 1st interview at <http://bit.ly/18mhxuZ> and the 2nd interview at <http://bit.ly/1A7pDgH>.



### Future interviews:

- **Jennifer Linder, Project Coordinator, Genesee Land Management** discusses land stewardship and how local farmers utilize reclaimed land for agriculture purposes
- **Eckehart Marenholtz, Chickadee Reclamation Services,** discusses Reforestation Projects in the Genesee Mine
- **Simon Bockstette, University of Alberta,** talks about his Soil Compaction Study in the Genesee Mine

## 2014 Genesee Mine Reforestation Report



Map of tree planting treatments in east wetland reforestation area.

Annually, Chickadee Reclamation Services provides Capital Power with a report outlining the company’s reforestation progress throughout the year. Although there were some recent setbacks to the poplar plantation, such as rodent damage in 2014 and a sub-par performance due to weather in 2013, last year was successful for reforestation.

An example of the info provided in the report is the “New reforestation areas - 2014 East Wetland”, a newly reclaimed area on the east side of Genesee Mine. Planting trees in this area was the main focus of reforestation activities in 2014, with 30,500 trees and poles planted.

Contact George Greenhough for more information about the 2014 Genesee Mine Reforestation Report.

“THE TURNOUT WAS GOOD AND WE HAD A CHANCE TO TALK WITH SOME OF THE SHARPEST MINDS IN THE INDUSTRY.

IT’S IMPORTANT TO SUPPORT RESEARCH LIKE THIS IN AS MANY LOCATIONS AS POSSIBLE. OUR SETTING IS UNIQUE IN A LOT OF WAYS, BUT RECLAMATION FACES MANY OF THE SAME CHALLENGES WHEREVER YOU ARE IN NORTH AMERICA.”

–George Greenhough, Genesee Land Services Manager



## Over 10 Years of Hunting on Genesee Lands

Capital Power is pleased to continue working with Hunting for Tomorrow. To acknowledge this great relationship that has spanned more than 10 years, the company recently provided Alberta Hunting Education with a \$5,000 contribution to their mentorship programs.



**Genesee Plant Manager Sean Furey (left) and Land Manager George Greenhough (right) present Hunting for Tomorrow Executive Director Kelly Semple with funding for the organization's mentorship program.**

The 2015 hunting program will continue to include primitive weapons such as black powder rifles, crossbows, shotguns with slugs and bow hunting.

"We've developed a great partnership with Capital Power over the years," said Kelly Semple, executive director of Hunting for Tomorrow. "The Genesee lands provide us with a fantastic environment to practice some elemental hunting skills and forms. In turn, participating hunters provide great info about game and the overall environment."

Those who wish to hunt on Genesee lands must register through Hunting for Tomorrow. Follow-up info is sought by hunters about the kinds of animals they saw while in the field, which is valuable in managing overall land use.

Visit [www.huntingfortomorrow.com](http://www.huntingfortomorrow.com) for more info or to apply to hunt at Genesee.

## Regulatory Updates

### Genesee Generating Station Environmental Protection and Enhancement Act (EPEA) Renewal Application

Capital Power submitted an application to Environment and Sustainable Resource Development (AESRD) to renew its current operating approval for the existing units, Genesee 1, 2, and 3 in December 2013. The application is not to extend the life of these units, but Capital Power must renew its operating approval every 10 years to ensure that the station remains compliant with current environmental requirements. In January 2015, AESRD extended the current approval for the station for an additional year to allow the provincial department to continue its thorough review of the renewal application.

### Genesee Mine Extension Project

Capital Power received approval from the Alberta Energy Regulator for a new Mine Permit and Mine License in August 2014. AESRD continues to review the EPEA amendment application for the Mine. Issuance of amended EPEA and Water Act approvals for the Mine are anticipated in the near future.

### Leduc County Bylaw Amendment

In August 2014, Capital Power submitted an application to redistrict (rezone) future mine lands from Agricultural District (AG) to the Genesee Power Project Overlay (GP), as well as a Development Permit application for a mine extension. On Jan. 27, 2015, Leduc County unanimously approved the rezoning of the lands. Capital Power is diligently working with Leduc County to obtain the Development Permit.

## LET'S GO OUTDOORS!

In 2013, *Let's Go Outdoors* featured the Hunting for Tomorrow program. Check out a father mentoring his 13 year-old son at: <http://ow.ly/J2I1L>.



## What is Important to You?

Have an idea for the *Genesee Connection Newsletter*? Contact Community Consultation and help us continue to provide information that is of interest to you.

## G3 Dry Sorbent Injection (DSI) will further reduce SO<sub>2</sub> emissions

This summer, Capital Power will install a Dry Sorbent Injection (DSI) to further reduce SO<sub>2</sub> emissions and allow Genesee Unit 3 to meet the Clean Air Strategic Alliance recommended limit for new facilities of 0.36 tonnes of SO<sub>2</sub> per hour by December 31, 2015.

The DSI system will introduce powdered hydrated lime into the flue gas ductwork ahead of the FGD providing more opportunity for the lime and flue gas SO<sub>2</sub> reaction to occur, further reducing SO<sub>2</sub> emissions from the Genesee 3 stack from 0.48 to 0.36 tonnes per hour.

### REDUCING SO<sub>2</sub> EMISSIONS AT G3

The environmental controls on Genesee Unit 3 include a Flue Gas Desulphurizer (FGD), which comprises a Spray Dryer Absorber (SDA) and a fabric filter baghouse. This system mixes the flue gas with lime slurry in the SDA vessels, causing a chemical reaction between the SO<sub>2</sub> in the flue gas and the lime. A solid compound is formed and captured along with the fly ash in the baghouse. This process reduces SO<sub>2</sub> emissions from the Genesee 3 stack to an average of 0.48 tonnes per hour (2013 data), which is lower than the current EPEA approval limit of 0.76 tonnes per hour.

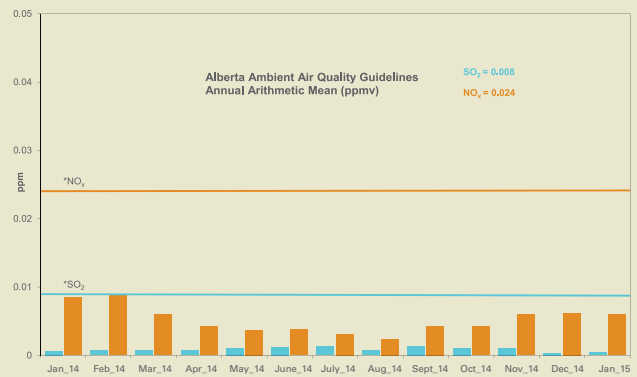
## Genesee Station Environmental Performance

The following graphs show the most recent environmental performance results:

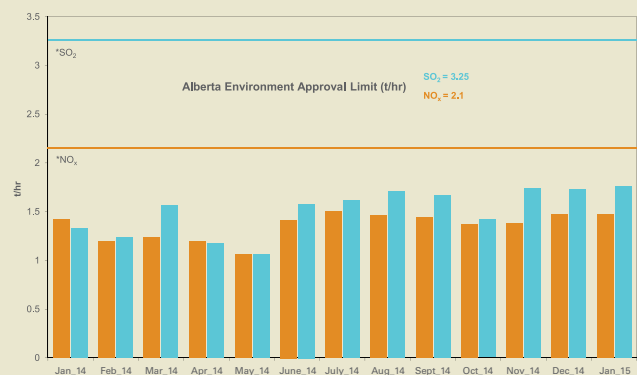
- Ambient air quality as measured by the Genesee ambient air monitoring trailer;
- Stack emissions for stack one (for generating units 1 and 2);
- Stack emissions for stack two (for generating unit 3).

Measurements are compared to guidelines and approval limits set by Alberta Environment. Genesee continues to operate below maximum levels set for ambient air quality and stack approval limits.

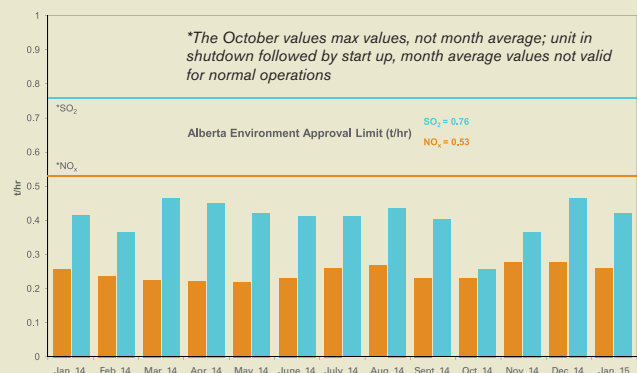
### AMBIENT EMISSION LEVELS



### G1/2 EMISSION LEVELS



### G3 EMISSION LEVELS

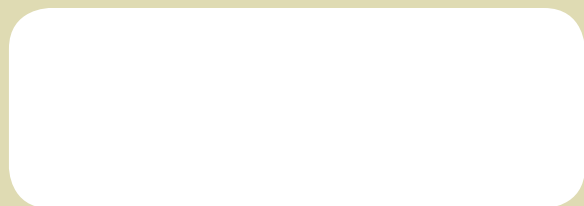


**\*Sulphur Dioxide (SO<sub>2</sub>):** a strong smelling, colourless gas that is formed by the combustion of fossil fuels. In high concentrations, SO<sub>2</sub> is known to be harmful to vegetation and human health. SO<sub>2</sub> is soluble in water and excessive levels can lead to sulfuric acid deposition or acid rain.

**Nitrogen Oxides (NO<sub>x</sub>):** the term used to describe NO (nitrogen oxide), NO<sub>2</sub> (nitrogen dioxide) and other nitrogen oxides. The major sources of man-made NO<sub>x</sub> are high-temperature combustion processes, such as those occurring in automobiles and power plants. When concentration is high, NO<sub>x</sub> is of concern because it contributes to ground-level ozone or smog. Genesee 3 approval limits are based on a 720 hour rolling average.

**Note:** All results are converted to reference standard conditions so as to be comparable to other coal fired plants in Alberta and elsewhere, and are dry concentrations corrected to 50% excess air; ppm: parts per million. An example of the quantity of Sulfur Dioxide and Nitrogen Oxides measured at ambient air sites in parts per million would be equal to approximately 1/100th of a grain of salt per breath of air. G3 has separate approval limits from G1 and G2 for its stack emissions. G3 approval limits are in terms of a mass emission rate (i.e. tonnes per hour). To be consistent for all units, we have shown G1 and G2 emissions and limits in tonnes /hour as well.

12TH FLOOR EPCOR TOWER  
1200 – 10423 101 STREET NW  
EDMONTON, AB T5H 0E9



## GENESEE CONTACT INFORMATION

If you have questions or comments about our operations, community engagement or our land management practices, please feel free to contact us.

Generating Station Reception  
**780-848-8300**

Community Consultation  
**780-848-8474**  
[PublicConsultation@capitalpower.com](mailto:PublicConsultation@capitalpower.com)

Manager, Land Services  
George Greenhough **780-969-8618**

Genesee Guardhouse  
(24-hour Security)  
**780-969-8505**

Capital Power Website  
[www.capitalpower.com](http://www.capitalpower.com)



## Careers

For more information on starting a career with Capital Power and to view current job opportunities, visit our website at [www.capitalpower.com/careers](http://www.capitalpower.com/careers). Capital Power is an equal opportunity employer.

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