

Fall 2021 Genesee Connection



Hello Neighbours and Friends

I hope you're all enjoying summer and are doing well.

In this newsletter, we want to provide updates on several major projects underway or planned at Genesee as we transition the facility from coal to natural gas in 2023. Earlier this summer, we began construction to repower Genesee 1 and 2 to best-in-class natural gas combined cycle (NGCC) generation units. The number of workers on site will continue to increase as construction activities move along over the next two - three years. Continue reading for more information about this exciting project.

I am proud of our team's efforts and diligence to sustain normal operations over the past 18 months as we navigate COVID-19 together. To-date, we have not had any on-site transmission of COVID-19, which has allowed us to continue to safely provide reliable baseload electricity to Albertans.

For the health and safety of our workers, several planned maintenance outages were deferred due to the pandemic. In mid-July, Genesee 2 experienced an unforeseen generator failure forcing it temporarily offline for repairs and to complete future planned work.

As I provide this update, there are more than 650 workers on site completing maintenance on the turbine, boiler and other balance of plant major equipment. This unplanned maintenance outage allowed us to advance work that we had planned for October. This will set Genesee 2 up to

continue to safely and reliably operate until it's transitioned to natural gas in 2023.

The influx of workers on site for the repowering project and maintenance outage has created several on-site challenges, particularly considering the continuously evolving provincial COVID-19 requirements and protocols. With the easing of COVID-19 restrictions in Alberta, several companies throughout the province are now completing their planned maintenance outages or turnarounds that were deferred. This has led to some difficulties in finding resources, particularly highly specialized trades.

Capital Power supports all its employees and contractors to sign-up to be vaccinated as soon as they're eligible.

I want to wish you and your family health and safety, and I encourage everyone to get vaccinated to protect themselves and their family and friends.



Sean Furey, Plant Manager
Genesee Generating
Capital Power

Construction is underway to Repower Genesee 1 and 2 to Best-in-Class Natural Gas Combined Cycle Generation Units

We're transforming thermal generation to reduce emissions, increase efficiency, and implement viable carbon conversion and utilization technologies. As we transition to a low-carbon future, Genesee will continue to play a vital role supplying Alberta's electricity needs and supporting the local community.

This summer we began civil construction activities in preparation to repower Genesee 1 and 2 from coal to natural gas combined cycle (NGCC) units. We anticipate an in-service date in late 2023 for Genesee 1 and 2024 for Genesee 2. Approximately 500 workers are expected to work on the project at peak construction in mid-2022.



We're also converting Genesee 3 to a natural gas-fired facility, which will allow us to be off-coal in 2023, leading to a significant reduction (3.4 megatonnes!) of annual carbon emissions from Genesee. To further advance decarbonization of Alberta's electricity grid, we're exploring deployment of the latest post-combustion carbon capture technology on our repowered Genesee 1 and 2 units, which would capture 90% of the carbon emitted from them – about an additional 3 megatonnes per year.

The two repowered units will increase Genesee 1 and 2's net capacity by up to 560 megawatts (MW), totaling 1,360 MW. The repowered units will also use best in class NGCC technology from Mitsubishi, are expected to set a new standard for gas generation efficiency in Canada and will be hydrogen capable and carbon capture ready.



Current Construction Activities

PCL Construction is the project's civil contractor responsible for site preparation, including searching for underground infrastructure, removal of some existing on-site buildings and excavating and preparing foundations to support the power generation equipment that will be housed in the open-air structure and two 61-metre-tall bypass stacks. Approximately 1,900 piles are expected to be driven this year to support the foundation.

Some of the piles are driven to a depth of 20 metres. Following piling work, reinforcing steel rebar is installed followed by concrete pouring to complete the foundation. Concrete required for the project is being sourced from Acheson.

New Power Generation Equipment Expected to Arrive in Early 2022

The components for the project's two massive 340-tonne gas turbines and generators are manufactured by Mitsubishi in Kobe, Japan. The gas turbines are then assembled at a Mitsubishi facility located in Savannah, Georgia. The equipment will be shipped from Savannah to the Port of Thunder Bay and transported to a rail siding in Calmar before being put on trucks and delivered to Genesee, which is expected in early 2022. The project will also reuse some of the existing equipment including the steam turbine generator, which is being refurbished with a new more efficient rotor.

We will be sharing more information about the transport of the over-size equipment to Genesee with the community when details are confirmed.

Reducing Waste and Downstream Emissions – Genesee Mine Ash Recovery Project Update

In May 2021, we applied to the Alberta Energy Regulator (AER) for regulatory approval to construct a facility within the Genesee Mine that can process landfill fly ash for use in cement. Utilizing our existing supply of landfill fly ash, this project will recycle that waste and decrease greenhouse gas emissions in the production of cement.

What is fly ash?

Since operations began at Genesee more than 30 years ago, the facility has produced fly ash, a by-product of coal combustion in the production of electricity. It has a similar consistency to volcanic ash and when mixed with other substances, like cement to form concrete, it hardens and has value-add benefits (e.g., adds strength, product longevity, reduces manufacturing emissions and costs). More than 99% of the fly ash produced at Genesee is captured by our emission-control systems and then put into licensed storage landfills within the adjacent Genesee Mine or sold for use in cement and concrete applications.

Pending a successful outcome of the regulatory review, we expect construction to begin in Q2 or Q3 2022, with an anticipated in-service date in early 2023.

Supporting Safe Hunting at Genesee

Capital Power is continuing its hunting program that includes black powder rifles, cross bows, shotguns and archery. This program provides excellent hunting opportunities for the public in an area well known for its Whitetail and Mule Deer populations.



The program, in partnership with Hunting for Tomorrow, is open to all eligible hunters. There is no cost to participate, but there are specific rules that all participants must adhere to regarding site access.

The mentorship hunting program is also still active. This program pairs youth participants and first-time hunters with a qualified mentor to receive one-on-one safe hunting instruction and opportunities.

Public access to Capital Power's land at Genesee is only permitted through the Hunting for Tomorrow program. Genesee personnel are on the land 24-hours a day and are at risk if you hunt in unauthorized areas.

For more information, or to apply to hunt at Genesee, contact:

Chuck Strong

chuck@acheia.com

780-466-6682 (toll-free: 1-866-282-4342)

www.huntingfortomorrow.com

Security at Genesee



Safety and security are a top priority for Capital Power, and we diligently monitor and patrol our property at Genesee, as well as collaborate with the local RCMP detachment to report any issues or unusual activity.

If you see any suspicious activity on an Capital Power property, contact our Genesee Security Office: 780-969-8505

Capital Power Pheasant Release Site

Since 2018, Capital Power has provided the Alberta Conservation Association (ACA) with a pheasant release site. The pheasants are farm raised, released to create hunting opportunities and are not meant to create a local population.

This site is private property owned by Capital Power. All hunters must register online for a permit before accessing this pheasant release site. Visit **www.abconservation.com** for more information.

Designated parking sites will be in SW 28-050-3-W5M (on the north side of Twp Rd 504), and in SW 16-050-3-W5M (on the northside of Twp Rd 502).

2021 Peregrine Falcon Program



While a pair of Peregrine Falcons checked out the nesting box this spring, they did not settle there for this nesting season.

Genesee has been part of the recovery and maintenance of the Peregrine Falcon population in Alberta since the early 1990s. A nesting box can be found on our Genesee 3 stack and can be viewed via livestream through the Alberta Conservation Association's (ACA) website during the nesting season.

Eyewitness accounts identified three potential babies hatched at an unknown location elsewhere at Genesee this season.

Peregrine Falcons sometimes change their nesting location, and we can only speculate as to why they did not choose to settle at the Genesee nesting box this season. We hope a pair chooses the nesting box next season.

Stay tuned to our social media channels and the ACA's website next spring for an update.

Successful Breeding Season for American Kestrels at Genesee

In 2021, the Boreal Avian Research & Conservation Association (BARCA) monitored 19 wooden nest boxes suitable for American kestrels, erected in the Genesee area. Between May 27-July 24, 2021, BARCA members voluntarily performed 48 nest box checks and relocated some of the boxes to new locations to provide better foraging habitat for the small falcons that typically feed on large insects such as grasshoppers and dragonflies.

For the nine-week period, box occupancy was 68%. American Kestrels occupied six boxes, while European Starlings occupied seven boxes. In total, the birds laid 28 eggs (average of 4.6/nest), and BARCA banded 19 kestrels, including six adults captured during the incubation period. The breeding season at Genesee was considered successful by BARA, especially in comparison to many other areas in Alberta that reported low or no nest box occupancy at all.

With the availability of natural nesting sites declining throughout North America, the wooden nesting boxes are a welcome home. Later this year, BARCA will return to the field to clean the boxes, reassess foraging habitat and potentially relocate some of the existing boxes to further contribute to this season's success rate.



Volunteers from the Boreal Avian Research & Conservation Association (BARCA) checked nesting boxes located on land at Genesee for American Kestrels. In total, BARCA found 28 eggs and banded 19 kestrels at Genesee this summer.



Experimenting with Cluster-Planting as a Tool to Accelerate Forest Canopy Cover Development

Capital Power continues to provide land at the Genesee Mine area to the Northern Alberta Institute of Technology (NAIT) Centre for Boreal Research (CBR) to conduct research on the efficacy of various reclamation strategies at the Genesee Mine.

A unique way of re-establishing a parkland forest is through the utilization of cluster planting, where groups of fast-growing trees are planted at very high local densities. The research team at CBR has ongoing cluster planting projects at two locations in north-east Alberta, including one at the Genesee Mine.

Cluster planting will more closely mimic historical distribution of trees, while also accelerating the onset of natural processes such as intraspecific competition among trees and providing habitat for later successional understory plant species. This approach will be compared to uniform planting in its utility to promote greater ease of access with post-planting weed management treatments.



NAIT student research assistants at Genesee in May 2021 ready to plant some trees.

Genesee Mine Reclamation Update

At the end of 2020, we have fully reclaimed 1,231 hectares (ha) at the Genesee Mine (37% of the total surface area), which includes farmland, reforested and wetland areas. In 2020, we also planted 21,000 trees in restoration areas. This previously mine area is now fully productive farmland and wildlife habitat.

As of July 31, 2021, we have restored:

- **topsoil on ~29 ha of 80 ha target for 2021,**
- **subsoil on ~59 of 86 ha target for 2021, and**
- **completed levelling of 109 ha of 115 ha for 2021.**

Learning from and Meeting our Community Neighbours at Paul First Nation's Treaty Day

It was an honour and privilege to be invited to participate in Paul First Nation's Treaty Day on August 20, 2021, where we were welcomed and included in the ceremonies and had the opportunity to observe, learn and interact with the community.

Paul First Nation is a close neighbour to our Genesee Generating Station and we've been listening, learning and looking for areas where we can build a sustainable long-term relationship.

Capital Power is committed to engaging Indigenous communities where we develop, construct and operate projects. Over the years, we've developed several positive relationships that have been formalized into agreements that provide for revenue sharing, scholarships and community investment contributions.



Powering Sustainable Communities

We are committed to investing in the communities where we live and operate and support local programs and organizations that create impact and build sustainable communities.

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We provide support within the following impact areas:

- **Equity & Culture:** providing resources and supporting change to increase equity for all and to celebrate our diverse cultures
- **Wellbeing:** building healthy communities where everyone can thrive
- **Climate Action:** leading action, education and implementation of technologies and practices to strengthen the resilience of our communities in the face of climate change..

Some of our recent support includes:

- Warburg Heritage Days
- Mike Gidosh Splash Park & RV Park, Warburg
- Parkland County Food Bank
- Warburg & Thorsby Christmas Elves
- Warburg & Thorsby Minor Hockey
- St. John Ambulance First Aid Course

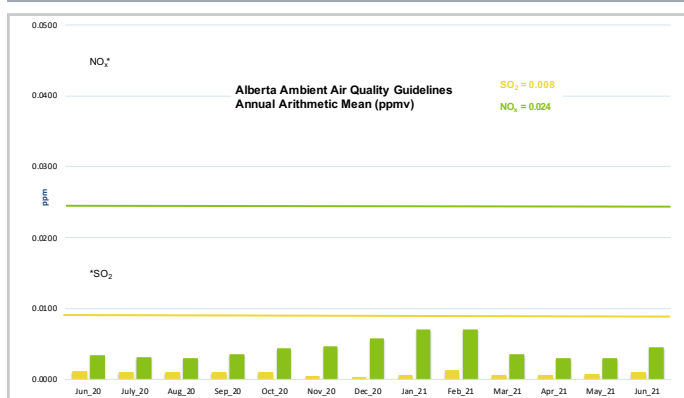
Genesee Station Environmental Performance

The following graphs show the most recent environmental performance results:

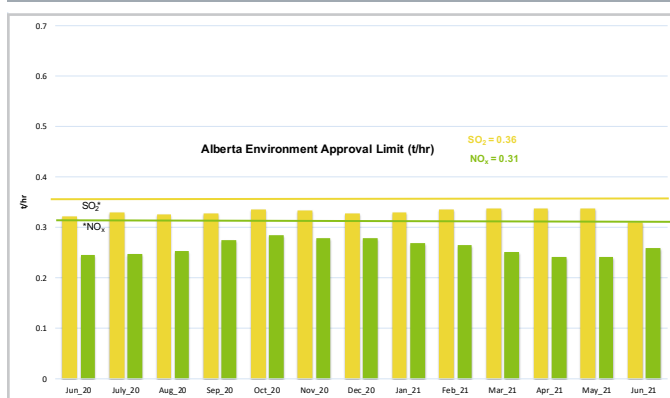
- Ambient air quality as measured by the Genesee ambient air monitoring trailer;
- Stack emissions for stack one (for Genesee 1 and 2);
- Stack emissions for stack two (for Genesee 3).

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

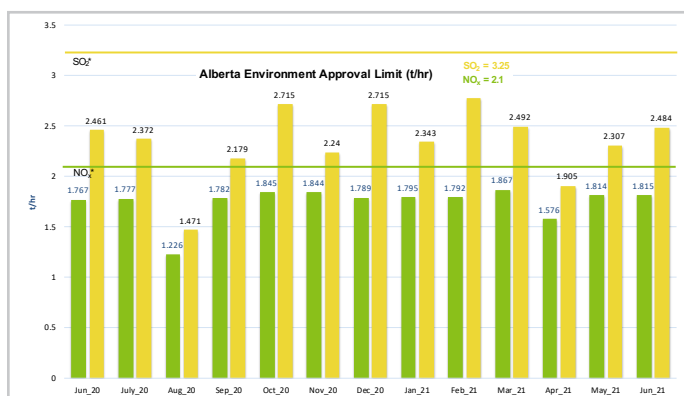
Ambient Emission Levels



G3 Emission Levels



G 1/2 Emission Levels

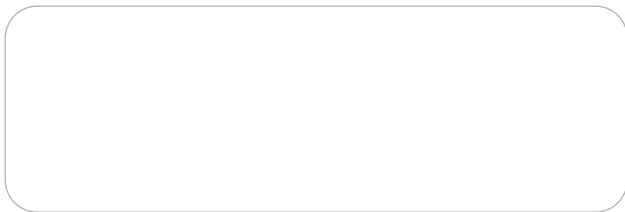


Sulphur Dioxide (SO₂): In high concentrations, SO₂ is known to be harmful to vegetation and human health. SO₂ is soluble in water and excessive levels can lead to sulfuric acid deposition or acid rain.

Nitrogen Oxides (NO_x): When concentration is high, NO_x is of concern because it contributes to ground-level ozone or smog.

Note: All results are converted to reference standard conditions to be comparable to other coal fired plants in Alberta and elsewhere.

12th Floor EPCOR Tower
1200 – 10423 101 Street NW
Edmonton, Alberta T5H 0E9



What is important to you?

If you have an idea or suggestion for the Genesee Connection Newsletter, contact Community Engagement and help us continue to provide relevant information of interest to you.

Genesee Contact Information

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

Generating Station Reception

780-848-8300

Community Engagement

780-848-8474

PublicConsultation@capitalpower.com

Reclamation, Land, & Site

Services Manager

Jennifer Linder 780-969-8706

Genesee Guardhouse (24-hour Security)

780-969-8505

Careers

For more information or starting a career with Capital Power and to view current job opportunities, visit our website at capitalpower.com/careers. Capital Power is an equal opportunity employer.

Newsletter

Get this newsletter by email: If you prefer to receive your copy of the Genesee Connection by email instead of hard copy, or if you no longer wish to receive this newsletter, please contact us at **Community Consultation** and we will remove you from our mailing list.

www.capitalpower.com

