

Welcome to the Open House for the:

- Proposed Genesee Generating Station Units 4 & 5 Project
(A Natural Gas-Fired Combined-Cycle Facility)
- Renewal Application for the Existing Genesee Generating Station (Units 1–3)



Project Overview

Capital Power is proposing to build the Genesee Generating Station Units 4 & 5 Project, a combined cycle natural gas-fired generation facility.

Key Project features:

- Two identical combined cycle generating units which could together achieve a combined gross capacity of up to 1,050 MW.
- The Project will be adjacent to the existing Genesee Generating Station (GGS), and will be constructed on a 'brownfield' site (i.e. previously disturbed) and will utilize existing infrastructure (i.e. substation, transmission and water intake/discharge structures).
- Construction of Unit 4 and Unit 5 will occur in two phases. The in-service dates for both units are anticipated in the 2017–2020 range.
- Separate applications were made to both the Alberta Utilities Commission (AUC) and Alberta Environment and Sustainable Resource Development (ESRD) in December 2013.

Seeking Your Input – Participant Involvement Process

Capital Power is committed to sharing information on the Projects and receiving input from neighbours and stakeholders. The goal of this open house is to provide an opportunity for stakeholders to meet Project team members and ask questions of technical specialists.

The consultation process is designed to meet the requirements of Alberta Utilities Commission (AUC) Rule 007 and Alberta Environment and Sustainable Resource Development (ESRD). It includes a number of opportunities for information sharing and dialogue:

- Project information mailed to local landowners and other stakeholders.
- Project information on Capital Power's website (www.capitalpower.com).
- Open houses.
- An opportunity for all interested stakeholders to provide comments to Capital Power by phone, e-mail and mail, or in person.
- An Aboriginal Engagement Program.

Public notice was advertised by the AUC beginning on March 3, 2014 and by Capital Power for the Applications to the ESRD on March 26, 2014.

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

We Want To Hear From You

Capital Power values your input. We have launched a participant involvement program to share information with stakeholders and obtain input on both applications.

Contact by phone or e-mail:

Toll Free: (Alberta) 1-866-348-3946

Local: 780-848-8474

Fax: 780-392-5124

publicconsultation@capitalpower.com

Contact by mail:

Genesee Generating Station Units 4 & 5 Project or
Genesee Generating Station Licence Renewal for Units 1–3

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A Sound Environmental Option for New Power Generation in Alberta

Advanced combined cycle natural gas-fired turbine technology provides greater efficiency and will help Alberta continue to reduce greenhouse gas emissions. The facility will meet Alberta's air emission standards and performance expectations.

The facility will use advanced emission-control technology, significantly reducing emissions such as nitrogen oxides (NO_x).

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).

No additional diversion of water from the North Saskatchewan River is required for GGS Units 4 & 5 beyond the volumes already permitted under the current licences issued by ESRD for the existing Genesee Generating Station.



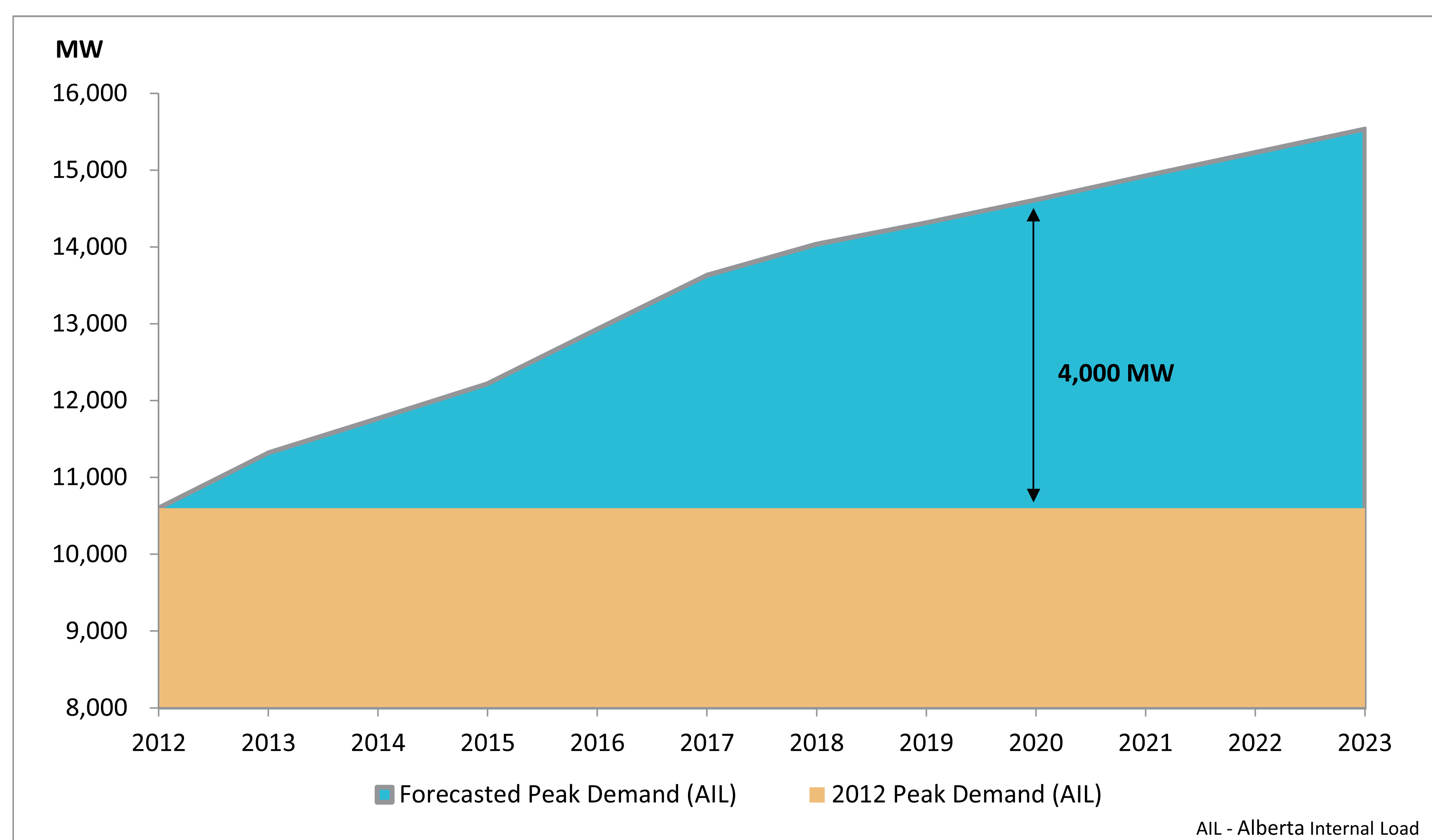
Helping Meet Alberta's Power Generation Needs

GGs Units 4 & 5 are 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, 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, GGS Units 4 & 5 are close to existing transmission infrastructure, as well as important electrical load centres such as Edmonton and outlying industrial areas.

Using an abundant fuel, natural gas, this facility will provide a reliable, clean and efficient alternative for new generation in Alberta.



Source: AESO 2012 Long-term Outlook

Capital Power – Alberta Experience and Commitment

Capital Power is one of Alberta's largest and most experienced power generation companies, in terms of both building and operating energy facilities. Capital Power is listed on the Toronto Stock Exchange under 'CPX'.

We currently own over 1,900 MW of power generation (coal, natural gas and wind) in Alberta.

In late 2012, we announced the acquisition of a 50% interest in the Shepard Energy Centre (800 MW gas-fired facility) under construction by Enmax in Calgary.

Capital Power's recent construction expertise includes the completion of the Keephills 3 Generating Station near Lake Wabamun and wind power facilities in Alberta, British Columbia and Ontario.

In December 2012, we commenced operations of Alberta's largest wind farm, the 150 MW Halkirk Wind Operation.



Advanced Combined Cycle Gas Turbine Technology

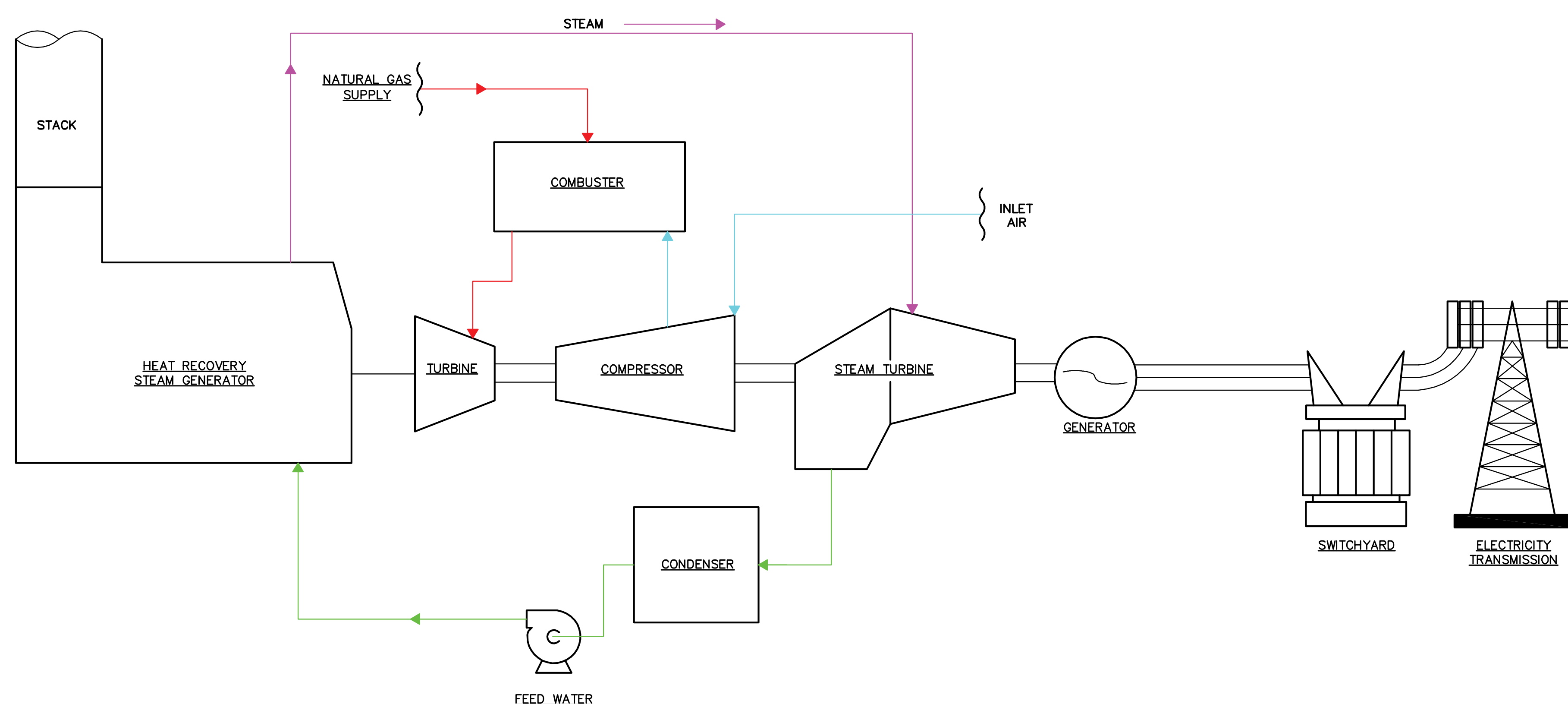
Capital Power is proposing to use advanced combined cycle natural gas-fired turbine technology (CCGT).

The CCGT process begins with a natural gas turbine which produces power and exhaust heat when in operation.

The exhaust heat creates steam in a heat recovery steam generator which drives a steam turbine.

The gas turbine and steam turbine are coupled to a generator, and as a 'combined' process, they generate power with greater efficiency and lower emissions.

NATURAL GAS COMBINED CYCLE POWER PLANT



Building on the Existing GGS Lands

GGS Units 4 & 5 would be located entirely within the boundaries of the existing Genesee Generating Station (GGS) site and would be sited adjacent to Genesee Unit 3. The GGS is located 50 kilometres west of Edmonton (Section 25, Township 50, Range 3 west of the 5th Meridian).

Construction would occur on about five hectares (14 acres). All of the land is owned by Capital Power. Previously used as a construction laydown area for Genesee Unit 3, the facility location is considered a 'brownfield' site.

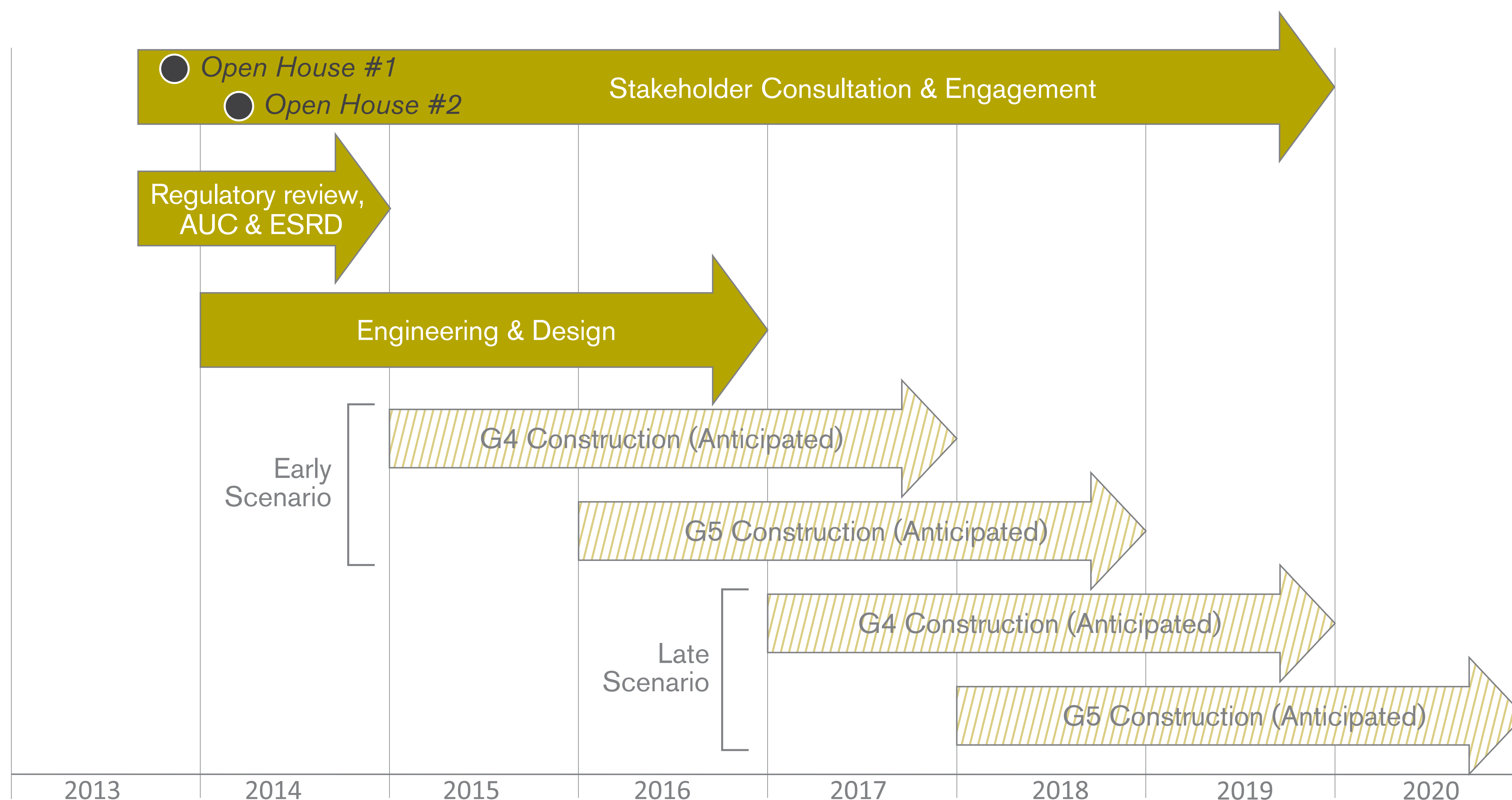


Proposed Schedule

Capital Power submitted Applications for the GGS Units 4 & 5 on December 20, 2013. The construction schedule will be determined by the outcome of the regulatory process and an assessment of market conditions.

Separate applications were made to the Alberta Utilities Commission (AUC) and Alberta Environment and Sustainable Resource Development (ESRD).

Both the ESRD and the Canadian Environmental Assessment Agency (CEAA) determined that no provincial or federal Environmental Assessment (EA) is required.



Genesee – A History of Power Generation

The existing Genesee Generating Station has over 30 years of history, with construction at the site beginning in 1983.

Unit #2 was commissioned in 1989, before Unit #1, which was commissioned in 1994.

Unit #3 was commissioned in 2005 and is jointly owned by Capital Power and TransAlta.

The combined maximum capacity of the three generating units at Genesee is 1376 megawatts.



Environmental Studies

Capital Power worked with Stantec and Golder Associates to conduct studies to assess potential effects of GGS Units 4 & 5 on air, noise and water. Studies included:

- Air emission modelling (Stantec)
- Noise impact assessment (Stantec)
- Thermal and water quality modelling of the cooling pond (Golder)



We're active members of the communities we serve. That's why at Stantec, we always design with community in mind.

The Stantec community unites more than 13,000 specialists working in over 200 locations. We collaborate across disciplines and industries to make buildings, infrastructure, and energy and resource projects happen. Our work—professional consulting in planning, engineering, architecture, interior design, landscape architecture, surveying, environmental sciences, project management, and project economics—begins at the intersection of community, creativity, and client relationships.



Established in 1960, Golder is a global, employee-owned organisation driven by our purpose to engineer earth's development while preserving earth's integrity. We help our clients find sustainable solutions to the challenges society faces today including extraction of finite resources, energy and water supply and management, waste management, urbanisation, and climate change. We do this by providing a wide range of independent consulting, design and construction services to our clients in our specialist areas of earth, environment and energy.

With Golder, clients gain the advantage of working with highly skilled engineers, scientists, project managers, and other technical specialists who are committed to helping them succeed by embedding sustainable development principles and practices in their projects. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services organisations in the world.

We serve our clients as a globally connected community that shares knowledge to find the answers to technical issues requiring innovative approaches.

Air Emissions

GGs Units 4 & 5 will use the most advanced gas and steam turbine technology commercially available and meet the Clean Air Strategic Alliance's (CASA) standards and Alberta's Ambient Air Quality Objectives and Guidelines, as well as performance expectations for air emissions for the Alberta electricity sector.

Dry low NO_x burners on the gas turbines and selective catalytic reduction (SCR) will be installed to reduce NO_x emissions from the two generating units.

Results of Air Emission Modeling

An assessment of the effects of NO_2 , SO_2 , $\text{PM}_{2.5}$, CO , and NH_3 emissions from GGS Units 4 & 5 was conducted.

Dispersion modelling was performed in accordance with the ESRD Air Quality Model Guideline.

The maximum predicted concentrations for NO_2 , SO_2 , $\text{PM}_{2.5}$, CO and NH_3 associated with emissions from GGS Units 4 & 5 for all relevant averaging periods are predicted to be much lower than the corresponding Alberta Ambient Air Quality Objectives (AAAQOs).

Model predictions indicate little difference between Base Case (existing activities) and Application Case (existing activities plus GGS Units 4 & 5) results, with maximum predicted concentrations of key substances of interest increasing less than 3%. This indicates that GGS Units 4 & 5 is not expected to materially increase maximum concentrations of these substances within the study area.

Managing Our Air Emissions

Mercury

Under the Mercury Emissions from Coal Fired Power Plants Regulation, GGS Units 1–3 must meet the regulated mercury percent capture target.

In 2013, GGS Units 1–3 completed its third year with the Activated Carbon Injection (ACI) system, which is used to lower mercury concentration in flue-gas emissions.

Since the system was installed, GGS has achieved a 77% decrease in GGS mercury emissions compared to 2010.

The Canada-wide Standard is an 80% capture rate, and in 2013, GGS Units 1 and 2 had a capture rate of 80.10% and GGS Unit 3 had a capture rate of 84.05%.

NO_x and SO₂

GGS Unit 3, as a transitional unit, must meet the Clean Air Strategic Alliance Electricity Project Team (CASA EPT) NO_x and SO₂ standards for new thermal generation units by December 31, 2015.

Capital Power has submitted a CASA Implementation Plan for GGS Unit 3 to Alberta Environment and Sustainable Resource Development (ESRD) on December 21, 2012.

Capital Power expects to meet the emissions intensity limits for NO_x and SO₂ by the December 31, 2015 deadline.

Managing Our Air Emissions

Greenhouse Gases (GHGs)

GGs Units 1–3 are subject to the Specified Gas Emitters Regulation (SGER) under the Climate Change and Emissions Management Act (Alberta). SGER requires companies that emit more than 100,000 metric tonnes of carbon dioxide equivalent (CO₂e) to reduce the emission intensity of a facility by 2% per year to a maximum of 12%, compared to the calculated baseline intensity for the specific facility.

In 2013, under SGER, GGS Units 1 and 2 were subjected to a CO₂e intensity reduction target of 12% and GGS Unit 3 had a CO₂e intensity reduction target of 10%. Capital Power submitted just under 270,000 credits into the Climate Change Emissions Management Fund to meet the SGER regulatory targets.

In addition to SGER, Capital Power is also required to reduce our share of GGS Unit 3's GHG emissions by approximately 53%, which is to the level of a combined-cycle natural gas plant. Offsets have been retired every year since commissioning in 2005 and will continue to be retired to meet future obligations.

In 2013, Capital Power retired approximately 744,000 tonnes of offsets from a variety of projects on behalf of Genesee 3, in addition to the Climate Change Emissions Management Fund contributions already retired under the SGER program.

Ambient Air Quality

The existing GGS facility partners in the Wabamun—Genesee Area Biomonitoring Program which studies the environmental impacts of power generation. Within this program, ambient air (SO₂, NO, NO₂, NO_x, PM_{2.5}) is monitored at the Genesee air monitoring station and the results are reported to ESRD.

Water Use

GGG Units 4 & 5 will use water from the existing cooling pond, which draws water from the North Saskatchewan River (NSR).

No additional diversion of water from the NSR is required for GGS Units 4 & 5 beyond the volumes already permitted under the current licences issued by Alberta Environment and Sustainable Resource Development (ESRD) for the existing GGS.

- Cooling water for the steam turbines will be sourced from the existing cooling pond by extension of the inlet canal.
- All other water requirements for equipment cooling and cycle make-up will also be met by the cooling pond.
- The proposed GGS Units 4 & 5 makes effective use of the existing GGS infrastructure, specifically utilization of the existing river water intake, pumphouse, cooling pond, and point-of-discharge to the NSR. These synergies will reduce any potential environmental effects.
- Marginal changes in the cooling pond water temperature (slightly higher) are predicted, which will result in a reduction of discharge back to the NSR due to increased evaporative losses from the cooling pond.
- Capital Power plans to submit an application to amend its current water licences to reflect these changes.



Photos of the intake and outfall structures for GGS.



Other Environmental Elements

Vegetation

As a 'brownfield site', bare groundcover dominates the GGS Units 4 & 5 site with some sparse vegetation cover found on the eastern half of the site.

Wildlife

Given the high level of existing industrial activity and previous disturbance of the proposed GGS Units 4 & 5 site, the land in the immediate vicinity of the site is considered to have low habitat value for wildlife.

Fish, Fish Habitat and Aquatic Species

The cooling pond and NSR at the blowdown mixing zone boundary were evaluated for effects on fish with regard to water quality, thermal habitat and gas bubble trauma.

With regard to gas bubble trauma, it is expected the predicted changes in the cooling pond are unlikely to affect the suitability of the pond for maintaining the existing resident fish species and communities, and that no impacts are expected in the NSR.

Deeper areas within the cooling pond are predicted to provide sufficient habitat for fish.

Construction and operation of GGS Units 4 & 5 are also not expected to change aquatic habitat, since no physical changes are expected to the existing NSR intake/outfall.

Noise

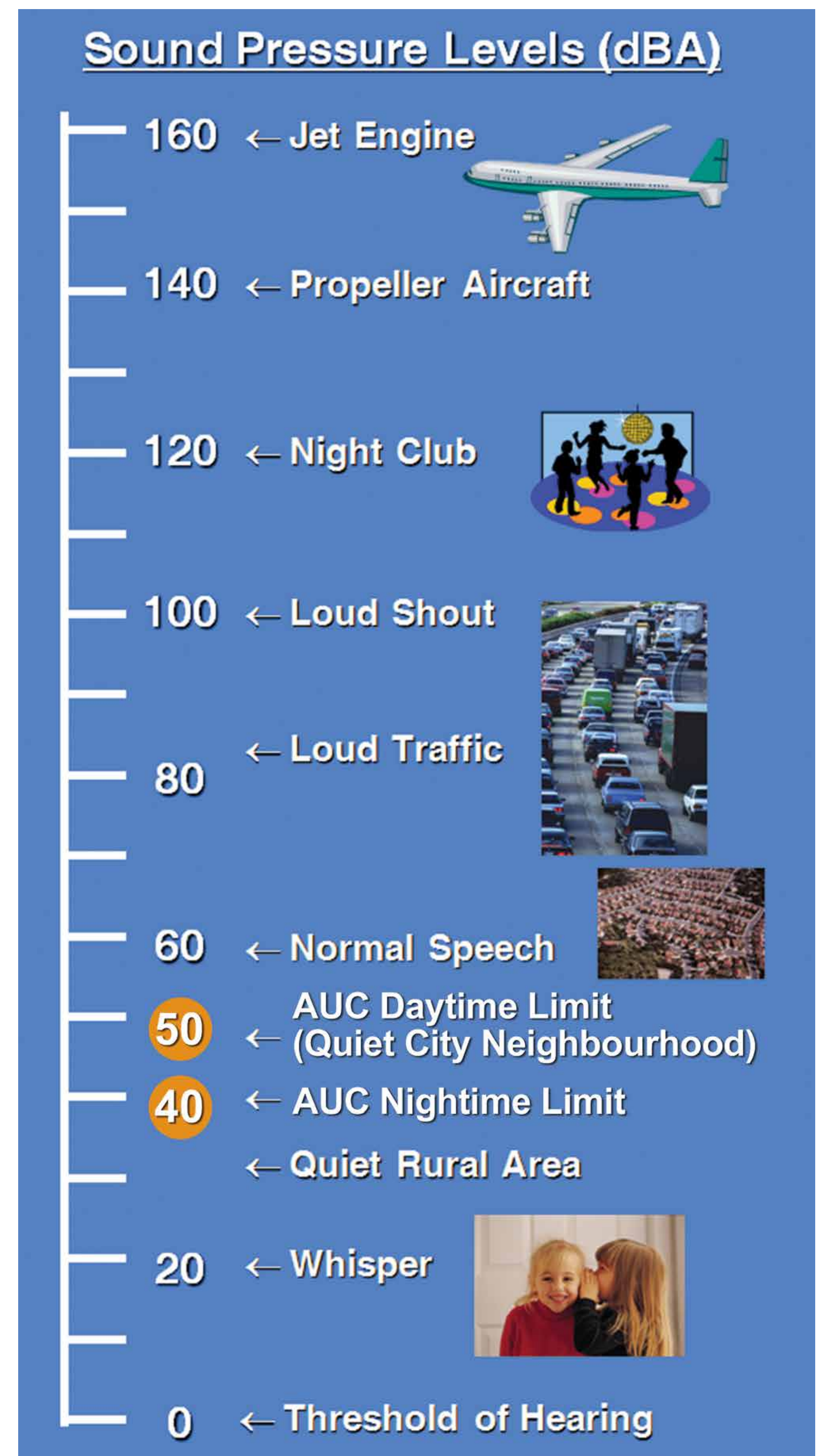
Alberta Utilities Commission Rule 012 allows for the permissible sound levels at the most impacted dwelling(s) from the boundary of the facility property during summertime conditions to be:

- 40 dBA Leq nighttime, and 45 dBA for residences within 500 metres of Highway (10 PM – 07 AM)
- 50 dBA Leq daytime, and 55 dBA for residences within 500 metres of Highway (07 AM – 10 PM)

Note:

- dBA is the A-weighted decibel level. A-weighting simulates human hearing.
- Leq is the 'equivalent continuous sound level' or the average sound level over the nighttime or daytime period.

GGs Units 4 & 5 will also comply with any noise level restrictions required by the County of Leduc's noise bylaws and any noise conditions within the Development Permit issued by the County.



Roads and Traffic

As GGS Units 4 & 5 will be sited within the existing Genesee footprint, no new public roads will need to be created, and existing public roads will not need to be closed.

Due to GGS Units 4 & 5 being gas-fired, daily truck hauls will not be required to or from the site once operations commence.

Capital Power will work with Alberta Transportation and the Counties of Leduc and Parkland to obtain all necessary permits required for use of local roads.

Highway 770 & 627 Intersection

Access to GGS Units 4 & 5 site is off of Highway 770 which will be the main corridor for worker and material transportation during construction. Capital Power understands that the Highway 770 and 627 intersection is a safety concern for residents.

Capital Power has engaged Alberta Transportation, local MLAs and other local industry and will be working in partnership with Alberta Transportation to support change at the intersection.

Capital Power is committed to maintaining a safe travelling environment to our Genesee facility.



Supporting Infrastructure



Transmission and Substation

Electricity generated by GGS Units 4 & 5 will be transmitted to the adjacent Genesee substation, which will undergo an expansion. GGS Units 4 & 5 will connect to both the current transmission infrastructure and the AltaLink Western Alberta Transmission Line which is currently under construction. No additional transmission lines are required to transfer the electricity from the substation to the provincial power grid.

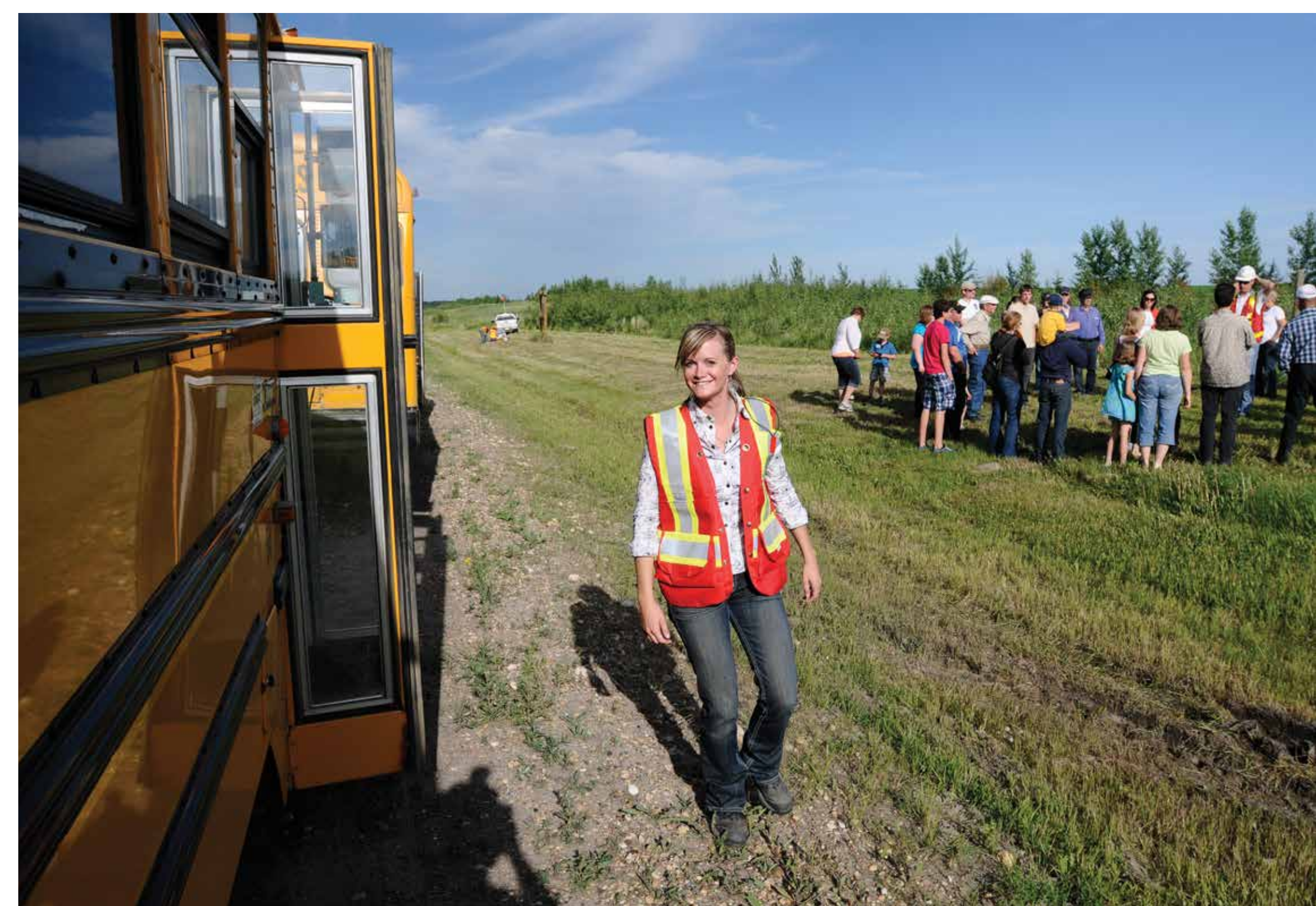
Pipeline

An underground natural gas pipeline will be developed for GGS Units 4 & 5 and will be approximately 78 kilometres in length. The pipeline will connect the facility to the existing high pressure mainline West of Drayton Valley. Discussions are on-going with the service provider and the pipeline installation will require a separate regulatory approval process prior to construction. The final route will be determined and approvals obtained by the service provider.

Capital Power in the Community

Capital Power is committed to being a good neighbour in Leduc County, with a special focus in the Genesee area. Some examples of Capital Power's activities in the local community include:

- Support for local groups and activities:
 - Warburg Canada Day
 - First Aid Training
 - Genesee Agriculture Society
 - Annual support for local community halls and cemeteries
- Opportunities for direct engagement and dialogue:
 - Plant Tour (Fall 2012, Fall 2013)
 - Reclamation and Mine Tour (on-going)
 - Community Advisory Task Group (CATG)
 - Regular engagement with Leduc County and the Village of Warburg
 - Genesee Connection newsletter
 - Project specific consultation and dialogue



Construction Schedule

The construction schedule will be determined based on the outcome of the regulatory process and an assessment of market conditions. Pending a successful outcome of the regulatory review and receipt of required approvals, we anticipate construction could start in 2015.

Prior to construction, the relevant building and development permits will be obtained from Leduc County.

Construction of the first phase of GGS Units 4 & 5 is expected to take three years, with the start of the second phase being staggered and taking an additional year to complete.

Since GGS Units 4 & 5 will be located on a 'brownfield site', minimal site preparation activities are required.



Project Overview

Background and Process Overview

The *Environmental Protection and Enhancement Act (EPEA)* approval for the existing GGS (Units 1–3) is required to be renewed every ten years. The current approval expires February 1, 2015.

The *EPEA* approval documents the environmental parameters the existing GGS site must operate within, such as the monitoring and reporting of air emissions, wastewater, waste management, soil and the biomonitoring program.

Capital Power submitted the renewal application to ESRD on December 20, 2013. The renewal application met ESRD's *Guide to Content for Industrial Approval Applications: New, Renewal and Amendment*.

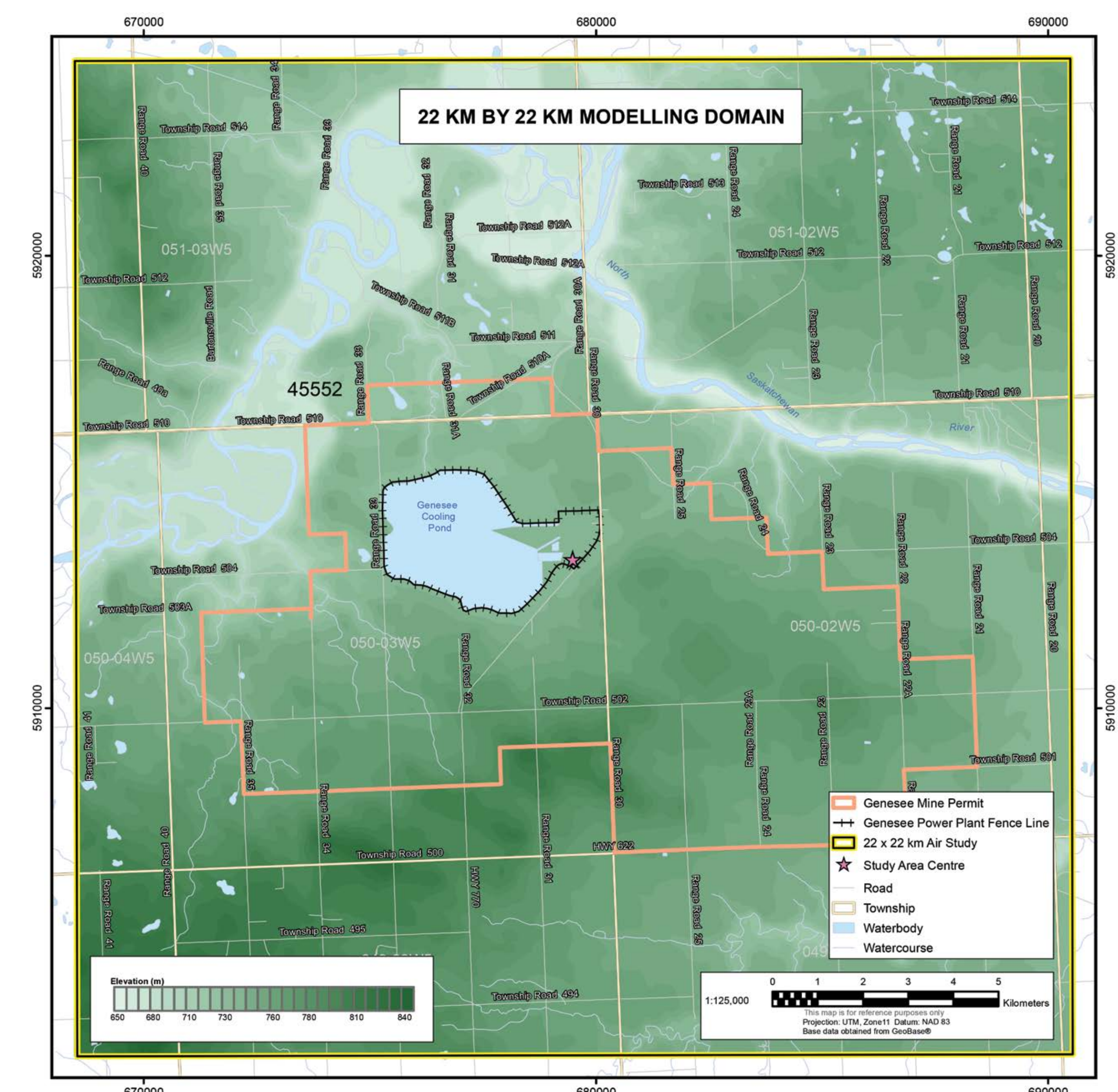
Updates and Proposed Revisions

Proposed updates to the existing *EPEA* approval include:

- Clarification and update of approval conditions to reflect operational changes and technical improvements:
 - Addition of approved mercury control equipment as a site air emission source;
- Minor amendment to approval conditions when operating with natural gas;
- Clarification and update of definitions, and;
- Clarification and update of reporting requirements.

Results of Air Emission Modeling

Species	Location	Averaging Period	Project Case (G4 & G5 Alone)	AAAQO	Percent of AAAQO
			($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	%
Nitrogen Dioxide (NO_2)	Power Plant Fence line	1-hour (9 th -high)	41.8	—	
		Annual	8.8	—	
	Outside of Power Plant Site and within Mine Permit Development Boundary	1-hour (9 th -high)	57.1	—	
		Annual	9.6	—	
	Along and Outside of Mine Permit Development Boundary	1-hour (9 th -high)	51.0	300	17.0%
Annual		8.8	45	19.5%	
Maximum at Sensitive Receptors	1-hour (9 th -high)	44.6	300	14.9%	
	Annual	8.7	45	19.3%	
Sulphur Dioxide (SO_2)	Power Plant Fence line	1-hour (9 th -high)	20.9	—	
		24-hour (1 st -high)	11.3	—	
		Monthly	3.8	—	
		Annual	2.4	—	
	Outside of Power Plant Site and within Mine Permit Development Boundary	1-hour (9 th -high)	28.6	—	
		24-hour (1 st -high)	15.5	—	
		Monthly	4.4	—	
	Along and Outside of Mine Permit Development Boundary	1-hour (9 th -high)	25.5	450.0	5.7%
		24-hour (1 st -high)	10.8	125.0	8.6%
		Monthly	3.7	30.0	12.2%
	Maximum at Sensitive Receptors	1-hour (9 th -high)	22.4	450.0	5.0%
		24-hour (1 st -high)	9.7	125.0	7.7%
		Monthly	3.5	30.0	11.8%
Carbon Monoxide (CO)	Power Plant Fence line	1-hour (9 th -high)	252.0	—	
		8-hour (1 st -high)	256.0	—	
	Outside of Power Plant Site and within Mine Permit Development Boundary	1-hour (9 th -high)	263.0	—	
		8-hour (1 st -high)	262.0	—	
	Along and Outside of Mine Permit Development Boundary	1-hour (9 th -high)	258.0	15000.0	1.7%
		8-hour (1 st -high)	249.0	6000.0	4.2%
	Maximum at Sensitive Receptors	1-hour (9 th -high)	254.0	15000.0	1.7%
		8-hour (1 st -high)	247.0	6000.0	4.1%
Respirable Particulate Matter ($\text{PM}_{2.5}$)	Power Plant Fence line	1-hour (9 th -high)	21.9	—	
		24-hour (1 st -high)	13.1	—	
	Outside of Power Plant Site and within Mine Permit Development Boundary	1-hour (9 th -high)	31.5	—	
		24-hour (1 st -high)	18.5	—	
	Along and Outside of Mine Permit Development Boundary	1-hour (9 th -high)	27.7	80.0	34.6%
		24-hour (1 st -high)	12.5	30.0	41.7%
Maximum at Sensitive Receptors	1-hour (9 th -high)	23.6	80.0	29.6%	
	24-hour (1 st -high)	11.1	30.0	37.0%	
Ammonia (NH_3)	Power Plant Fence line	1-hour (9 th -high)	7.0	—	
		1-hour (9 th -high)	9.1	—	
	Along and Outside of Mine Permit Development Boundary	1-hour (9 th -high)	8.2	1400.0	0.6%
1-hour (9 th -high)		7.3	1400.0	0.5%	



Employment 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 could be about 850 people working on the Project.

During operations, it is anticipated that 25 to 30 additional full-time positions may be required.

Capital Power prefers to hire locally and will seek as many qualified local candidates for operations positions as possible.

As the project is still in the early stages of development and has not yet received regulatory approval, no decision has been made on the construction or contractor strategy.

Capital Power will likely retain a lead contractor to manage the sub-contractors and trades. As the Project develops, there will be a process to manage interested contractors. More information will be available when the Project receives regulatory approval and moves further into the development phase. Additional information will be made available on the Capital Power website and in the Genesee newsletter.

Results of Thermal Modelling

Modelling predicts no change to water temperature is expected outside the North Saskatchewan River (NSR) mixing zone.

Impacts due to changes to thermal habitat are expected to be minimal in the cooling pond and negligible in the NSR.

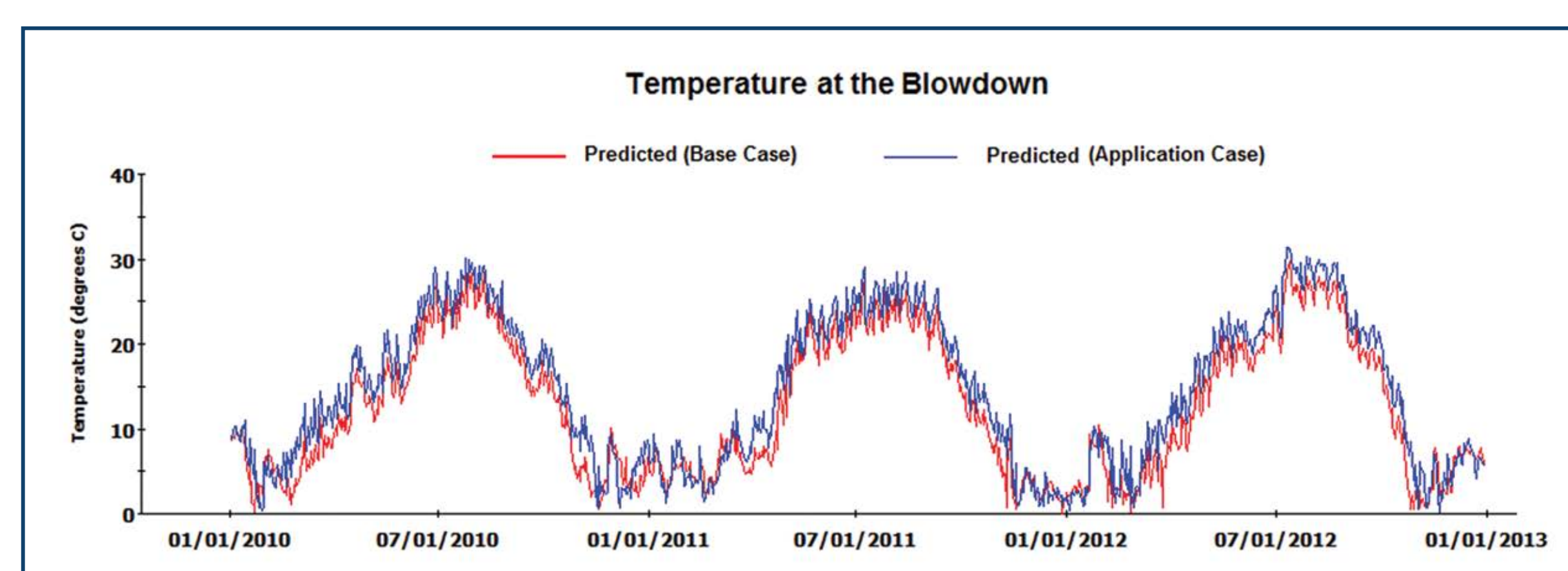
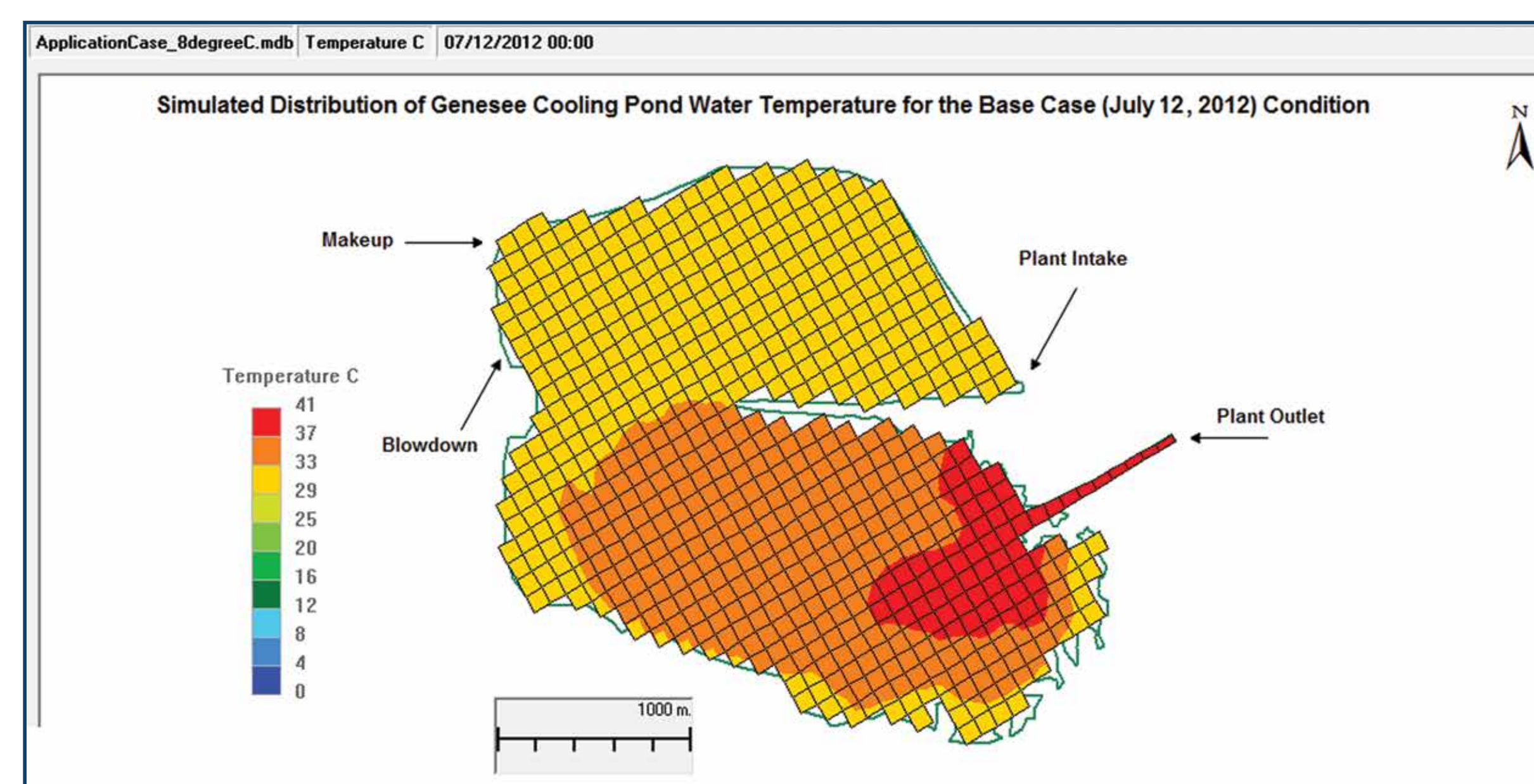
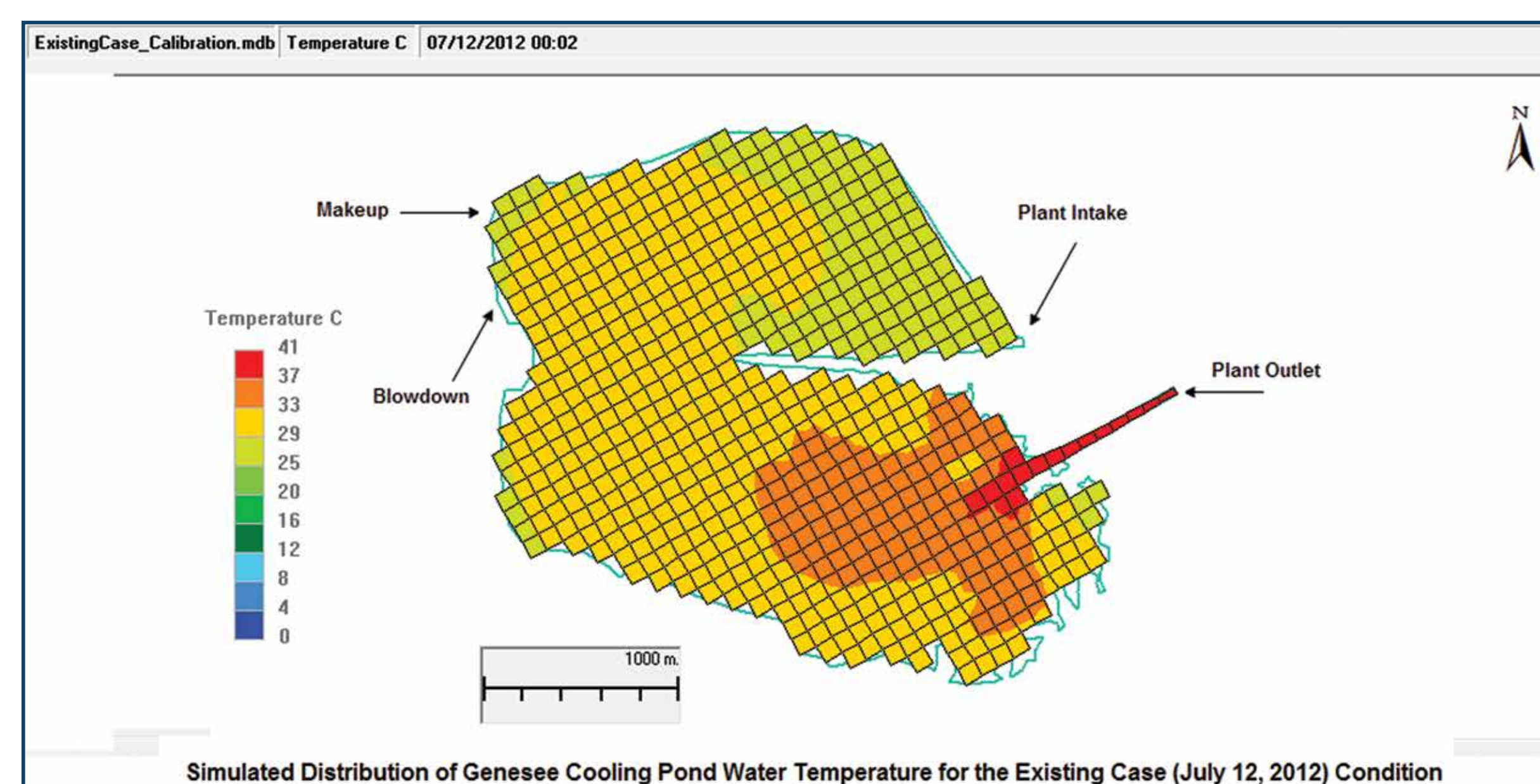


Table 8: Predicted Average Daily Water Temperatures in the North and South Basins of Genesee Cooling Pond, under Base Case and Application Case Conditions

Temperature in the North Basin (close to the shore)	Base Case (°C)	Application Case (°C)	Difference (°C)
Maximum	30.2	32.2	2.0
Average	13.2	15.4	2.2
99 th Percentile	27.8	30.1	2.3
Temperature in the South Basin (close to the shore)			
Maximum	34.8	37.3	2.5
Average	18.7	21.4	2.7
99 th Percentile	33.2	35.4	2.2

Results of Water Quality Modelling

Predicted in-stream concentrations in the North Saskatchewan River (NSR) during low flow conditions downstream of the cooling pond blowdown outfall meet:

- Water quality objectives for the NSR.
- Federal water quality guidelines for the NSR, with the exception of fluoride.
- Predicted in-stream fluoride concentrations remain similar to levels found in typical rivers and lakes within Alberta, which are slightly above the chronic water quality guideline for the protection of aquatic life.

Table 7: Predicted In-stream Concentrations in the North Saskatchewan River Downstream of the Blowdown Outfall Compared to Relevant Reach-Specific Water Quality Objectives

Parameter	Units	NSR Water Quality Objectives ^(a)			NSR Upstream of GGS	Predicted GGS Blowdown Concentration			Predicted In-stream Concentration		
		Flow Condition ^(b)	50 th Percentile ^(c)	95 th Percentile ^(d)		Base Case	Application Case		Base Case	Application Case	
							Scenario 1	Scenario 2		Scenario 1	Scenario 2
Total Dissolved Solids	mg/L	IC	196	235	230	282	369	281	231	232	231
		OW	186	248							
Calcium	mg/L	IC	46	53	44.3	43	58	53	44	44	44
		OW	42	46							
Chloride	mg/L	IC	0.7	2.6	2	3.3	3.8	2.4	2	2	2
		OW	0.8	2.4							
Magnesium	mg/L	IC	-	-	14.4	25	30	21	15	15	15
		OW	-	-							
Barium	mg/L	IC	-	-	0.0735	0.11	0.14	0.12	0.074	0.074	0.074
		OW	-	-							
Sodium	mg/L	IC	-	-	5	36	42	22	5.4	5.4	5.3
		OW	-	-							
Sulphate	mg/L	IC	45	52	42.2	132	153	95	43	43	43
		OW	38	48							
Fluoride	mg/L	IC	0.12	0.21	0.122	0.3	0.35	0.24	0.12	0.12	0.12
		OW	0.12	0.19							

^(a) Based on NSWA (2010) Reach C downstream of the Brazeau River confluence to Devon.

^(b) IC = ice covered; OW = open water.

^(c) Using the 50th percentile statistic as an objective means at least half of future measurements should be below this value; and there should be no statistically significant, increasing trend detected in the analysis of future, long-term monitoring data.

^(d) Using the 95th percentile statistic as an objective means at least 95% of future measurements should be below this value; and there should be no statistically significant increasing trend detected in the analysis of future, long-term monitoring data.

"-" symbol indicates no applicable guideline, no applicable objective or no available data.

Table 6: Predicted In-stream Concentrations in the North Saskatchewan River Downstream of the Blowdown Outfall Compared to Water Quality Guidelines

Parameter	Units	Water Quality Guidelines			NSR Upstream of GGS	Predicted GGS Blowdown Concentration			Predicted In-stream Concentration		
		Aquatic Life ^(a)		Human Health ^(b)		Base Case	Application Case		Base Case	Application Case	
		Acute	Chronic				Scenario 1	Scenario 2		Scenario 1	Scenario 2
Total Dissolved Solids	mg/L	-	-	-	230	282	369	281	235	245	239
Calcium	mg/L	-	-	-	44	43	58	53	46	46	46
Chloride	mg/L	640	120	-	2	3.3	3.8	2.4	2.2	2.2	2.1
Magnesium	mg/L	-	-	-	14	25	30	21	16	16	16
Barium	mg/L	-	-	1000	0.074	0.11	0.14	0.12	0.081	0.081	0.081
Sodium	mg/L	-	-	-	5	36	42	22	8.9	8.9	7.9
Sulphate	mg/L	-	-	-	42	132	153	95	54	54	51
Fluoride	mg/L	-	0.12	1.5	0.12	0.3	0.35	0.24	0.15	0.15	0.14

^(a) Based on the guideline of: CCME (1999).

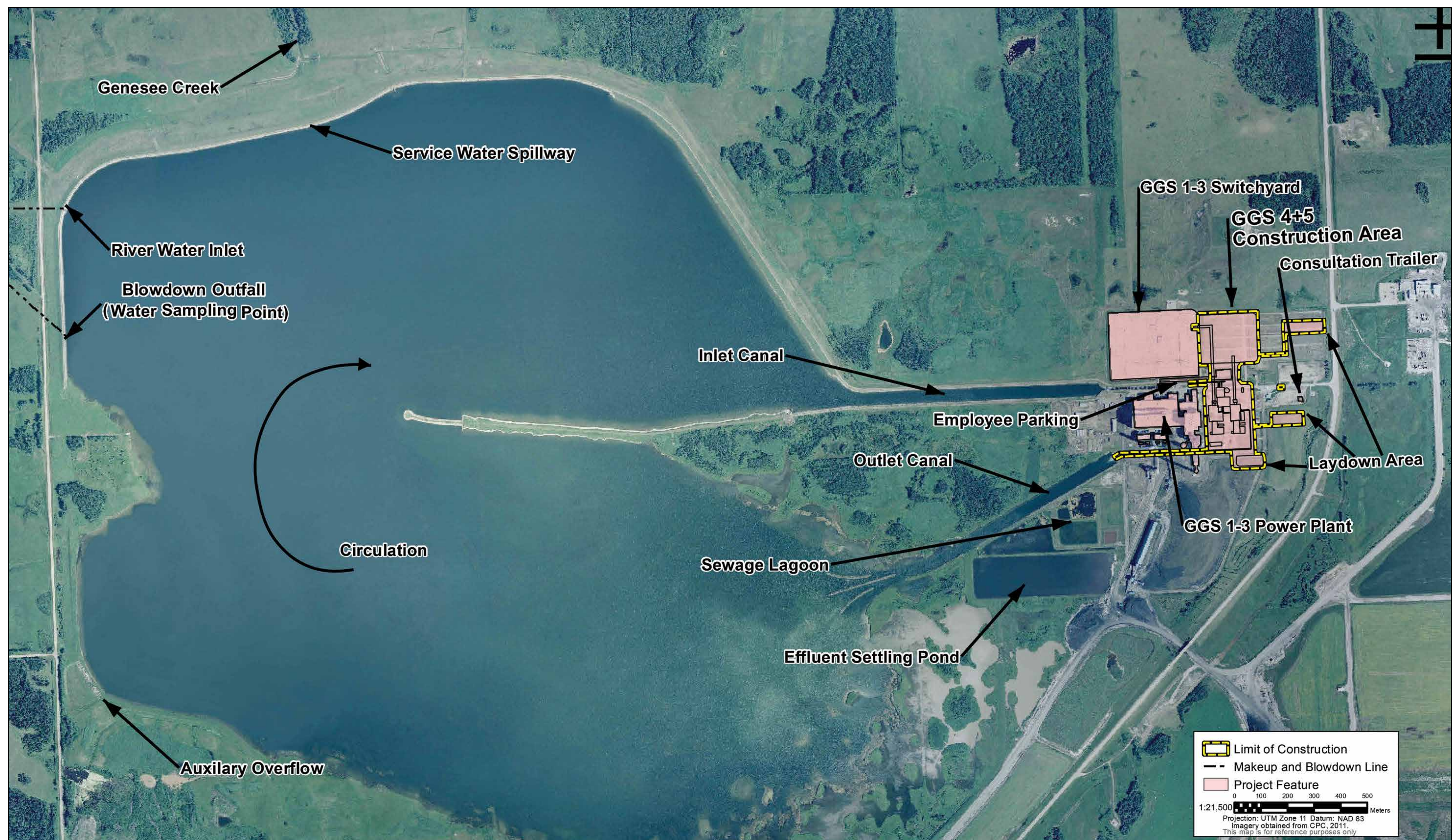
^(b) Based on the guideline of: Health Canada (2008).

"-" symbol indicates no applicable guideline, no applicable objective or no available data.

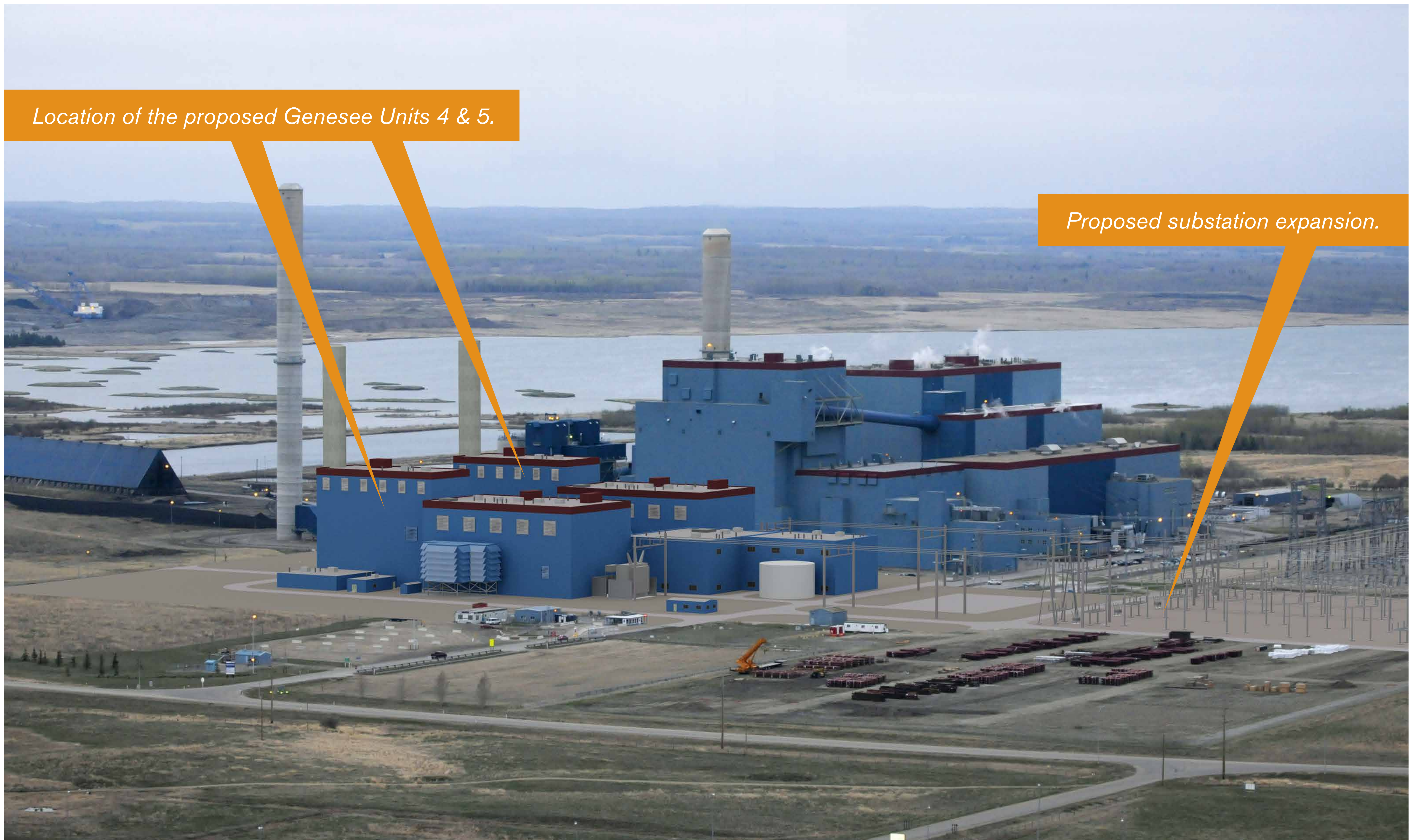
Genesee Local Area & Location of GGS Units 4 & 5



GGGS Units 4 & 5 and Cooling Pond



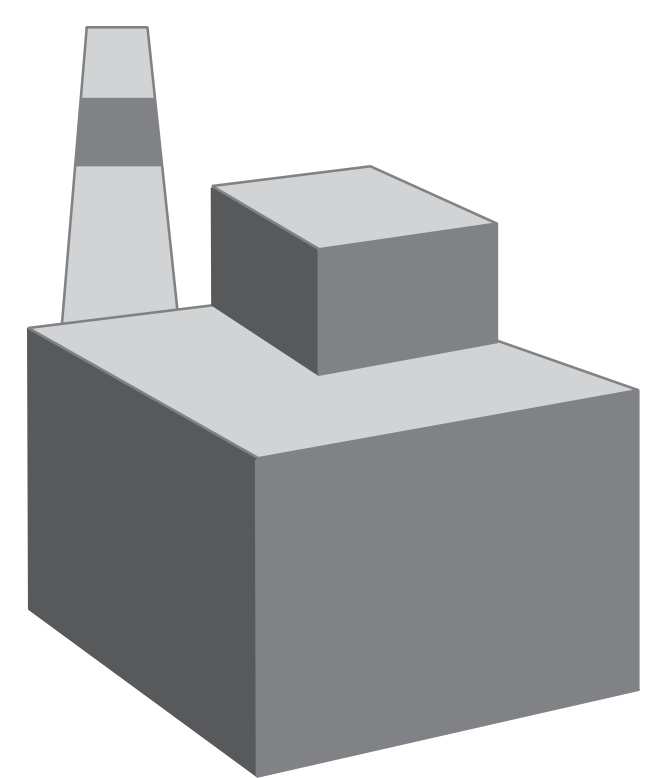
Proposed Plant Rendering



Location of the proposed Genesee Units 4 & 5.

Proposed substation expansion.

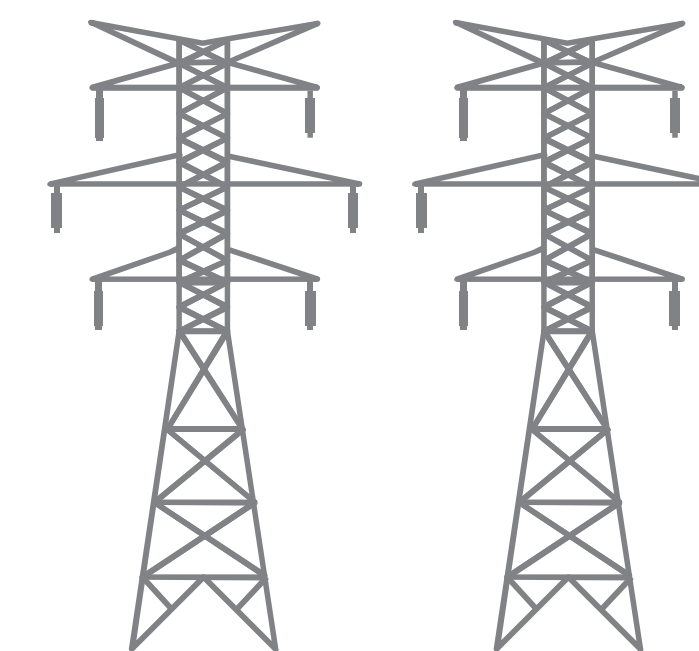
Alberta Power Market Overview



Generation

ATCO Power
Capital Power Corporation
Cogeneration Plants
ENMAX Energy
TransAlta
Wind Turbines

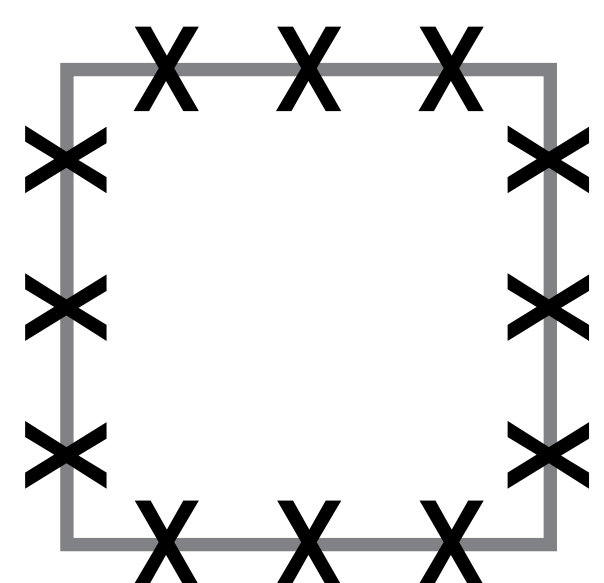
Generating facilities convert various forms of energy into electric power



Transmission

ATCO Electric
AltaLink
ENMAX Power (Calgary)
EPCOR (Edmonton)

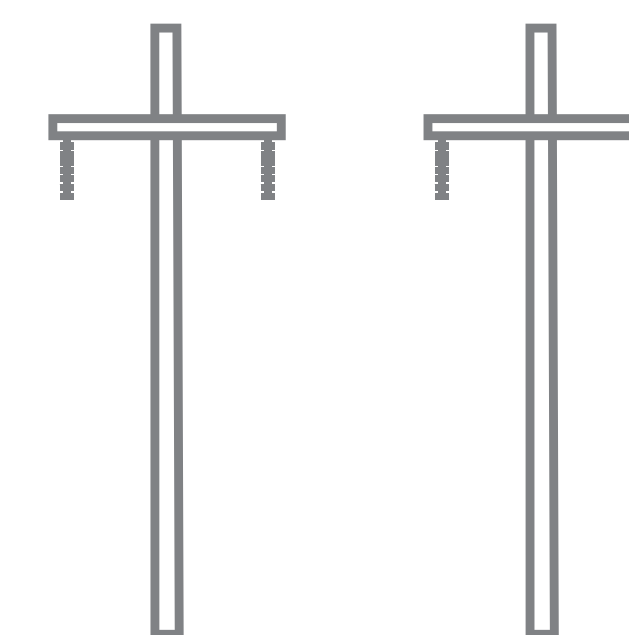
Transmission lines connect the power produced at generating facilities to substations



Substations

ATCO Electric
AltaLink
ENMAX Power (Calgary)
EPCOR (Edmonton)

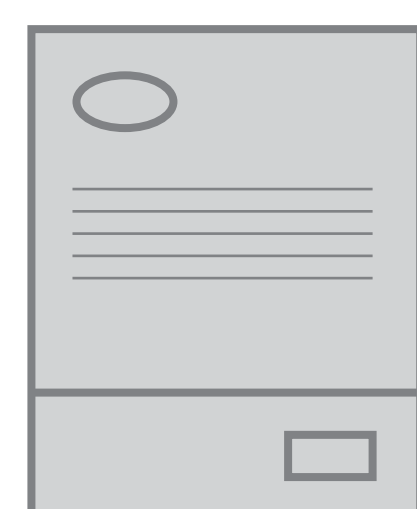
Substations are connection points between transmission and distribution systems



Distribution

ATCO Electric
FortisAlberta
ENMAX Power (Calgary)
EPCOR (Edmonton)
Rural Electrification Associations

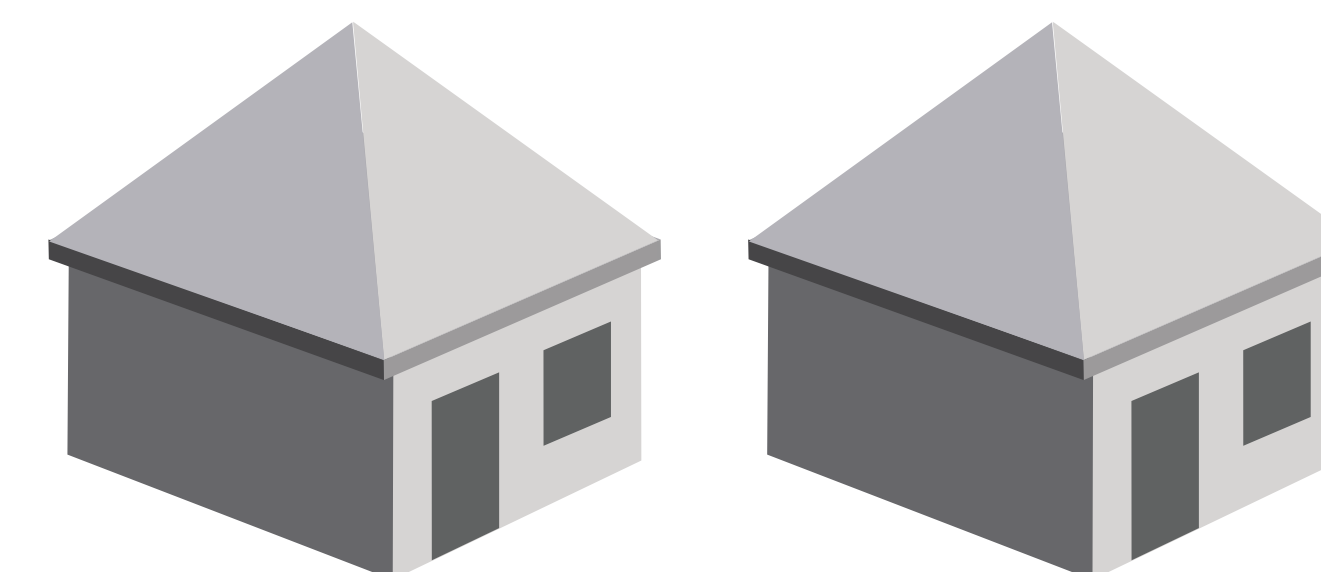
Distribution lines carry electricity to homes, farms and businesses



Retailers & Regulated Providers

The provider of your energy services will depend on whether you choose regulated service or a contract from a competitive retailer. Visit www.ucahelps.alberta.ca

Retailers give consumers a choice of electricity service providers



You

Electricity is delivered to homes, farms and businesses

Satellite Image: Footprint of Units 4 & 5 on Genesee Site



Results of Noise Impact Assessment

Acoustic treatment of the buildings and placement of silencers on the air intakes and exhaust stacks of the gas turbines are some of the options available to mitigate sound generation from the power plant.

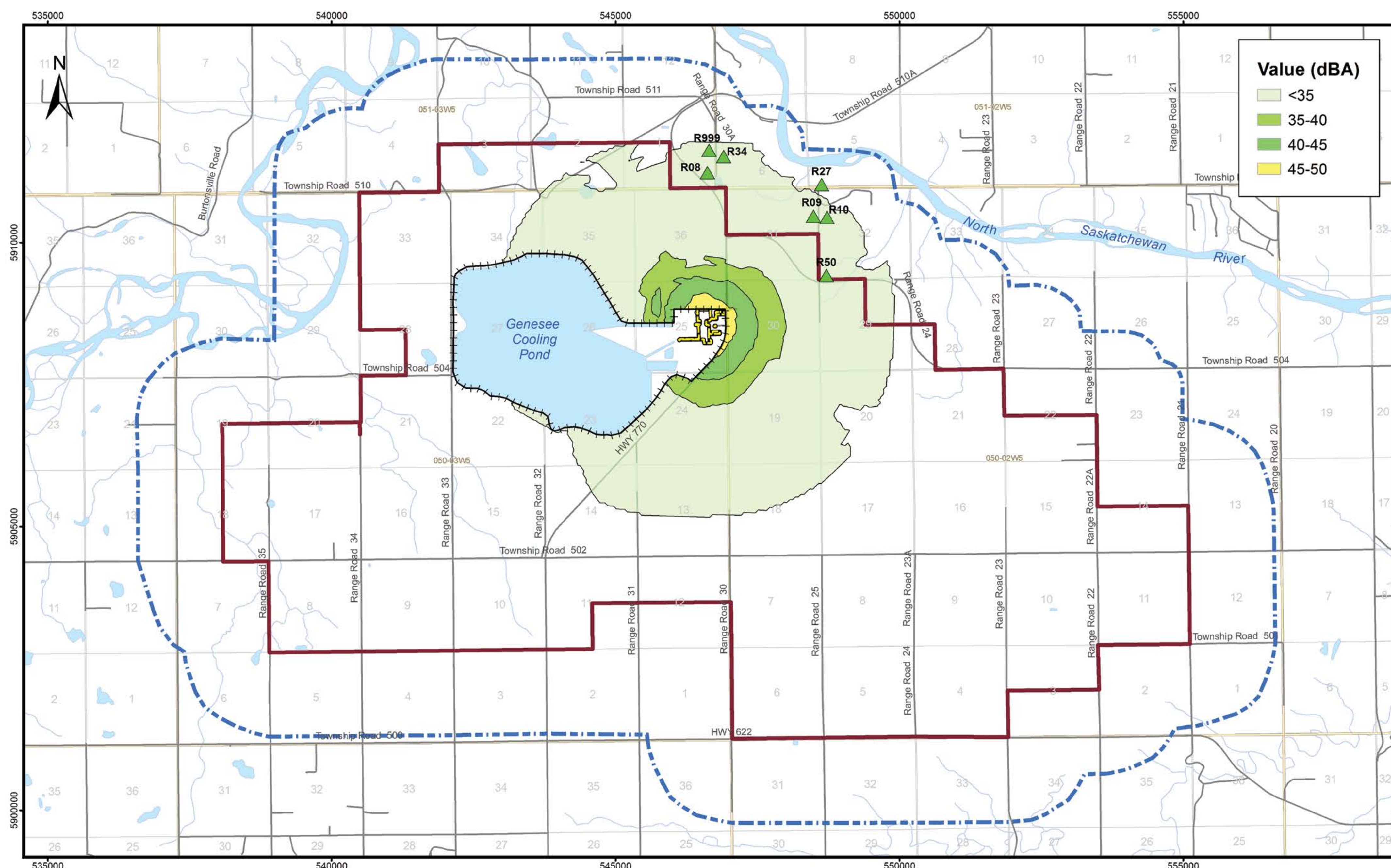
Total combined noise emissions from GGS Units 4 & 5, the Genesee Mine, the existing generation facilities and AltaLink DC substation are predicted to comply with AUC's Rule 012 – Noise Control and are predicted to be less than 40 dBA at the closest residence.

GGS Units 4 & 5 itself contributes less than 30 dBA at this residence. At other residences, the noise impact from GGS Units 4 & 5 itself is less than this.

Assessment of Noise Impact

Receptor ID	Mine Application 2011 Facilities Only	Mine Application 2011 Total Noise Impact	GGS 4&5 Project Only Noise Impact	Cumulative Noise Impact	Nighttime PSL	Compliant?
R_010	33.0	37.1	27.4	37.6	40	yes
R_009	34.4	37.7	27.7	38.1	40	yes
R_050	36.5	38.8	29.3	39.3	40	yes
R_027	29.9	36.2	23.4	36.4	40	yes
R_034	33.3	37.2	27.5	37.7	45	yes
R_008	34.5	41.1	28.6	41.3	45	yes
R_999	30.6	36.4	27.3	36.9	40	yes

Results of Noise Impact Assessment



V:\1102\active\110219025\gis\Figures\Noise_Report\Figure6_1_Noise_Impact.mxd
3/28/2014 By: jacho

March 2014
1102-19025



Projection: 10TM AEP Forest Datum: NAD 83
Base data obtained from GeoBase®

- ▲ Receptor
- Project Boundary
- ▭ Limit of Construction
- ▭ ATS Township Grid
- - - 1.5 km AUC Cumulative Criteria Boundary
- ATS Section Grid
- Waterbody
- Watercourse
- Road
- ▭ Mine Permit Boundary

Client/Project
CAPITAL POWER CORPORATION
GENESEE GENERATING
STATION EXPANSION

Figure No.
6-1

Title
**PROJECT ONLY DAYTIME AND
NIGHTTIME NOISE CONTOURS**



DRAFT