WELCOME!

Thank you for taking time to visit this Open House.

Please fill out a Comment Sheet and leave it with us or take it home and return it later to the address provided.

A project representative will be glad to answer your questions.

Your input and comments are an important contribution to helping us develop an environmentally responsible project.

Please SIGN-IN to receive future project updates

Purpose of this Open House

- To introduce you to Ontario Power Generation Inc.'s plans to redevelop the Calabogie Generating Station (GS).

- To seek your feedback at this stage on local environmental considerations, issues or concerns that should be addressed through the environmental assessment process.

Who is Ontario Power Generation?

Calabogie Generating Station
Redevelopment Project

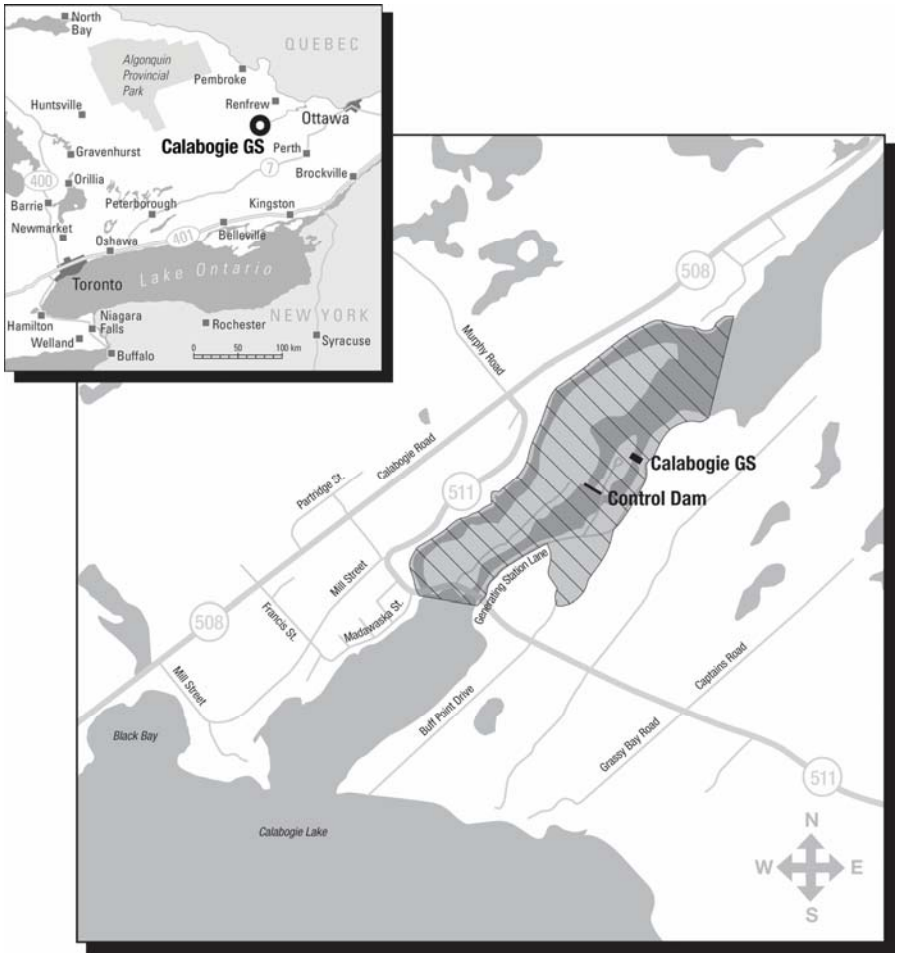
- Ontario Power Generation (OPG) is an Ontario-based electricity generation company.
- OPG focuses on the efficient production of electricity from its generation assets, while operating in a safe, open and environmentally responsible manner.
- OPG is a commercial company, owned by the Province of Ontario – its sole shareholder.
- OPG has been given a mandate from the Province of Ontario to develop and expand its hydroelectric capacity.
- This project will provide more clean, reliable and renewable electricity for Ontario.

Existing Calabogie powerhouse on South Branch of Madawaska River

General Location and Zone of Impact

Calabogie Generating Station
Redevelopment Project

- The proposed zone of impact for the project is expected to be the immediate area around the GS (shown in the hatched area in the Figure below).



Project location and proposed zone of impact

ONTARIO POWER GENERATION

Proposed Site Plan

- See Page #1 and #2 of Landscape Panels

Proposed Plan (continued)

- General layout of the Calabogie GS will remain unchanged.
- New powerhouse will be located approximately 50 meters upstream of the existing one.
- New GS will have an installed capacity of approximately 11 megawatts, an increase of more than 6 megawatts.
- New GS will be capable of handling a nominal flow of 160 cubic meters per second (cms), an increase of almost 100 cms.
- Laydown, parking and soil/rock deposition areas will be required for the construction stage of the project. Following construction, a topsoil cover will be placed and areas re-vegetated.
- Variety of environmental mitigation, training and monitoring measures will be put in place during construction to prevent negative environmental effects during construction.

Environmental Assessment Process

Calabogie Generating Station
Redevelopment Project

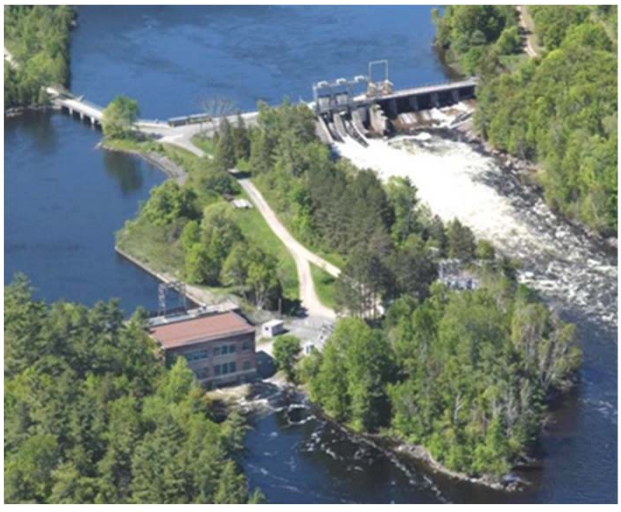
- In Ontario, proposed waterpower facilities are subject to the *Environmental Assessment Act* (EA Act).
- The Ontario Waterpower Association (OWA) developed the Class EA process which was approved by the Ontario Minister of the Environment and the Lieutenant Governor in Council in 2008. The EA Act formally recognizes the OWA Class Environmental Assessment for Waterpower Projects (OWA Class EA) and outlines the requirements for EA approval.
- Under the OWA Class EA the Calabogie GS Project will be classified as a "Project Associated with Existing Infrastructure". Provided the requirements of the OWA Class EA planning process are met, and a Part II Order request is not made (or denied), a project is considered approved under the EA Act.
- Copies of the Class EA are available from www.owa.ca

Environmental Assessment Process (continued)

- Environmental assessment approval is required prior to issuance of other project approvals and permits.

View from eastern shoreline of the forebay looking towards the inlet sluices (bridge)

- Preliminary field work associated with assessing the environmental effects was initiated in 2016.
- More comprehensive field work was carried out in 2017, 2018 and 2019.
- The effects of the project during construction and operation are now being assessed.
- Measures to avoid, prevent, eliminate, reduce, mitigate and compensate for negative effects are being identified.
- Measures to enhance positive effects will also be identified.



Site overview

Tornado

- Tornado hit the site on Friday September 21st 2018 (day of Ottawa tornados):
  - Removed the roof from the existing powerhouse.
  - Damaged the transformer and lines, resulting in loss of power to the site.
  - Destroyed significant area of forest cover at site.

- OPG's primary focus was to make the site safe, by restoring temporary power to the site to get the sluiceway gates operating to enable water management.
- OPG is working toward placing the remaining powerhouse structure in a safe state until commencement of redevelopment project.

Madawaska River and Water Management Operations

Calabogie Generating Station
Redevelopment Project

Future Operations

- OPG will continue to operate the Calabogie GS and the other plants on the Madawaska River in full accordance with all flow and water level targets and compliance conditions in the Madawaska River Water Management Plan, including the summer conditions.
- Daily flow and water level conditions will remain unchanged from the existing situation.
- The new GS at Calabogie will have an increased flow capacity, which will allow OPG to produce more energy from the existing water.
- In the past, higher flows through Calabogie GS were split between the sluice gates and the station. Now more will pass through the station.

Future Operations (continued)

- There will still be conditions and situations where a greater range at Stewartville GS is needed to meet Ontario grid requirements and maintain compliance with the other aspects of the Water Management Plan (WMP).
- There may be some conditions where the new Calabogie GS could match flow patterns at Barrett Chute GS and Stewartville GS to reduce water level fluctuations. If this occurs it will be done in compliance with the WMP.
- Given the above, OPG does not plan to propose any formal changes to the compliance requirements in the WMP, however a Minor Amendment will be required to the WMP to reflect the fact that a new GS has been constructed.

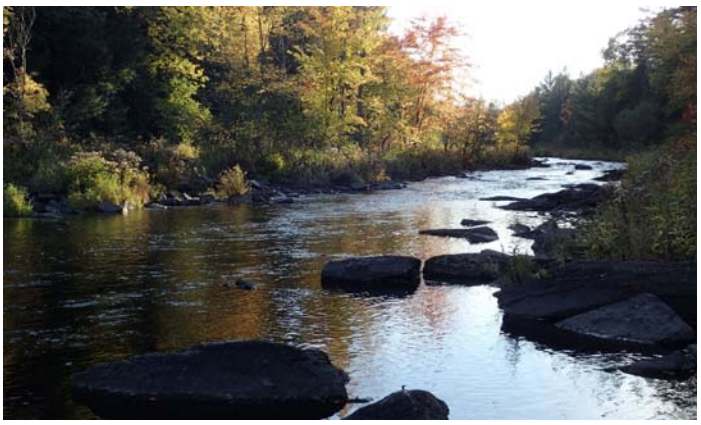
Aquatic Assessment

Calabogie Generating Station
Redevelopment Project

- Aquatic field studies were completed in 2016 and 2017.
- The existing GS has in place seasonal regime constraints from April 1 to the May long weekend to facilitate Walleye and Northern Pike spawning. A minimum year-round flow, along with an enhanced minimum flow during Walleye spawning, is maintained in the North Channel.

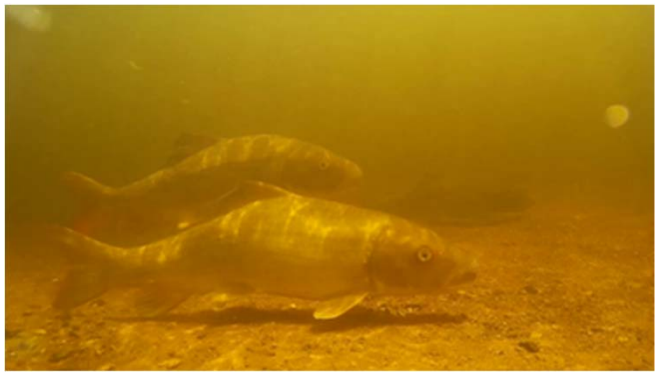
North Channel of Madawaska River

- The Madawaska River between Calabogie GS and Stewartville GS is managed as a coolwater fishery with Northern Pike, Smallmouth Bass, Largemouth Bass, Walleye, Rock Bass, Pumpkinseed, Yellow Perch, White Sucker, and Redhorses present.



Aquatic Assessment (continued)

- Fall-spawning fish, Lake Sturgeon or American Eels are not known to be present in the stretch of the River between Calabogie GS and Stewartville GS.



River Redhorse (*Moxostoma carinatum*)

- River Redhorse (listed as a species of Special Concern) spawn downstream of the Calabogie GS near the area known as Cherry Point. No impacts are predicted.

American Eels

- While American Eels are not currently thought to be present in the Madawaska River, OPG does plan to incorporate Eel passage into the design of the facility.
- An upstream ladder and tank will be incorporated into the facility.
- Provisions for downstream passage will be incorporated into the design so the facility can be easily retrofitted should American Eels become present in the Madawaska.

Aquatic Assessment (continued)

- Proposed new GS is not anticipated to have any negative effects on the fishery or aquatic environment.
- A large number of standard and specialized mitigation and monitoring measures are proposed to prevent negative effects from occurring. Mitigation measures would include: adherence to in-water work windows; and managing the construction site to prevent spills, erosion, sedimentation and alterations to the natural shoreline.
- Fisheries and Oceans Canada may require compensation due to the increased capacity of the new GS. If so, OPG is proposing that compensation measures (i.e. additional spawning habitat) are undertaken in the tailrace.

Terrestrial Assessment

Calabogie Generating Station
Redevelopment Project

- Terrestrial field studies were completed in 2016, 2017 and 2018, with additional work in 2019.
- Field studies/surveys on site included:
  - Bat Surveys (7 species observed);
  - Dawn Breeding Bird Surveys (42 species documented with 41 expected in or adjacent to study area);
  - Whip-poor-will Surveys (none observed);
  - Turtle Surveys (3 species observed but 4 expected);
  - Butternut Surveys (none observed); and
  - Vegetation assessment (ecological land classification).

Remote acoustic bird monitor

- Most of the forest cover on the site of the Calabogie GS is secondary forest having been cleared at the time of the original construction and later.
- The proposed undertaking will require the clearing of less than ten hectares of vegetation.
- Most of this area that will be cleared can be re-planted or naturalized.

Terrestrial Assessment – Effects and Mitigation

- 5 *Endangered Species Act* species have been identified and mitigation measures proposed:
  - Barn Swallow – Mitigation to include artificial nesting structure (already in place).
  - Blanding's Turtle – Mitigation to include staff training, signage and temporary exclusion fencing.
  - 3 Bat species – Mitigation to include situating project development activities away from roost trees; and tree clearing outside of active season.
- Variety of other mitigation measures to be utilized to protect the terrestrial environmental including:
  - Situating project development activities away from any rare or sensitive plants;
  - Environmental construction planning and monitoring;
  - Appropriate erosion and sediment controls;
  - Maintenance of equipment and management of site to avoid and remediate spills;
  - Timing of activities to avoid certain seasons;
  - Planning for emergencies; and
  - Worker education etc.
- Proposed mitigation measures expected to address all potential negative effects resulting in no negative residual effects.

Terrestrial Environment Surveys

Calabogie Generating Station
Redevelopment Project

- See Page #3 of Landscape Panels

Archaeological Assessment

Calabogie Generating Station
Redevelopment Project

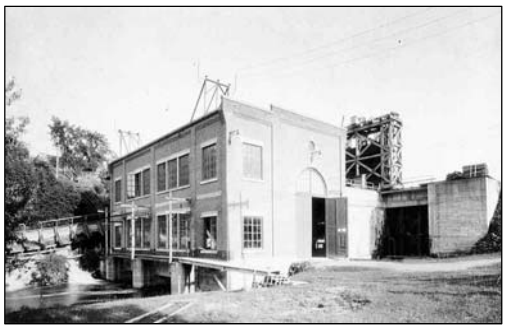
- Stage 1 archaeological assessments were completed on the Calabogie GS in 2016 and 2018. The 2018 fieldwork identified areas of archaeological potential. These areas of potential were tested as part of a Stage 2 archaeological assessment in the fall of 2018.
- No archaeological resources were located during the Stage 2 archaeological survey. As such, no further archaeological work is planned at Calabogie GS as part of the proposed redevelopment work.

- Fieldwork in 2018 included participation with the Algonquins.

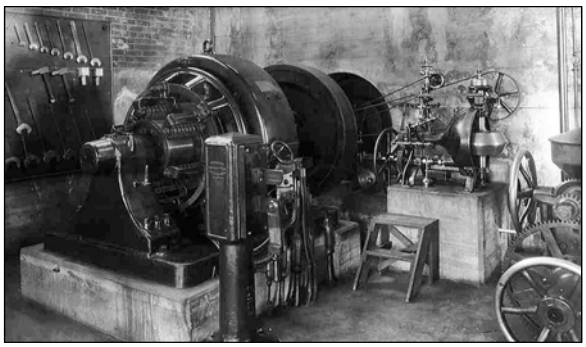
Cultural Heritage Assessment (Built)

Calabogie Generating Station
Redevelopment Project

- The original Calabogie GS was constructed in 1917 to provide power during the First World War.



- The Calabogie GS has been evaluated under the Ministry of Tourism, Culture and Sport (MTCS) Standard and Guidelines for Conservation of Provincial Heritage Properties (Standards & Guidelines).
- A Cultural Heritage Evaluation Report (CHER) concluded the Calabogie GS fulfilled the evaluation criteria for determining cultural heritage value or interest set out in Ontario Regulation (O.Reg) 9/06 under the *Ontario Heritage Act* (OHA) for local significance and is considered for Listing as a Provincial Heritage Property; however, it was determined the property did not meet the criteria for provincial heritage significance in O.Reg 10/06.
- Re-using the 100 year old powerhouse was considered, but concluded not to be a feasible development option.



- The history of the GS has been documented and some equipment is proposed to be donated to the Township for display in a public park or other facility. OPG will also retain some equipment and consider a commemorative plan.

Socio-Economic Assessment

Calabogie Generating Station
Redevelopment Project

- The project will generally have a minor positive effect during the construction period to the local and regional areas through construction employment, contracting, and purchase of local goods and services.

- Discussions have occurred and will continue with the Township and County to determine any areas of concern and to mitigate any potential nuisance effects.
- As there are no proposed alterations to the current Madawaska River Water Management Plan compliance levels there is no anticipated effect on any human uses.

Working with the Township of Greater Madawaska

Calabogie Generating Station
Redevelopment Project

- The proposed project will result in the excavation of approximately 47,000 cubic meters of rock.
- The rock is of the quality that is suitable for road construction and maintenance.
- OPG and the Township have been working together to develop a plan to give the Township the rock.
- The Township Work Yard has lands adjacent to the existing Calabogie GS and the proposed plan is to deposit this rock on Township lands for its future use.
- This will involve the construction of a short 200 meter road and the creation of an area to deposit the rock.
- This plan has several benefits for all parties:
  - OPG does not need to find an alternative location on its site for the rock;
  - Township will receive rock at no charge for future road use; and
  - Reduction in the number of haul trucks on the local highway and roads.
- Environmental review of this area will occur this spring and some mitigation measures will be required.

Working with the Township of Greater Madawaska

Calabogie Generating Station
Redevelopment Project

- See Page #4 of Landscape Panels

Dam Safety Requirements

- The Ministry of Natural Resources and Forestry (MNRF) has in place Dam Safety Guidelines to protect the public and the natural and built assets of the Province. These were updated in 2011.

- Currently OPG is assessing the existing spill capacity at the Calabogie GS site and reviewing various options to increase spill capacity, as necessary, to meet the requirements of the 2011 MNRF Guidelines.

- Additional spill capacity may be achieved by a combination of channel improvements and installing additional sluices.

- Environmental approval for such work might be carried out as a Modification and/or Addendum to this Environmental Assessment or as a separate approval process.

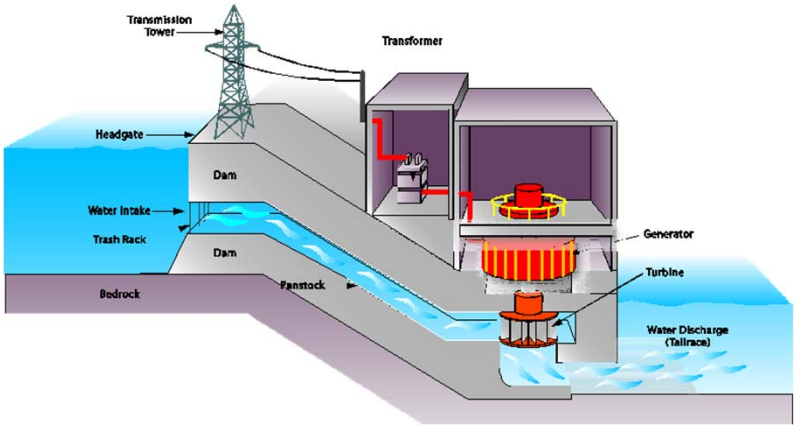
Project Benefits

- Will produce approximately 11 megawatts (MW) of clean renewable power for the Ontario electricity system for the next 90 years. This increase is more than 6 MW or enough electricity for about 6,000 homes.
- Results in a local and regional economic benefit during the construction stage.
- Allows OPG to better match flows in the Madawaska River to other Generating Stations and should in some conditions help to reduce the range and frequency of water level fluctuations between Calabogie and Stewartville.
- Will allow for future passage of American Eels.
- Results in an investment in the infrastructure at Calabogie GS which could assist with a future catastrophic event and to better address future climate conditions.
- Provides the Township of Greater Madawaska with rock that can help with future road construction and maintenance.
- All environmental impacts can be mitigated through appropriate planning, construction and monitoring.

How Hydroelectric Development Works

Calabogie Generating Station
Redevelopment Project

- Hydroelectric power stations convert the kinetic energy of falling water into electrical energy.
- Hydroelectric stations use either the natural drop of a river, such as a waterfall, or a dam built across a river to raise the water level and provide the drop (head) needed to create a driving force.
- Water is collected at the top of the dam in what is called the forebay. From there, the water flows into a pipe called a penstock which carries it down to a turbine water wheel.



- The water pressure increases as it flows down the penstock. The pressure and flow of the falling water drives a turbine which in turn spins a generator.
- This creates electricity that can be sent to the transmission grid.

Comments and Schedule

Calabogie Generating Station
Redevelopment Project

THANK YOU for attending!

- OPG is interested in hearing your comments and questions regarding the Calabogie Generating Station Redevelopment Project.
- Consultation is a key component of the EA process as it provides you with an opportunity to contribute and inform decisions relating to the project.
- *Comment Sheets* are available. Please take a few minutes to provide comments and concerns you may have and either leave them with a Project Team representative or send it back to us by **July 3, 2019**.
- Environment Reports for the review and Notice of Completion Stage will be posted in summer 2019 on OPG's project website: www.calabogiegs.com
- Construction is planned to commence in early 2020.
- The proposed new GS is expected to go into operation by late 2021.

If you have further comments or questions please email us at: **info@calabogiegs.com** **or** visit our project webpage at: **www.calabogiegs.com**