EB-2009-0120

YELLOW FALLS TRANSMISSION LINE

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c.15 (Sched. B), as amended;

AND IN THE MATTER OF an application by Yellow Falls Power Limited Partnership ("YFP") for an Order pursuant to section 92 of the *Ontario Energy Board Act, 1998* granting leave to construct transmission facilities that will connect YFP's planned Yellow Falls Hydroelectric Project to Ontario's transmission grid.

APPLICATION
AND
PRE-FILED EVIDENCE
OF
YELLOW FALLS POWER LIMITED PARTNERSHIP

EB-2009-0120

ONTARIO ENERGY BOARD

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ONTARIO ENERGY BOARD

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AND IN THE MATTER OF an application by Yellow Falls Power Limited Partnership ("YFP") for an Order pursuant to section 92 of the *Ontario Energy Board Act, 1998* granting leave to construct transmission facilities that will connect YFP's planned Yellow Falls Hydroelectric Project to Ontario's transmission grid.

APPLICATION

1. The Applicant is Yellow Falls Power Limited Partnership ("YFP"), an Ontario-based limited partnership. Carlex Corporation Inc. is the general partner of YFP, and Canadian Hydro Developers, Inc. (50%) and two individuals (25% each) are the limited partners. The Applicant is constructing a run-of-river waterpower project with a nameplate capacity of 16 megawatts that will generate an estimated 70 gigawatt-hours per year of electricity from a renewable source (the "Project"). The Project is situated at Yellow Falls on the Mattagami River, approximately 18 km upstream from Smooth Rock Falls.

2. The Applicant proposes to transmit the electricity generated by the Project via an overhead line to the existing Hydro One Networks Inc. ("Hydro One") 115 kilovolts ("kV") transmission line "H9K". The Project and the proposed transmission line are located in parts of Bradburn, Haggart, and Sydere Townships, in the District of Cochrane, Province of Ontario.

3. The Applicant applies to the Ontario Energy Board pursuant to section 92 of the *Ontario Energy Board Act, 1998* (the "Act") for leave to construct transmission facilities that will connect the Project to Ontario's transmission grid.

4. YFP requests an Order granting leave to construct the following facilities:

   (a) A Customer Transformer Station ("CTS") that steps up the generation of the waterpower project from 13.8 kilovolts ("kV") to 115 kV on the west bank of the Mattagami River.

   (b) Approximately 25 km of over-head three phase 115 kV transmission line, from the CTS following a new access road constructed for the Project in a

northwesterly direction to the existing Red Pine Road, then following Red Pine Road to Highway 11, and ending at Hydro One's H9K circuit located between Malette Craft Junction and Fauquier Junction

(c) A Customer Switching Station at the point of interconnection with Hydro One's H9K line which will be owned and operated by the Applicant.

5. A map showing the proposed location of the transmission facilities is attached as Schedule A.

6. The proposed facilities will be constructed and paid for by the Applicant.

7. Hydro One and the Independent Electricity System Operator respectively issued a System Impact Assessment Report (the "SIA") and a Customer Impact Assessment (the "CIA") in 2006. Both of those reports were issued based on a previous design for the Project. Under the previous design, YFP had intended to locate the dam and powerhouse at Island Falls, rather than at its present location at Yellow Falls. The previously intended dam and powerhouse location at Island Falls is also on the Mattagami River, approximately 3 km downstream from Yellow Falls and its planned nameplate capacity was 20 MW rather than the present planned capacity of 16 MW.

8. The SIA and CIA prepared in 2006 will be updated to reflect the changes to the Project. Copies of the revised SIA and CIA will be filed in support of the application.

9. The Applicant has released the Final Environmental Assessment Report for the Project, which is filed in support of this application.

10. The proposed facilities will be constructed and paid for by YFP. Therefore, there will be no rate impacts on Ontario's electricity consumers.

11. Additional written evidence, as may be required, will be filed in support of the application and may be amended from time to time prior to the Board's final decision.

12. The proposed facilities will be located entirely on Crown land, and the Applicant will require land use permits from the Ministry of Natural Resources under the *Public Lands Act*. As a result, the Applicant does not need an order pursuant to s. 97 of the Act approving the form of the agreements to be offered to landowners affected by the proposed transmission route. The names of the private landowners in the vicinity of the proposed route of the transmission line are attached as Schedule B.

13. YFP requests that the Board proceed by way of written hearing, pursuant to Section 34.01 of the Board's *Rules of Practice and Procedure*.

14. YFP requests that a copy of all documents, filed with the Board by any party responding to the application be served on YFP, the Project Manager, and its counsel as set out below:

(a) Yellow Falls Power Limited Partnership

c/o Mr. Scott Hossie,
Ontario Manager - Environmental
Canadian Hydro Developers, Inc.
34 Harvard Road
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(b) Counsel to Yellow Falls Power Limited Partnership

Blake, Cassels & Graydon LLP
Barristers & Solicitors
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199 Bay Street, Suite 2800
Toronto, ON M5L 1A9

Attn: Sharon Wong
Tel: (416) 863-4178
Fax: (416) 863-2653

Email: sw@blakes.com

Dated at Toronto, Ontario this 27th day of April, 2009.

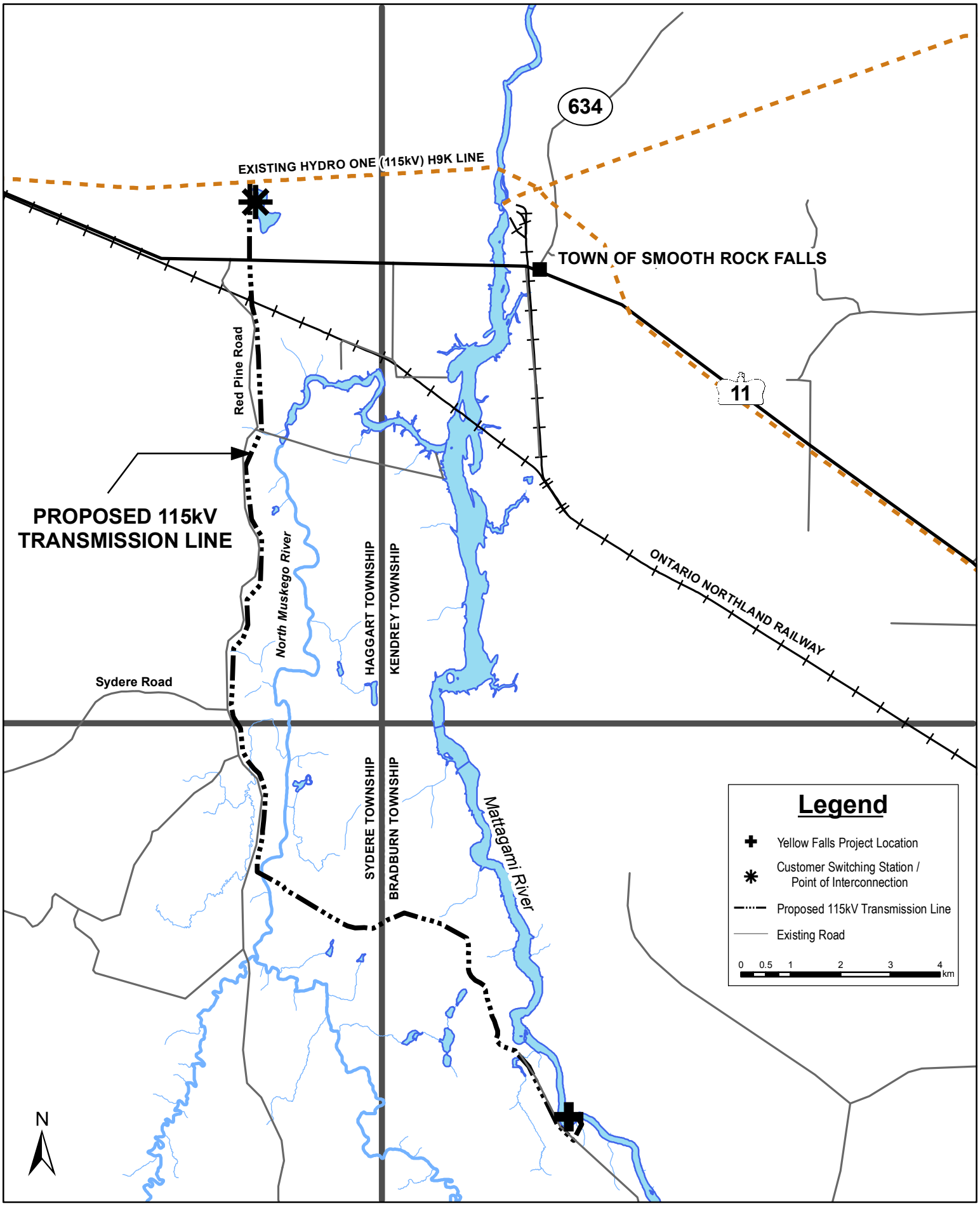
Yellow Falls Power Limited Partnership

BY ITS COUNSEL, BLAKE, CASSELS & GRAYDON LLP

Sharon Wong

Sharon Wong

Yellow Falls Hydroelectric Project
Proposed 115KV Transmission Line



SCHEDULE B

List of Landowners
Adjacent to Proposed Transmission Line

Bruce Barron

Claude and Francine Levesque

Mick Paarsalu

Conrad and Lise Pelchat

PRE-FILED EVIDENCE OF THE APPLICANT
YELLOW FALLS POWER LIMITED PARTNERSHIP

1.0 THE APPLICANT

1.1 Yellow Falls Power Limited Partnership

The Applicant is Yellow Falls Power Limited Partnership ("YFP"). The Applicant is an Ontario based limited partnership. Carlex Corporation Inc. is the general partner, and Canadian Hydro Developers, Inc. ("Canadian Hydro") (50%) and two individuals (25% each) are the limited partners.

1.2 Canadian Hydro Developers, Inc.

Canadian Hydro is a publicly listed and traded company on the Toronto Stock Exchange (TSX:KHD) and is focused on balancing the goals of investors in an environmental and socially responsible manner.

Canadian Hydro has twenty generating plants currently in operation throughout Canada and other plants under development. Canadian Hydro or its subsidiaries own and operate five hydroelectric facilities within Ontario:

- Moose Rapids (Wanapitei River),
- Ragged Chute (Montreal River),
- Appleton (Mississippi River),
- Galetta (Mississippi River), and
- Misema (Misema River).

Canadian Hydro also operates one wind plant in Ontario – Melancthon EcoPower® Centre (Melancthon Township). In addition to the Yellow Falls Hydroelectric Project, the company is also constructing the Wolfe Island Wind Project (Township of Frontenac Islands, County of Frontenac).

1.3 Authorized Representative of the Applicant

The authorized representative and primary contact person for the Applicant is:

Mr. Scott Hossie,
Ontario Manager - Environmental
c/o 34 Harvard Road
Guelph, ON, N1G 4V8
Tel: (519) 826-4645
Fax: (519) 826-4745
Email: shossie@canhydro.com

2.0 LOCATION OF THE PROJECT

YFP is proposing to build and operate a 16 megawatt ("MW") run-of-river[1] waterpower project at Yellow Falls on the Mattagami River, approximately 18 km south of Smooth Rock Falls, Ontario (the "Project"). The Applicant proposes to transmit the electricity generated by the Project via an overhead line to the existing Hydro One Networks Inc. ("Hydro One") 115 kilovolts ("kV") transmission line "H9K". The Project and the proposed transmission line are

[1] "Run-of-river" describes hydroelectric power generation that does not affect river flow by storing or releasing water from a headpond or reservoir; save the initial filling of the headpond and some attenuation of flow in large flood events.

located in parts of Bradburn, Haggart, and Sydere Townships, in the District of Cochrane (see map at Tab 3).

The Mattagami River System, including all feeding tributaries, stretching over 418 km from its headwaters at Mesomikenda Lake to its confluence with the Moose River and falling 329 m, has been used to produce electricity for more than 90 years. Today, the river system supports ten generating stations for a combined installed capacity of approximately 510 MW. Ontario Power Generation ("OPG"), Tembec Industries Inc. ("Tembec"), and Beaver Power Corporation own and operate the existing facilities; eight of the ten facilities are on the Mattagami River, with the remaining being located on tributaries to the Mattagami River.

The Project is located on the Mattagami River, in the Moose River basin. The generating station will be sited between the Lower Sturgeon Generating Station ("GS") operated by Ontario Power Generation and the Smooth Rock Falls GS operated by Tembec Industries Incorporated. The Project will use the water outflow from the Lower Sturgeon GS to generate power. Following the initial filling of the headpond, the river flow rate downstream of the Project will remain unchanged as the water will pass through the headpond, turbines, and sluiceway and continue on downstream (i.e. in a northerly direction) to the Tembec GS.

The overhead transmission line will be constructed entirely on Crown lands. It will originate at a Customer Transformer Station ("CTS") adjacent to the powerhouse on the west bank of the river. From the CTS, the overhead transmission line will be routed in a southwesterly direction to the new access road. The transmission line will then follow the new access road in a northwesterly

direction to the existing north Red Pine Road. The transmission line will follow north Red Pine Road to within 1.5 km of Highway 11 where it will continue north, as Red Pine Road veers to the west, crossing natural gas pipelines operated by TransCanada Pipelines ("TCPL"), the Ontario Northland Railway line and Highway 11 and then on to the existing Hydro One H9K line (see map at Tab 3).

2.1 Project Components/Structures

The key components of the Project include the site access road, generating equipment, powerhouse, concrete dam, headpond, CTS, a Customer Switching Station ("CSS") and a transmission line. These components are described in greater detail in the following sections.

2.1.1 Site Access Road

The access road to the Yellow Falls site during the operation phase of the project will be the existing Red Pine Road and a new access road constructed for the Project (Tab 3). Site access will follow Red Pine Road a distance of 14 km from Highway 11 to the intersection with the new 9 km access road.

Red Pine Road will require upgrades such as road re-establishment and re-building of some sections, as well as the re-establishment of a bridge over the Muskego River. A bridge previously existed at this location, however it was decommissioned and removed by Tembec (a local forestry operator). The new access road is located partially on existing logging/ATV trails and will include two new bridge installations over unnamed creeks.

The access road works will result in a two-lane gravel road with single-lane bridges from Highway 11 to Yellow Falls. All road design and construction, including bridges, will be done in accordance with applicable provincial standards to facilitate the transport of construction materials and generating equipment and meet the requirements for public and logging use where joint use is required. Bridges are likely to be of steel and/or concrete construction, spanning watercourses to minimize the extent of in-water works.

2.1.2 Dam

Spill facilities allow water flows in excess of turbine capacity to pass downstream. The spill facilities will consist of a 17-bay gated spillway required for normal and flood operation. The spillway will be reinforced concrete structure with ogee and pier sections founded on bedrock and located adjacent to the powerhouse.

The gated spillway will be equipped with vertical-lift, fixed slide gates with dedicated hoists. Foundation grouting will be performed to minimize foundation seepage. In addition, a pressure relief system will be installed to control foundation uplift pressures.

The spillway gates are raised in order to discharge flows. As the spillway sill elevation is approximately at river bed level, the gates can also be used to pass silt that may have accumulated in front of the structure.

A concrete gravity retaining wall will form the right abutment of the structure. It will be designed with a crest elevation of 245.0 m. The maximum height of the structure will be approximately 2.5 m.

2.1.3 Intake and Powerhouse

The intake and powerhouse will be combined in a close-coupled arrangement near the west bank of the river. The reinforced concrete structure will be founded on bedrock in an excavated slot. Foundation grouting beneath the powerhouse may be required to minimize foundation seepage.

The powerhouse will be a cast-in-place concrete structure with steel and metal-clad roof system and will contain the following:

- Two 8-MW turbine-generator units
- Turbine shut-off valves
- Hydraulic power unit
- Bearing oil, cooling water, and service water systems
- Sump with oil water separator and redundant pump system
- Generator terminal box, neutral grounding cubicle
- 13.8 kV medium voltage switchgear
- Station service power equipment including: motor control centre, low-voltage distribution panels, AC and DC uninterruptible power supply ("UPS)" including batteries.
- Heating, ventilation, and lighting
- A service gantry-type crane
- Stairs, walkways, platforms, ladders, and handrails
- Control and protection panels in separate enclosure
- Fire alarm, fire suppression system, intrusion alarm

Two turbine units will be supported by the reinforced concrete substructure. The main turbine-generator floor level will be below normal tailwater levels and flood levels. For this reason, the powerhouse will be sealed against leakage up to the design flood level and doors and other openings will be located above these levels.

The powerhouse will have a minimum of two access doors: one for normal access and one for emergency egress. An equipment door will be sized to accommodate installation of larger components such as control panels. Larger components including the generator will be installed (and removable) through a roof hatch centred over the generator using a mobile crane in a specific location outside the powerhouse.

The powerhouse site will be signed, gated and fenced in accordance with applicable regulations and security requirements for safety and to discourage unauthorized access.

2.1.4 Headpond

The headpond will extend south to Loon Rapids from the dam at Yellow Falls, a distance of 6 km. The river depth increase as a result of headpond creation will range from nil at Loon Rapids to 12 m at the dam site. The total headpond area will be approximately 160 ha, of which 89 ha is the existing river area and 71 ha is the area that will be inundated by the Project. The normal operating level of the headpond will be near constant at 244 m above sea level with minor fluctuations of 0.2 to 0.3 m.

2.1.5 Customer Transformer Station

A CTS that steps up the generation from 13.8 kV to 115 kV will be built on the west bank, adjacent to the powerhouse, on land owned by the Crown. Section 4.1 below contains a more detailed description of the CTS.

2.1.6 Customer Switching Station

A Customer Switching Station ("CSS") will be located on Crown land at the site of interconnection between the transmission line and the Hydro One's H9K line. Section 4.3 below contains a more detailed description of the CSS.

2.1.7 Service Building

The project service building will be located on the west bank of the river, and will be approximately 10 x 10 m size, and will serve the following functions:

- Storage of miscellaneous support equipment and supplies such as a snowmobile, ATV, portable genset, pumps, shovels, etc.
- Workshop for periodic maintenance on generating equipment complete with tools
- Emergency accommodations for the plant operators complete with potable water supply and septic system.

3.0 NEED FOR THE PROPOSED FACILITIES

An overwhelming body of scientific evidence clearly indicates that climate change is a serious and urgent issue. Most climate models show that a doubling of pre-industrial levels of

greenhouse gases is very likely to commit the Earth to a rise of between 2 – 5°C in global mean temperatures. It is anticipated that this level of greenhouse gases will probably be reached between 2030 and 2060. Generation of electricity from renewable sources has been identified as one of the key means of reducing greenhouse gases.

The Government of Ontario has announced that it is committed to fostering the growth of renewable energy projects which use cleaner sources of energy, such as water. YFP's run-of – river Project is exactly the kind of renewable energy project that the Government of Ontario wants to promote.

YFP anticipates contracting the sale of electricity from the Project through the Ontario Power Authority's proposed Feed-in Tariff procurement program.

YFP must construct the proposed Transmission Facilities in order to transmit the electricity generated by the Project to Ontario's transmission grid.

The Project has a nameplate capacity of 16 MW. The total anticipated capital cost for the Project is $80-90 million. Construction is scheduled to commence in the third quarter of 2009. The estimated average annual output of the Project is 70,100 megawatt-hours of clean, renewable energy; enough electricity to power approximately 6,800 average Ontario homes. The hydroelectric generation process (capture of energy from moving water) does not release greenhouse gases.

Benefits of the Project include:

- Efficient electricity generation without greenhouse gas emissions;
- economic benefits to the local area; and,
- efficient use of the water resource.

The Town of Smooth Rock Falls, with a population of approximately 2,050, is the only urban settlement in the vicinity of the project. It is located approximately 18 km north of Yellow Falls on the Mattagami River. The main industry of the Town of Smooth Rock Falls was the Tembec Pulp and Paper Mill, however it was closed indefinitely effective July 31, 2006. The Yellow Falls Project will bring new construction and operation jobs into the Smooth Rock Falls area, providing a boost to the local and regional economy. It is estimated that the construction phase of the Project will require approximately 100,000 person-hours of employment.

YFP and its lead partner, Canadian Hydro Developers, Inc., prefer to use local labour and suppliers when the required product or labour is available locally in sufficient quality and quantity, at competitive prices.

The Project maximizes the efficient use of the available water resource. The Project, with a 16 MW capacity, will have higher annual power generation than the generating stations immediately upstream and downstream of the Project. The Project produces more power because most of the available river flow flows through the turbines. The generating stations at Lower Sturgeon (upstream of the Project) and Smooth Rock Falls (downstream of the Project) have lower capacities, and are not designed to pass as much water through their turbines. As a

result, the Lower Sturgeon and Smooth Rock Falls Generating Stations pass more water through their sluiceways (which do not generate power).

4.0 THE PROPOSED TRANSMISSION FACILITIES

As indicated in the Application at Tab 1, the Applicant is seeking leave to construct:

(i) A single 13.8/115 kV CTS to be located adjacent to the powerhouse on the west bank of the river on Crown land.

(ii) A single 25 km long over-head three phase 115 kV transmission line from the CTS to Hydro One's H9K circuit located between Malette Craft Junction and Fauquier Junction.

(iii) A CSS at the point of interconnection between the proposed transmission line and the existing Hydro One H9K line.

These facilities are collectively referred to herein as the "proposed Transmission Facilities". Each of these components is described below. A map that illustrates the entire route for the proposed Transmission Facilities is at Tab 3.

The proposed Transmission Facilities are located on Crown Lands. A map showing privately held lands in the vicinity of the proposed Transmission Facilities is provided at Tab 4. A list of private landowners adjacent to the proposed route is at Tab 5.

Given that the project is located on Crown Lands, in unorganized townships, no municipal permits or authorizations are required. YFP is involved, however, in ongoing consultation with the Town of Smooth Rock Falls and its residents.

All construction and operation of the electrical infrastructure will be conducted in accordance with applicable regulations and codes.

4.1 The Customer Transformer Station

The CTS will be located just off the south dam on the west bank of the river on land owned by the Crown. It will contain a single step-up transformer to increase the generated voltage of 13.8 kV to 115 kV to match Hydro One's existing transmission system for interconnection. The main components of the CTS is a single 13.8/115 kV power transformer, 115 kV circuit breaker, a single air break disconnect switch, grounding grid, current transformers, power transformers, surge arrestors and other facilities required to support the operation of the station.
The CTS will occupy a footprint of approximately 20 m x 15 m and be enclosed with a security fence and lighted as appropriate. All 115 kV rated equipment will be designed to meet all interconnection requirements applicable to connection to Hydro One's 115 kV system including the Hydro One Customer Impact Assessment, the System Impact Assessment from the Independent Electricity System Operator ("IESO"), Market Rules, Transmission System Code and Canadian Electrical Code.

4.2 The Transmission Line

The Applicant proposes to transmit the electricity generated by the hydroelectric facility via an overhead 115 kV cable to the existing Hydro One H9K 115 kV line located north of Highway 11 (Tab 3).

From the CTS, the overhead transmission line will be routed in a southwesterly direction to the new access road. The transmission line will then follow the new access road in a northwesterly direction to the intersection of the new access road and north Red Pine Road as shown in Tab 3. The transmission line will turn northwards at this intersection and follow north Red Pine Road to Highway 11. The point of interconnection will be at the existing Hydro One 115 kV transmission line north of Highway 11. The total length of new transmission line is approximately 25 km. The transmission line route will be located adjacent to the access road route and will require clearing along the right of way to remove potential danger trees that could fall on the line.

The transmission line will consist of a 3 phase, single circuit 115 kV overhead powerline designed to transmit 16 MW of power at voltages up to 132 kV. (YFP will be transmitting at 115kV, but the powerline cable will be rated to handle up to 132 kV.) The transmission line composition will consist of single structure wood poles using armless construction (all conductors attached to structures using standoff insulators and brackets, no crossarms). The structure designs will meet CSA C22.3 No.1-01 Overhead Systems, the Ontario Electrical Safety Code, Electrical Safety Authority, and Hydro One's standards where applicable. The structures

will be installed using direct bury techniques with standard screw anchors where required. Crib foundations for structures may be selected for wet areas which will be assessed when final structure locations are determined.

The conductor for the transmission line will be 636 ACSR Kingbird. This conductor will transmit well in excess of the 16 MW capacity but provides the project with low transmission line power losses and voltage drop. The 636 ACSR Kingbird is a conductor which Canadian Hydro has used on other projects in Ontario, and Canadian Hydro has spares of this conductor stocked in Ontario for maintenance purposes.

The entire transmission line, will be protected by electronic line protection relays and high voltage circuit breakers at either end, as well as remote teleprotection to Hydro One's system. The transmission line corridor will also contain a fibre optic cable to facilitate communication, supervisory control and data acquisition and protection requirements. The transmission line components are all specified and designed to ensure operation through the expected life of the Project.

The terrain along the route includes wet marshy areas where special consideration will be given to minimizing environmental effects and maintaining stable transmission pole foundation designs. Similar to the access road, there will be two stream crossings. Transmission line poles will be set back from the edge of the banks and the line will span over the streams.
The transmission line crosses the Ontario Northland Railway line, TCPL gas pipelines, and Highway 11. Design of these crossings will be in accordance with Ministry of Transportation

("MTO") guidelines and will meet the requirements of Ontario Northland Railway and TCPL. Permit applications will be prepared and submitted for the highway crossing.

4.3 Customer Switching Station

The Applicant proposes to construct a CSS on Crown land at the site of interconnection between the transmission line and the Hydro One's H9K line. The CSS will be comprised of two 115 kV circuit breakers, four 115 kV break switches, a revenue metering package, and small control building. The CSS is designed to isolate the Applicant's 115 kV transmission line from the Hydro One system in the event of a system disturbance, requested outage, or routine maintenance.

The revenue metering package will consist of a primary and back up meter connected to revenue approved instrument transformers. Metering class customer transformers and power transformers will be in accordance with Revenue Canada and all other required specifications. The control building will house protection relays and teleprotection equipment. The CSS will occupy a footprint of approximately 20 m x 20 m and be enclosed with security fencing.

5.0 LAND MATTERS

The proposed route is the preferred route because:

- It provides the most direct connection to Hydro One's 115 kV transmission line.
- The transmission line is located immediately adjacent to the access road, thus improving serviceability/repairs.

- Only one right-of-way is required for both the access road and transmission line, minimizing disturbance of the landscape.
- The route utilizes existing roadways to the extent possible.
- The route does not cross privately held lands.

The proposed Transmission Facilities are located on Crown Lands. A map showing privately held lands in the vicinity of the proposed Transmission Facilities is provided at Tab 4. A list of private landowners adjacent to the proposed route is at Tab 5.

YFP will obtain tenure for the land needed to construct the CTS, the dam/powerhouse and the service building under a Waterpower Lease Agreement with the Ministry of Natural Resources (MNR). In order to construct the proposed 115 kV transmission line and the CSS, YFP will require work permits and land use permits from the MNR under the *Public Lands Act.* YFP has started discussions with MNR, and it is expected that the lease and permits will be obtained following completion of the harmonized environmental assessment under Ontario Regulation 116/01 and the MNR Waterpower Program Guidelines.

During the operation of the Project, it may be necessary to remove trees that may interfere with or fall on the transmission line. Based on this requirement, and tree heights of approximately 25 m, YFP will need a land use permit from MNR to use an accessible area 25 m wide on either side of the proposed transmission line (equal to a total accessible width of 50 m) to allow sufficient space for danger tree removal. Where the access road is immediately adjacent to the

transmission line, a land use permit for a reduced width may be sufficient because the access road will provide separation from potential danger trees on one side of the transmission line.

Based on discussions with MNR, YFP understands the MNR has an agreement with Tembec relating to the use and maintenance of Red Pine Road and that YFP will need to negotiate a road sharing agreement with Tembec.

The proposed Transmission Line crosses an existing natural gas pipeline right-of-way. This right-of-way contains three individual pipelines transporting natural gas. The pipelines are operated by TCPL. The Applicant has been involved in ongoing discussions with TCPL regarding the required crossing, and will obtain all necessary authorizations from TCPL prior to construction.

The proposed Transmission Line crosses the Ontario Northland Railway Commission rail line. This rail line is currently crossed by the existing Red Pine Road, and will be crossed by the improved access road at the same location. All required authorizations will be obtained from Ontario Northland Transportation Commission. The crossing of the rail line will require execution of a Crossing Agreement in accordance with the *Transportation Act* under the auspices of the Canadian Transportation Agency. This agreement has been completed. A copy of the agreement is provided at Tab 6.

The proposed Transmission Line crosses Highway 11. The applicant has consulted with the MTO and will be obtaining all required permits to facilitate the crossing of Highway 11 by the

proposed Transmission Line. Permits/authorizations required for the Transmission Line crossing of Highway 11 may include an encroachment permit, land use permit, and entrance permit.

The proposed Transmission Line and the Project's access road cross an existing snowmobile trail. This trail is maintained by the Arctic Riders Snowmobile Club ("Arctic Riders") based out of Smooth Rock Falls. The Applicant consulted with the Arctic Riders during the planning stage of the Project, and confirmed that the Arctic Riders were interested in securing a snowmobile route on the east side of the Mattagami River in order to avoid the annual maintenance associated with construction of an ice bridge across the Mattagami River at Loon Rapids.

YFP and the Arctic Riders executed a Memorandum of Understanding which facilitated the completion of the new snowmobile trail on the east side of the Mattagami (i.e. on the opposite side of the Mattagami River from the Project's access road and transmission line), and clarified how any remaining potential interaction between snowmobiles and construction/operation activity will be managed.

6.0 FIRST NATION AND STAKEHOLDER CONSULTATION

Upon initiation of the environmental assessment for the project, YFP developed a Stakeholder Consultation and Information Disclosure Plan ("SCID"). The SCID is provided in Tab 7. The SCID outlines the consultation activities that are to be conducted for this project. In addition to the SCID, a Consultation and Information Disclosure Plan ("CID") (copy at Tab 8) was developed for the Taykwa Tagamou First Nation ("TTN"). The CID sets out the consultation

activities that are to be undertaken with the TTN for the Project. Consultations are being undertaken with the TTN as the Project is located within the TTN's traditional territory.

A full description of the consultation activities undertaken for the Project are provided in Section 5.0 of the Yellow Falls Hydroelectric Project Environmental Assessment ("Final EA") attached at Tab 9.

The following sections summarize the consultation activities undertaken to-date.

6.1 Stakeholder Consultation

Stakeholders have been encouraged to participate in the development and planning processes for the Project through the following means:

- Letters of invitation to participate in the Project;
- Public notices that contained the name of the proponent, a brief description of the Project, maps showing the Project location, statements that the Project was subject to Regulation 116/01, Waterpower Program Guidelines, and the *Canadian Environmental Assessment Act,*and contact names, addresses, e-mail, fax, and telephone numbers;
- Newsletters;
- Two Public open houses;
- Meetings with key stakeholder groups and the Town of Smooth Rock Falls;
- A community meeting; and,
- Comment cards.

Additional opportunities for stakeholders to become engaged in the Project were provided through the telephone, facsimile, email, and the Project's website (www.yellowfallshydro.com).

Stakeholder groups that were identified as possibly having an interest in the Project were specifically consulted in the planning process for the Project. These groups included the Town of Smooth Rock Falls, Arctic Riders Snowmobile Club, Smooth Rock Falls Anglers and Hunters, and the Friends of the Mattagami River.

A Notice of Commencement for the Yellow Falls Hydroelectric Project, as required under the environmental screening process, was mailed to known Project stakeholders and published in English in the Cochrane Times-Post (August 5, 2005) and The Northern Times (August 3, 2005), in French in L'horizon (August 10, 2005), and in both official languages in The Weekender (August 3, 2005). A copy of the Notice of Commencement can be found in the Final EA (Tab 9) as Appendix E4.

On March 7, 2006, YFP held a Public Open House regarding the Project at the Royal Canadian Legion Hall in Smooth Rock Falls. The Open House provided the opportunity for stakeholders to review the project concept, environmental screening process, and general planning constraints, as well as to provide comments to the project team. The Open House was advertised in the local newspapers in both official languages, on the Project website, and via mail drops through Canada Post's ADMAIL system. The Open House was attended by 51 members of the public.

On May 22, 2007, YFP held a Second Public Open House regarding the Project at the Royal Canadian Legion Hall in Smooth Rock Falls. The Open House included display boards and a presentation describing the findings of the various assessments undertaken as part of the environmental screening for the project. The preferred facility design was also presented. The Open House was advertised in the local newspapers in both official languages, on the Project website, and via mail drops through Canada Post's ADMAIL system. The Open House was attended by 59 members of the public.

YFP identified the private landowners (Tab 5) located adjacent to the transmission line at the intersection of Red Pine Road and Highway 11. A letter was sent to each of the adjacent landowners outlining the proposed transmission line, the Leave-to-Construct process, and the preferred route. A copy of the letter and attachment that was provided to the landowners is provided in Tab 10. The same form of letter as at Tab 10 was sent to each of the four landowners. No concerns or comments have been received from these landowners.

6.2 First Nation Consultation

Consultation and information disclosure activities are on-going to provide First Nations with an opportunity for early participation in the planning and development of the Project. These consultation and information disclosure activities are conducted to encourage the exchange of community and traditional knowledge, improved decision-making by YFP, and consideration of First Nations' concerns in the development of the Project.

In order to identity potentially interested First Nations early in the Project's development YFP made inquires with the MNR and requested information from the federal and provincial agencies with mandates related to First Nations. MNR advised YFP that the Project was located in the traditional territory of the TTN. YFP undertook business-to-business discussions and consultation activities with the TTN which resulted in YFP entering into a business-to-business agreement with the TTN in 2006. The consultations that have been and continue to be undertaken between the TTN and YFP are outlined in full detail in the Consultation and Information Disclosure Plan (Tab 8) and the Final EA (Tab 9).

Key consultation activities that were undertaken by TTN and YFP during the development of the Project includes:

- Community meeting in New Post and Moosonee on March 8 and 20, 2006 to introduce YFP, the project concept, and environmental screening processes.
- Community meetings held on September 18 and 19, 2006 in both New Post and Moosonee.
- Business-to-business discussions between TTN and YFP representatives to address project impacts and benefits.
- On-going information and knowledge exchange and discussion via fax, telephone, and mail.
- Community meeting held in both New Post and Moosonee on May 23 and 24, 2007 to present the findings of the assessments conducted as part of the environmental screening.

TTN members participated in fisheries and archaeological field investigations conducted throughout the spring, summer and autumn of 2006, as well as the spring and summer of 2007. The Applicant also maintains a Project website (www.yellowfallshydro.com) with up-to-date information and provided this information in hard copy format to the TTN Council Office as required.

In December 2006, YFP was advised by the MNR that the Mattagami First Nation ("MFN") had expressed an interest in the Project. On May 25, 2007, YFP hosted a community meeting with the MFN. The community meeting presented information on YFP, the Project, the regulatory process, and the preferred project design.

On April 4, 2007, MNR wrote letters to MFN, Flying Post First Nation ("FPFN"), Wahgoshig First Nation ("WFN") and Nishnawbe-Asli First Nation advising them of the Project and inviting them to provide comment. As summarized in Table 5.3 of Section 5 of the Final EA (Tab 9), there were several letters and emails with MFN, FPFN and WFN between April and September 2007 related to the Project.

On November 7, 2007, YFP released the Draft Environmental Assessment (Draft EA) for the Project for stakeholder and agency review. Although not required by the Environmental Screening Process, YFP provided the Draft EA for First Nations, public, and agency review in recognition of the community interest in this renewable energy initiative. The Draft EA review period is in addition to formal requirements of the Environmental Screening Process.

Subsequent to receipt of the Draft EA, the Wabun Tribal Council ("WTC") confirmed in writing that the WTC is representing the FPFN, the WFN, and MFN as First Nations interested in the Project.

YFP has actively engaged the WTC communities that have expressed an interest in the Project. Following extensive discussions with these communities, it appears that there is disagreement between the WTC communities and TTN regarding traditional territories in the vicinity of the Project. As a Project proponent, YFP has a limited ability to address overarching territorial disagreements between different First Nations. However, YFP is committed to the continued engagement of the WTC communities in the Environmental Screening Process. To-date, YFP has conducted community meetings at the MFN and WFN First Nations, and has facilitated three site visits to Yellow Falls for interested First Nation community members.

YFP continues to encourage good-faith discussions between the TTN and WTC to address the outstanding territorial concerns. Full description of the First Nations engagement activities by YFP for the Project is provided in Section 5.0 of the Final EA (Tab 9). A map showing the locations of the interested First Nation Reserves in relation to the Project is attached at Tab 11.

7.0 ENVIRONMENTAL ASSESSMENT REPORT:

To assist with environmental and planning aspects of the Project, YFP retained Stantec Consulting Ltd. ("Stantec") to prepare an Environmental Review Report ("ERR"), as required under Ontario Regulation 116/01 of the *Environmental Assessment Act*.

The ERR is being completed as required for a Category B project under the Ministry of the Environment's Environmental Screening Process ("ESP") for electricity projects as outlined in their *"Guide to Environmental Assessment Requirements for Electricity Projects (March 2001)"*. YFP and Stantec are also in the process of working with the MNR to ensure the project meets the MNR's Waterpower Program Guidelines and Water Management Planning Guidelines, and with federal authorities to ensure the project fulfills applicable federal permits and approvals as well as the *Canadian Environmental Assessment Act.*

The Draft EA was released to the public on November 7, 2007, As a result of comments received during public review of the Draft EA, YFP undertook changes to the Project design. These design changes included the relocation of the dam and powerhouse to Yellow Falls from Island Falls. The previously intended dam and powerhouse location at Island Falls is also on the Mattagami River, approximately 3 km downstream from Yellow Falls and its planned nameplate capacity was 20 MW rather than the present planned capacity of 16 MW. The relocation addressed a number of comments raised by the local community and agencies related to recreation, fish populations and fish habitat. A full description of the comments received during the Draft EA review period and the resulting design changes is provided in Section 5.0 of the Final EA (Tab 9).

On February 18, 2009, YFP released the Final EA for stakeholder, First Nation and agency review. The Notice of Completion was published in local papers and provided to Project stakeholders in accordance with the Environmental Screening Process. Copies of the Final EA

were provided to key stakeholders, agencies and First Nations. The Final EA was also made available at local public viewing locations and on the Project website: www.yellowfallshydro.com. The Notice of Completion review and comment period lasted 30 calendar days, and ended on March 20, 2009.

One Request-to-Elevate ("RTE") was received from the WTC during the Notice of Completion review and comment period (Tab 12). The RTE pertains to concerns held by the WTC related to consultation and accommodation associated with the Project. As discussed above, and in Section 5.0 of the Final EA (Tab 9) YFP has undertaken extensive consultation activities with the WTC and its interested member communities, and YFP has limited ability to address disagreements between different First Nations regarding traditional territory and the sharing of resource development benefits. YFP remains committed to ongoing dialogue with the WTC, and encourages good-faith discussions between the WTC and the TTN regarding the sharing of the financial benefits associated with the Project.

In accordance with the ESP, the RTE received from WTC is currently being reviewed by the Director of the MOE Environmental Assessment and Approvals Branch..

8.0 IESO SYSTEM IMPACT ASSESSMENT

IESO issued a System Impact Assessment Report (SIA) dated July 6, 2006 a copy of which is provided at Tab 13. That SIA report was issued based on the previous design when YFP had intended to locate the dam and powerhouse at Island Falls, rather than at its present location at

Yellow Falls. The SIA will be updated to reflect the changes to the Project, and the updated SIA will be filed with the Board when it is completed. The requirements contained in the updated SIA will be adhered to in the construction of the proposed facilities.

9.0 CUSTOMER IMPACT ASSESSMENT

Hydro One prepared a Final Customer Impact Assessment (the "CIA") dated October 6, 2006 for the Project and the proposed Transmission Facilities, a copy of which is provided at Tab 14. That CIA report was also prepared based on the previous design for the Project. The CIA will be updated to reflect the changes to the Project, and the updated CIA will be filed with the Board when it is completed. The requirements contained in the updated CIA will be adhered to in the construction of the proposed facilities.

10.0 COST RESPONSIBILITY AND TRANSMISSION IMPACTS

The Transmission Facilities will be paid for and owned by the Applicant. Upgrades will be required to the Hydro One system, and it is expected that Hydro One will pay for the costs of the upgrades needed for its system.

11.0 CONSTRUCTION TIMELINE

The Applicant would like to have the Project in service in 2011. Subject to the timing of completion of the Environmental Screening Process, construction on the proposed Transmission

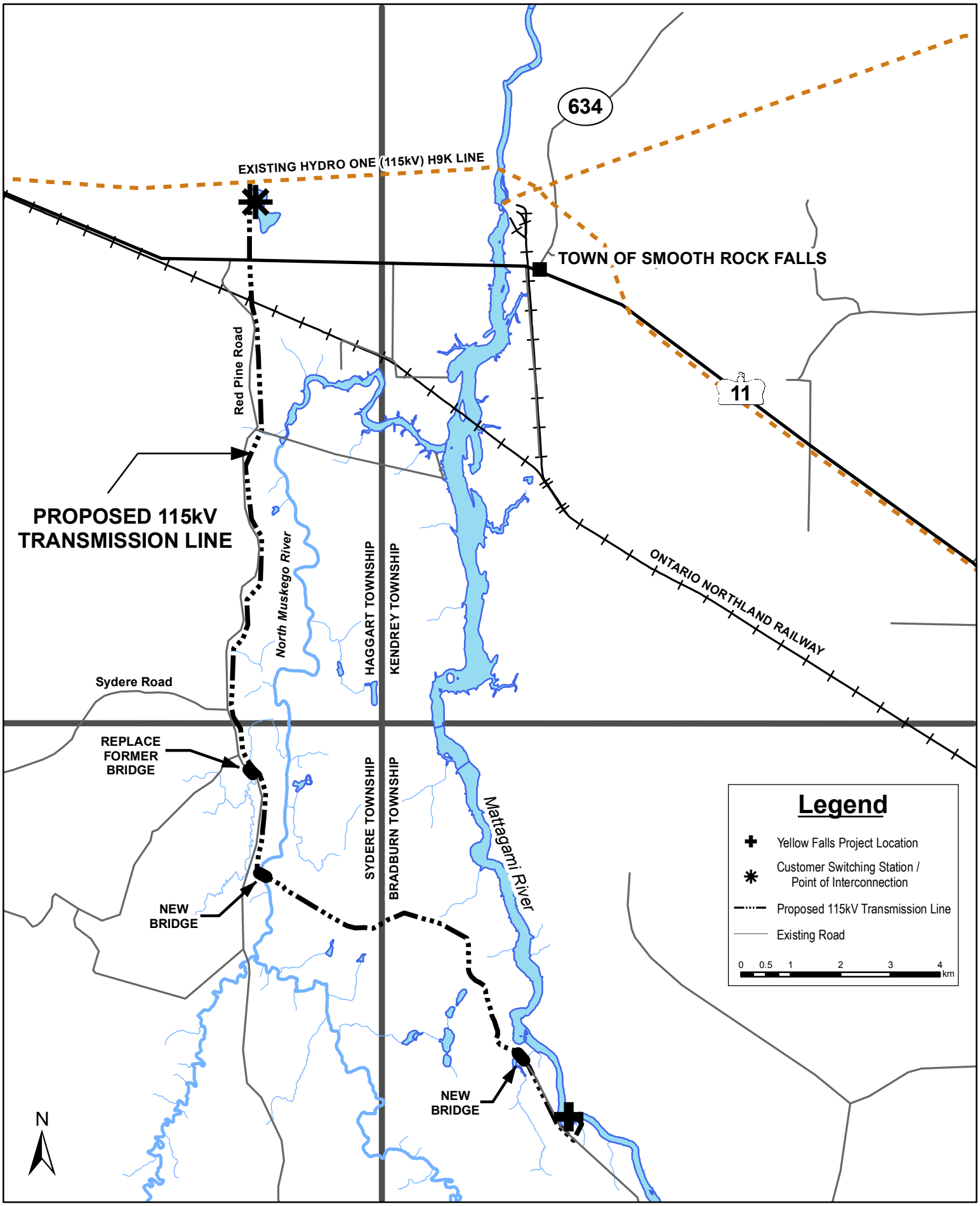
Facilities is anticipated to commence in early Q1 2010. As such, the Applicant requests that the Board complete this proceeding by approximately October 2009

A chart setting out the timing of construction activities following construction start is attached as Tab 15.

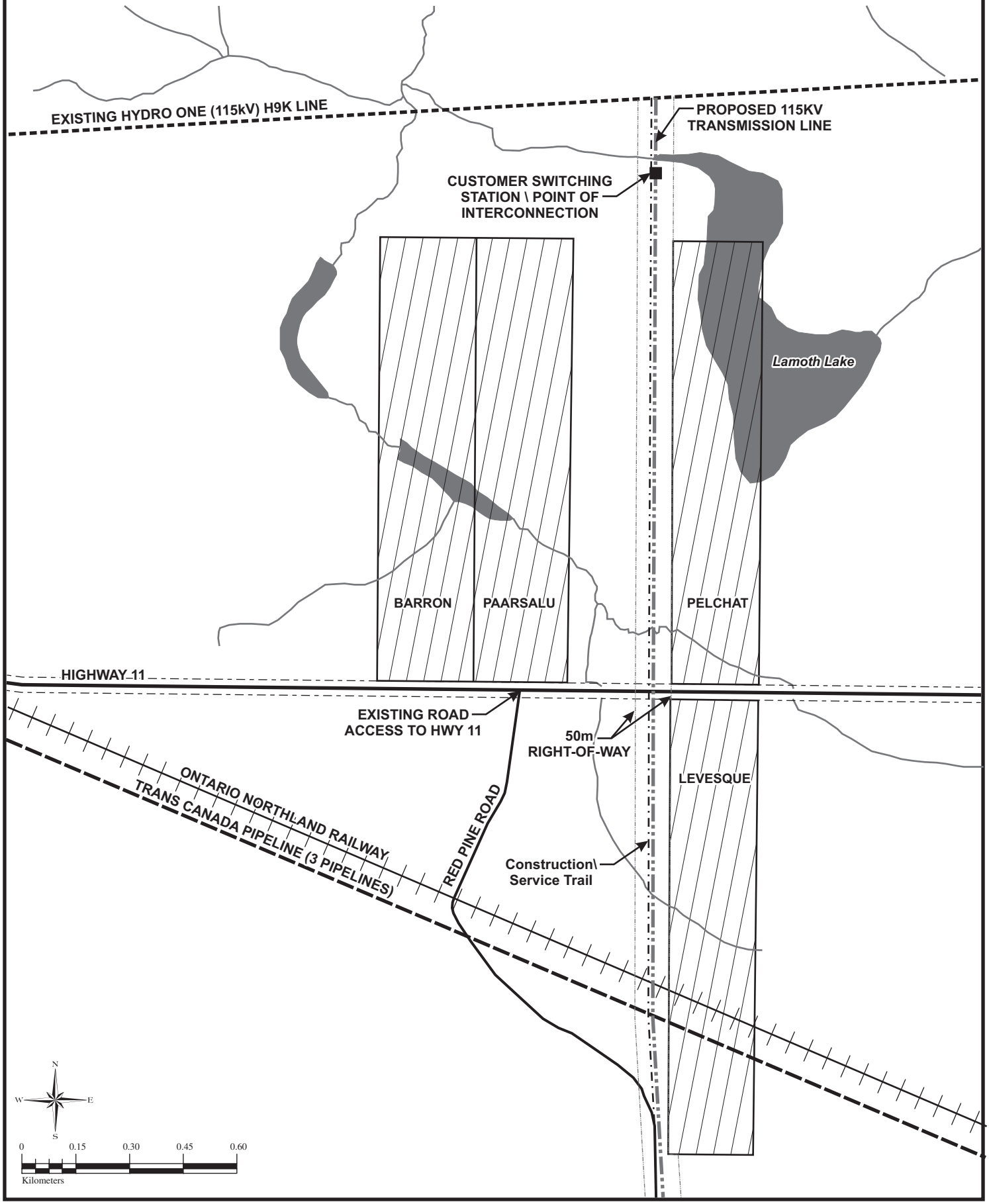
Due to the swampy terrain prevalent throughout the study area, construction of the Project and of the Transmission Facilities is season-sensitive. Clearing, road-building, and transmission line installation activities are best facilitated by frozen-ground conditions which allow vehicle travel across any areas of swampy terrain that may become impassable during the summer months.

Additional limitations to construction activities pertain to fisheries construction windows. In-stream construction is not permitted between April 1 and July 1 of each year. Thus, construction of the cofferdam will be completed either prior to April 1 or after July 1.

Yellow Falls Hydroelectric Project
Proposed 115KV Transmission Line



PRIVATE LANDS
NEAR INTERCONNECTION POINT



List of Landowners
Adjacent to Proposed Transmission Line

Bruce Barron

Claude and Francine Levesque

Mick Paarsalu

Conrad and Lise Pelchat

Ontario Northland

555 Oak Street East,
North Bay, Ontario P1B 8L3
Telephone: (705) 472-4500
Fax: (705) 476-5598

555, rue Oak est
North Bay (Ontario) P1B 8L3
Téléphone: (705) 472-4500
Télécopieur: (705) 476-5598

Direct Fax Line: (705) 472-1051
Voice Mail Extension: 353
E-mail: dproctor@ontc.on.ca

7 January 2008

Yellow Falls Power
34 Havard Road
Guelph, ON N1G 4V8

Attention: Scott Hossie, Ontario Regulatory Affairs

Dear Sir:

RE: Private Crossing Agreement – Red Pine Road
Our File: 7513-1248

Please find enclosed the duplicate executed copy of the above captioned agreement for your retention. The original document has been filed in our Legal Department as agreement number 10918 and a copy is on file in our Rail Services Division.

Thank you for your co-operation in this regard.

Yours very truly,

Dale W. Proctor
Legal Assistant

c.c. B. Craig
A. Morton
T. Chapman

THIS AGREEMENT made in duplicate this 7th day of December 2007

BETWEEN:

ONTARIO NORTHLAND TRANSPORTATION COMMISSION

(hereinafter referred to as "ONTC")

OF THE FIRST PART

AND: **YELLOW FALLS POWER LIMITED PARTNERSHIP**

(hereinafter referred to as the "Licensee")

OF THE SECOND PART

PRIVATE CROSSING AGREEMENT - RED PINE ROAD

WHEREAS ONTC is the owner of certain lands comprising a rail right-of-way located in the District of Cochrane, Province of Ontario.

AND WHEREAS a 16 foot wide railway crossing has been constructed over the rail right-of-way at Mileage 34.98 Kapuskasing Subdivision.

AND WHEREAS the Licensee has requested that ONTC widen the crossing at Mileage 34.98 Kapuskasing Subdivision to 32 feet and permit the Licensee to use it.

IN CONSIDERATION OF the recitals and the provisions contained in this Agreement, the parties agree as follows:

1. LICENCE

Subject to the terms and conditions of this Licence, ONTC hereby grants a non-exclusive Licence to the Licensee to use a private crossing over the ONTC right-of-way at Mileage 34.98 Kapuskasing Subdivision.

(a) The Licensee agrees not to place or permit any building, structures, equipment or vehicles upon the ONTC right-of-way.

(b) The Licensee further agrees to remove any such building, structures, equipment or vehicles forthwith upon receipt of written notice from ONTC.

(c) It is understood and agreed that, in the event the Licensee does not remove any such building, structures, equipment or vehicles within thirty (30) days of receipt of written notice from ONTC, this building, structure, equipment or vehicle will be removed by ONTC at the sole cost and expense of the Licensee.

2. TERM

The term of this Licence Agreement shall be for a period of five (5) years commencing on the 1st day of September 2006 and terminating on the 31st day of August 2011, subject to the provisions for termination hereinafter contained and this Agreement shall be automatically extended for additional one year periods unless either party gives the other party written notice of termination at least thirty (30) days before the expiration of the initial or renewal term as the case may be.

3. CONSIDERATION

(a) The Licensee shall pay to ONTC an annual base licence fee of Seventy-five ($75.00) Dollars, plus applicable G.S.T., payable in advance commencing on the 1st day of September 2006 and payable thereafter in yearly instalments due on the anniversary date of this Agreement provided that the annual base licence fee shall be subject to review at the end of the initial five (5) year term and annually thereafter and set at a rate which, in the reasonable opinion of ONTC, is fair and equitable but in no event shall such annual base licence fee be less than the base licence fee payable during the initial five year period and shall be payable in like manner.

(b) The Licensee agrees to pay the actual cost of maintenance, including flag protection, track repairs, field work and field inspection by payment of the amount determined by ONTC, within 30 days of receipt of invoice.

(c) In addition, the Licensee agrees to pay to ONTC the sum of One Thousand, Eight Hundred Dollars ($1,800.00) for cost and expense of all work in connection with the construction and expansion of the crossing as deemed necessary by ONTC.

(d) The Licensee shall reimburse ONTC for any taxes, rates, charges, duties and assessments levied in respect of the Licensee's use of ONTC's rail right-of-way and paid by ONTC. ONTC shall submit an account therefore to the Licensee which the Licensee shall pay within thirty (30) days of the date thereof.

(e) The Licensee agrees to pay to ONTC a document preparation fee of Seventy-five Dollars ($75.00), plus applicable G.S.T. upon execution of this Agreement.

(f) ONTC shall submit an account for the cost and expenses incurred by ONTC to the Licensee which the Licensee shall pay within 30 days.

Payment of any amounts due under this Licence shall be made by the Licensee to "Ontario Northland Transportation Commission" by cheque mailed to ONTC at the address set out for notice in paragraph 10 or at such other address and to such other person as ONTC may direct the Licensee in writing.

4. OBLIGATIONS OF THE LICENSEE

(a) The Licensee shall comply with all statutes, regulations, by-laws, codes and requirements of all governments and governmental authorities and all boards and commissions applicable thereto with respect to the use of the crossing.

(b) The Licensee shall not interfere with ONTC's operation, maintenance or use of its right-of-way.

(c) ONTC agrees to install signs at each end of the said crossing, reading as follows:

PRIVATE CROSSING
USE AT YOUR OWN RISK
TRAVERSE PRIVÉE
UTILISEZ À VOS RISQUES

The Licensee agrees to report any damage to or destruction of the said signs forthwith to ONTC.

(d) The Licensee agrees to ensure that there are no visual obstructions which may impede the view of persons using the crossing to see clearly the movements of any ONTC vehicles or equipment.

(e) The Licensee agrees that it shall clear the sight lines at the crossing at its expense to the specifications and the sole satisfaction of ONTC. Regarding the clearing of the sight lines, the Licensee further agrees that it will:

(a) contact ONTC's Track Manager 48 hours in advance of commencing any work near ONTC's right-of-way;
(b) call Ontera at 1-800-461-9861 to arrange for a fibre optic cable locate.
(c) pay ONTC's associated flagging charges as per its Flag Protection Policy.

(f) The Licensee agrees to construct and install at its own expense the approach, grades, ditching and any necessary culverts. If ONTC considers that the Licensee has failed to properly construct or maintain the approaches to the crossing or the ditches or culverts or bridging, ONTC may by notice in writing to the Licensee, direct the Licensee to make such modification or repairs as are in the opinion of ONTC necessary. Should the Licensee fail within forty-eight (48) hours from the dispatch of such notice to comply with such request from ONTC, ONTC may forthwith proceed to do the necessary work and the cost of all labour and all materials and equipment necessary or required for such repairs or renewal shall be paid for by the Licensee.

(g) If requested by ONTC and permitted by law, the Licensee agrees to install at its own expense a suitable barrier in the form of a gate or posts and chains on each side of the crossing which shall be kept locked at all times except when being used by the Licensee.

(h) The Licensee shall keep the crossing free and clear of dirt and debris and shall in any event promptly, upon notice from ONTC, perform the work, or, ONTC, for the purpose of protecting and safeguarding its property, traffic, employees, or patrons, may at any time, with or without prior notice to the Licensee, remove any dirt and debris from the crossing and thereafter bill the Licensee for all costs incurred by ONTC at an amount to be determined by ONTC at its sole discretion. In performing any such work on the crossing the Licensee shall not in any way obstruct the crossing or the sight lines at the crossing.

During any period of time where the Red Pine Road has been cleared of snow from Highway 11 to the crossing, and the Red Pine Road is therefore passable by conventional road vehicles, the Licensee shall keep the crossing free and clear of snow and ice and shall in any event promptly, upon notice from ONTC, perform the work, or, ONTC, for the purpose of protecting and safeguarding its property, traffic, employees, or patrons, may at any time, with or without prior notice to the Licensee, remove ice and snow from the crossing and thereafter bill the Licensee for all costs incurred by ONTC at an amount to be determined by ONTC at its sole discretion. In performing any such work on the crossing the Licensee shall not in any way obstruct the crossing or the sight lines at the crossing.

(i) The Licensee shall make full and complete compensation for any damage caused to ONTC's physical property or that of any other user of ONTC's property by the Licensee's act or omission or that of any of its officers, employees, servants, agents, contractors or invitees or those for whom it is at law responsible or for damage attributable to the equipment owned or operated by the Licensee, its officers, employees, servants, agents, contractors or invitees or those for whom it is at law responsible.

(j) The Licensee shall make full and complete compensation for any bodily injury or death to any person caused by the Licensee's act or omission or that of any of its officers, employees, servants, agents, contractors or invitees or those for whom it is at law responsible or for bodily injury or death attributable to the equipment owned or operated by the Licensee, its officers, employees, servants, agents, contractors or invitees or those for whom it is at law responsible.

(k) The Licensee agrees to indemnify ONTC and save it harmless from and against any and all actions, suits, claims, damage, costs, liability and expenses (including the effect of any applicable environmental legislation) which may arise by reason of the exercise of the rights and privileges granted herein by the Licensee or as a result of any breach of the terms of this Agreement by the Licensee or by any act or omission of the Licensee or those for whom the Licensee is at law responsible, including all legal costs and expenses reasonably incurred by ONTC in connection with the defence or settlement of any such claim, unless such claim or damage is caused by the negligent act or omission of ONTC, its servants, employees, officers, agents, contractors or those for whom it is at law responsible.

(l) The Licensee shall waive against ONTC, its officers, employees, agents, or contractors any claims of any kind whether directly or indirectly arising out of or connected with the existence of this Agreement and for any injury to or death of any person or for any loss of or damage to any property belonging to the Licensee or its employees, servants, agents, invitees, licensees, contractors or visitors unless caused by the negligent act or omission of ONTC, its servants, employees, officers, agents, contractors or those for whom it is at law responsible.

5. ONTC'S PARAMOUNT USE

ONTC shall have the paramount right at all times to its tracks, right-of-way and property at the crossing. The Licensee shall exercise the greatest care in the use of the crossing and shall require all others permitted hereunder to use the private crossing to all also exercise the greatest care in the use of the crossing.

6. INSURANCE

(a) The Licensee shall maintain automobile liability, public liability and property damage insurance; such policies shall be written on a comprehensive basis with inclusive rights of not less than $2,000,000.00 or such higher limits and including such additional terms and coverage as ONTC acting reasonably may require and shall include ONTC as an additional insured. Such insurance shall contain cross liability coverage and preclude subrogation claims by the insurer against ONTC.

(b) Upon the request of ONTC and thereafter upon the renewal of the insurance policy, the Licensee shall provide to ONTC evidence of such insurance having been obtained and maintained in the form of a **certificate of insurance** and such insurance shall not be subject to cancellation except after at least thirty (30) days prior written notice to ONTC

7. TERMINATION

(a) Either ONTC or the Licensee may at any time during the term hereof terminate this Agreement by giving the other party not less than thirty (30) days prior written notice of termination and any amounts payable hereunder shall be apportioned as of the date of termination.

(b) Notwithstanding the foregoing, if the Licensee shall be in default or breach in respect of any condition or provision of this Agreement or shall fail to pay any amounts due hereunder, ONTC shall notify the Licensee of the default or breach in writing and the Licensee shall have 10 days from the date of notification to remedy any default or breach. If the default or breach is not remedied within 10 days of notification, ONTC may terminate this Agreement forthwith by written notice.

8. ASSIGNMENT

The rights contained in this Agreement may not be transferred, assigned or disposed of in any manner whatsoever without ONTC's prior written consent, which shall not be unreasonably withheld.

9. RELATIONSHIP

Nothing contained herein shall be deemed or construed by the parties hereto, nor by any third party, as creating the relationship of principal and agent, landlord and tenant, or of partnership or of joint venture between the parties hereto, it being understood and agreed that none of the provisions contained herein, nor any of the acts of the parties shall create any relationship between parties other than that of Licensor and Licensee as described in this Agreement.

10. NOTICE

Any notice required by this Licence Agreement shall be in writing and shall be deemed to have been sufficiently given when personally delivered, telefaxed or sent by prepaid registered post addressed to ONTC to:

Vice President Rail
555 Oak Street East
North Bay, ON P1B 8L3

and addressed to the Licensee to:

Yellow Falls Power LP
c/o Canadian Hydro Developers Inc.
Suite 500
1324 - 17th Ave. S.W.
Calgary, AB T2T 5S8

Any notice made or given by personal delivery shall be conclusively deemed to have been given on the day of actual delivery thereof, or if made or given by telefax, on the first business day following the transmittal thereof, or, if sent by prepaid registered post, on the third business day following the day of mailing thereof except in the case of the interruption or anticipated interruption in the mail service in which case such notice shall be given by personal delivery or telefax.

11. OVER HOLDING LICENCE

If at the expiration of the term or other termination hereof the Licensee continues to use the crossing with or without the consent of ONTC and without any further written agreement, the Licensee shall become a licensee from month to month with each party having the ability to terminate the Agreement upon 30 days written notice to the other and no other licence shall be created by implication of law or otherwise and the licence fee reserved hereunder (which shall be a monthly rental equal to the product of the most recent annual base licence fee multiplied by 0.125) shall be paid on the first day of each month during such overholding and such month to month licence shall otherwise be subject to all other terms of this licence as are applicable thereto.

12. SUCCESSORS

Subject to paragraph 8, this Licence Agreement and the covenants, provisions and obligations contained herein shall enure to the benefit of and be binding upon the Licensee, its heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF the said parties hereto have signed these presents and affixed their respective seals under the hands of their respective officers duly authorized in that behalf.

SIGNED, SEALED AND DELIVERED

in the presence of:

ONTARIO NORTHLAND TRANSPORTATION COMMISSION

per _____
Vice-President Rail

_____
Secretary

YELLOW FALLS POWER LIMITED PARTNERSHIP
by its general partner
CARLEX CORPORATION INC.

per _____
Name: Scott Hossie
Title: Ontario Regulatory Affairs

_____
Name: Geoff Carnegie
Title: Manager, Ontario Projects

We have the authority to bind the corporation.

Island Falls Hydroelectric Project

Stakeholder Consultation and Information Disclosure Plan

Prepared For:

Ministry of Natural Resources

2 Third Avenue
Cochrane, Ontario
P0L 1CO

Prepared By:

Yellow Falls Power LP
c/o 500, 1324 – 17th Avenue SW
Calgary, Alberta
T2T 5S8

30 March 2006

Table of Contents

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1 STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE PLAN

Stakeholder[1] consultation and information disclosure activities are typically undertaken to provide stakeholders with an opportunity for early participation in the planning and development of a proposed project. Such participation can lead to improved decision-making by the proponent, while fostering good-neighbour relationships with project stakeholders.

For the Island Falls Hydroelectric Project (the "Project") a three phased approach is proposed: phase I to introduce the Project concept to area residents, government agencies, First Nations, and other stakeholders and solicit their input; phase II to present the preferred layout and visual interpretation of the Project to First Nations and other stakeholders and solicit their input; and phase III to present the Environmental Review Report ("ERR") / Project Information Package ("PIP") and receive any additional feedback from First Nations and other stakeholders.

The methodology underlying this three phased approach is to ensure that information is: i) disclosed early in the planning process; ii) presented in a meaningful way; iii) used to actively engage stakeholders and First Nations; and iv) compliant with regulatory requirements.

This Stakeholder Consultation and Information Disclosure ("SCID") Plan has been prepared to guide the overall consultation process for the Project. Building upon this SCID Plan a separate First Nations Consultation and Information Disclosure ("CID") Plan has been prepared to engage the Taykwa Tagamou Nation. It is available under separate cover.

2 DEFINING THE TERMS

2.1 Stakeholder Consultation

Stakeholder consultation is a tool for initiating and managing communications among the project proponent, stakeholders, and other affected persons/groups. It provides an avenue for the reviewing agencies and the project proponent to improve their decision-making capabilities, while fostering an environment of understanding by actively involving organizations, groups, and individuals directly affected by, or involved in, the Project.

2.2 Information Disclosure

Effective consultation is driven in part by adequate and appropriate disclosure of information to stakeholders in a timely fashion. Disclosure of information is critical if stakeholders are to have meaningful input and participation in the decision-making process. Exchange of information also allows stakeholders to better understand the trade-offs between the Project's advantages and disadvantages.

3 RELEVANT GUIDELINE, REGULATION, AND ACT

3.1 Waterpower Program Guidelines

The Ministry of Natural Resources' ("MNR") Waterpower Program Guidelines, 1990 ("WPG") define stakeholder involvement to include notification, consultation, and contribution opportunities. The WPG notes that generally the proponent must include a summary showing that stakeholders have been contacted and that any concerns that they identify have been addressed.

[1] Stakeholders are defined as: i) parties with an interest in the Island Falls Hydroelectric Project (e.g., neighbouring residents and community and non-governmental organizations); and ii) municipal, provincial, and federal agencies with a legislative mandate for any aspect of the Project's planning, construction, operation, and/or decommissioning.

It is the proponent's responsibility for ensuring stakeholder involvement, but the specific consultation plan (i.e., this document) must be confirmed with MNR district staff before the proponent proceeds. To be clear, the MNR has the mandate to be stewards of Crown land and to manage it responsibly. Hence, it may be appropriate for the MNR to participate directly in the consultation and information disclosure process.

3.2 Electricity Projects Regulation

The Electricity Projects Regulation, also known as Ontario Regulation 116/01, notes that it is the proponent's responsibility to design and implement an appropriate consultation program for the Project. The consultation program must provide appropriate opportunities and forums for the public to participate in the screening process.

This Regulation breaks out consultation into two distinct streams: public and agency. The purpose of public consultation is to allow the proponent to identify and address public concerns and issues and to provide the public with an opportunity to receive information about and make meaningful input into the project review and development.

The purpose of agency consultation is to inform and receive input from all government agencies with jurisdiction or a programme interest related to a particular electricity project. This may include federal and provincial ministry and agencies and municipalities. The Electricity Projects Regulation also notes that First Nations, located in the vicinity of or having a potential interest in the project, be notified, consulted, and involved in an appropriate manner.

To improve efficiency in the consultation process, this Regulation encourages proponents to combine or coordinate agency consultation required for other approvals with that undertaken as part of the Environmental Screening Process.

3.3 Canadian Environmental Assessment Act

The screening process implemented under the *Canadian Environmental Assessment Act* notes that where the Responsible Authority is of the opinion that public participation in the screening of a project is appropriate in the circumstances -- or where required by regulation -- the responsible authority:

(*a*) shall, before providing the public with an opportunity to examine and comment on the screening report, include in the Internet site a description of the scope of the project, the factors to be taken into consideration in the screening and the scope of those factors or an indication of how such a description may be obtained;

(*b*) shall give the public an opportunity to examine and comment on the screening report and on any record relating to the project that has been included in the Registry before taking a course of action under section 20 of the Act and shall give adequate notice of that opportunity; and

(*c*) may, at any stage of the screening that it determines, give the public any other opportunity to participate.

The Responsible Authority's discretion, with respect to the timing of public participation, is subject to a decision made by the federal environmental assessment coordinator. Finally, the Act notes that community and aboriginal traditional knowledge may be considered in conducting an environmental assessment.

3.4 Community and Aboriginal Knowledge

Community and aboriginal knowledge is a body of knowledge acquired by a group of people through generations of living in close contact with the local natural environment in the vicinity of the project; it is both cumulative and dynamic. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual, and political change. It is generally acknowledged that the quantity and quality of knowledge differs among community members according to their gender, age, social standing, profession, and intellectual capabilities.

There is growing appreciation and recognition that communities and Aboriginal peoples have a unique knowledge about the local environment[2], how it functions, and its characteristic ecological relationships. These knowledge bases are increasingly being recognized as an import part of the project planning and environmental screening processes.

4 IDENTIFICATION OF STAKEHOLDERS

This SCID Plan is a key component of the consultation process outlined in **section 3**. All applicable regulatory documents cite the need for meaningful consultation with stakeholders during the planning and development processes. A first listing of key stakeholders for the Project includes the following agencies and groups. As the project evolves, so too will this listing of stakeholders.

Government – Provincial

- Ministry of Natural Resources
- Ministry of the Environment
- Ministry of Energy
- Ministry of Culture
- Ministry of Tourism and Recreation
- Ontario Energy Board
- Member of Provincial Parliament

Government – Federal

- Canadian Environmental Assessment Agency
- Department of Fisheries and Oceans
- Environment Canada
- Transport Canada
- Indian and Northern Affairs Canada

First Nations

- Taykwa Tagamou

[2] The term “environment” is defined to include natural, physical, biological, agricultural, socio-economic, and historical and archaeological components.

Non-Government Organizations

- Smooth Rock Falls Anglers and Hunters
- Arctic Riders Snowmobile Club

Public/Other

- registered trappers / other crown land users
- Town of Smooth Rock Falls
- Tembec Industries Incorporated ("Tembec")
- Ontario Power Generation ("OPG")
- Chamber of Commerce
- Local and area residents

5 PREVIOUS CONSULTATIONS AND DISCLOSURE

Given the long history of the Island Falls Hydroelectric Project, beginning in 1986, there have been various consultations and disclosure of information. Most recently, the Yellow Falls Power Limited Partnership ("YFP") has:

- issued a Notice of Commencement to known stakeholders and Taykwa Tagamou Nation ("TTN")
- created a project website (www.islandfallshydro.com)
- created a project email (comments@islandfallshydro.com)
- developed an Amended Application Information Requirements ("AIR") Package, which was been accepted by the MNR on 29 March 2006
- met with representatives from TTN and the MNR
- met with the Town of Smooth Rock Falls, Tembec, and OPG
- exchanged information with the Artic Riders Snowmobile Club and the Smooth Rock Falls Anglers and Hunters
- issued a Notice of Public Open House to stakeholders
- conducted the first Public Open House to introduce the Project to stakeholders
- issued a Notice of Community Meetings to TTN
- conducted the first community meetings in New Post and Moosonee to introduce the Project to members of TTN
- issued Project Briefing Notes 01 – 04 (on project website)
- received a Renewable Energy Supply Contract from the Ontario Power Authority for the sale of electricity from the Project.

6 FUTURE CONSULTATIONS AND DISCLOSURE

Pending review of and comment on this SCID Plan by the MNR, it is the general intention of YFP to carry out the plan in three distinct pro-active phases:

Phase I

This phase is concurrent with the early steps of the Environmental Screening Process, began with the Notice of Commencement, and will generally continue through the spring of 2006. In addition to the activities noted in **section 5**, this phase will also involve the following key activities, among others:

- meetings and two-way information exchange with government agencies, First Nations, and other stakeholders as appropriate
- posting of information on the project website as it becomes available
- responding to emails, telephone calls, faxes, and letters as they are received from stakeholders
- hosting a public open house to introduce YFP, the project concept, and solicit input.

Phase II

The second phase of the SCID Plan has been designed to present the preferred layout, visual interpretation of the Project, key findings of the environmental studies, and to solicit stakeholder input. This will be accomplished through a second public open house, but also through the continuance of meetings with stakeholders, using the project website, and responding to stakeholder queries.

Phase III

This phase of the SCID plan involves the formal presentation of the ERR/PIP to stakeholders for a 30-day review period. During this timeframe stakeholders can work with YFP to resolve any relevant outstanding issue they may have enroute to formally closing out the Environmental Screening Process.

To facilitate stakeholder review the ERR/PIP will be posted on the project website and anticipated to be available at the following possible sites: MNR Cochrane office, Town of Smooth Rock Falls office, local library, and at the Taykwa Tagamou Council office. Final locations will be determined prior to the release of the ERR/PIP document.

Construction / Operation Phase

YFP will continue its contact with stakeholders during the construction period and for the initial period of operation, as long as this remains an effective two-way channel for communication. To this end, as appropriate, YFP will maintain the project website to convey information about the Project.

7 NEXT STEPS

The next steps towards finalization of the SCID Plan and First Nations CID Plan are review of the documents with the MNR and First Nations and, as appropriate, integrate comments each group may have. However, while the Plans are under review by the MNR and First Nations, YFP will continue with its consultation and disclosure practices to ensure the timely distribution of information about the Project.

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Island Falls Hydroelectric Project

Consultation and Information Disclosure Plan

Prepared For:

Taykwa Tagamou Nation

275 Malette Cres.
Timmins, Ontario
T4P 1C4

Copy To:

Ministry of Natural Resources

2 Third Avenue
Cochrane, Ontario
P0L 1CO

Prepared By:

Yellow Falls Power LP
c/o 500, 1324 – 17th Avenue SW
Calgary, Alberta
T2T 5S8

09 May 2006

Table of Contents

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1 CONSULTATION AND INFORMATION DISCLOSURE PLAN

Consultation and information disclosure activities have been and will continue to be undertaken to provide Taykwa Tagamou Nation ("TTN") members with an opportunity for early participation in the planning and development of the proposed Island Falls Hydroelectric Project (the "Project"). Such participation can lead to the exchange of community and traditional knowledge and improved decision-making by the proponent, while fostering good-neighbour relationships with TTN.

The purpose of this plan is to specifically outline consultations and information disclosure ("CID") with the TTN. It is the intention of the Yellow Falls Power Limited Partnership ("YFP") to carry out this CID Plan independently, but concurrently with the general Stakeholder Consultation and Information Disclosure Plan that has been prepared under separate cover.

For the Project a three phased plan is proposed: phase I to introduce the Project concept to the TTN, refine this CID Plan, and solicit TTN's input; phase II to present the preliminary and preferred layout and visual interpretation of the Project, as well as provide avenues for ongoing two-way discussion; and phase III to present the Environmental Review Report ("ERR") / Project Information Package ("PIP") to TTN and receive any additional input.

The methodology underlying this three phased approach is to ensure that project information is: i) disclosed early in the planning process; ii) presented in a meaningful way; iii) used to actively engage the TTN; and iv) compliant with regulatory requirements.

2 DEFINING THE TERMS

2.1 Consultation

Consultation is a tool for initiating and managing communications between the proponent and TTN. It provides an avenue for YFP and TTN to improve their decision-making capabilities.

2.2 Information Disclosure

Effective consultation is driven in part by adequate and appropriate disclosure of information to participants in a timely fashion. Disclosure of information is critical if TTN is to have meaningful input and participation in the decision-making process. Exchange of information should also allow TTN to be aware of the trade-offs between the Project's advantages and disadvantages.

2.3 Aboriginal Knowledge

Aboriginal knowledge is a body of knowledge acquired by a group of people through generations of living in close contact with the local environment in the vicinity of the project; it is both cumulative and dynamic. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual, and political change. It is generally acknowledged that the quantity and quality of knowledge differs among community members according to their gender, age, social standing, profession, and intellectual capabilities.

There is growing appreciation and recognition that Aboriginal peoples have a unique knowledge about the local environment[1], how it functions, and its ecological relationships. These knowledge bases are increasingly being recognized as an import part of the project planning and environmental screening processes.

3 RELEVANT GUIDELINE, REGULATION, AND ACT

The following sections provide a regulatory backdrop to the consultations proposed between TTN and YFP by outlining the components and expectations within the applicable regulations. As proposed this CID Plan is intended to ensure meaningful, productive dialogue between TTN and YFP, while addressing the consultation requirements of each of these regulatory components.

3.1 Waterpower Program Guidelines

The Ministry of Natural Resources' ("MNR") Waterpower Program Guidelines, 1990 ("WPG") define stakeholder involvement to include notification, consultation, and contribution opportunities. The WPG notes that generally the proponent must include a summary showing that stakeholders have been contacted and that any concerns that they identify have been addressed.

It is the proponent's responsibility for ensuring stakeholder involvement, but the specific consultation plan should be confirmed with MNR district staff before the proponent proceeds. To be clear, the MNR has the mandate to be stewards of Crown land and to manage it responsibly. Hence, it may be appropriate for the MNR to participate directly in the consultation and information disclosure process.

3.2 Electricity Projects Regulation

The Electricity Projects Regulation, also known as Ontario Regulation 116/01 ("Regulation"), notes that it is the proponent's responsibility to design and implement an appropriate consultation program for the Project. The consultation program must provide appropriate opportunities and forums for the public to participate in the screening process.

This Regulation breaks out consultation into two distinct streams: public and agency. The purpose of public consultation is to allow the proponent to identify and address public concerns and issues and to provide the public with an opportunity to receive information about and make meaningful input into the project review and development.

The Regulation requires that First Nations located in the vicinity of or having a potential interest in the project, be notified, consulted, and involved in an appropriate manner. Accordingly, this CID Plan has been developed as a first step in ongoing consultation with TTN for the Project.

3.3 Canadian Environmental Assessment Act

The screening process implemented under the *Canadian Environmental Assessment Act* (the "Act") notes that where the Responsible Authority is of the opinion that public participation in the screening of a project is appropriate in the circumstances – or where required by regulation – the responsible authority:

[1] The term "environment" is defined to include natural, physical, biological, agricultural, socio-economic, and historical and archaeological components.

(*a*) shall, before providing the public with an opportunity to examine and comment on the screening report, include in the Internet site a description of the scope of the project, the factors to be taken into consideration in the screening and the scope of those factors or an indication of how such a description may be obtained;

(*b*) shall give the public an opportunity to examine and comment on the screening report and on any record relating to the project that has been included in the Registry before taking a course of action under section 20 of the Act and shall give adequate notice of that opportunity; and

(*c*) may, at any stage of the screening that it determines, give the public any other opportunity to participate.

The Responsible Authority's discretion, with respect to the timing of public participation, is subject to a decision made by the federal environmental assessment coordinator. The Act states that community and aboriginal traditional knowledge may be considered in conducting an environmental assessment.

4 PREVIOUS CONSULTATIONS AND DISCLOSURE

Given the long history of the Island Falls Hydroelectric Project, beginning in 1986, there have been various consultations and disclosure of information with numerous stakeholders. Most recently though, YFP has:

- issued a Notice of Commencement to the TTN and other known stakeholders
- created a project website (www.islandfallshydro.com)
- created a project email (comments@islandfallshydro.com)
- developed an Amended Application Information Requirements ("AIR") Package, which has been accepted by the MNR
- met with representatives from the TTN and MNR
- met with the Town of Smooth Rock Falls, Tembec, and Ontario Power Generation
- exchanged cursory information with the Artic Riders Snowmobile Club and the Smooth Rock Falls Anglers and Hunters
- issued a Notice of Public Open House to stakeholders
- conducted the first Public Open House to introduce the Project to stakeholders (07 March 2006)
- issued a Notice of Community Meetings to TTN
- conducted the first community meetings in New Post (08 March 2006) and Moosonee (20 March 2006) to introduce the Project to members of TTN
- worked with TTN to refine this CID Plan
- issued Project Briefing Notes 01 - 07
- received a Renewable Energy Supply Contract from the Ontario Power Authority for the sale of electricity from the Project.

5 FUTURE TTN CONSULTATION AND DISCLOSURE

As outlined herein consultations and information disclosure will be carried out in three phases:

Phase I

Phase I, now completed, focussed on the original draft of the CID plan. A meeting was held on 22 February 2006 with TTN, MNR, and YFP to review, discuss, and refine the draft CID Plan and share information on the Project. Specifically, the goals of Phase I were to:

- provide TTN with an update of the Project development
- confirm TTN's interest in providing input to the Project
- determine ongoing consultation expectations and avenues of discussion, including:
    - methods of information transfer
    - specific areas of interest for the TTN
    - specific contacts, information sources, and expertise within the TTN
    - other mutual expectations
- revise as necessary, and approve, this CID Plan.

Phase II

The specific components of Phase II were refined and confirmed during Phase I activities. This Phase of the CID Plan will include the following consultation components, modified and/or expanded as the Project evolves and additional communications and information shared between TTN and YFP:

- Community meetings hosted by YFP for TTN members. These community meetings will introduce YFP to the TTN's members, provide a description of baseline environmental information obtained to-date, a preliminary project concept, outline the regulatory structure (i.e., provincial and Federal) that the Project will be developed within, and provide opportunity for TTN input. Two community meetings were conducted on 08 March 2006 in New Post and on 20 March 2006 in Moosonee. Both meetings included a presentation by YFP as well as a question and answer period and display boards (open-house-style).
- Initial business-to-business meeting on 07 April 2006, between TTN and YFP representatives, to discuss the format, meeting requirements, and schedule for the Impact Benefit Agreement ("IBA"). A second IBA meeting is tentatively arranged for May 2006; additional meetings will be carried out as required.
- On-going information and knowledge exchange and discussion via fax, telephone, and mail as well as site meetings as appropriate. Up-to-date information will also be maintained on the Project's website (www.islandfallshydro.com) and provided in hard copy format to the TTN Council Office as required. A series of Project Briefing Notes will also be prepared and posted on the website.
- TTN member assistance with field investigations conducted during the data collection phase of the ERR/PIP (spring/summer 2006).
- A second round of community meetings hosted by YFP for the TTN in New Post and Moosonee. These second community meetings will provide the TTN members an opportunity to review the preferred project design, key findings from the environmental screening process, and an opportunity for continued two-way discussion on the Project.

Similar to the first round of community meetings, the meetings will include a formal presentation, question and answer period, and display board presentation. Should there be sufficient new or updated information available, it is anticipated that this second round of meetings will be conducted during the month of June (e.g., 27 June in New Post and 28 June in Moosonee).

- A third round of community meetings, hosted by YFP for the TTN in New Post and Moosonee, are also planned. These meetings, tentatively scheduled for the month of September, will provide the TTN members an opportunity to review the final project design, discuss construction schedules, project construction labour requirements and employment opportunities, and status of IBA discussions.

Phase III

Phase III consists of the formal distribution of the ERR/PIP to the TTN and other stakeholders for a 30-day review period. During this timeframe TTN can work with YFP to resolve any relevant outstanding issues they may have enroute to formally closing out the Environmental Screening Process. To facilitate the ERR/PIP review by TTN members, the ERR/PIP will be posted on the Project website and an appropriate number of hard copies provided to the TTN Council office. Based on current Project schedules it is anticipated that Phase III will be concurrent with the third round of community meetings in Phase II.

Construction / Operation Phase

YFP and TTN will continue their contact during the construction period and for the initial period of operation, as long as this remains an effective two-way channel for communication. To this end, as appropriate, YFP may maintain the Project website to convey information to TTN about the Project.

6 DOCUMENTATION

During the consultation and information disclosure process both parties will generate documentation pertinent to the Project. Both parties will maintain all relevant correspondence/documentation pertaining to input on Project design and environmental constraints and opportunities. As appropriate, such documentation may be included as part of the consultation record in the ERR/PIP prepared by YFP.

Both TTN and YFP will maintain documentation pertaining to the IBA in confidence due to the business-to-business nature of these documents. Where necessary, the parties may wish to enter into Confidentiality Agreements.

7 CID SCHEDULE

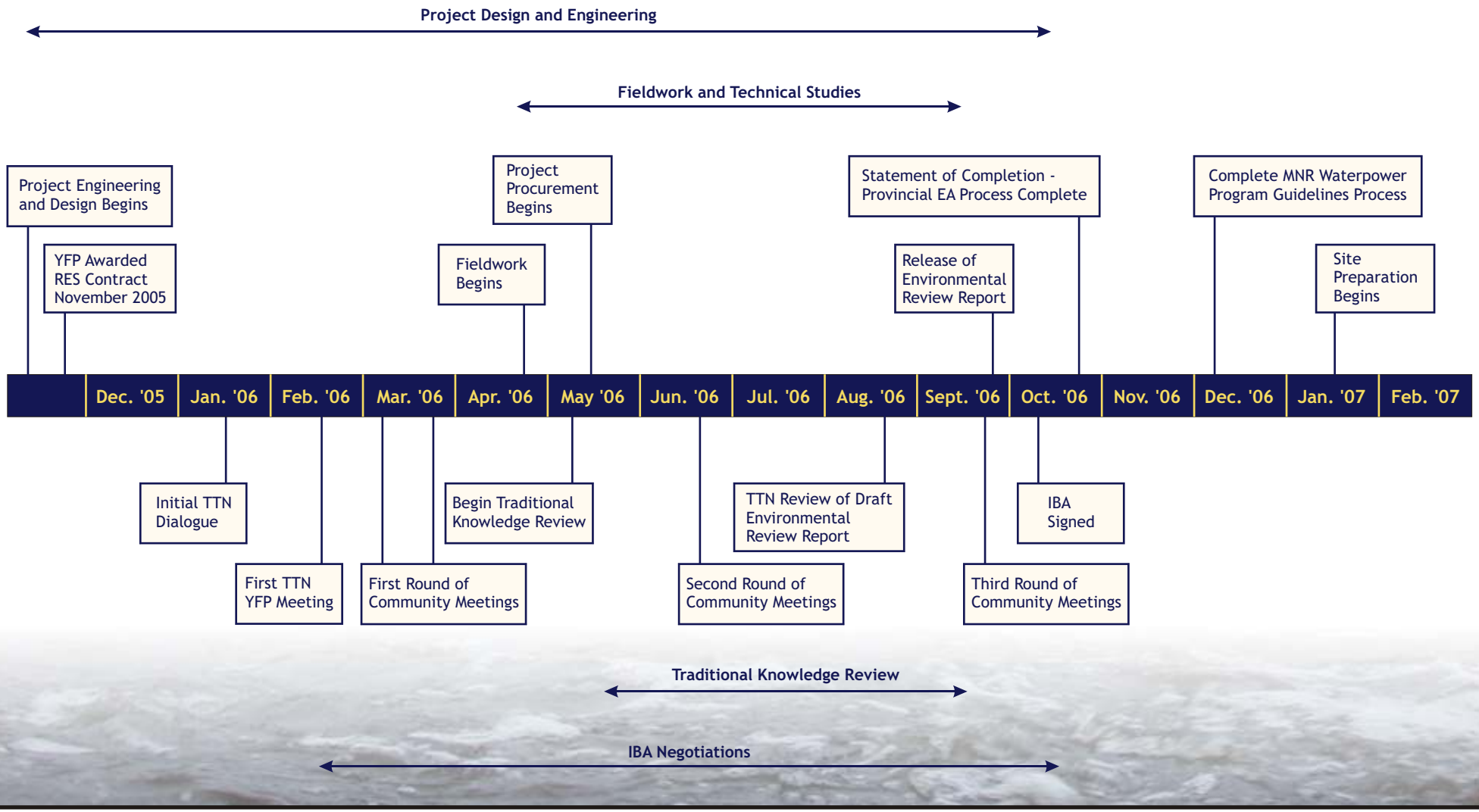
The schedule is based upon discussions from meetings undertaken to-date and will be refined as the project moves forward. The project schedule, with TTN consultation information integrated therein, is shown in Figure 1.

8 NEXT STEPS

The next steps in this CID Plan are:

- YFP and TNN to continue identifying key deliverables and information requirements
- TNN and YFP will confirm dates for the June and September community meetings in New Post and Moosonee and book appropriate meeting locations
- TNN and YFP will meet in May to continue the IBA negotiations.

Figure 1: Project Schedule - Project Start to Construction



TAB 9

YELLOW FALLS HYDROELECTRIC PROJECT

ENVIRONMENTAL ASSESSMENT
FILED SEPARATELY ON A CD

Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5
Tel: (519) 836-6050 Fax: (519) 836-2493

stantec.com

Stantec

April 27, 2007
File: 160960168

Bruce Barron
RR 1
Part W 1/2 Lt 7 Con 9, Haggart Twp
Smooth Rock Falls, ON P0L 2B0

Dear Mr. Barron:

Reference: Proposed Transmission Line
Island Falls Hydroelectric Project

As you may be aware, Yellow Falls Power Limited Partnership ("YFP") is proposing to build a 20 mega watt ("MW") run-of-river hydroelectric facility at Island Falls on the Mattagami River, approximately 16 km south of Smooth Rock Falls, ON (the "Project"). The Project will include a dam, powerhouse, electrical substation, access road, transmission line, and other ancillary facilities. YFP has retained Stantec Consulting Ltd. ("Stantec") to complete an Environmental Review Report ("ERR") to comply with provincial and federal environmental assessment requirements.

YFP will also be required to make application to the Ontario Energy Board ("OEB") for Leave-to-Construct ("LTC") approval for the transmission line under Section 92 of the *Ontario Energy Board Act*. In preparation for the LTC application, YFP is now undertaking the design of the Project's 115 kilovolt ("kV") transmission line, and would like to extend to you the invitation to comment on the proposed transmission line. Additional public notices will be published in local newspapers following submission of the LTC application.

Please find attached two drawings: the first showing the location of the Project, and the second showing the proposed location of the transmission line in the vicinity of Highway 11.

If you have any questions or comment regarding the transmission line, please call collect at 519.836.6050 or visit www.islandfallshydro.com. Written comments can be sent to:

Shawna Peddle
Senior Project Manager
Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5

Scott Hossie
Ontario Regulatory Affairs
Yellow Falls Power LP
c/o 34 Harvard Road
Guelph, ON N1G 4V8

Reference: **Proposed Transmission Line**
Island Falls Hydroelectric Project

Email: comments@islandfallshydro.com

Fax: 519.836.2493

Thank you for participating in this northern Ontario renewable energy initiative.

Sincerely,

STANTEC CONSULTING LTD.

Shawna Peddle

Shawna Peddle
Senior Project Manager
Tel: (519) 836-6050
Fax: (519) 836-2493
shawna.peddle@stantec.com

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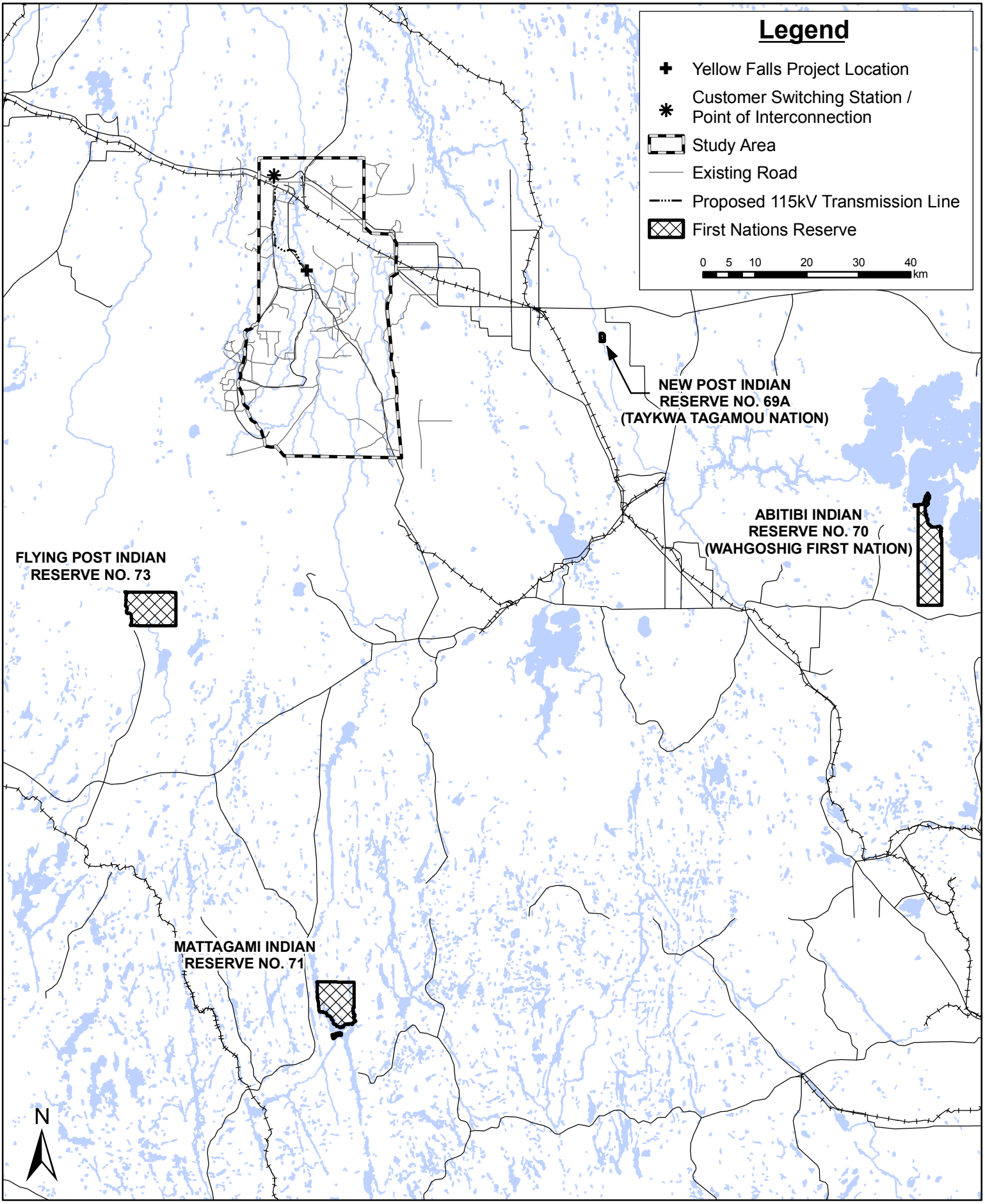
Yellow Falls Hydroelectric Project
First Nation Reserves



WABUN TRIBAL COUNCIL
313 RAILWAY STREET
TIMMINS, ON
P4N 2P4

BUS. (705) 268-9066
FAX (705) 268-8554
WEBSITE:
WWW.WABUN.ON.CA

March 13, 2009

Director of Environmental Assessment and Approvals Branch
Ministry of the Environment
2 St. Claire Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

Dear Sir / Madame:

A final Environmental Assessment Report has been filed with your Ministry for the Yellow Falls Hydro Electric Project on the Mattagami River in Northern Ontario. Please be advised that the First Nations of Mattagami, Flying Post and Wahgoshig are opposed to the approval of the final Environmental Assessment Report and are requesting the Project be "Bumped-Up" until such time that their communities have been properly and meaningfully consulted and accommodated.

As you are aware the Supreme Court of Canada has ruled that First Nations must be consulted and accommodated when impacts to their traditional territory occur, especially in cases where resource development projects have direct impacts on those territories. In this instance the company and the province have failed in their obligation to meet the Supreme Court test, and, in failing to fulfill its' obligation, Ontario and the proponent of the Yellow Falls project have violated the Aboriginal and Treaty rights of three First Nations.

You will likely hear from the proponent that they have made substantial efforts to consult with the First Nations. I am writing to say they have not. The fact of the matter is that three First Nations were excluded from any consultation because of erroneous advice given to the proponent by the Ministry of Natural Resources. The MNR advice suggested that the only community that need be consulted and accommodated on the Yellow Falls Project was the Taykwa Tagamou Nation. From our understanding the proponent then proceeded to establish a long term relationship of consultation and accommodation with Taykwa Tagamou culminating in the signing of a memorandum outlining the community participation in the Project.

It was not until our First Nations learned of the Project through the local media that we became aware of the potential for impact. At that point we contacted the proponent to begin dialogue on the Project. The proponent then approached our communities, not with the intent of consultation, but rather to request evidence of the territorial claims. They demanded proof to confirm the community interest in the project area. We provided that evidence. The proponent still refuses to consult and accommodate. In fact after receiving the evidence of territorial claim, the proponent now suggests that these three First Nations be consulted and accommodated by the Taykwa Tagamou Nation through their existing agreement. This is not acceptable. It is not Taykwa Tagamous' duty to consult and accommodate, it is the duty of the Province and the duty of the proponent.

The First Nations of Wahgoshig, Flying Post and Mattagami are simply asking the proponent for the same consideration they have afforded our sister community. What is required is an agreement that will describe the relationship between our First Nations and the Project going forward. We have shown that the Project is in fact in our territory. We have demonstrated there will be an impact. The Province and the proponent must now abide by the law of the land and fulfill its consultation and accommodation duties. Should you require further information regarding this request please contact the undersigned.

Meegwetch,

Jason Batise,
Technical Services Advisor
Wabun Tribal Council

CC. Chief Murray Ray – Flying Post First Nation
Chief Walter Naveau – Mattagami First Nation
Chief David Babin – Wahgoshig First Nation
Scott Hossie, – Canadian Hydro Developers

REPORT

Power to Ontario.
On Demand.

System Impact Assessment Report

CONNECTION ASSESSMENT & APPROVAL PROCESS

Issue 1.0

Project: Island Falls Hydraulic Generation
Applicant: Canadian Hydro Developers

CAA ID 2004-155

Transmission Assessments & Performance Department

July 6, 2006

Document ID	IESO_REP_0333
Document Name	System Impact Assessment Report
Issue	Issue 1.0
Reason for Issue	First issue.
Effective Date	July 6, 2006

System Impact Assessment Report

Island Falls Hydraulic Generation Development Project

Acknowledgement

The IESO wished to acknowledge the assistance of Hydro One in completing this assessment.

Disclaimers

IESO

This report has been prepared solely for the purpose of assessing whether the connection applicant's proposed connection with the IESO-controlled grid would have an adverse impact on the reliability of the integrated power system and whether the IESO should issue a notice of approval or disapproval of the proposed connection under Chapter 4, section 6 of the Market Rules.

Approval of the proposed connection is based on information provided to the IESO by the connection applicant and the transmitter(s) at the time the assessment was carried out. The IESO assumes no responsibility for the accuracy or completeness of such information, including the results of studies carried out by the transmitter(s) at the request of the IESO. Furthermore, the connection approval is subject to further consideration due to changes to this information, or to additional information that may become available after the approval has been granted. Approval of the proposed connection means that there are no significant reliability issues or concerns that would prevent connection of the proposed facility to the IESO-controlled grid. However, connection approval does not ensure that a project will meet all connection requirements. In addition, further issues or concerns may be identified by the transmitter(s) during the detailed design phase that may require changes to equipment characteristics and/or configuration to ensure compliance with physical or equipment limitations, or with the Transmission System Code, before connection can be made.

This report has not been prepared for any other purpose and should not be used or relied upon by any person for another purpose. This report has been prepared solely for use by the connection applicant and the IESO in accordance with Chapter 4, section 6 of the Market Rules. The IESO assumes no responsibility to any third party for any use, which it makes of this report. Any liability which the IESO may have to the connection applicant in respect of this report is governed by Chapter 1, section 13 of the Market Rules. In the event that the IESO provides a draft of this report to the connection applicant, you must be aware that the IESO may revise drafts of this report at any time in its sole discretion without notice to you. Although the IESO will use its best efforts to advise you of any such changes, it is the responsibility of the connection applicant to ensure that it is using the most recent version of this report.

HYDRO ONE

Special Notes and Limitations of Study Results

The results reported in this System Impact Assessment are based on the information available to Hydro One, at the time of the study, suitable for a preliminary assessment of a new generation or load connection proposal.

The short circuit and thermal loading levels have been computed based on the information available at the time of the study. These levels may be higher or lower if the connection information changes as a result of, but not limited to, subsequent design modifications or when more accurate test measurement data is available.

This study does not assess the short circuit or thermal loading impact of the proposed connection on facilities owned by other load and generation (including OPGI) customers.

In this System Impact Assessment, short circuit adequacy is assessed only for Hydro One breakers and does not include other Hydro One facilities. The short circuit results are only for the purpose of assessing the capabilities of existing Hydro One breakers and identifying upgrades required to incorporate the proposed connection. These results should not be used in the design and engineering of new facilities for the proposed connection. The necessary data will be provided by Hydro One and discussed with the connection proponent upon request.

The ampacity ratings of Hydro One facilities are established based on assumptions used in Hydro One for power system planning studies. The actual ampacity ratings during operations may be determined in real-time and are based on actual system conditions, including ambient temperature, wind speed and facility loading, and may be higher or lower than those stated in this study.

The additional facilities or upgrades which are required to incorporate the proposed connection have been identified to the extent permitted by a preliminary assessment under the current IESO Connection Assessment and Approval process. Additional facility studies may be necessary to confirm constructability and the time required for construction. Further studies at more advanced stages of the project development may identify additional facilities that need to be provided or that require upgrading.

Table of Contents

System Impact Assessment Report

Conclusions

This System Impact Assessment has been conducted to examine the effect of the Island Falls 20 MW generation facility on the reliability of the IESO-controlled grid. The conclusions from the assessment are summarized as follows.

1. The proposed project will not have a materially adverse effect on the overall reliability of the IESO-controlled grid but at times may result in local thermal overloads.

2. It was identified that thermal overloading could occur under over-generated conditions on certain sections of H9K from the new Island Falls Junction to Malette Craft Junction and from H9K127 up to Hunta SJ.

3. Sections from H9K127 to Smooth Rock Falls, from Smooth Rock Falls to Hunta SJ., from new Island Falls Junction to Fauquler and the section from Spruce Falls Junction to Carmichael Falls are approaching their thermal limits.

4. For all contingency cases with and without the proposed Island Falls generators, all voltage declines are within the 10% pre or post-ULTC action limit. Thus, the voltage performance would meet the voltage decline criteria.

5. The results show that, with Island Falls new generators on-line, none of the simulated contingencies caused transient instability or undamped oscillations.

Notification of Approval for Connection Proposal

It is recommended that Notification of Conditional Approval for connection be issued to Canadian Hydro Developers, subject to IESO's Requirements for Connection listed below, and any further requirements that may be identified by Hydro One Networks Inc. in the Customer Impact Assessment.

IESO's Requirements for Connection

The IESO requirements that have been identified during this Connection Assessment for the proposed addition of the Island Falls generation facility are given below. The IESO approval to place the new generators in-service depends on compliance with Market Rules including the implementation of the following requirements.

1. It is required to upgrade the following sections on H9K to avoid thermal overloading: from the new Island Falls Junction to Malette Craft Junction and from H9K127 up to Hunta SJ.

2. It is strongly recommended that the following sections be upgraded: from H9K127 to Smooth Rock Falls, from Smooth Rock Falls to Hunta SJ. and from Spruce Falls Junction to Carmichael Falls.

3. The Island Falls GS has to participate in the North East Special Protection Scheme to address post-contingency thermal overloading as well as to respect existing Northeast operating limits. As a minimum, the facility should be able to be selected for G/R for the loss of D501P, P502X, L20D, L21S, H6T and H7T.

4. The connection applicant is required to provide disconnect switch parameters.

5. Canadian Hydro Developers is required to ensure that the performance of the equipment that is eventually installed meets or exceeds the predicted performance observed in the computer simulation results obtained using the models and available parameters.

6. The applicant is required to provide to the IESO the generator reactive power capability curve for the new generator to demonstrate its compliance on reactive capability requirement, i.e. the capability to supply/absorb reactive power in the range of 0.9 lagging to 0.95 leading power factor.

7. Canadian Hydro Developers is required to follow the Market Entry Process. As part of this process the following need to be provided:

    - type test data that validates parameters and reactive capabilities of the generators, and a
    - detailed test plan that validates the performance of the excitation and governor controls.

8. It is required that for under frequency system conditions, the generator does not trip for frequency variations as described in 3.4 of this report.

9. The applicant is required to follow the Transmission System Code technical requirements of the transmitter for the generation facility. The new generator protections will have to be coordinated with the exiting schemes. The protection systems must be fully duplicated and supplied from separate batteries.

10. Canadian Hydro Developers is responsible for ensuring that adequate monitoring of the new facility is available according to Appendix 4 of Market Rules. The IESO will finalize items to be monitored during the IESO Facility Registration Process.

System Impact Assessment Report For Island Falls Hydraulic Generation

1. INTRODUCTION

The Canadian Hydro Developers (CHD) has started the development of a new hydraulic generation facility (Island Falls GS) in Smooth Rock Falls, Ontario. In 2005 the project was selected in RES II. Island Falls GS is to have two generators of maximum capacity of 10 MW each. This facility is to be connected to the existing 115 kV Hydro One circuit H9K at a point approximately 5.5 km west of Smooth Rock Falls DS.

It is expected that the proposed facility will be in commercial operation in October 2008.

This System Impact Assessment has been conducted to examine the impact on the reliability of the IESO-controlled grid by addition of the new 2×10 MW generators to the system.

The connection applicant provided generation facility information including connection arrangement, models and parameters for generator, governor, exciter and power system stabilizer. Based on the application materials provided by CHD the IESO performed studies and prepared a detailed report containing equipment performance test results, thermal analysis, voltage analysis and transient state analysis. The study report is attached to this SIA report as an appendix.

– End of Section –

2. PROPOSED CONNECTION

The proposed Island Falls GS will consist of two 13.8 kV, 11.1 MVA, 180 RPM hydraulic generators. The generators are to be connected to the 115 kV circuit H9K via a single 13.8/115 kV step-up transformer and a 23 km long over-head line. The connection point at H9K is located between Malette Craft Junction and Fauquier Junction, at about 0.7 km from Malette Craft Junction.

The proposed connection arrangement of Island Falls GS to H9K is shown in Figure 1.

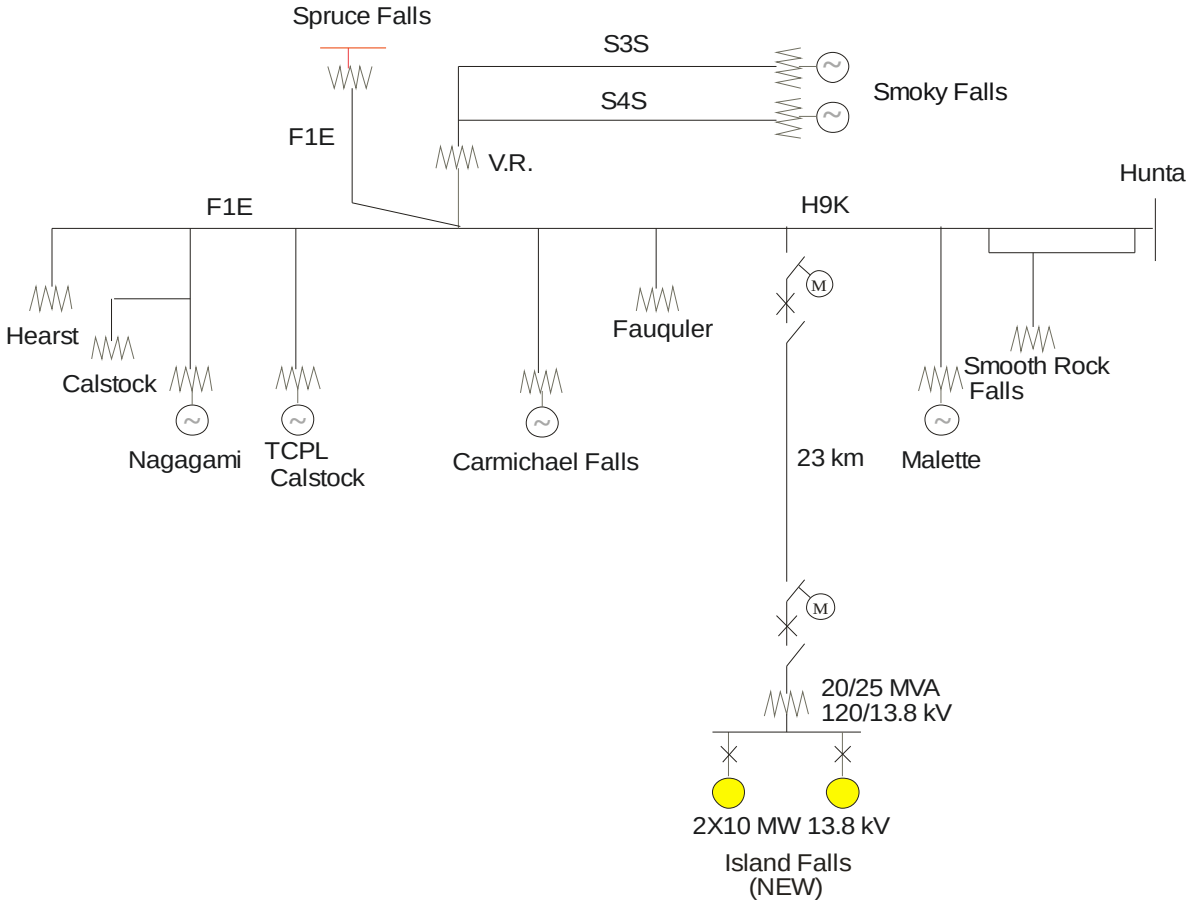


Figure 1 Proposed 2×10 MW Generation Connection Diagram

– End of Section –

3. GENERATION STATION ASSESSMENTS

3.1 MODEL AND DATA VERIFICATION

The parameters and the block diagrams of the PSS/E models of the generator, excitation system and speed governor used for the simulations are given in the sections below. The applicant provided these models to IESO with corresponding parameters.

3.1.1 GENERATOR MODEL

Each of the two generators has a Maximum Continuous Rating of 10 MW at power factor of 0.9. They will be driven by a 180 RPM Kaplan-Type turbine with digital governor control. The data for the generator model GENSAL are given in Table 1.

Table 1 Generator Parameters

Description	Value	Description	Value
X_d	1.1	T''_{do}	0.036
X_q	0.7	T''_{qo}	0.036
X'_d	0.23	X_l	0.11
X''_d	0.12	X_2	0.2
X''_q	0.12	X_0	0.18
R_a	0.008	S(1.0)	0.10
T'_{do}	5.60	S(1.2)	0.3
H	2.2		

Appendix 4.2 of Market Rules requires that every synchronous generator connecting to IESO-controlled grid must have the capability to supply/absorb reactive power in the range of 0.9 lagging to 0.95 leading power factor.

The connection applicant is required to confirm that the generators will have the capability of supplying/absorbing reactive power in the range of 0.9 lagging to 0.95 leading at rated real power and voltage. The generators will be capable of operating continuously at full MW output within ± 5% of the rated terminal voltage of 13.8 kV.

It should be noted that the data provided by connection applicant includes some parameters supplied by the Manufacturer along with estimates used for the remaining parameters.

The applicant is required to provide type test data that validates parameters and reactive capabilities of the generators. During the Market Entry process and prior to the connection of the new generators to the IESO-controlled grid CHD shall submit a detailed test plan to validate the parameters of generator, exciter and speed governor.

3.1.2 AUTOMATIC EXCITATION SYSTEM

The Model for the exciters is IEEE Type ST1 excitation system model.

The block diagram of the excitation system provided by the connection applicant is shown in Figure 2. The parameters of the exciter are shown in Table 2.

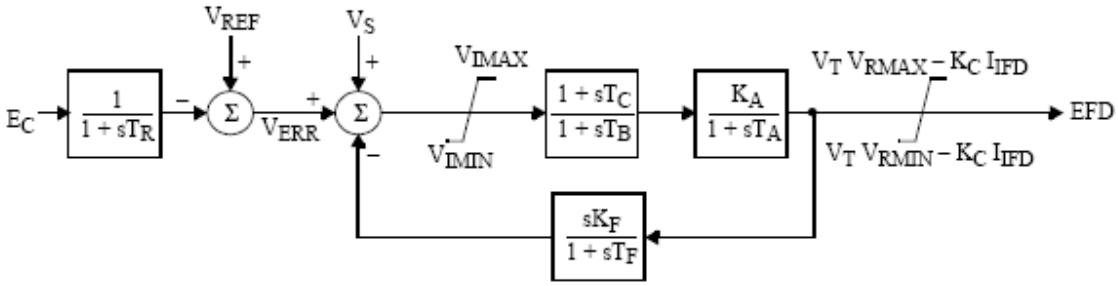


Figure 2 Block Diagram of Excitation System

Table 2 Excitation (EXST1) Parameters

Description	CONs	Value
T_R	J	0.005
V_{IMAX}	J+1	0.06
V_{IMIN}	J+2	-0.06
T_C	J+3	1.0
T_B (sec)	J+4	1.0
K_A	J+5	100
T_A (sec)	J+6	0.008
V_{RMAX}	J+7	4.0
V_{RMIN}	J+8	-4.0
K_C	J+9	0.05
K_F	J+10	0.0
T_F (sec)	J+11	1.0

The requirements for exciters on generation unit rated at 10 MVA or higher are listed in Reference 12 of Appendix 4.2 in Market Rules as follows:

- A voltage response time not longer than 50 ms for a voltage reference step change not to exceed 5%;

- A positive ceiling voltage of at least 200% of the rated field voltage, and
- A negative ceiling voltage of at least 140% of the rated field voltage.

The results of the exciter system voltage response test to a 5% step change in reference voltage are displayed in *Automatic Excitation System Performance* section in the Appendix. Examination of the plots indicates that the exciter field voltage reaches 95% of the excitation ceiling voltage in less than 10 ms, thus meeting the above-mentioned requirements.

The results of the exciter system response ratio test shown in the Appendix indicate that the exciter ceiling voltage exceeds the Market Rules requirements. The test results show that the ceiling voltage is 3.909 pu which is above the minimum 2.0 pu. Thus, the exciter meets the voltage response time and ceiling voltage requirements given in Appendix 4.2 of Market Rules.

It should be noted that the performance of the exciter is obtained based on the estimated data.

The connection applicant is required to ensure that the performance of the equipment that is eventually supplied and installed is similar to the predicted performance or exceeds the predicted performance observed in the simulation results obtained using the above models.

3.1.3 SPEED GOVERNOR

The Market Rules state that each synchronous generation unit that is greater than 10 MVA must be equipped with a speed governor with a permanent speed droop between 3% and 7% and an intentional deadband not wider than ± 36 mHz.

The governor model used for the new generating units proposed in this study is PTI's Woodward PID Hydro Governor model, WPIDHY. The block diagram of this model and the data for the governor model used in this study are shown in Figure 3 and Table 3, respectively.

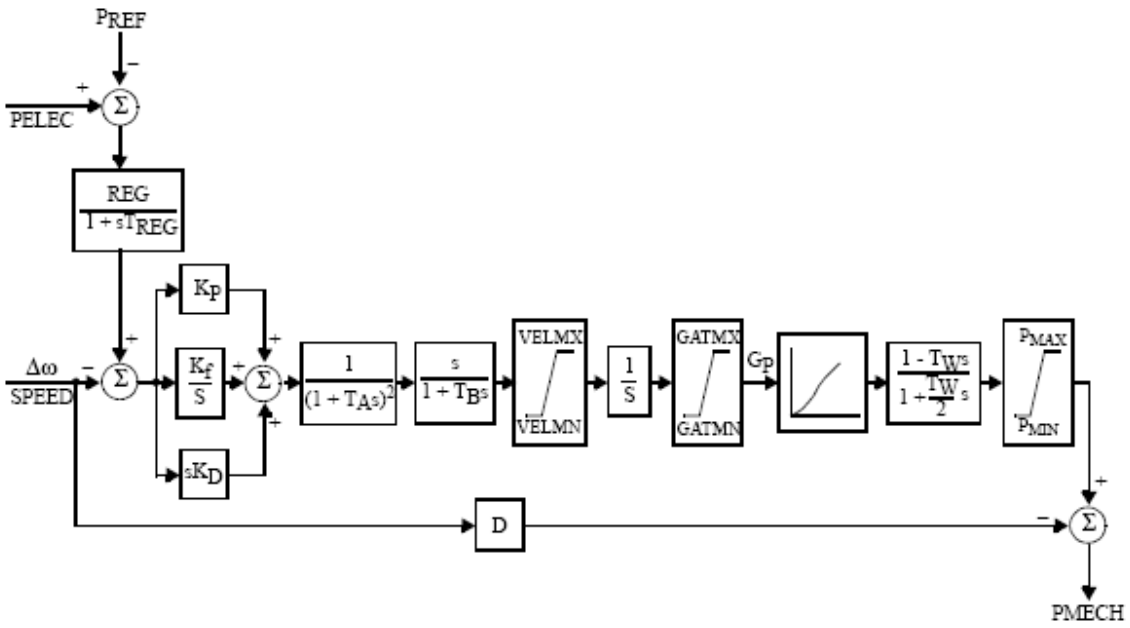


Figure 3 Block Diagram of Speed Governor

Table 3 PSS/E WPIDHY Woodward PID Hydro Governor Parameters

Description	Value	Description	Value
T_{reg} (sec)	.1	D	.6
Reg	-0.04	G_0	0
K_p	3.0	G_1	0.2
K_i	.5	G_2	0. 6
K_d	1.5	P_1	0.2
T_a	.01	P_2	0.6
T_b (sec)	.2	P_3	1
V_{elmx}	.08	MVA Base	11.1
V_{elmn}	-.02	T_w (sec)	1.0
Gatmn	0	P_{max}	1.0
Gatmx	1.0	P_{min}	0.0

Simulations were performed to test transient response for the given governor model. The results showed that the parameters were tuned to give reasonable damping and the governor has a droop of 4% thus meeting Market Rules' requirements.

3.1.4 POWER SYSTEM STABILIZER

The requirements for power system stabilizers (PSS) are described in Reference 15 of Appendix 4.2:

Each synchronous generating unit that is equipped with an excitation system that meets the performance requirements stated in section 3.1.2 shall also be equipped with a power system

stabilizer which shall, to the extent practicable, be tuned to increase damping torque without reducing synchronizing torque.

The proposed PSS will be digital-based with dual inputs, commonly referred to as integral of accelerating power type PSS2A. The block diagram of this stabilizer is shown in Figure 4 and the parameters used are given in Table 4 below.

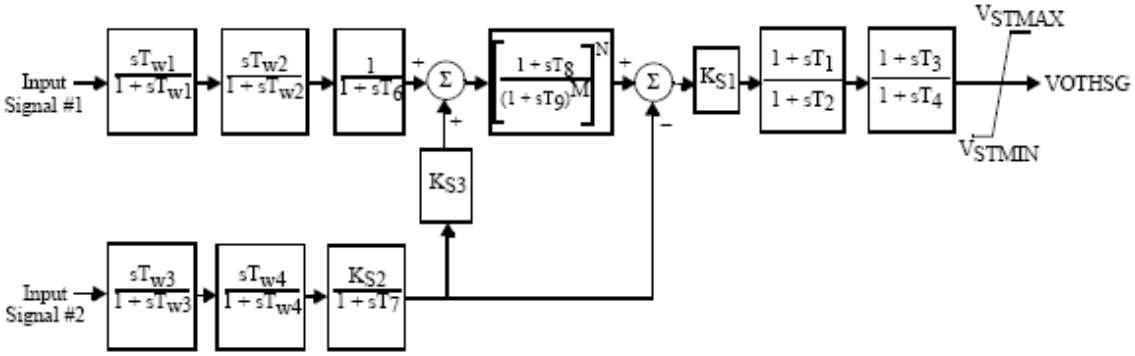


Figure 4 Block Diagram of PSS

Table 4 PSS/E PSS2A Parameters

Description	Value	Description	Value
ICS1	1	T_8	0.5
ICS2	3	T_9	0.1
M	5	K_{S1}	2.0
N	1	T_1	0.226
T_{W1}	10	T_2	0.03
T_{W2}	10	T_3	0.226
T_6	0	T_4	0.03
T_{W3}	10	V_{STMAX}	0.05
T_{W4}	0	V_{STMIN}	-0.05
T_7	5		
K_{S2}	2.27		
K_{S3}	1.0		

3.1.5 STEP-UP TRANSFORMER

Technical specifications of the step-up transformer provided by the connection applicant are listed as follows:

Transformation	120/13.8 kV
Continuous rating	20/25 MVA
Impedance	7% based on 20 MVA
Configuration	3 phase, High side: wye, Low voltage side: delta
Tapping	off-load tap changers at HV (-5% -2.5% 0% 2.5% 5.0%)

The Market Rules requirement to be able to produce rated power output at a set value for the voltage on the HV system by varying the terminal voltage by ± 5%, effectively limits the impedance of the connection to the IESO-controlled grid maximum of about 13%, based on the MVA rating of the generating facility. The impedance of the step-up transformer would be approximately 7.8% on the rating of the generator facility (22 MVA) and meet Market Rule requirements.

3.1.6 CIRCUIT BREAKERS AND DISCONNECT SWITCHES

Technical specifications of the circuit breakers provided by the connection applicant are listed in Table 5.

Table 5 Circuit Breaker Parameters

Breakers	LV	HV
Rated Voltage	15 kV	138 kV
Interrupting time	5 cycles	3 cycles
Interrupting media	Vacuum	SF_6
Rated continuous current	1200 A	1200 A
Rated symm. short circuit capability	25 kA	63 kA

The system performance standards listed in the Transmission System Code requires that the 115 kV and 13.8 kV systems fault levels not exceed 50 kA and 21 kA (Sym.), respectively. This indicates that 115 kV and 13.8 kV equipment must be sized to interrupt 50 kA and 21 kA (Sym.), respectively. The breakers proposed for installation at Island Falls meet the interrupting capability recommended by the Transmission System Code.

No information about disconnect switches was provided in the SIA applications.

The connection applicant is required to provide disconnect switch parameters.

3.2 ON-LINE MONITORING REQUIREMENTS

The Market rules (Appendix 4.15 and Appendix 4.19) list the IESO requirements with respect to the information on generator monitoring that must be made available to the IESO on a continual basis from all generators connected to the IESO-controlled grid. It is required that at minimum, the following quantities be monitored:

- active and reactive power output of the proposed generators
- status of 13.8 kV terminal breaker of the proposed generators
- status of AVR and stabilizer of the proposed generators
- terminal voltage of the proposed generators

CHD is required to install all the equipment needed to continuously monitor the information that is required by the IESO. The IESO will finalize items to be monitored during the IESO Facility

Registration Process.

3.3 PROTECTION SYSTEM REQUIREMENTS

With respect to the protection and telecommunication requirements, CHD is required to follow the Transmission System Code technical requirements of the transmitter for the generation facility. The new transmission and generator protections will have to be coordinated with the existing schemes.

The protection systems must be fully duplicated and supplied from separate batteries.

3.4 GENERATOR UNDER FREQUENCY TRIPPING REQUIREMENT

The Market Rules (Appendix 4.2) require that the generators be able to operate continuously at full power for system frequencies between 59.4 to 60.6 Hz. For under-frequency system conditions, the generators shall not trip for frequency variations that are above the curve shown in Figure 5.

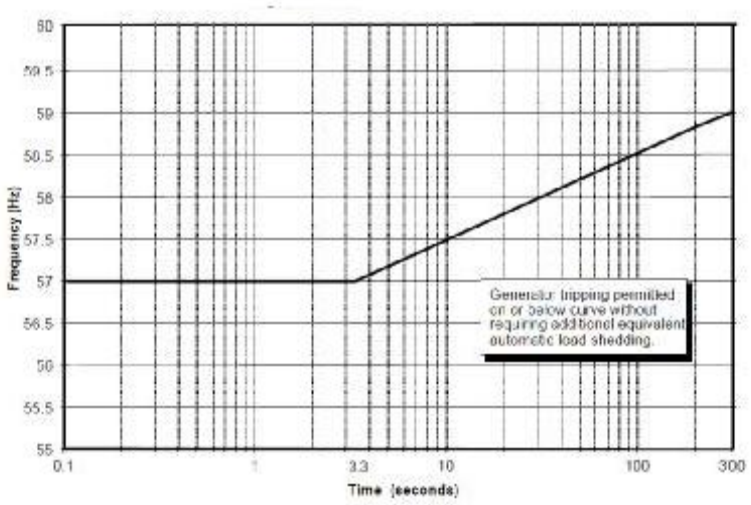


Figure 5 Standard for Setting Underfrequency Trip Protection

It is required that for under-frequency system conditions, the new generator shall not trip for frequency variations that are above the curve shown in Figure 5.

3.5 IMPORTANT NOTE ON MODELS AND DATA

The four components used to model the new generation include a synchronous generator model (GENSAL), an excitation model (EXST1), a power system stabilizer model (PSS2A), and a governor model (WPIDHY) and typical model values provided by CHD are used in this assessment.

CHD is required to ensure that the performance of the equipment that is eventually installed meets or exceeds the predicted performance observed in the computer simulation results obtained using the models and available parameters. The applicant is required to provide test data that validates parameters and reactive capabilities. If these data are not provided, during the facility registration process, prior to the connection of the new generators to the IESO-controlled grid, CHD shall submit a detailed test plan to validate the parameters of generator, exciter and speed governor.

These requirements are independently applicable for each stage of the development.

– End of Section –

4. ANALYSIS OF SHORT CIRCUIT CURRENT

Because this project involves the connection of additional generation onto the IESO-controlled grid a short circuit assessment is required. Hydro One will be performing the short circuit studies. The results of the short circuit studies will be included in the final report.

– End of Section –

5. CONNECTION ASSESSMENT STUDIES

Based on the application materials provided by CHD the IESO performed studies to identify any concerns of thermal, voltage and stability due to the addition of the proposed Island Falls generating station.

5.1 PRESENT CONDITIONS

The following graphs show the MW flow on H9K at Hunta and on L20D at Pinard in 1 Hr average samples during the period of Jan 1- Dec 31, 2005. The positive flow is leaving the bus.

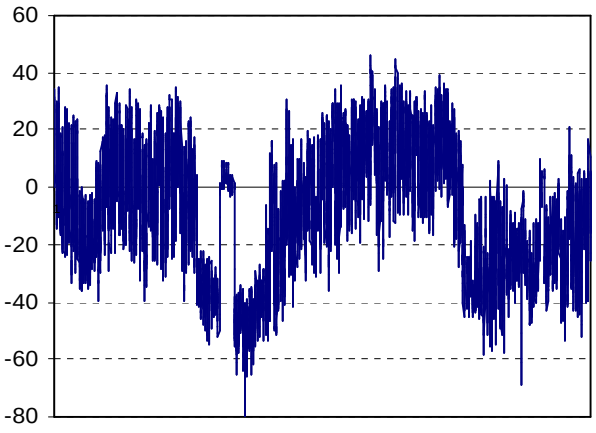


Figure 6a – MW Flow of H9K@H

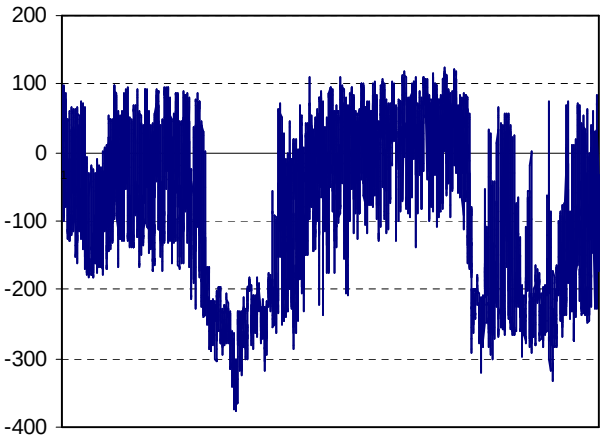


Figure 6b – MW Flow of L20D@D

The followings are the Continuous Ratings for the sections of the circuit H9K at 35 °.

H9K section	At 25 °C
Hunta – Hunta SJ	1200 A
Hunta SJ – Smooth Rock	240 A
Smooth Rock – H9K127AJ	240 A
Hunta SJ – H9K127AJ	230 A
H9K127AJ – Malette Craft	510 A
Malette Craft – Fauquier	330 A
Fauquier – Carmichael	490 A
Carmichael – Spruce Falls	260 A
Spruce Falls – Kapuskasing	390 A

5.2 STUDY ASSUMPTIONS

The portion of the network where the Island Falls GS is expected to be connected, which is encompassed by L20D at Pinard and H9K at Hunta frequently has widely varying operating conditions due to regularly varying generation and load patterns in this area. This is due to the variable nature of the industrial load such as pulp, paper and timber mills and the periodic availability of water for hydraulic generating stations. The operation of this part of the power system is also often challenged by stability, voltage and thermal problems due to sparse connectivity.

In winter and summer, the area is typically under-generated. Then, most of time the power is flowing into the area through H9K at Hunta and L20D at Pinard. There could be a few hours of over-generation daily, normally during peak hours when most of the hydraulic plants are generating. In spring and fall, due to excess water, the area is mostly over-generated, but there could be short periods when the load has to be supplied from out of area resources.

Therefore, the following two cases were selected for the analysis. The degree of over-generation and under-generation was based on operating limits, historic data for H9K flow at Hunta and the availability of generation and loads for L20D flow at Pinard.

Scenario I	:	Over-Generated
Scenario II	:	Under-Generated

The study was performed for a system with all transmission elements in service.

The 2006 summer base case was used as a starting point for the analysis with total Ontario primary demand of 27,015 MW. However, the local area loads and generations between H9K at Hunta and L20D at Pinard were modified to derive Case I and II from the base case while Northeast flow limits are respected and historic MW flow data for H9K at Hunta and L20D at Pinard were maintained to the extent possible. The use of 2006 summer conditions for rest of the power system at large does not pose any significant danger for the accuracy of results of this particular study as the operating conditions prevailing in rest of the power system has little impact on the operation of the system portion enclosed by H9K at Hunta and L20D at Pinard.

Both new units at Island Falls GS were at full output of 10 MW each controlling its terminal voltage to 1.0 pu.

For voltage decline studies, the active power loads were converted into constant current and constant admittance loads equally and the reactive power loads were converted only into constant admittance loads.

All local area loads were maintained at 0.89 power factor. This could reflect consumption of more reactive power than actual by some of the area loads. It would be prudent to obtain larger voltage declines than smaller voltage declines compared to actual declines.

5.3 THERMAL STUDY

Thermal analysis was carried out to monitor circuit sections on H9K with under-generation and over-generation scenarios.

Scenario I: Area Over-generated - Maximum area generation and minimum area load

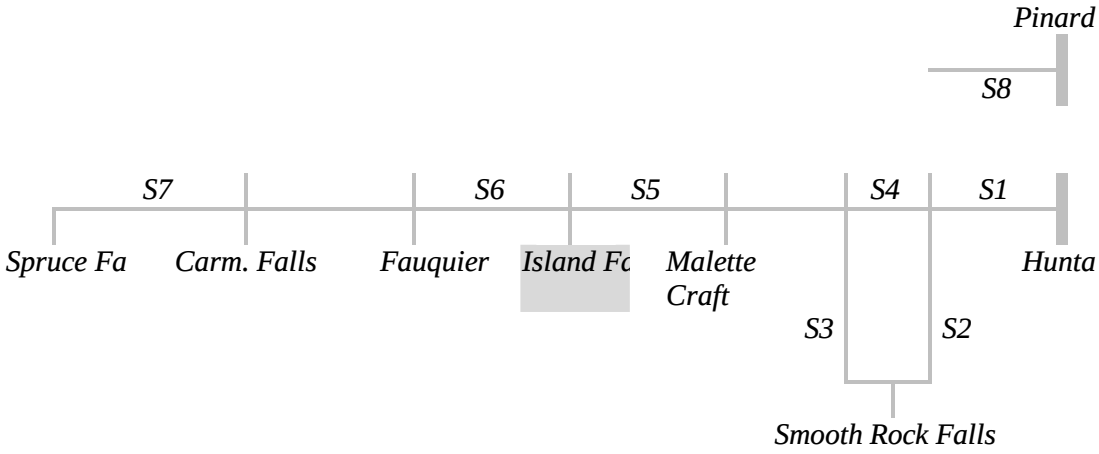
The minimum area load and maximum area generation obtained from historical data, while respecting the area operating limits were used to set up a load flow with:

- The load in the area encompassed by L20D@D and H9K@H is 71 MW and the generation is 307 MW.
- The flow injected from local area into L20D@D is 153 MW and into H9K@H is 71 MW. The active power loss in the local area is about 12 MW.
- The total Northeast generation is 2406 MW and the total Northeast load of 1245 MW.

The results of the analyses are presented below. The post-contingency voltages shown in the table are for pre-ULTC only. The post-ULTC voltage levels are quite similar to the pre-ULTC voltages.

Following sections are monitored.

S1	Hunta – Hunta SJ	S5	Malette Craft– Island Falls
S2	Hunta SJ – Smooth Rock	S6	Island Falls – Fauquier
S3	Smooth Rock – H9K127AJ	S7	Carmichael Falls – Spruce Falls
S4	Hunta SJ – H9K127AJ	S8	L20D @ Pinard



Followings are the percentage flows compared to continuous rating for pre-contingency and compared to STR for post-contingency. Contingencies are simulated on the case ID 2.

ID	Pre-Contingency	S1	S2	S3	S4	S5	S6	S7	S8
1	Island Falls O/S	32	81	83	85	95	97	99	41
2	Island Falls I/S	37	95	98	100	116	91	91	42
3	Island Falls I/S + Other Units Reduced	33	84	87	89	100	72	67	28
	Contingency								
4	Loss of Island Falls	27	69	72	73	78	80	76	25
5	Loss of Spruce Falls 30 MW load	35	90	93	95	108	81	77	29

6	Loss of Hearst 10 MW load	34	87	90	92	104	77	73	26
7	Loss of L21S + 50 MW G/R	11	70	72	73	78	50	45	-
8	Loss of D501P + 620 MW G/R	71	71	74	72	67	68	54	05
9	Loss of H9K	-	-	-	-	-	-	-	32
10	Loss of F1E	22	54	57	57	54	25	-	25

Scenario II: Area Under-generated - Minimum area generation and maximum area load

The maximum area load and minimum area generation obtained from historical data, while respecting the area operating limits were used to set up a load flow with:

- The load in the area encompassed by L20D@P and H9K@H is 210 MW and the generation is 33 MW.
- The flow injected into local area from L20D@D is 144 MW and from H9K@H is 43 MW. The active power loss in the local area is about 10 MW.
- The total Northeast generation is 1667 MW and the total Northeast load of 1384 MW.

Followings are the percentage flows compared to continuous rating for pre-contingency and compared to STR for post-contingency.

ID	Pre-Contingency	S1	S2	S3	S4	S5	S6	S7	S8
1	Island Falls O/S	23	58	43	58	72	72	79	29
2	Island Falls I/S	17	44	27	43	49	80	89	29
	Contingency								
3	Loss of Island Falls	23	58	43	58	72	72	79	29
4	Loss of L21S	12	33	11	32	30	55	57	-
5	Loss of D501P	49	51	21	50	38	74	70	-

5.4 VOLTAGE ANALYSIS

Voltage declines were recorded at Hunta, Kapuskasing, Hearst and Island Falls for different contingencies.

Followings are the post-contingency voltage changes for scenario I.

4	Loss of Island Falls	0.2	0.2	0.1	0.2
5	Loss of Spruce Falls 30 MW load	0.2	0.6	0.3	0.2
6	Loss of Hearst 10 MW load	0.2	0.2	1.6	0.1
7	Loss of L21S + 50 MW G/R	0.9	1.1	0.6	0.6
8	Loss of D501P + 620 MW G/R	2.2	2.4	0.5	1.4
9	Loss of H9K	2.2	2.8	1.3	-
10	Loss of F1E	1.6	-	-	1.9

Comments:

Case ID = 1: Even without the new Island Falls GS I/S, some of the area generation needs to be reduced to respect the operating limits. Kipling G2 was reduced to 0 MW to respect the thermal limit on H9K in particular, the Spruce Falls to Carmichael section. All other area generation was at full output.

Case ID = 2: By connecting Island Falls GS, the sections S4 and S5 of H9K became overloaded. The flow distribution from the new generation plant is about 77 % towards Hunta and about 23 % towards Kapuskasing.

Case ID = 3: The area generation (except Island Falls GS) was reduced to respect the thermal limits of H9K, specifically the Island Falls to Malette Craft and H9K127 to Hunta SJ sections. A total of 95 MW generation was reduced at Kipling, Little Long and Smoky Falls. To obtain 1 MW of relief on flow on H9K, about 10 MW generation needs to be reduced at Kipling and/or Little Long GS and about 6.5 MW at Smoky Falls GS.

Case ID = 5 and 6: The loss of load could cause thermal overload of the section S5. Therefore, the generation should be reduced pre-contingency. The flow on H9K towards Hunta would increase by about 20 % and 30% respectively for the loss of load at Spruce Falls and Hearst. It was found that in order to respect thermal limits after 30 MW of load lost at Spruce Falls, 6 MW of flow has to be relieved pre-contingency on H9K.

The flow on H9K at Hunta has to be below 51 MW with no Island Falls GS I/S in order to respect the 35^{o}C thermal limit once the Island Falls is connected. Statistically, the flow was above 35^{o}C thermal limit for 206 Hrs in 2005 and 93 Hrs in March-April 2006. If 25^{o}C thermal limit is used, the flow was at such a level for 56 Hrs in 2005 that H9K would have been overloaded should the Island Falls GS has been in service.

Case ID = 7 and 8: In order to respect operating limits for the loss of L21S or D501P, a set of generators must be selected for rejection to ensure H9K is not overloaded. Thus, Island Falls GS must be part of Northeast G/R scheme.

Followings are the post-contingency voltage changes for scenario II.

ID	Contingency	Hunta	Kapuskasing	Hearst	Island Falls
3	Loss of Island Falls	0.0	0.3	0.3	0.1
4	Loss of L21S	0.2	2.7	2.9	0.5
5	Loss of D501P	1.2	4.1	4.5	1.6

Comments:

Case ID = 1: All area generation was disconnected except one unit generating at Smoky Falls GS and one unit each condensing at Smoky Falls GS, Kipling, Little Long and two at Canyon 115 kV.

Case ID = 2: By connecting Island Falls GS, the H9K section S7 from Carmichael Falls to Spruce Falls Junction could approach its thermal rating. The distribution of the new generation is 70 % towards Hunta and 30 % towards Kapuskasing. If Canyon 115 kV units are generating at full output and if 230 kV Moose units are not generating, there is potential above section could be overloaded.

Case ID = 3: Following the loss of Island Falls GS, the voltage decline and thermal loadings are within acceptable limits.

Case ID = 4 and 5: In order to respect operating limits for the loss of L21S or D501P, respectively cross-tripping of K38S and L21S+K38S must be selected. Selecting only L/R was not sufficient. At post-rejection, the projected voltage declines and thermal loadings are within the acceptable limits.

5.5 TRANSIENT STATE ANALYSIS

Transient stability analyses were performed under over-generation scenario considering fault at Pinard, Hunta, kapuskasing, Spruce Falls or Hanmer. The following contingencies were tested.

Contingencies		Island Falls I/S	Island Falls O/S
TSC1	Normally cleared LLG fault on D501P @ Pinard	X	X
TSC2	Normally cleared LLG fault on H6T @ Hunta	X	
TSC3	Normally cleared LLG fault on L21S @ Kapuskasing	X	
TSC4	Normally cleared LLG fault on F1E @ Spruce falls	X	
TSC5	Normally cleared LLG fault on X503E @ Hanmer	X	

All the simulation results are shown in Appendix. It can be concluded from the results that, with Island Falls new generators on-line, none of the simulated contingencies caused transient instability or undamped oscillations.

5.6 SUMMARY OF FINDINGS

Overloading for certain sections of H9K was identified in thermal analysis. The ratings of the section are shown in Figure 7 as well as section lengths and maximum percentage flows compared to continuous rating for pre-contingency.

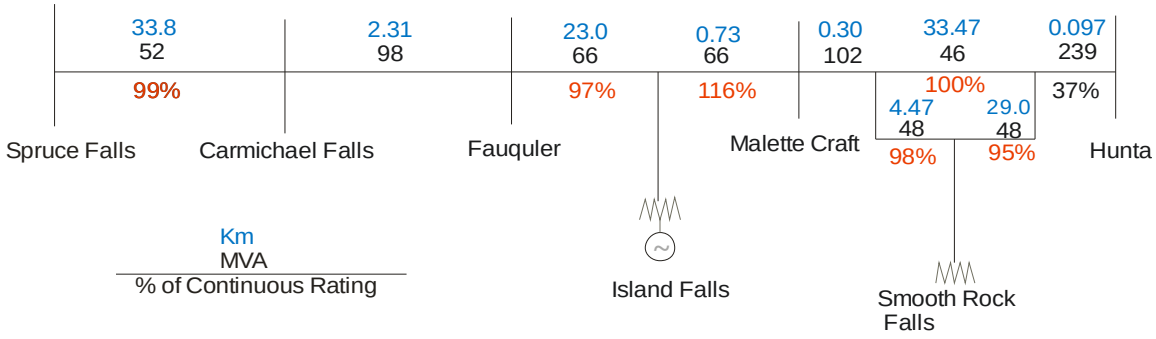


Figure 7 Section Rating, Length and Maximum Percentage Flows

The findings of analysis are summarized as follows:

1. Overloading was identified under over-generated conditions for certain sections of H9K from the new Island Falls Junction to Malette Craft Junction and from H9K127 up to Hunta SJ.

2. Sections from H9K127 to Smooth Rock Falls, from Smooth Rock Falls to Hunta SJ., from new Island Falls Junction to Fauquler and the section from Spruce Falls Junction to Carmichael Falls are approaching their thermal limits.

3. For all contingency cases with and without the proposed Island Falls generators, all voltage declines are within the 10% pre or post-ULTC action limit. Thus, the voltage performance would meet the voltage decline criteria.

4. The Island Falls GS has to be part of the North East Special Protection Scheme to address post-contingency thermal overloading as well as to respect existing Northeast operating limits. As a minimum, the facility should be able to be selected for G/R for the loss of D501P, P502X, L20D, L21S, H6T and H7T.

5. The results show that, with Island Falls new generators on-line, none of the simulated contingencies caused transient instability or undamped oscillations.

It should be noted that the connection assessment studies were performed based on the information provided by the connection applicant. The model data must be provided to the IESO as soon as the equipment orders have been placed. It must be ensured that the facilities when installed have model data that are acceptable to the IESO.

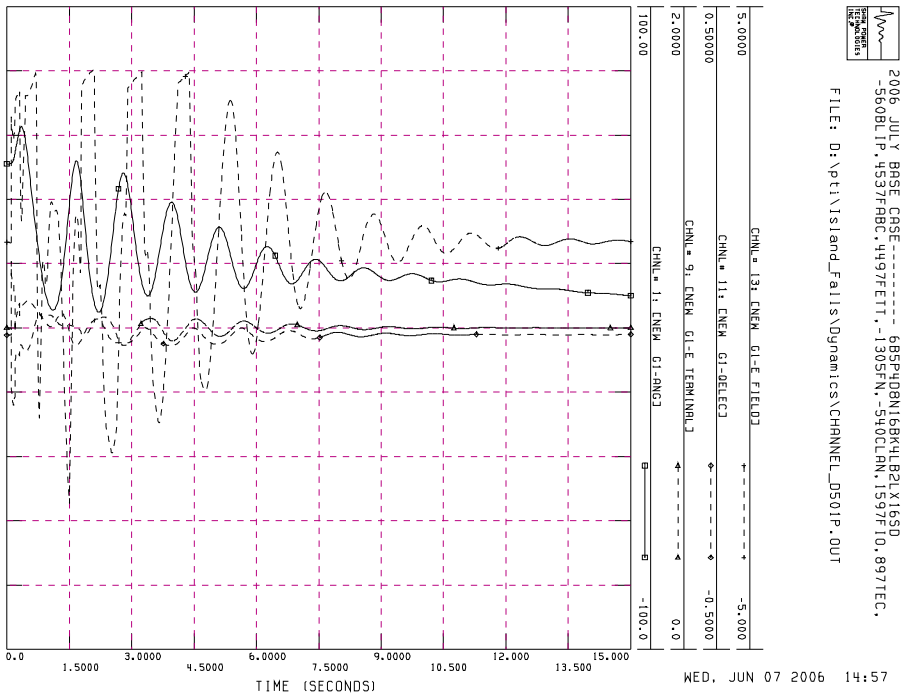
Should the data supplied to IESO for the registration of this new connection differ substantially from that used for this assessment, then some of the analysis might need to be repeated to ensure that no further facilities could be adversely affected.

–End of Document –

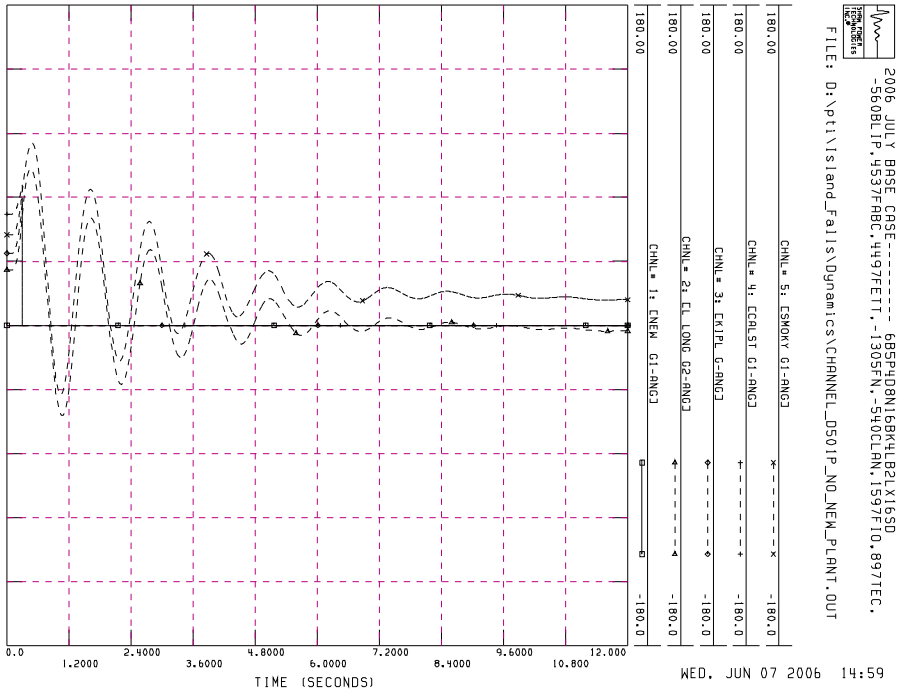
APPENDIX

TSC1 - LLG fault was applied on 500 kV circuit D501P at Pinard. The fault was cleared at Pinard after 66 ms and at Porcupine after 91 ms. The generation at Harmon G1+G2, Canyon G1+G4+G5, Otter Rapids G1+G2+G3+G4, Kipling G1+G2, TCPL Kapuskasing G1+G2 and Calstock G1 was rejected after 200 ms.

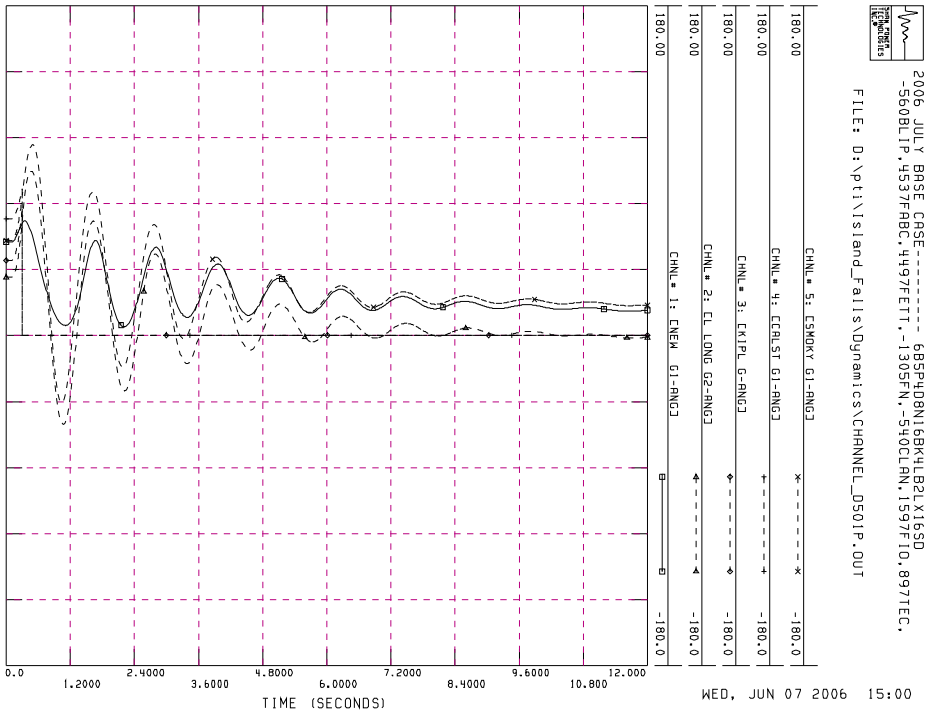
TSC1 - Island Falls G1:



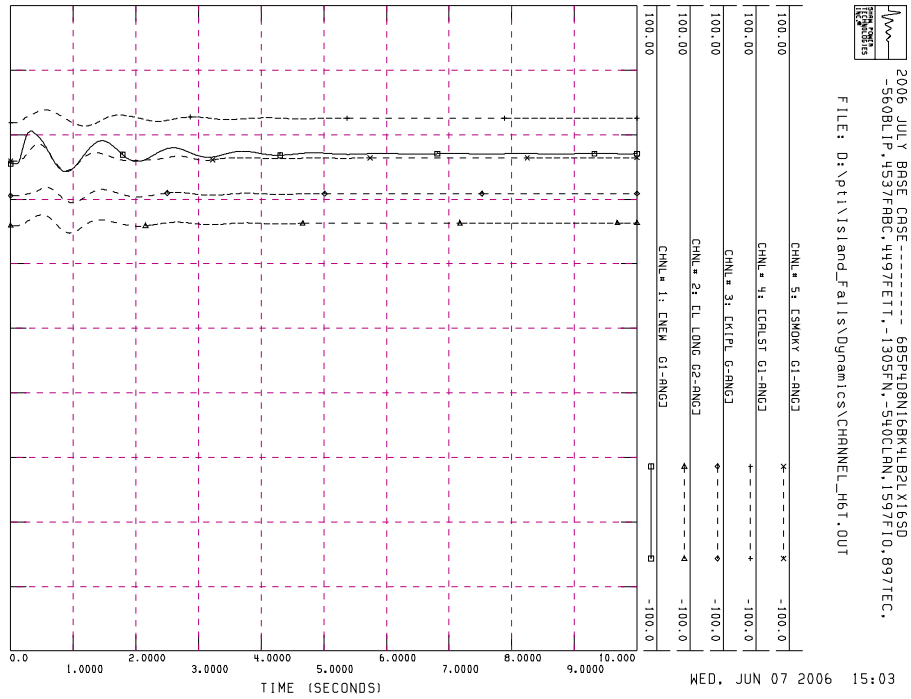
TSC1 - Island Falls O/S:

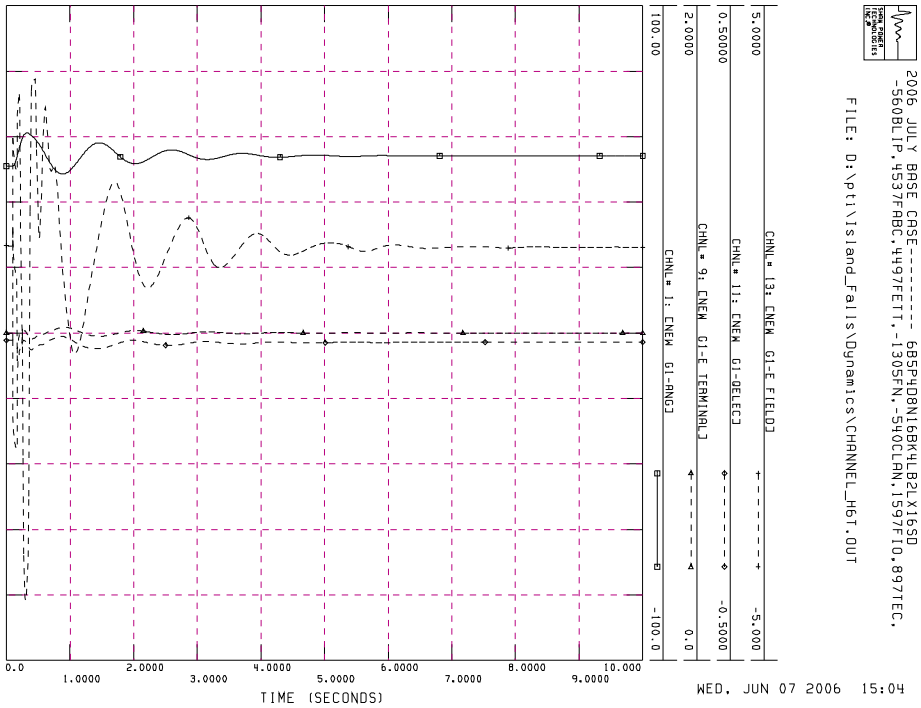


TSC1 - Island Falls I/S:

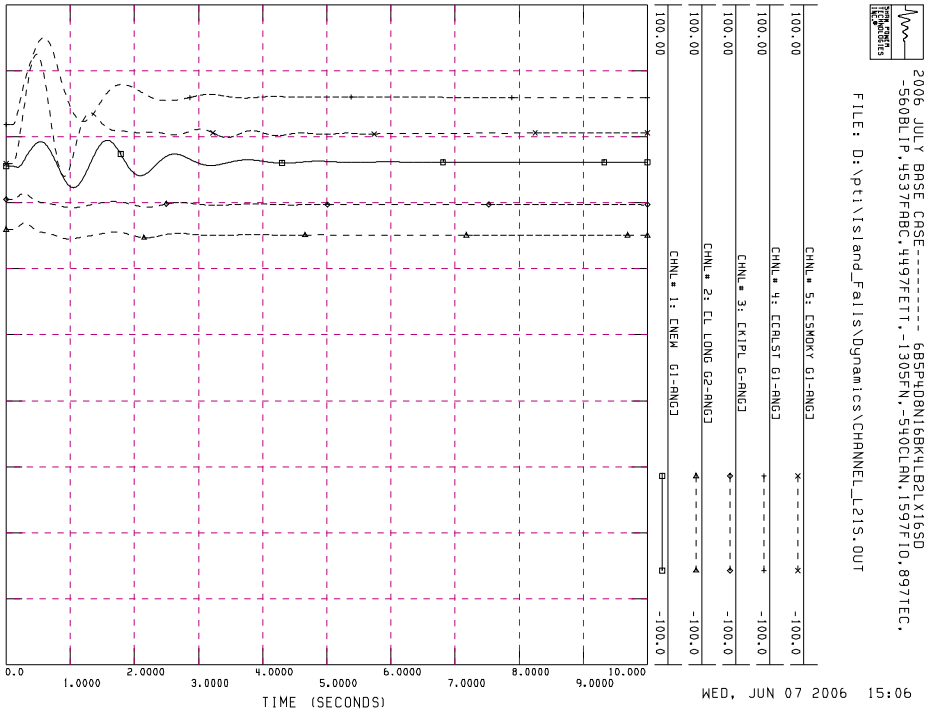


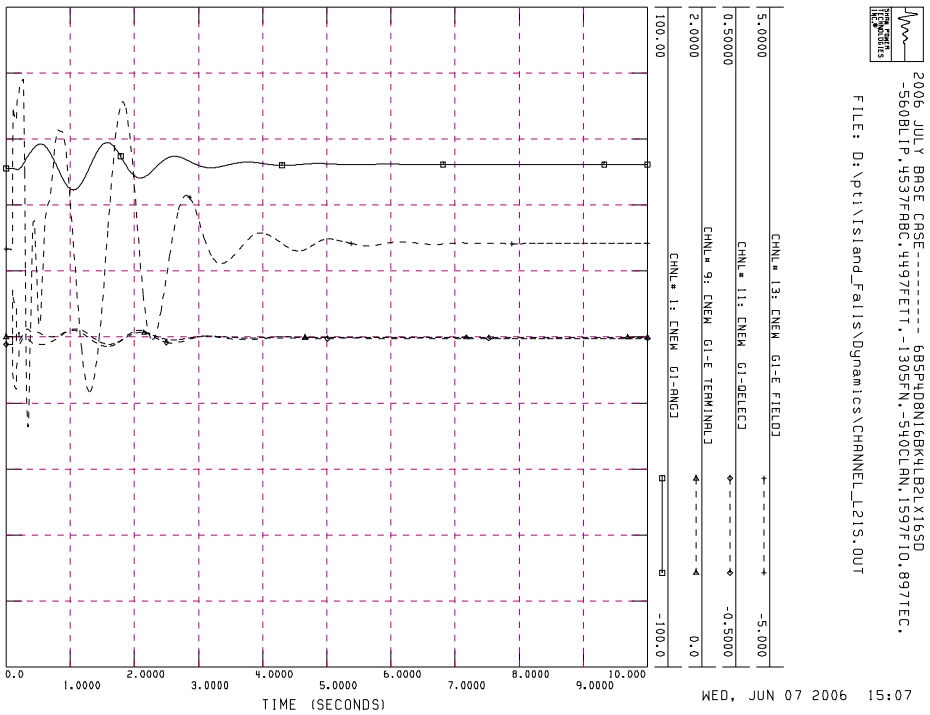
TSC2 - Normally cleared LLG fault on H6T @ Hunta (cleared in 66 ms at Hunta, 149 ms at Timmins)



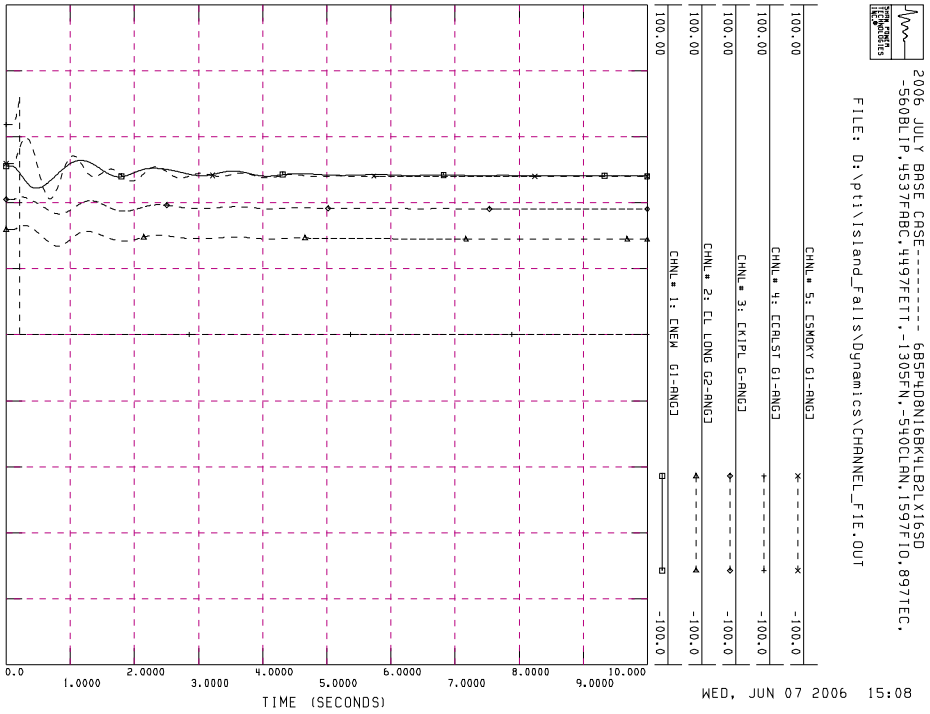


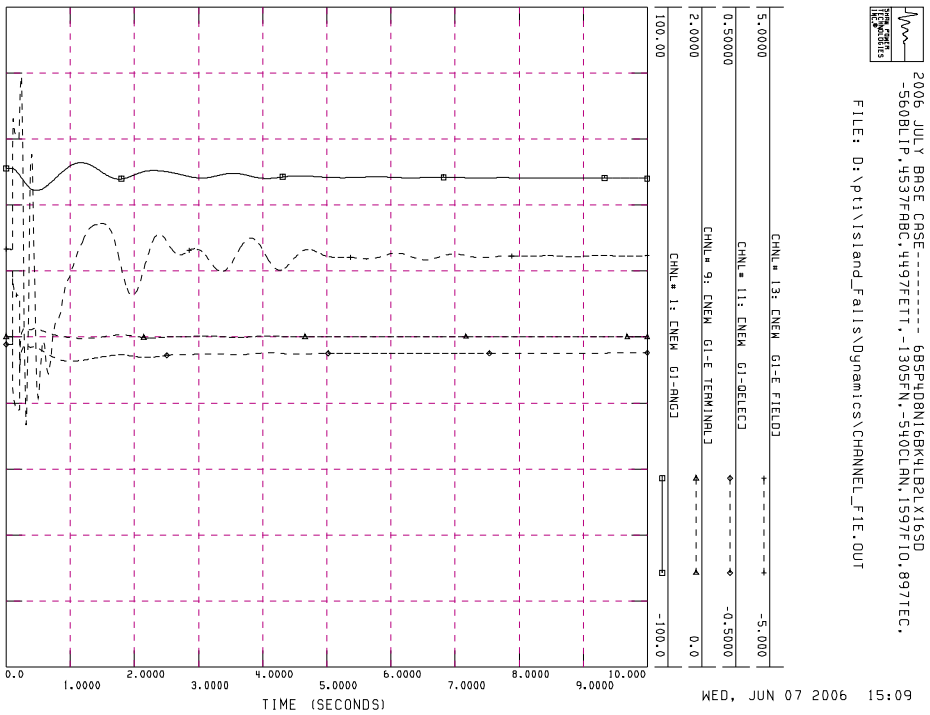
TSC3 - Normally cleared LLG fault on L21S @ Kapuskasing (cleared in 66 ms at Kapusk, 99 ms at Little Long)



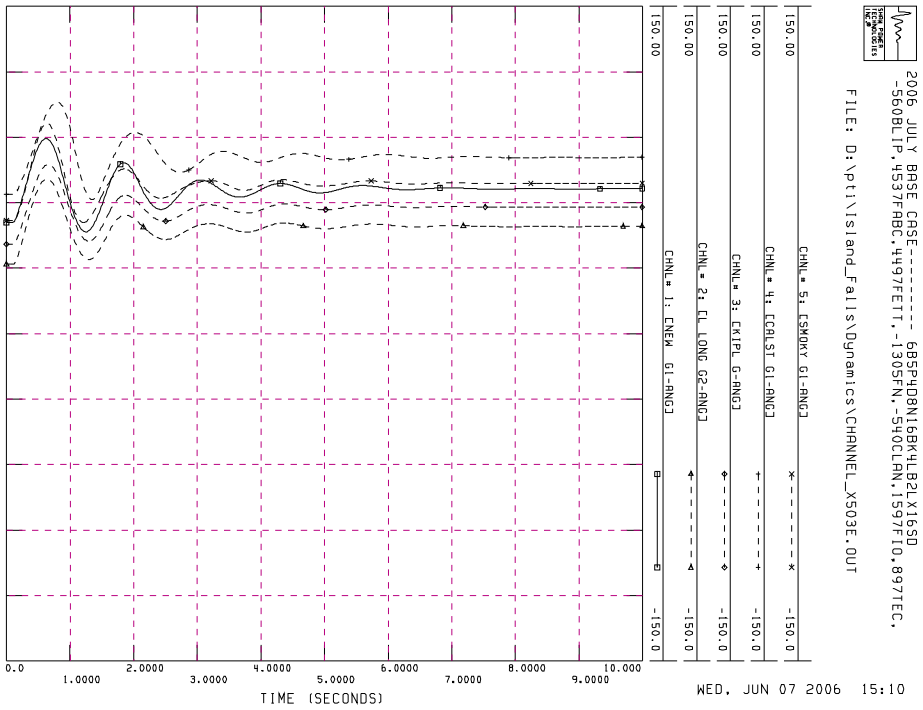


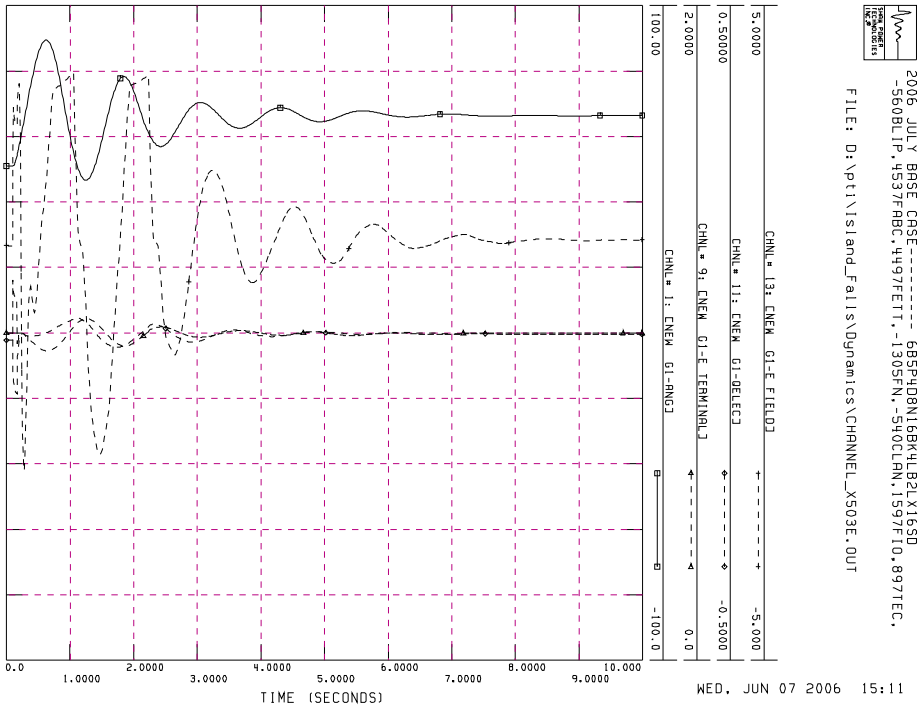
TSC4 - Normally cleared LLG fault on F1E @ Spruce Falls (cleared in 66 ms at Spruce F, 106 ms at Kapusk)





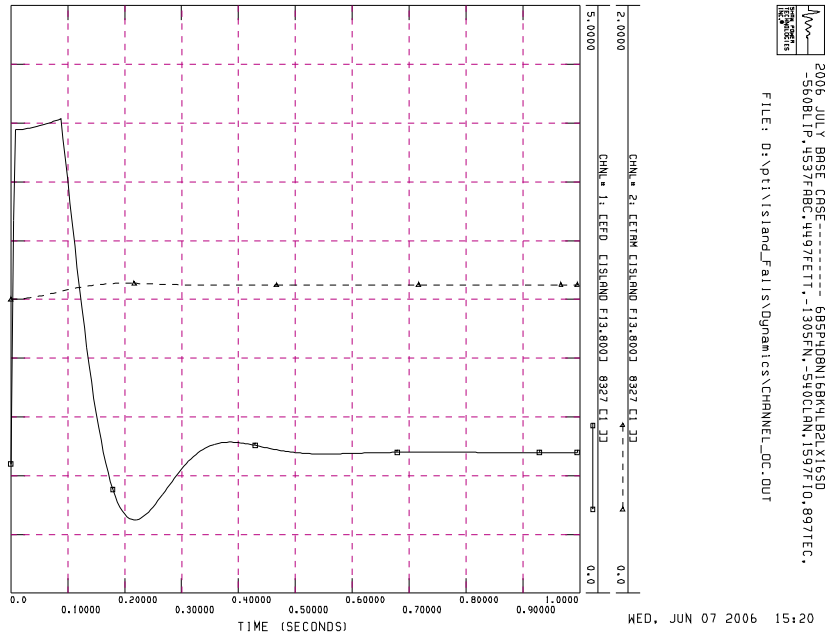
TSC5 - Normally cleared LLG fault on X503E @ Hanmer



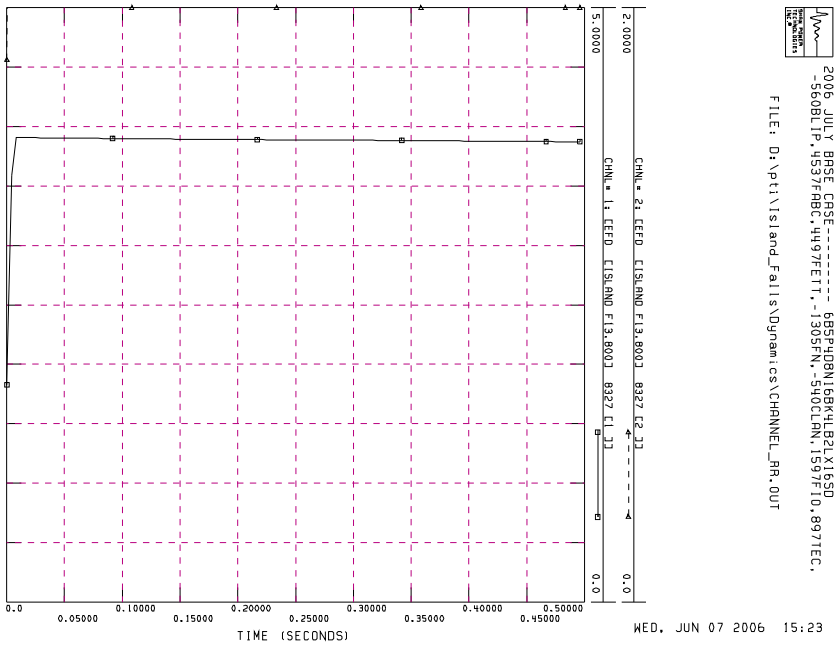


Automatic Excitation System Performance

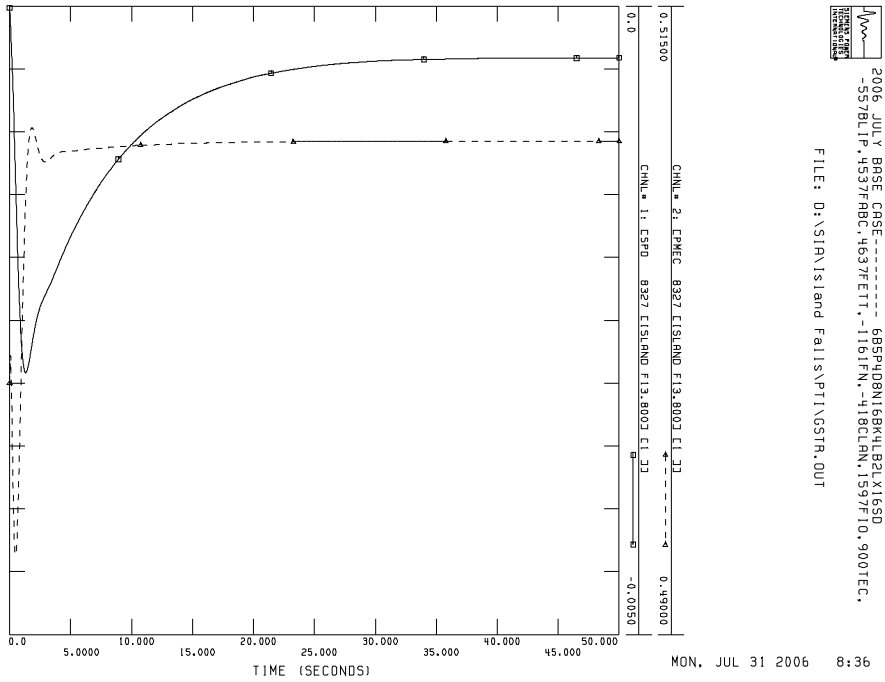
Open Circuit Test



Response Ratio Test –.



Speed Governor Performance



Hydro One Networks Inc.
483 Bay Street
Toronto, Ontario
M5G 2P5

CUSTOMER IMPACT ASSESSMENT

Proposed 20 MW Island Falls Hydraulic Generation Project Near the Town of Smooth Rock Falls

Revision: **1**

Date: **October 6, 2006**

Issued by: **Transmission System Planning Department**
System Investment Division
Hydro One Networks Inc.

Prepared by:

Bruce Parker
Transmission System Development
Hydro One Networks Inc.

Approved by:

Narendra Pattani
Manager
Transmission System Development
Hydro One Networks Inc.

Disclaimer

This Customer Impact Assessment was prepared based on preliminary information available about the connection of the proposed Island Falls Hydraulic Generation Project. It is intended to highlight significant impacts, if any, to affected transmission customers early in the project development process and thus allow an opportunity for these parties to bring forward any concerns that they may have including those needed for the review of the connection and for any possible application for leave to construct. Subsequent changes to the required modifications or the implementation plan may affect the impacts of the proposed connection identified in this Customer Impact Assessment. The results of this Customer Impact Assessment and the estimate of the outage requirements are also subject to change to accommodate the requirements of the IESO and other regulatory or municipal authority requirements.

Hydro One Networks shall not be liable to any third party which uses the results of the Customer Impact Assessment under any circumstances whatsoever, for any indirect or consequential damages, loss of profit or revenues, business interruption losses, loss of contract or loss of goodwill, special damages, punitive or exemplary damages, whether any of the said liability, loss or damages, arises in contract, tort or otherwise.

PRELIMINARY CUSTOMER IMPACT ASSESSMENT

PROPOSED 20 MW ISLAND FALLS
HYDRAULIC GENERATION PROJECT
NEAR THE TOWN OF SMOOTH ROCK FALLS

1.0 INTRODUCTION

1.1 Scope of the Study

This study covers the impact of the connection of the Island Falls Hydraulic Generation Project (IFHGP) on the Hydro One Networks Inc. (Hydro One) system in the area.

This study does not evaluate the overall impact of the IFHGP on the bulk system. The impact of IFHGP on the bulk system is the subject of the System Impact Assessment (SIA) which is issued by the Independent Electricity System Operator (IESO).

1.2 Background

Canadian Hydro Developers is developing the Island Falls hydraulic generation station near the town of Smooth Rock Falls, Ontario. The Island Falls Hydraulic Generation Project (IFHGP) comprises two hydraulic generators with a maximum capacity of 10 MW each. The generators are connected to the 115kV network through a 13.8/115 kV stepup transformer. The facility will be connected to Hydro One's network through a 23 km 115 kV customer owned line. The customer line is tapped to circuit H9K approximately 5.5 km west of Malette Craft Junction (which is approximately 34 km Northwest of Hunta SS). A simplified diagram of the connection to H9K is provided in Figure 1.

A System Impact Assessment (SIA) has already been issued by IESO [1] and has served as a source of information for this study.

2.0 METHODOLOGY & CRITERIA

2.1 Voltage Performance - Planning Criteria

To establish the impact of incorporating the IFHGP, the following post-fault voltage decline criteria were applied:

- At the Bulk Electricity System level (115kV and up): The loss of a single transmission circuit should not result in a voltage decline greater than 10% for pre- and post- transformer tap-changer action
- The maximum and minimum phase-to-phase voltages given in the IESO's Transmission Assessment Criteria and Canadian Standard Association document CAN-3-C235-83 were considered. However in Northern Ontario, the maximum continuous voltage for the 230 and 115kV systems can be as high as 260kV and 132kV respectively. [from IESO document IMO_REQ_0041 Issue 2.0]

The voltage performance on Hydro One customers was assessed by monitoring the voltage performance of customers connected to circuit H9K.

2.2 Power System Analysis

Power System Analysis is an integral part of the transmission system evaluation process. Two relevant aspects of Power System Analysis were used for this assessment, namely:

a. Short-circuit Studies: A Short Circuit Analysis program, was used to determine the impact on customers. Typical values were used when necessary.

b. Load Flow Studies: An AC load flow program was used to set up a base case with the IFHGP facility.

3.0 SHORT-CIRCUIT STUDIES

Short-circuit studies were carried out to assess the fault contribution when the new IFHGP facilities are placed in-service. The impact of the new facilities on the fault levels at customers supplied by H9K were analyzed. The impact on customers not supplied by H9K was deemed to be not significant enough to be part of the study.

The study results are summarized in Tables 1 and 2 below showing both symmetric and asymmetric fault currents in kA. Table 1 shows the existing fault levels based on the following assumptions:

- All existing generating facilities in-service in the area.
- The maximum pre-fault voltage considered for the two voltage levels is shown on the table below.

Prefault voltages (kV)	
Level	**Prefault**
220	260
115	132
13.8	14.5
12.5	13.1
4.16	4.4

Table 1: Present Fault Levels

Bus Name	***Fault Levels (kA)***			
	Symmetrical		***Asymmetrical***	
	3-Phase	***L-G***	***3-Phase***	***L-G***
Carmichael DS 118 kV	2.63	1.62	2.65	1.62
Fauquier DS 118 kV	4.15	2.66	4.15	2.66
Hunta SS 118 kV	8.84	5.52	9.08	5.61
Smooth Rock Falls DS 118 kV	5.03	2.88	5.03	2.88
Tembec Malette Kraft 118 kV	5.17	2.86	5.20	2.86
Tambec Malette Kraft 13.8 kV	12.85	5.84	17.16	8.06
Fauquier DS 12.5 kV	1.65	1.67	1.78	1.84
Smooth Rock Falls DS 12.5 kV	5.96	6.42	6.31	6.92
Carmichael GS 4.16 kV	28.95	12.44	35.87	16.71

Table 2: After Incorporation of IFHGP

Bus Name	*Fault Levels (kA)*			
	Symmetrical		*Asymmetrical*	
	3-Phase	*L-G*	*3-Phase*	*L-G*
Carmichael DS 118 kV	2.68	1.69	2.69	1.69
Fauquier DS 118 kV	4.28	2.87	4.28	2.87
Hunta SS 118 kV	9.22	5.98	9.47	6.07
Smooth Rock Falls DS 118 kV	5.60	3.89	5.61	3.90
Tembec Malette Kraft 118 kV	5.62	3.62	5.66	3.63
Tambec Malette Kraft 13.8 kV	12.95	5.85	17.32	8.08
Fauquier DS 12.5 kV	1.65	1.67	1.82	1.84
Smooth Rock Falls DS 12.5 kV	6.03	6.48	6.39	6.98
Carmichael GS 4.16 kV	29.05	12.46	36.02	16.73

Table 2 shows that the fault levels after the incorporation of IFHGP meet maximum symmetrical three-phase and single line-to-ground faults (kA) of 220 and 115 kV stations as set out in Appendix 2 of the *Transmission System Code* (**TSC**) [3] and reproduced below. It also meets the requirements of Hydro One equipment in the stations identified.

Nominal Voltage (kV)	*Max. 3-Phase Fault (kA)*	*Max. SLG Fault (kA)*
115	50	50
13.8	21	10

4.0 LOAD FLOW STUDIES

Load flow studies were carried out to analyse the impact of the new facilities and loads on the voltage performance of Hydro One customers in the affected area.

The load flow model used for the load flow analysis performed by Hydro One was based on information supplied by the IESO.

4.1 Base Cases

The 2006 Summer Peak loadflow prepared by the IESO served as a basis this study. Two extreme Base Case conditions were used to assess the impact of the IFHGP on Hydro One customers. These conditions are the same ones that were considered for the load flow analysis in the SIA [1] and are characterized by the load/generation imbalance in the area encompassed by circuits H9k and L20D. The two dispatch Base Case conditions are defined in the Table below:

Case	Condition	Area Load (MW)	Area Generation (MW)
I	Over Generation	71	307
II	Under Generation	210	33

The conditions represent worst case scenarios and cover the entire range of possible power inbalance conditions that may exist in the study area.

4.3 Contingency Analysis

Four credible contingency conditions were identified as being potentially critical after the connection of IFHGP and were studied with both dispatch conditions. These contingencies were:

Contingency #1: Loss of circuit L21S

Contingency #2: Loss of circuit K38S

Contingency #3: Loss of circuit F1E

Contingency #4: Loss of Island Falls Dedicated Line

Simulation of Contingency #1 assumed the same post-contingency control actions used in the SIA studies, namely approximately 50 MW of generation rejection for Case I and cross trip of K38S for Case II.

Results for the contingency analysis are summarized in Tables 3 to 10. The tables show the voltage immediately after the contingency (**IMM**) and after ULTC operation (**ULTC**). The percentage changes in relation to the pre-contingency values are also provided.

The contingency analysis performed indicate that the post-contingency voltage performance at the monitored stations is acceptable.

Circuit flows were also monitored although the impact of IFHGP on these flows fall within the scope of the SIA carried out by the IESO. It should be noted however that, as far as flow ratings are concerned, the findings of this loadflow study were consistent with those of the SIA.

It is reasonable to conclude that the impact of these contingencies on customer's facilities is acceptable.

Table 3: Case I – Over Generation - Contingency #1 - Loss of L21S (Generation Rejection of 47 MW) Voltage Performance

Bus Name	*Base Case*	*IMM*	*ULTC*	*%IMM*	*%ULTC*
Carmichael DS 118 kV	126.9	125.8	125.3	-0.9	-1.2
Fauquier DS 118 kV	127.0	125.9	125.5	-0.9	-1.2
Hunta SS 118 kV	128.2	127.8	127.8	-0.3	-0.3
Smooth Rock Falls DS 118 kV	128.2	127.5	127.3	-0.6	-0.7
Tembec Malette Kraft 118 kV	128.3	127.4	127.3	-0.7	-0.8
Tambec Malette Kraft 13.8 kV	13.9	13.9	13.8	-0.6	-0.7
Fauquier DS 12.5 kV	15.4	15.3	15.2	-0.9	-1.2
Smooth Rock Falls DS 12.5 kV	13.3	13.2	13.2	-0.6	-0.7
Carmichael GS 4.16 kV	4.2	4.2	4.2	0.0	0.0

Table 4: Case I – Over Generation - Contingency #2 - Loss of K38S
Voltage Performance

Bus Name	*Base Case*	*IMM*	*ULTC*	*%IMM*	*%ULTC*
Carmichael DS 118 kV	126.9	130.8	130.9	3.1	3.1
Fauquier DS 118 kV	127.0	130.7	130.8	2.9	3.0
Hunta SS 118 kV	128.2	128.7	128.7	0.4	0.4
Smooth Rock Falls DS 118 kV	128.2	129.7	129.7	1.1	1.1
Tembec Malette Kraft 118 kV	128.3	129.9	129.9	1.2	1.3
Tambec Malette Kraft 13.8 kV	13.9	14.1	14.1	1.1	1.1
Fauquier DS 12.5 kV	15.4	15.9	15.9	2.9	3.0
Smooth Rock Falls DS 12.5 kV	13.3	13.4	13.4	1.1	1.1
Carmichael GS 4.16 kV	4.2	4.2	4.2	0.8	0.9

Table 5: Case I – Over Generation - Contingency #3 - Loss of F1E
Voltage Performance

Bus Name	*Base Case*	*IMM*	*ULTC*	*%IMM*	*%ULTC*
Carmichael DS 118 kV	126.9	127.0	127.0	0.1	0.1
Fauquier DS 118 kV	127.0	127.2	127.2	0.1	0.1
Hunta SS 118 kV	128.2	128.6	128.6	0.3	0.3
Smooth Rock Falls DS 118 kV	128.2	128.6	128.6	0.3	0.3
Tembec Malette Kraft 118 kV	128.3	128.7	128.7	0.3	0.3
Tambec Malette Kraft 13.8 kV	13.9	14.0	14.0	0.2	0.2
Fauquier DS 12.5 kV	15.4	15.5	15.5	0.1	0.1
Smooth Rock Falls DS 12.5 kV	13.3	13.3	13.3	0.3	0.3
Carmichael GS 4.16 kV	4.2	4.2	4.2	0.0	0.0

Table 6: Case I – Over Generation - Contingency #4 - Loss of Island Falls Dedicated Line
Voltage Performance

Bus Name	*Base Case*	*IMM*	*ULTC*	*%IMM*	*%ULTC*
Carmichael DS 118 kV	126.9	126.4	126.4	-0.4	-0.4
Fauquier DS 118 kV	127.0	126.5	126.5	-0.4	-0.4
Hunta SS 118 kV	128.2	128.2	128.2	0.0	0.0
Smooth Rock Falls DS 118 kV	128.2	127.7	127.7	-0.4	-0.4
Tembec Malette Kraft 118 kV	128.3	127.6	127.6	-0.5	-0.5
Tambec Malette Kraft 13.8 kV	13.9	13.9	13.9	-0.4	-0.4
Fauquier DS 12.5 kV	15.4	15.4	15.4	-0.4	-0.4
Smooth Rock Falls DS 12.5 kV	13.3	13.2	13.2	-0.4	-0.4
Carmichael GS 4.16 kV	4.2	4.2	4.2	0.0	0.0

Table 7: Case II – Under Generation - Contingency #1 - Loss of L21S (Cross Tripping of K38S) Voltage Performance

Bus Name	*Base Case*	*IMM*	*ULTC*	*%IMM*	*%ULTC*
Carmichael DS 118 kV	125.1	125.2	125.2	0.1	0.1
Fauquier DS 118 kV	125.3	125.4	125.4	0.1	0.1
Hunta SS 118 kV	129.4	129.5	129.5	0.0	0.0
Smooth Rock Falls DS 118 kV	127.9	128.0	128.0	0.0	0.0
Tembec Malette Kraft 118 kV	127.7	127.7	127.7	0.0	0.0
Tambec Malette Kraft 13.8 kV	14.2	14.2	14.2	0.0	0.0
Fauquier DS 12.5 kV	15.2	15.2	15.2	0.1	0.1
Smooth Rock Falls DS 12.5 kV	13.2	13.2	13.2	0.0	0.0
Carmichael GS 4.16 kV	4.2	4.2	4.2	0.0	0.0

Table 8: Case II – Under Generation - Contingency #2 - Loss of K38S Voltage Performance

Bus Name	*Base Case*	*IMM*	*ULTC*	*%IMM*	*%ULTC*
Carmichael DS 118 kV	125.1	125.2	125.2	0.1	0.1
Fauquier DS 118 kV	125.3	125.4	125.4	0.1	0.1
Hunta SS 118 kV	129.4	129.5	129.5	0.0	0.0
Smooth Rock Falls DS 118 kV	127.9	128.0	128.0	0.0	0.0
Tembec Malette Kraft 118 kV	127.7	127.7	127.7	0.0	0.0
Tambec Malette Kraft 13.8 kV	14.2	14.2	14.2	0.0	0.0
Fauquier DS 12.5 kV	15.2	15.2	15.2	0.1	0.1
Smooth Rock Falls DS 12.5 kV	13.2	13.2	13.2	0.0	0.0
Carmichael GS 4.16 kV	4.2	4.2	4.2	0.0	0.0

Table 9: Case II – Under Generation - Contingency #3 - Loss of F1E Voltage Performance

Bus Name	*Base Case*	*IMM*	*ULTC*	*%IMM*	*%ULTC*
Carmichael DS 118 kV	125.1	125.4	125.4	0.3	0.3
Fauquier DS 118 kV	125.3	125.6	125.6	0.2	0.2
Hunta SS 118 kV	129.4	129.2	129.2	-0.2	-0.2
Smooth Rock Falls DS 118 kV	127.9	127.9	127.9	0.0	0.0
Tembec Malette Kraft 118 kV	127.7	127.7	127.7	0.0	0.0
Tambec Malette Kraft 13.8 kV	14.2	14.2	14.2	0.0	0.0
Fauquier DS 12.5 kV	15.2	15.2	15.2	0.2	0.2
Smooth Rock Falls DS 12.5 kV	13.2	13.2	13.2	0.0	0.0
Carmichael GS 4.16 kV	4.2	4.2	4.2	0.0	0.0

Table 10: Case II – Under Generation - Contingency #4 - Loss of Island Falls Dedicated Line
Voltage Performance

Bus Name	*Base Case*	*IMM*	*ULTC*	*%IMM*	*%ULTC*
Carmichael DS 118 kV	125.1	124.7	124.7	-0.3	-0.3
Fauquier DS 118 kV	125.3	124.8	124.8	-0.3	-0.4
Hunta SS 118 kV	129.4	129.2	129.2	-0.2	-0.2
Smooth Rock Falls DS 118 kV	127.9	127.4	127.4	-0.4	-0.4
Tembec Malette Kraft 118 kV	127.7	127.2	127.2	-0.4	-0.4
Tambec Malette Kraft 13.8 kV	14.2	14.1	14.1	-0.3	-0.3
Fauquier DS 12.5 kV	15.2	15.1	15.1	-0.3	-0.4
Smooth Rock Falls DS 12.5 kV	13.2	13.2	13.2	-0.4	-0.4
Carmichael GS 4.16 kV	4.2	4.2	4.2	0.0	0.0

5.0 CUSTOMER RELIABILITY

The incorporation of the IFHGP will not deteriorate the reliability of the study area. The exposure caused by an additional 23 km of transmission line connected to H9K will be mitigated by the fact that a circuit breaker will be located at the connection point. This connection arrangement will ensure that the reliability impact of the new line will be minimal.

6.0 CONCLUSIONS AND RECOMMENDATIONS

In the connection approval process, a Customer Impact Assessment (**CIA**) Report is carried out for a specific connection proposal that has been submitted to the IESO for System Impact Assessment (SIA). This study includes short circuit and voltage performance analyses on customer facilities directly connected to circuit H9K. Extreme over and under generation dispatch scenarios for the area used for the SIA were also used for this study.

The studies carried out indicated that no adverse impact on voltage performance by the IFHGP to the customers in the area would be expected. The increased short circuit levels are marginal and well within Hydro One equipment ratings.

7.0 REFERENCES

[1] Independent Electricity System Operator (IESO), ***System Impact Assessment Report, Island Falls Hydraulic Generation Development Project***, CAA ID 2004-155, July 6, 2006.

[2] Independent Electricity Market Operator (IMO), ***IMO Transmission Assessment Criteria,*** Issue 2.0.

[3] Ontario Energy Board, **Transmission System Code**, July 25, 2005

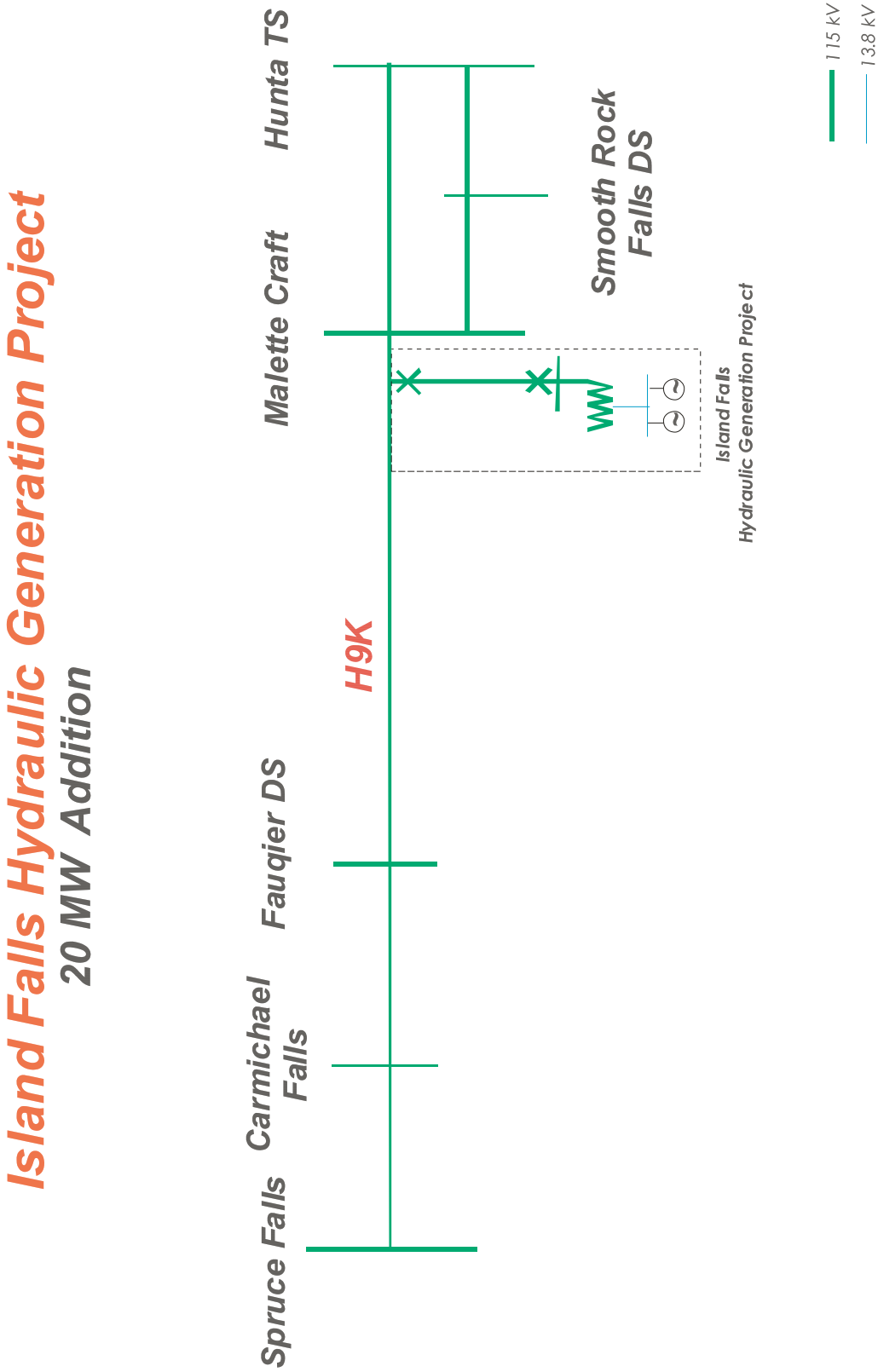

Island Falls Hydraulic Generation Project
20 MW Addition
Hunta TS
Malette Craft
Smooth Rock Falls DS
Island Falls Hydraulic Generation Project
H9K
Fauqier DS
Carmichael Falls
Spruce Falls
115 kV
13.8 kV

Figure 1

Construction Activities

Construction Phase	Month																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Site preparation																								
Upgrade existing access roads																								
Clear right-of-ways and build access roads																								
Prepare abutment, channel, and powerhouse areas																								
Prepare soil and rock borrow areas																								
Clear headpond																								
Powerhouse Construction																								
Excavate powerhouse																								
Construct concrete base slabs and walls																								
Construct draft tubes and equipment bases																								
Install embedded turbine components																								
Construct superstructure and steelwork																								
Backfill and landscape																								
Install turbine, generator, and auxiliary equipment																								
Install mechanical works																								
Install electrical works																								
Spillway and Retaining Wall Dam																								
Construct cofferdam																								
Excavate spillway and weir areas																								
Construct concrete base slabs and walls																								
Install spillway gates and hoists																								
Remove cofferdam																								
Transmission Infrastructure Construction																								
Build substation at plant																								
Construct transmission lines																								
Interconnect substation																								
Commission Plant																								