



Footprints to Follow

**Ontario Aboriginal
Waterpower Case Studies**



Ontario

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Welcome – Aaniin, Boozhoo, Kwey, Tansi, She:kon

A core tenet of the Ontario Waterpower Association's (OWA's) approach to achieving its objectives has always been working in collaboration with those who have an interest in what we do and how we do it. The OWA has long recognized the importance of positive and productive relationships with Aboriginal organizations. An emergent good news story, particularly in waterpower development, is the growth of the participation of Aboriginal communities. Aboriginal communities have moved from being partners in a waterpower project to the proponent of the project.

Waterpower projects are long-term ventures and investments. Projects can take years to bring into service and a decade or more to show a simple payback. However, once in service, a waterpower facility literally lasts forever. Aboriginal partners and proponents taking this long-term view are realizing the multigenerational opportunity to support local capacity development, training, job creation and community growth. Revenue generated from waterpower development can be reinvested in the project to increase the level of ownership, used for other community needs such as housing and infrastructure development, or investing in other economic opportunities.

Ontario is fortunate to have significant untapped waterpower potential. In the north in particular realizing this potential will undoubtedly involve the participation of Aboriginal communities. Importantly, a successful industry/First Nations relationship can help establish a business foundation for further expansion.

This catalogue aims to share first hand stories in proven Aboriginal communities' waterpower developments. Each story, project and partnership is extremely different. Individually, they provide case examples of successes. Collectively, they can serve to inform approaches to future projects.

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**Please note that some First Nation partners are also members of the OWA*

**Definitions: Aaniin (Oji-cree), Boozhoo (Ojibwe), Kwey (Algonquin), Tansi (Cree), She:kon (Mohawk)*



High Falls/Manitou Falls

Case Study 1

This 6 MW, two-part project is 100% fully owned and controlled by the Pic River First Nation. The project's design leverages Pic River's significant experience in the hydro industry and the associated aspects of Power Purchase Agreements (PPAs), Ministry of Natural Resources and Forestry (MNRF)/Ministry of the Environment (MOE)/Federal environmental assessment (EA) requirements, third-party issue mitigation, community consultation, and joint venture negotiations. Pic River is undertaking extensive endangered species mitigation measures and is ensuring the highest degree of environmental accountability throughout the project's lifespan. Both sites have readily accessible transmission capacity and will add significantly to Pic River's mix of renewable energy technologies.

Project Name	High Falls/Manitou Falls
Developer	Pic River Energy
First Nation	Ojibways of the Pic River First Nation
Location (Nearest Town Centre)	Manitouwadge, Ontario
Size (MW)	2.8 MW/3.2 MW
Year Started (including EA)	2009
Year Commissioned (In Service)	2018 est.
Number of Facilities included in the project	2
Name of Each Facility	Manitou Falls GS/High Falls GS
River	Pic River
Environmental Initiatives	Pic River is undertaking extensive endangered species measures to address potentially impacted species – such as Lake Sturgeon. They are also ensuring the highest degree of environmental accountability throughout the project's lifespan.
Fast Facts	Both sites will add significantly to Pic River's mix of renewable energy technologies. The experience of the Ojibways of the Pic River First Nation shows what twenty years of work in the power sector can do.
Website	www.picriverenergy.com



Gitchi Animki (White River) Hydroelectric Project

Case Study 2

The Gitchi Animki (White River) project is being undertaken by the Pic Mobert Hydro Power Joint Venture, a partnership of subsidiary companies of the Pic Mobert First Nation and Regional Power Inc. The Gitchi Animki Hydroelectric Project consists of two waterpower generating stations with a combined generating capacity of 18.9 MW, Gitchi Animki Bezhig, and Gitchi Animki Niizh. Gitchi Animki Bezhig, once completed, will also replace the function of an old Ministry of Natural Resources and Forestry regulating dam that manages lake levels and flood flows on White Lake. The development is located in the traditional territory of the Netamasakomik People of the Pic Mobert First Nation, and was one of the first contracted under the Ontario Power Authority's Feed-in Tariff Program.

Project Name	Gitchi Animki (White River) Hydroelectric Project
Developer	Pic Mobert Hydro Inc.
First Nation	Pic Mobert First Nation
Location (Nearest Town Centre)	White River, Ontario
Size (MW)	18.9 MW Total – 10 MW Niizh (Lower) Site – 8.9 MW, Bezhig (Upper) Site
Year Started (including EA)	2005
Year Commissioned (In Service)	2015 est.
Number of Facilities included in the project	2
Name of Each Facility	Niizh (Lower) Site - Bezhig (Upper) Site
River	White River
Environmental Initiatives	The development is located in a provincial park which has led to close cooperation with Ontario parks on various recreational initiatives. During the planning stages there was a habitat compensation area developed, collection of baseline and post operation data and information collected to further the knowledge base.
Fast Facts	<p>The project will use 21 km of new transmission line. The existing MNRF-owned regulating dam plays an important role in managing lake levels for recreational and tourism activities on White Lake, as well as managing flood waters that have periodically flooded the Pic Mobert community and the White Lake Provincial Park. The developments will provide a much improved alternative to the existing regulating dam which was deemed by independent consultants to be in need of significant and costly repairs to ensure the long-term performance of the dam.</p> <p>The operators of the facilities will be hired from and trained within the Pic Mobert community. Pic Mobert representatives are working together with Confederation College, Anishinabek Employment & Training Services and Regional Power, to design a program that will provide training in the unique skills needed to successfully operate a small hydro plant.</p>
Website	www.regionalpower.com



Lower Mattagami River Project

Case Study 3

The Lower Mattagami River Project is being developed by Ontario Power Generation (OPG) and the Moose Cree First Nation, which will have up to a 25 per cent equity share in the project. The Lower Mattagami Hydroelectric Complex is made up of four generating stations on the Mattagami River. The four stations are (from north to south): Little Long, Smoky Falls, Harmon, and Kipling. They are about 70 kilometres northeast of Kapuskasing and about 150 kilometres upstream of Moose Factory and Moosonee. Smoky Falls was built in 1931 and it has a capacity of about 50 MW. OPG will replace it with a new generating station that will make more efficient use of the available water. There will be new manmade structures such as an approach channel, intake and tailrace. The new generating station will be able to pass more water and would have a size of almost 270 MW. The old dams and spillways for the station will remain.

Little Long, Harmon and Kipling were all built in the mid-1960s. Each station has two generators to make electricity. Little Long has a capacity of 135 MW, Harmon is 140 MW, and Kipling is 155 MW. Since the new Smoky Falls facility will now be able to use more water efficiently, OPG will also extend the capacity of the other three plants by adding a third generator to each of the three existing generating stations. Little Long will have a size of 200 MW. Harmon and Kipling will each be about 240 MW. Together the entire project will add nearly 440 MW of new capacity to the system without creating new dams.

Project Name	Lower Mattagami River Project
Developer	Ontario Power Generation (OPG)
First Nation	Moose Cree First Nation (MCFN)
Location (Nearest Town Centre)	Approximately 70 km northeast of Kapuskasing, 200 km south of Moose Factory
Size (MW)	The development will expand the capacity of four existing stations from 486 MW to 924 MW
Year Started (including EA)	Provincial Environmental Assessment (EA) began in the 1980s with approval in 1994. Construction began in 2010.
Year Commissioned (In Service)	Units will come on-line/in-service in 2014-2015
Number of Facilities included in the project	Four Facilities – with six generating units in total (three units at Smoky Falls GS, one additional unit at Little Long GS, Harmon GS, and Kipling GS).
Name of Each Facility	Smoky Falls Generating Station (GS), Little Long GS, Harmon GS, and Kipling GS
River	Mattagami River



Lower Mattagami River Project

Lower Mattagami River Project *continued*

Environmental Initiatives	<p>As part of the Federal Environmental Assessment (EA), OPG and MCFN worked in collaboration to produce a Traditional Ecological Knowledge section in the Comprehensive Study Report.</p> <p>OPG and MCFN as well as TTN and MoCreebec have worked collaboratively to form the Mattagami Extension Coordinating Committee (MECC). The mandate of the MECC is to act as an advisory body to assist in ensuring that all the Terms and Conditions of the EA Approval for the LMRP are addressed to the satisfaction of all MECC members.</p> <p>OPG and MCFN have worked collaboratively to identify potential fisheries enhancement measures resulting in a report and literature review that recommends several potential fisheries enhancement measures within the Moose River Basin.</p> <p>OPG and MCFN (as well as TTN) have worked collaboratively to create the LMRP Environmental Working Group (EWG). The EWG meets on a weekly basis over teleconference and meets face to face every other month.</p> <p>OPG and MCFN have also worked together on a Cultural Working Group to develop cultural projects including:</p> <ul style="list-style-type: none"> – a Moose Cree Dictionary which provides both the syllabic and alphabetic translations of about 6,000 words. – Shapituan Shelter - located at the Cree Cultural Interpretative Center on Moose Factory Island. The Shapituan is used for cultural teaching and events year round.
Fast Facts	<p>Partnerships bring economic benefits to both parties, through training, employment, and contracting opportunities. As well, permanent capacity is created in First Nations and Métis communities.</p> <p>The communities involved in the Lower Mattagami Project have enjoyed more than \$300 million in contracting opportunities. Contracted goods and services include catering, security, surveying, electrical work, road construction, and transportation.</p> <p>Created as a resourcing method for the Lower Mattagami River project – the SIBI training-to-employment initiative offers the following services; Career counselling, Job preparedness training, Professional development, Trades exam preparation, Work placements, Employment referrals, Client supports (student allowances including transportation and child supports, initial employment costs, employee-employer relations support, and more). The initiative has helped the project exceed its Environmental Assessment requirement for 200 person years of employment for targeted Aboriginal community members.</p>
Website	www.opg.com



Umbata Falls

Case Study 4

The Umbata Falls Generating Station was developed by Innergex Renewable Energy Inc. for and on behalf of the Begetekong Power Corporation, the general partner of Umbata Falls Limited Partnership (UFLP). Begetekong and UFLP are majority owned by the Ojibways of the Pic River First Nation. Begetekong holds the majority of shares of UFLP, with the remainder owned by an affiliate of Innergex Renewable Energy Inc. Umbata Falls Generating Station is a 2-unit run-of-the-river hydroelectric generating facility with a nameplate capacity of 23 MW located on the White River. Thirty km of existing access roads have been upgraded to access the facility from Highway 17. This hydroelectric facility generates approximately 109,000 megawatt-hours of renewable energy per year.

Project Name	Umbata Falls
Developer	Innergex Renewable Energy Inc.
First Nation	Ojibways of the Pic River
Location (Nearest Town Centre)	The facility is located on the White River, a tributary of Lake Superior, some 30 kilometers southeast of Marathon, Ontario.
Size (MW)	23 MW
Year Started (including EA)	2002
Year Commissioned (In Service)	2008
River	White River
Environmental Initiatives	<p>A spawning and rearing habitat was designed for jackfish and lake perch which contributed to enhance the populations.</p> <p>The facility has been granted with EcoLogo certification, the only independent recognized environmental standard, for its reduced impact on environment. It is also eligible for the federal government's ecoENERGY initiative – a program, intended to support renewable energy in Canada, and offers a \$10/MWh incentive for the first ten years of operation.</p>
Fast Facts	<p>This project is not only a great partnership and a green initiative, it also tries to serve the best interests of the community. The facility site is open for visitors and informative signs were installed for the public to read. The visitors have access to the Umbata Falls and are invited to follow the Falls View Trail all the way to the Viewing Platform. The facility is managed in a way to reserve an aesthetic and ecological flow to the falls.</p> <p>During the construction, Innergex offered canoeing and kayaking enthusiasts free shuttles for the transportation of their boats.</p> <p>Two First Nation operators from the community were hired for the facility and the construction phase also offered work opportunities.</p>
Website	www.picriverenergy.com www.innergex.com



Wawatay Generating Station

Case Study 5

The Wawatay Generating Station is on the Black River, near Marathon, Ontario. It is also known as the Black River Generating Station. Wawatay was a Greenfield development with minimal environmental impact. This project was completed in 1992 and all of the electricity is sold under a long-term contract to OEFC (Ontario Electricity Financial Corporation is the successor of Ontario Hydro). An intake structure was constructed upstream of the existing control dam to efficiently direct flow to a combined 625 meter tunnel and penstock. A trifurcation in the penstock occurs to convey water to three horizontal Francis turbine / generator sets contained within the powerhouse structure. The water exits the turbines through a tailrace that was excavated from the river bank to channel water back to the natural river course. The Wawatay hydro project was the first Independent Power Producer (IPP) hydro project in Canada to involve a First Nation community. Regional Power regards the Wawatay Project as a benchmark for future hydroelectric projects.

Project Name	Wawatay Generating Station
Developer	Conwest (Regional Power Inc.)/Pic Heron Bay First Nation
First Nation	Pic Heron Bay First Nation
Location (Nearest Town Centre)	Marathon, Ontario
Size (MW)	13.5 MW
Year Started (including EA)	1986
Year Commissioned (In Service)	1992
River	Black River
Environmental Initiatives	The project also involved tailrace spawning enhancement, fish habitat nursery area, and visual quality detail. It is the first privately funded hydro project in Canada with First Nation partnership. Environmental obstacles were mitigated wherever possible; for example, Pic River took extra measures to ensure that newly hatched trout species were maintained in a special backwater way from the primary outflow area until they were mature enough to join the river's natural course.
Fast Facts	This is the first of many stations that were planned, negotiated and developed by Pic River FN. The site used to be an old logging site on the Black River. Over 60 band members played a significant role in the building and construction stages, laying the ground for a weir to collect water and a massive 148-foot drop to guide water into the station.
Website	www.regionalpower.com



Case Study 6

The Kapuskasing River Waterpower Project is a 22 MW development of four hydroelectric sites along the Kapuskasing River in northeastern Ontario. Development of the project began in 2005. Construction was initiated in 2010 and all four facilities were commissioned in 2013. What is unique about this project is how it successfully demonstrates a new business model for hydropower, through the collective partnerships of the four owners, which includes three First Nation communities (Brunswick House First Nation, Chapleau Ojibwe First Nation and Chapleau Cree First Nation) and the private developer, Hydromega Services Inc. Through the Environmental Assessment and approvals process, the project evolved from two 10 MW installations into four smaller hydro facilities with a total generating capacity of about 22 MW. This resulted in an increase in power generating capability and a simultaneous reduction in the ecological affects upstream.

Project Name	Kapuskasing River Waterpower Project
Developer	Hydromega Services Inc.
First Nation	Brunswick House First Nation Chapleau Ojibwe First Nation Chapleau Cree First Nation
Location (Nearest Town Centre)	Kapuskasing
Size (MW)	22 MW
Year Started (including EA)	2005
Year Commissioned (In Service)	2013
Number of Facilities included in the project	4
Name of Each Facility	Big Beaver Falls, Camp Three Rapids, White Otter Falls and Old Woman Falls
River	Kapuskasing River
Environmental Initiatives	This project went through the standard Environmental Assessment (EA) process. A monitoring program extends 10 years, to include research projects with the MNRF.
Fast Facts	Movie Documents the Kapuskasing Waterpower Project "Our Heritage, Our Future" www.owa.ca
Website	www.hydromega.com



Okikendawt

Case Study 7

The Okikendawt project is being developed by Hydromega Services Inc. and the Dokis First Nation and consists of one waterpower facility with an installed capacity of 10 MW. The project is located at the site of the Portage Dam on the French River in Ontario. The generation station will be located on Public Works and Government Services Canada (PWGSC) land. PWGSC operates two control structures on the French River and one water control structure on the Little French River. These structures are used to control the level of Lake Nipissing and to regulate flows on the French River and the Little French River. No new dam construction will be required to operate the proposed Okikendawt Generating Station. The new powerhouse will be built on the West Bank of the existing control structure at Portage Dam. In 2014 Pollution Probe recognized Dokis First Nation for championing a model of sustainable development, community building, and environmental and cultural stewardship.

Project Name	Okikendawt Hydroelectric Project
Developer	Hydromega Services inc.
First Nation	Dokis First Nation
Location (Nearest Town Centre)	Sturgeon Falls
Size (MW)	10 MW
Year Started (including EA)	2008
Year Commissioned (In Service)	2015
River	French River
Environmental Initiatives	The project's environment and cultural commitments include; protection of fisheries and endangered species habitats, archaeological site protection, historical Champlain Portage route restored, historical and cultural interpretation trail for canoeist, hikers, anglers, became profiled as heritage river, and additional environmental information made available for river users.
Fast Facts	Project earnings are being used for social development (health, education, livelihood). The project was also featured in Chris Henderson's book: Aboriginal Power.
Website	www.hydromega.com



Namewaminikan Waterpower Project

Case Study 8

Namewaminikan Hydro, in partnership with Animbiigoo Zaagi'igan Anishinabek (AZA), Biinjitiwaabik Zaaging Anishinaabek (BZA) and Bingwi Neyaashi Anishinaabek (BNA), is currently developing the Long Rapids (5.6 MW) and Twin Falls (4.4 MW) waterpower facilities on the Namewaminikan River, 15 km north of Beardmore, Ontario. Together, the two facilities form the Namewaminikan Waterpower Project. Namewaminikan Hydro Inc. is a subsidiary of AXOR Group, which specializes in the generation of renewable energy and presently owns and operates 54 MW of renewable waterpower throughout Canada, the majority of which was developed in partnership with local communities and First Nations. The construction of the Long Rapids and Twin Falls facilities will generate new economic opportunities for its First Nation partners. Similarly, its operation will provide new revenues to each community for future community development projects.

Project Name	Namewaminikan Waterpower Project
Developer	Namewaminikan Hydro Inc., a subsidiary of AXOR Group Inc.
First Nation	Animbiigoo Zaagi'igan Anishinabek (AZA) Biinjitiwaabik Zaaging Anishinaabek (BZA) Bingwi Neyaashi Anishinaabek (BNA)
Location (Nearest Town Centre)	Beardmore (Greenstone Municipality)
Size (MW)	10 MW
Year Started (including EA)	Early 2006
Year Commissioned (In Service)	Planned for December 2015
Number of Facilities included in the project	2
Name of Each Facility	Twin Falls (4.4 MW) Long Rapids (5.6 MW)
River	Namewaminikan River
Environmental Initiatives	The project will allow the creation of new walleye spawning habitat and new deep water overwintering habitat. The facilities will also be certified under the EcoLogo program, for their renewable low-impact electricity production. Finally, the project's long-term monitoring program will help enhance the body of knowledge linked to small waterpower developments.
Website	www.namewaminikanhydro.com

Obishikokaang Waasiganikewigamig/Lac Seul Generating Station (GS) achieved commercial operation February 18, 2009. Ontario Power Generation (OPG) and the Lac Seul First Nation formed a historic partnership in which the First Nation own 25 percent of the station. This station is also known by its Ojibway name, Obishikokaang Waasiganikewigamig, meaning "White Pine Narrows electricity generating building". White Pine Narrows is the original Ojibway name for the area where the station is located. The Lac Seul station consists of one 12 MW unit which is capable of generating approximately 52 million kilowatts of electricity per year.



Case Study 9

Based on its success with the Lac Seul Generating Station and the Lower Mattagami River Project, OPG continues to pursue prospective economic partnerships with First Nations and Métis communities that will provide for long-term commercial arrangements and respects the evolving relationship between First Nations and Métis peoples and broader society. Underscoring this work is OPG's acknowledgement of the inherent Aboriginal and Treaty rights of all First Nations and Métis communities. This remains an important aspect of the company's generation development program.

The company is very proud of the partnerships it has established, which range from longer-term, large development partnerships – to small partnerships designed for specific purposes such as research.

Project Name	Lac Seul Generating Station - Ojibway: Obishikokaang Waasiganikewigamig (meaning – White Pine Narrows Electricity Generating Building)
Developer	Ontario Power Generation
First Nation	Lac Seul First Nation
Location (Nearest Town Centre)	Located at the outlet of the Lac Seul reservoir on the English River in northwest Ontario. 100 km north of Dryden, Ontario
Size (MW)	29.3 MW
Year Started (including EA)	January 2006
Year Commissioned (In Service)	February 2009
River	English River
Environmental Initiatives	<p>The new generating unit utilizes oil lubricated shaft bearings but all in-water components use greaseless technology to prevent contamination of the English River. A high efficiency powerhouse lighting system, will help to minimize station service electricity consumption. Monitoring of bald eagles occurred throughout the construction phase of this project.</p> <p>A new 6,000 square metre fish spawning area has been created in the tailrace of the station using blast rock and round cobble rock.</p>
Fast Facts	Since going into service in 2009, Lac Seul GS has provided clean renewable energy to Ontarians, and proved to be a source of sustainable revenue for the Lac Seul First Nation, who maintain a 25 per cent share in the station. The station recently celebrated five years of operation.
Website	www.opg.com



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380 Armour Road, Suite 264 | Peterborough, Ontario, K9H 7L7
Toll Free (866) 743 1500 | Tel (705) 743 1500 | Fax (705) 743 1570 | info@owa.ca

www.owa.ca