Our Clean and Resilient Electric Future, **Powered by Water**

A Brief submitted to Infrastructure and Communities Canada in response to Engagement Paper on Canada's first National Infrastructure Assessment, "Building the Canada We Want in 2050."

July 2021

WATERPOWER CANADA
HYDROÉLECTRICITÉ CANADA

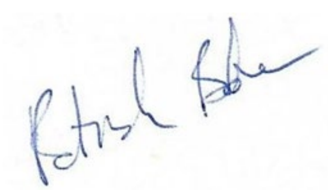
Letter from the President

Canada's abundance of clean, affordable and reliable hydroelectricity has been a major contributor to our nation's economic growth and quality of life. Maintaining and expanding this power generation, energy storage and transmission infrastructure developed during the past century is critical to Canada's continued prosperity and global leadership.

As we build back from the COVID-19 pandemic, there is unprecedented urgency to advance the infrastructure projects and investments that will enable Canada to achieve net-zero emissions by 2050 and to compete in a low-carbon global economy.

WaterPower Canada is proud to take the opportunity presented by the Engagement Paper on Canada's first National Infrastructure Assessment, "Building the Canada We Want in 2050," to discuss the central role that the hydropower sector will play as the largest source of renewable energy, and resilient backbone of our energy supply.

Sincerely,



Patrick Bateman

Interim President

WaterPower Canada

1. Introduction and Overview

Hydropower generation stations and their associated transmission infrastructure – while largely located beyond the day-to-day sightlines of most Canadians – are among the most consequential forms of infrastructure in terms of contributions to our economy and quality of life. They will indisputably be among the most important enablers of Canada's ability to achieve net-zero emissions by 2050 and to compete in a low-carbon global economy.

This brief presents an overview of the scope of hydropower infrastructure in Canada and the key role it plays in our energy supply. It outlines this infrastructure's resilience to climate change impacts, and the contribution it will make to climate change mitigation. Finally, it speaks to how the federal government can most fully empower our sector to continue to be a leader in renewable energy production, investment and job creation.

While we address "infrastructure" mainly in the traditional sense, the term is also increasingly understood to encompass natural and social infrastructure, and associated benefits and outcomes. Hydropower infrastructure also plays an important role within this broader construct:

- New project development and major redevelopment invariably occur based on consultation with, accommodation of the rights and interests of, and delivery of benefits to relevant Indigenous groups. Increasingly, such groups also have economic interests in hydroelectricity infrastructure. As such, our industry plays an important role with respect to Reconciliation.
- Hydroelectricity facility owners continue to heighten their focus on the accommodation of recreational, touristic and cultural pursuits along the water systems where they are located. Some facilities have emerged as attractions in their own right, and been integrated into surrounding communities (examples being the historic Niagara Parks Power Station, and the generation facilities at the Chaudière Falls site adjacent to Parliament Hill).
- The transmission corridors that are integrally linked to our members' facilities have the potential to accommodate other connective infrastructure – representing, for example, potential conduits via which broadband expansion could reach a wider range of communities – or for recreation and transport.

We also included a range of hydropower infrastructure case studies, which further illustrate the ongoing development and diversification of the generation fleets our members own, and the multiplicity of values that they generate. They represent a small segment of our sector's projects that already contribute tens of billions of dollars to our GDP, and directly employ tens of thousands of people every year.

2. Infrastructure Overview

2.1. Canada's Hydropower Infrastructure Today

Scope and Range	• >500 waterpower generating stations operate across Canada • Located in all provinces and territories except Nunavut
Current Installed Capacity	• Total installed capacity approaching 85,000 MW • Canada is 4th largest generator of hydroelectricity in the world
Types of Facilities	• Reservoir/dam-based projects • Run-of-river projects (no impoundment/storage) • Pumped storage projects

2.2. The Value that Infrastructure Delivers

Hydroelectric Generation	• Provides 60% of Canada's total electricity
Energy Storage Capacity	• Estimated at up to 250 TWh in hydropower reservoirs
Grid Reliability and Resilience	• Flexible energy and reserves • Dependable capacity • Other ancillary services • Long duration energy storage
Energy Affordability	• Electricity customers in provinces with >90% waterpower pay the least for electricity • Canadian households pay the second-lowest residential power rates in the OECD

3. Core Infrastructure Considerations

We are confronted today with the dual challenge of ensuring all forms of infrastructure are sufficiently "hardened" to withstand the already unavoidable impacts of climate change, while investing in the expansion and optimization of the forms of infrastructure that will be foundational to tomorrow's de-carbonized economy.

3.1. Climate Change Adaptation

Water is the lifeblood of our facilities, and one of the forms of natural capital that is already being materially impacted by climate change. Our sector, has been at the forefront of modeling and assessing climate-change impacts on our facilities and electricity load patterns with an emphasis on understanding potential changes to the water resources on which our facilities depend.

All Canadian hydroelectric facilities are designed to withstand even the most extreme flood conditions. Most are also designed to sustain a dependable level of generation even in periods of extreme drought. Operational procedures continue to be improved under both extremes, along with targeted investments to address specific hardening and other adaptation needs.

Some hydroelectric facilities make important contributions to flow regulation – although questions remain as to how these services can be most appropriately monetized – helping to address the needs of other stakeholders at times of both scarcity and excess. We stand ready to partner further with appropriate agencies as the frequency and scope of such needs increase.

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3.2. Climate Change Mitigation

Meeting Canada's decarbonization objectives will require use of electricity across a wider range of energy end-uses, and a sustained focus on ensuring that the proportion of electricity coming from clean sources steadily increases. While this will entail leveraging of all forms of renewable and non-emitting electricity, hydroelectricity is unique in its existing and potential scope of generation, and in the vital role it plays in enabling integration of variable renewable energy sources such as wind and solar energy.

In order to fully leverage hydroelectricity's climate change mitigation potential, the following five forms of infrastructure investments are key:

1. A suite of large-scale new generation projects in multiple jurisdictions, with a collective capacity of 4,150 megawatts, the completion of which is now moving into final phases. Each includes significant long-duration storage that will provide flexibility and dependability to the grid for many decades into the future.
2. A continued focus on refurbishment, re-development, and lifespan extension of existing hydropower units and sites. This provides opportunities to cost effectively improve efficiency, increase generation and storage capacity, and create operational improvements within long-existing project and impoundment footprints.
3. Emerging transformational opportunities linked to specific elements of the ongoing energy transformation. Most notably, these include Pumped Storage Hydro projects, and projects intended to power the electrolysis requirements associated with green hydrogen production.
4. Adequate transmission capacity to transport the output of these projects to end-users. This will include stronger electricity transmission inter-connection – both east-west and north-south – to better enable optimization of all non-emitting sources, and efficient balancing of supply and demand across larger geographic areas.
5. While smaller in scale, there is also a noteworthy level of ongoing investment in hydropower projects sited and designed specifically to meet the needs of remote and off-grid communities.

4. Conclusions and Key Asks

Provincially and locally owned utilities, private corporations, Indigenous groups and other equity partners are keen to continue with investments of the types outlined in the preceding section. Fostering the full potential of hydropower infrastructure depends on the creation of a supportive and stable policy environment, with these key components:

- Continued pursuit of stringent, coordinated and durable climate policy, designed to foster and accelerate our transition towards net-zero emissions by 2050 and encompassing:
  - regulatory measures and incentives, such as a steadily increasing carbon price, to drive increased electrification and ongoing fuel-switching from high-emitting sources, and
  - regulatory measures and inter-governmental collaboration to ensure steady progress towards and beyond 90 per cent non-emitting electricity by the end of this decade.
- Avoidance of federal policy, legislative or regulatory measures that result in undue burdens on hydroelectricity producers, and that may in turn dis-incent infrastructure investment. Indeed, opportunities exist to improve the implementation of new or recently amended federal legislation and regulatory frameworks impacting our industry, without diminishing the environmental outcomes they are intended to achieve.

We welcome the National Infrastructure Assessment, and support the scope and priorities defined in the engagement paper. Their achievement relative to hydropower infrastructure will depend heavily on creation of the policy environment outlined immediately above. To this end, we look forward to engaging with government as it identifies next steps, and over the complete course of the assessment.

5. Infrastructure Case Studies

5.1. New Large-Scale Generation Projects

Four of the largest major infrastructure projects currently in construction in Canada today are hydropower projects. Once complete, they will operate for more than a century, thus producing significant amounts of renewable electricity every year until the 2120's and beyond.

La Romaine – Hydro-Québec

From Local Benefits Through to Export Opportunity

A four-station project in Quebec's Côte-Nord region – located along the Rivière Romaine and north of Havre-Saint-Pierre – the Romaine complex will have an average annual output of 8 terawatt hours of electricity. Construction began in 2009, with the first three stations commissioned in 2014, 2015 and 2017. Work on Romaine-4 continues, and it is expected to be operational in 2022. The economic benefits associated with this project are similarly large in scale, representing $1.3 million billion in economic spinoffs in the host region and $3.5 billion in the province as a whole. Close to 1,000 jobs are being created annually on average, of which 45 per cent are in the Côte-Nord. Collaboration with Indigenous groups has also ensured that project benefits have accrued specifically to those communities. The project will not only help power its home jurisdiction for a century to come, but also generate the exports on which the U.S.'s achievement of its climate ambitions will depend to a significant degree.

Muskrat Falls Project – Nalcor Energy

Linking North American Neighbours for the First Time

Muskrat Falls is one of two highly attractive hydropower development sites along the lower Churchill River, near Happy Valley-Goose Bay in Labrador. The project includes a spillway and three dams, an 824-megawatt generating station, more than 1,600 km of transmission lines across the province, and the Maritime Link. Its output will be widely used in Atlantic Canada and the northeast U.S., and will displace three to four megatonnes of carbon dioxide annually. The first of four generating units was turned over for operations in December 2020, the second in June 2021, and the remaining two units are expected to be in service in 2021. The Maritime Link, completed by EmeraNL in 2017, connects the Island of Newfoundland with the North American power grid for the first time ever (via Nova Scotia). This will both improve electricity reliability on the island, while providing an avenue by which to export its surplus of clean, renewable hydropower.

Keeyask Generating Station – Manitoba Hydro/Keeyask Hydropower Limited Partnership

A Four-Fold First Nations Partnership

This 695-megawatt generating station was developed in partnership between Manitoba Hydro and the Tataskweyak Cree Nation, War Lake First Nation, York Factory First Nation, and Fox Lake Cree Nation. Located some 725 km north of Winnipeg, at the Gull Rapids on the lower Nelson River, the project includes more than two km of dams, 23 km of dikes along a reservoir, a seven-bay spillway, and a seven-unit powerhouse and service bay complex. The first unit went into commercial service in February 2021, with the remaining six to be brought online over the following year. When in full operation, Keeyask will be Manitoba's fourth largest generating station, and will become both a driver of provincial economic growth and a means of meeting commitments to supply power to other jurisdictions. More than 27,000 people have worked at the site since construction began, of whom close to 40 per cent are Indigenous.

Site C Clean Energy Project – BC Hydro

1,100 Reliable Megawatts for 100+ Years

Site C is BC Hydro's third dam and generating station along the Peace River in northeast B.C., bolstering existing waterpower capacity that is the foundation for B.C.'s already 90+ per cent clean electricity mix. Site C will leverage existing upstream storage and generate more than a third of the electricity produced at the W.A.C. Bennett Dam with only five per cent of its reservoir area. Approved in 2014, following a Joint Review Panel process, construction began on Site C in 2015 and the generators are expected to come online in 2025. With a 1,100-megawatt capacity, its production will be equivalent to the needs of 450,000 B.C. homes. Site C will be instrumental in powering achievement of the goals in the CleanBC climate change plan, providing reliable and affordable electricity for more than 100 years.

5.2. Refurbishments of Existing Units and Sites

Many of Canada's existing hydropower generation stations will be in need of refurbishment in the coming decades. In addition to extending the life of these stations, investments can improve efficiency, and increase generation and storage capacity. These projects can deliver the lowest cost electricity with a minimal additional infrastructure footprint or environmental impact.

E.B. Campbell Station – SaskPower

Breathing New Life into a 60-Year-Old Station

The first generating units at the E.B. Campbell Hydroelectric Station – on the Saskatchewan River near Nipawin in northeast Saskatchewan – powered up in 1963 and 1964. The eight units, with a combined capacity of 289 megawatts, have provided a reliable supply of clean power ever since, on which the province is keen to build. A refurbishment of six of the units – that would otherwise be approaching the end of their operational lives – began in 2019 and is scheduled for completion in 2025. Work is being scheduled around seasonal water flows, and has a significantly lower price tag than new construction would have. Once refurbished, the station will generate more power from the same amount of water, and its operational lifespan will be extended by at least 50 years. Meanwhile more than $6 million has being invested in Indigenous and local employment through focused procurement, local hiring, and community engagement.

Sir Adam Beck Generating Station – Ontario Power Generation

Making New History by Replacing 100-year-old Units

Sir Adam Beck (SAB1), originally named Queenston-Chippawa Power Station, is a 10 unit station in Niagara-on-the-Lake, downstream of Niagara Falls. The station receives water from above the falls via a 14 km open cut canal through the City of Niagara Falls. Construction began in 1917, G1 was in-service December 1921 and G2 went into service in 1922. At its opening, SAB1 was the largest hydroelectric station in the world with 10 units producing 61,000 HP (44MW) each on the 25 Hz grid. Starting in the 1950's several units were converted to 60Hz, and by 2009, only G1 & G2 remained as 25Hz. The decision was made to stop generating 25Hz power in Ontario, and G1 & G2 were mothballed. G1 & G2 are now being replaced with modern 57MW 60Hz units water to wire. The 100+ year old penstocks and draft tubes are being re-used with minor repairs, however the cast steel scroll cases had large defects deeming them unsafe for use. The resulting scroll case removal and replacement was very difficult in an operating plant. G2 scroll case has been completed and G1 is still on-going. With the new scroll cases, the new units are designed to provide another 75+ years of reliable generation to the Province.

Rapide-Blanc Station – Hydro Quebec

Positioned for Profitability for Another Half Century

Commissioned in 1934 in Quebec's Mauricie region, the Rapide-Blanc generating station has an 83-square kilometre reservoir, a more than 30-metre drop height, and an installed capacity of 204 megawatts. Following a $613 million investment commitment and preparatory work in 2019, a six-year full refurbishment project is now underway at this facility, positioning it for profitable operation for another half century after completion. The work involves replacement of all six generating units, and refurbishment of its water intake gates, draft tubes, various other gear and equipment, auxiliary transformers and the station building. In addition to renewable and reliable generation – sufficient to supply 73,500 homes – the station plays an important role in water management along the Rivière Saint-Maurice. Sub-contracting fairs held in partnership with the local chamber of commerce were among the efforts to maximize the benefits of an estimate $80 million plus in regional economic spinoffs.

Refurbishments with Multiple Benefits – TransAlta

Increased generation isn't always the sole or even necessarily the primary motivation to refurbish or reconfigure an existing waterpower station. TransAlta is currently advancing several projects that will deliver a compelling suite of benefits. The diversion of the Ghost River into Lake Minnewanka will optimize the operation of various existing waterpower stations, while enabling improved provision of ancillary services to safeguard the stability of the electricity grid. Modification of three dams on the Kananaskis River will increase storage capacity, but also improve both water security for users along the Bow River system, and flood mitigation capacity for the benefit of Calgarians. Meanwhile, installation of a partial bypass at the Bighorn station will ensure that water flow can continue into the North Saskatchewan in the case of a planned or unplanned offline event. This will avoid environmental and other negative impacts in the case of a prolonged flow interruption, and better enable maintenance and lifespan extension at the station.

5.3. Transformational Projects

In addition to the conventional hydropower generation stations which we have most familiarity in Canada, there will also be the need to augment this infrastructure with new types of projects. Pumped Storage Hydro projects can add much needed energy storage capacity to the grid to enable decarbonization. The production of hydrogen via electrolysis can contribute to energy storage in the electricity sector, and also decarbonize industrial processes.

Ontario Pumped Storage Project – TC Energy

A Proposal to Build Ontario's Largest Battery

While this proposal remains at an early stage, it has the potential to become one of the largest single carbon abatement projects anywhere in Canada, and would leverage the tremendous storage and demand-balancing potential of waterpower. Proposed for co-location on an army training facility, the project would include a buried powerhouse and other features to minimize visual impact and protect the local environment. Water would be pumped from Georgian Bay to an elevated reservoir, at times of low demand when Ontario's excess electricity supply may otherwise be exported at a loss to surrounding jurisdictions or wasted. This water would then be released for generation when demand is high, before being returned to Georgian Bay. With a capacity of 1,000 megawatts of emissions-free electricity, this project would preclude the need to build natural gas-fired generation, and enable more effective integration of non-emitting renewables and nuclear into Ontario's grid. Annual savings to Ontario ratepayers are anticipated at $250 million, after a potential 2028 completion.

Brazeau Hydro Pumped Storage – TransAlta

Doubling Down on Alberta's Waterpower Capacity

The existing Brazeau Hydro project – located on the North Saskatchewan River in west-central Alberta – came on stream in 1965 and is an important source of clean and reliable electricity in the province. But with the potential addition of pumped storage, it could more than double in size and at the same time more than double overall waterpower generation in Alberta. The total potential capacity of 900 MW would be enough to meet the typical needs of a major city such as Calgary or Edmonton. The project also represents a more than $1.8 billion investment in the provincial economy and would reduce the need for fossil generation by backstopping zero emitting renewables in the Alberta electricity system. The project will consist of upper and lower reservoirs, with pumping and releases and generation timed to align with periods of low and high demand.

Marmora Project – Northland Power and Ontario Power Generation

Transforming a Legacy Open Pit Mine into a Clean Energy Asset

Marmora is a 400 MW pumped hydroelectric energy storage project located in Marmora, Ontario. The project will transform a legacy open pit mine into a clean energy asset, providing reliable capacity that offsets the need to build new natural gas-fired generation and reduces the carbon intensity of the Ontario electricity system by making the best use of existing renewable generation resources. Both reservoirs will be located on-site and operated as a closed-loop system to minimize the potential for adverse effects on the surrounding natural environment. The project could be in service as early as 2028 and will provide significant economic benefits to the local area and provide value for the Ontario electricity grid.

Canyon Creek project – Turning Point Generation[1]

Closed Loop Hydropower Production

Canyon Creek is an innovative energy storage project proposed for a site near Hinton, Alberta. Its design incorporates two small man-made reservoirs, one at the top of a hill and one at the bottom, which would be connected by a pipeline. The same water would be used continuously in a closed loop, with occasional top ups to account for evaporation. Canyon Creek will be capable of generating up to 75 megawatts of electricity for up to 37 hours, providing the equivalent of 4.5 million car batteries worth of energy storage. It will reduce greenhouse gas emissions, enable more use of renewable energy from other sources, and provide emergency response capabilities in the event of grid failure. During construction, the project will provide considerable economic stimulus, and it will then enhance the local property tax base for more than 50 years to come. Furthermore, it is expected to leverage many skillsets in the immediate area, which has been impacted by the oil and gas sector downturn.

Green Hydrogen Project – Gazifère/Evolugen

Powering Tomorrow’s Hydrogen Hubs

Hydrogen is widely recognized as a key enabler of the net-zero carbon future that Canada aspires to. There’s no time to lose, and hydropower facilities are already being leveraged as the source of the renewable electricity on which the production of coveted green hydrogen depends. In the City of Gatineau, on the Quebec side of the National Capital Region, these two companies are launching one of Canada’s largest green hydrogen projects for injection into a natural gas distribution network. They have announced plans to build and operate an approximately 20-megawatt water electrolysis hydrogen production plant – powered by Evolugen’s adjacent hydropower facility – the output of which will be injected into Gazifère’s natural gas distribution network for the use of its Quebec customers. With an estimated capacity of approximately 425,000 gigajoules of green hydrogen, the project will displace approximately 15,000 tonnes of greenhouse gases per year, and generate significant local economic benefits while laying the groundwork for a potential hydrogen-focused regional economic hub.

[1] A joint development by WindRiver Power Corporation and TransCanada Energy Ltd.

Conceptual Project

"Virtual Dams" Creates a Best-of-Both-Worlds Scenario

Run-of-river projects are among the lowest-impact forms of electricity generation – involving partial diversion of a short segment of a river or stream, with limited (if any) storage. But that means generation availability is seasonal and dependent on flow volumes at a given point in time, with diversion also needing to be aligned with aquatic habitat requirements. The addition of batteries could square that circle – maintaining the low impact, while quickly and inexpensively adding storage capacity in the form of what has been referred to as a "virtual" dam or reservoir. The viability of using lithium-ion batteries at run-of-river facilities has been proven elsewhere, and can enable lightning-fast responses to shifting demand. This solution is ripe for application in Canadian regions that host many run-of-river projects, particularly as battery performance and costs continue to improve.

5.4. Transmission Projects

Birtle Transmission Project – Manitoba Hydro

Tapping into Neighbouring Hydropower Strength

Energized in March 2021, this 230-kilovolt, 80-km transmission line runs from the Birtle Station in southwestern Manitoba to the border with Saskatchewan, from which it extends to a SaskPower station at nearby Tantallon. This transmission line is helping provide the capacity to enable increased power flow from Manitoba to Saskatchewan, thus better enabling surplus hydropower in one province to help achieve carbon-reduction objectives in the other (and backstopping Saskatchewan's investments in variable renewables at the same time). Up to 315 megawatts of renewable hydropower will ultimately flow west into Saskatchewan under various recent long-term power sales agreements. The heightened grid integration resulting from the Birtle project will also improve supply and rate stability, to the benefit of both provinces. It was funded in part under the Canada Infrastructure Program, and the Indigenous community of Birdtail Sioux was a joint venture partner in its construction.

Appalaches-Maine Interconnection – Hydro-Québec

A Regional Collaborative Effort Towards a Clean Energy Future

The new 1200 MW intertie between Québec and the New England electricity grid in Maine will connect Hydro-Québec's system powered by water to a neighbor heavily reliant on the burning of fossil fuels. The low-carbon hydropower will displace fossil-generated sources and therefore eliminate over 3 million metric tons of harmful emissions every year. Under the terms of a 20-year contract, Massachusetts will receive 9.45 terawatt hours/year of clean, reliable hydropower; and thanks to an agreement with Maine, the Pine Tree State will be provided with an annual 0.5 TWh.

The line will run for just over 100 km from the Appalaches substation near Thetford Mines, to a connection point on the Maine border, where it will link to the now under-construction New England Clean Energy Connect (NECEC) transmission line. Hydropower imports have been determined to be instrumental to efforts in the northeastern U.S. to achieve targeted grid decarbonization at affordable costs. Approved by the Canada Energy Regulator in May 2021, the interconnection project is scheduled to be commissioned in 2023.

5.5. Small Hydroelectric Projects in Remote Communities

Atlin Hydro Expansion Project – Tlingit Homeland Energy Limited Partnership (THELP) & Yukon Energy

Clean Energy to Move North Across the 60th Parallel

This cross-border and Indigenous-led project would expand a 2.1-megawatt hydropower project that has operated in Atlin, in northern British Columbia, since 2009. It would be built and owned by Tlingit Homeland Energy Limited Partnership (THELP), a company owned by Taku River Tlingit First Nation citizens, with the power being sold to Yukon Energy via a new northward flowing transmission connection. Atlin is one of three key potential projects identified in the territorial utility's 10-Year Renewable Electricity Plan, and would help meet winter peaks and growing demand for clean energy with 8.5 megawatts of dependable capacity. THELP has secured $2.5 million in federal funding to complete preliminary design and engineering, and is collaborating with Yukon Energy to seek additional government grant funding for construction of the project. THELP and Yukon Energy have also signed an agreement in principle outlining their commitment to negotiate an electricity purchase agreement.

Padakus Creek Hydro Power Project – Dzawada'enuxw First Nation

Less Diesel Barging and Fewer Greenhouse Gas Emissions

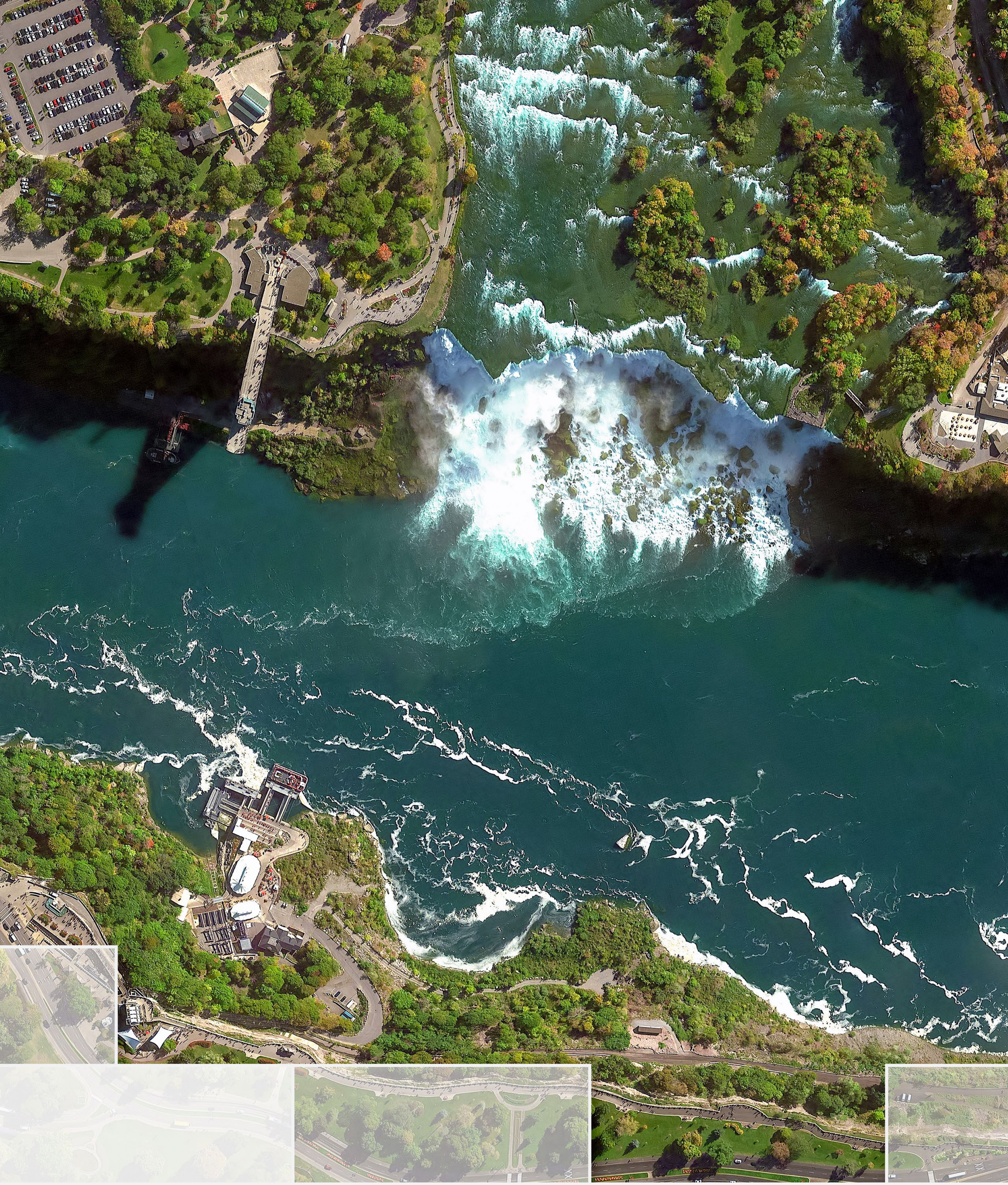
The Dzawada'enuxw First Nation village of U'kwanalis – on British Columbia's Kingcome Inlet opposite northern Vancouver Island – has depended on diesel for electricity generation since the 1990s. But that dependency will lessen greatly with development of this 350-kilowatt project on Padakus Creek, which is expected to result in a 97 per cent reduction in diesel consumption over its operating life. B.C. is targeting an overall 80 per cent reduction in diesel consumption for electricity generation in remote communities by 2030. To that end, $3.3 million has been provided for the Padakus project through the B.C.'s Renewable Energy for Remote Communities program. There will be local employment and training opportunities throughout the construction and operation of the facility. Projects such as this in remote coastal communities have the significant additional benefit of reducing the risks associated with marine transportation of diesel fuel within the Great Bear Rainforest.

Innavik Hydroelectric Project – Pituvik Landholding Corporation (PLC) and Innergex Renewable Energy Inc.

"A Pocket for Fire-Making Tools"*

This run-of-river project will displace high-cost diesel generation in Inukjuak, an Inuit village on Hudson's Bay in the Nunavik Region of Quebec. Sited about 10 km inland from the mouth of the Inukjuak River – where it splits into four waterfalls with a height of over 14 metres – the project's two generating units will have an installed capacity of 7.5 megawatts. That will be enough to meet basic electricity needs in the community, as well as for domestic space and water heating. Innavik is consistent with Quebec's 2030 Energy Policy, which targets renewable generation in off-grid communities. In 2019, the project was approved by the Kativik Environmental Quality Commission, and a 40-year power supply agreement signed with Hydro-Québec. Among other local benefits, project revenues will enhance the non-profit PLC's capacity to reinvest in local development initiatives, and surplus electricity from the project will power a new greenhouse to enhance local food security.

** This is the meaning of "Innavik" in Inuktitut.*



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