Countdown to First Power





Yearin Review





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Yearin Review

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Wuskwatim is the first time in Manitoba and Canada that a First Nation and an electric utility have entered into a formal equity partnership to develop a hydroelectric project.

Directors of the general partner of WPLP (L to R)

- Joanne Flynn (Manitoba Hydro)
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- Darren Rainkie (Manitoba Hydro)
- Ken Adams (Manitoba Hydro)
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Wuskwatim Power Limited Partnership (WPLP), a legal entity involving Manitoba Hydro and Nisichawayasihk Cree Nation (NCN), is developing the Wuskwatim Generating Station on the Burntwood River in northern Manitoba. This is the first time in Manitoba and Canada that a First Nation and an electric utility have entered into a formal equity partnership to develop a hydroelectric project. Manitoba Hydro is providing construction and management services to WPLP in accordance with the Project Development Agreement (PDA) signed in June 2006.



Message from the Chair

Wuskwatim Power Limited Partnership (WPLP) is pleased to present its sixth Year in Review for the fiscal year 2011-2012.

With the major concrete structures in place by the beginning of the fiscal year, the most significant construction milestone this year was completion of the main dam, which had been started a year earlier. Following a break over the winter, construction resumed in the spring and moved ahead for completion in the summer, including installation of two layers of instrumentation embedded in the dam to assist with monitoring performance.

Watering up of the intake and tailrace began in August. The portion of the stage II upstream cofferdam in front of the powerhouse and the stage II downstream cofferdam, which together kept the powerhouse construction area dry during excavation and construction work, were removed during August and September.

Impoundment of the immediate forebay upstream of the powerhouse and main dam began at the end of October with water reaching its final elevation by mid-November.

Much of the labour activity shifted inside the powerhouse for the installation of the three 68.5-megawatt turbine generators and outfitting the facility with the required controls, monitoring instrumentation and safety and support systems needed to make the plant operational. With completion of most major structures in the previous fiscal year, the onsite workforce was considerably smaller, peaking this past year at about 540 workers – just over half the peak of the previous year. Aboriginal and Manitoba workers continued to comprise a significant proportion of the workforce. From the start of construction to March 2012, over 37 percent of total project hires have been Aboriginal people and 65 percent of all workers were from Manitoba.

During the course of building the generating station, most jobs have been relatively short-term and the types of skills needed have been changing as project completion moves nearer. Many of the recent jobs available on site require specialized trades and industrial construction experience. Total wages earned at the project site from the start of construction in August 2006 to March 2012 were almost \$205 million with nearly 63 percent of these associated with direct Manitoba employment. Over the same construction period, WPLP also spent almost \$158 million on goods and services purchased from Northern Manitoba Aboriginal businesses, including over \$14 million during the past year. Expenditures through several contracts with entities owned by Nisichawayasihk Cree Nation in 2011-2012 totalled \$13.7 million. Maintaining Wuskwatim as one of the safest construction sites in Manitoba is a priority. All project employees are given a comprehensive

site-specific safety orientation upon hire and active participation by all involved in the project assists in creating safe working conditions. Nisichawayasihk Cree Nation continues to provide and manage cross-cultural training workshops, cultural ceremonies and counselling services onsite, which are available to all employees. Crosscultural workshops and traditional ceremonies are designed to express respect for both the environment and the local culture.

A comprehensive environmental protection program continued throughout the year and details and results are reported in the WPLP Wuskwatim Monitoring Overview 2011-2012 available at www.wuskwatim.ca.

While some construction and commissioning challenges have extended the schedule, most have been resolved and the Wuskwatim Generating Station is on track with the first of the three generator units expected to produce power by early summer 2012. The last of the three units is expected to be commissioned and operational by the end of 2012.

Sincerely, Ult Cedar 2

Ken R. F. Adams, P. Eng. Chair of the general partner of Wuskwatim Power Limited Partnership (5022649 Manitoba Ltd.)

Introduction and Background

Wuskwatim Power Limited Partnership, involving Nisichawayasihk Cree Nation and Manitoba Hydro, is responsible for the development, operation and maintenance of the 200-megawatt Wuskwatim Generation Project.



NCN and Manitoba Hydro spent nearly a decade discussing, planning and undertaking the environmental studies and regulatory processes for the \$1.4 billion Wuskwatim Generation Project. In June 2006, senior Manitoba Hydro officials and NCN's Chief and Council signed the Project Development Agreement and construction commenced in August 2006.

The Wuskwatim Project Development Agreement (PDA), signed in June 2006, provided the option for NCN to own up to one-third of the Wuskwatim Generating Station through its wholly-owned Taskinigahp Power Corporation. NCN had until first power to confirm that it intends to maintain a significant ownership position in the Wuskwatim Project and has notified Manitoba Hydro of its intention to do that. It now has until July 3, 2013, to make final payment for the 33% equity position it currently holds.

The business affairs of WPLP are carried out by a general partner (GP), 5022649 Manitoba Ltd., a wholly owned Manitoba Hydro subsidiary. The Board of Directors consisting of two NCN and four Manitoba Hydro representatives governs the GP. Pursuant to the PDA, Manitoba Hydro has been contracted to construct, manage, operate and maintain the Wuskwatim Generating Station.

The province of Manitoba with a large, selfrenewing supply of waterpower has developed many hydroelectric generating stations to provide electrical energy for its citizens. Wuskwatim, the first generating project to be built in Manitoba in nearly two decades and now nearing completion on the Burntwood River in northern Manitoba, will add to Manitoba's generation assets. Wuskwatim energy will help meet Manitoba's future domestic needs and provide energy to export customers.

Wuskwatim Power Limited Partnership, involving Nisichawayasihk Cree Nation and Manitoba Hydro, is responsible for the development, operation and maintenance of the 200-megawatt Wuskwatim Project. The project is located in NCN's traditional territory downstream of Wuskwatim Lake at Taskinigup Falls and will produce clean, renewable hydroelectric power.



Year In Review

The project transitioned this year from the construction of major structures to the installation of equipment requiring increasingly specialized trades. As a result, employment peaked in July at approximately 540 workers, about half as many as the previous year. Aboriginal workers continued to be a significant part of the workforce, comprising over 37 percent of all hires from construction start to March 2012. Considering 98 percent of concrete was in place at the beginning of the fiscal year, less than 1 000 cubic metres were placed during the year, mainly in the powerhouse and miscellaneous structures. By August 31, 2011 all major pours had been completed. A total of 120 336 cubic metres of concrete has been placed overall in all project structures including the spillway, service bay, intake, tailrace, south transition and powerhouse since concrete work began in May 2009. Since the start of construction to the end of this fiscal year, WPLP has spent almost \$158 million in goods and services from Northern Manitoba Aboriginal businesses, including over \$14 million during the past year. Expenditures through several contracts with entities owned by Nisichawayasihk Cree Nation in 2011-2012 totalled \$13.7 million.

Nisichawayasihk Cree Nation continues to provide and manage on-site cross-cultural training sessions, cultural ceremonies and counselling services, which are available to all employees. Since 2007 more than 1 500 workers have participated in 106 cross-cultural awareness-training workshops and 35 traditional ceremonies have been held. Workshops and traditional ceremonies demonstrate respect for the environment and local culture.

A comprehensive environmental protection program continued this year and included environmental protection plans and environmental, social and economic monitoring plans. Environmental protection plans provide measures to protect the environment, minimize adverse effects from construction activities and for decommissioning and rehabilitating the Wuskwatim site after construction.

Environmental monitoring and management programs are being conducted in accordance with monitoring and management plans approved by provincial and federal regulatory agencies. Ethinesewin, the traditional knowledge and collective wisdom of the Nisichawayasihk Citizens, along with conventional scientific analysis, continue to be used equally for project monitoring activities. Monitoring programs began before construction and will continue throughout construction and well into project operation.

In the area of environmental mitigation, fish habitat compensation projects continued in the project area during the 2011-2012 year. Following is a summary of achievements on the Wuskwatim Generation Project during 2011-2012. Since 2007 more than 1 500 workers have participated in 106 cross-cultural awarenesstraining workshops and 35 traditional ceremonies have been held. Workshops and traditional ceremonies demonstrate respect for the environment and local culture.





On October 31, 2011 forebay impoundment began with the spillway gates lowered to reduce flows through the spillway channel allowing water to back-up and rise in the immediate forebay area.

STAGE II RIVER DIVERSION

The stage II diversion was put in place during the previous fiscal year to divert the entire flow of the Burntwood River through the completed spillway. This was followed by stage II upstream cofferdam construction across Taskinigup Falls, to permit the start of construction of the main dam on the dry riverbed behind it.

With main dam and powerhouse construction completed this year, areas in front of the powerhouse and tailrace were watered up in August with the cofferdams still in place. Following water up, the cofferdams were removed "in the wet" while the river flows continued passing entirely through the spillway.

On October 31, 2011 forebay impoundment began with the spillway gates slowly lowered to reduce flows through the spillway channel allowing water to back-up and rise in the immediate forebay area. During the process, the three spillway gates were adjusted daily to ensure the water elevation increased only about 0.5 metres per day. After three days, the third spillway gate was completely closed with the other two gates remaining slightly open and adjusted until forebay impoundment was complete November 16, 2011 with the water elevation reaching its maximum.

The final step related to forebay impoundment will be removal of the rock plug at the

upstream end of the Wuskwatim Falls channel excavation. The removal, scheduled for summer 2012, will occur after confirming the concrete and earth-fill structures are performing satisfactorily.

MAIN DAM

Following winterization to protect initial dam construction installations in 2010, construction resumed in spring 2011 with removal of the frost protective sand layer and completion of the required initial material testing and conditioning.

The first phase of dam instrumentation took place over 12 days, beginning at the end of May, involving installation of hydraulic, vibrating wire and fibre-optic piezometers (a device used to measure static liquid pressure). The dam was then raised with impervious, granular and rock fill materials to elevation 230.0 metres for the second phase of instrumentation installation, followed by completion of the dam to its final design elevation of 236.60 metres in summer 2011. More than 145 000 cubic metres of impervious, granular and rock fill materials were required to construct the main dam.

TURBINES AND GENERATORS

Installation of the turbines and generators started in 2010, continued through the current fiscal year, and will conclude in mid 2012. The installation sequence began with Unit 1, followed by Unit 3 and will conclude with Unit 2. The installation process is the same for each unit and includes:

- Installing embedded and non-embedded turbine components
- Installing and aligning larger stationary turbine components
- Building and installing turbine runners
- Building and installing rotors
- Installing and aligning the shaft seal and bearing housings
- Installing operating ring and wicket-gate links and levers
- Building and installing stators
- Installing rotor electrical connections
- Testing and commissioning major components.

At the end of the fiscal year, the rotors for Units 1, 2 and 3 were complete and installed. Installation of major turbine and generator components is also complete.

Unit 1 governor (a control system to ensure that the generator spins at its correct speed) precommissioning is scheduled to be completed in April with the unit scheduled to be handed over to Manitoba Hydro for commissioning tests immediately after.

For Unit 3, installation of non-embedded turbine components and generator components is complete. Pre-commissioning of the governor system is almost complete.



Installation of the turbines and generators started in 2010, continued through the current fiscal year, and will conclude in mid 2012.

For Unit 2, installation of major turbine components is about 80% complete with the rotor electrical connections expected to be completed by the end of April 2012. The formal date for the start of governor precommissioning is yet to be determined. The first generator (Unit 1) is expected to be in service in June 2012 with Unit 3 in September

INTAKE GUIDES, GATES AND HOISTS

2012 and Unit 2 in November 2012.

With completion of the seal faces for the intake gates completed by the beginning of the fiscal year, installation of the Unit 1 intake gates began in late-April 2011. Gates and hoists for all three units were fully assembled, installed, tested and commissioned "in the dry" by the end of June. Further activity will not occur until spring 2012 when remaining minor deficiencies and "wet commissioning" tests will be completed.

SERVICE BAY / INTAKE / POWERHOUSE

The service bay/intake/powerhouse building envelope (precast wall panels, metal cladding and roofing) has been completed except for some miscellaneous work to be addressed in summer 2012.

POWERHOUSE CRANE

The 275-metric-ton capacity powerhouse crane commissioned two years ago continues to be an invaluable tool in generating-station construction and installation of the 68.5-megawatt turbine generators. It is thoroughly inspected monthly to ensure it withstands the demands of ongoing construction work.

ELEVATORS

Elevators will be completed and commissioned in summer 2012.

ELECTRICAL AND MECHANICAL

With the major structures in place and the project moving to completion, key activity this year has involved installation of the complex electrical and mechanical systems needed for operating, monitoring and protecting the generating station.

Electrical activity focused on:

- Fulfilling requirements to meet the 230-kilovolt commissioning process and Unit 1 commissioning milestones
- Preparations for collector-line energization and turbine/generator commissioning
- Completing the plant's 600-volt power distribution system
- Installing lighting, emergency lighting and electrical systems throughout the plant
- Installing equipment and systems for plant operations, monitoring and detection
- Completing fire detection and protection systems
- Installing phone, networking and paging systems

- Installing heat-detection equipment on generator step-up transformers
- Pulling and glanding heating, ventilation and air conditioning (HVAC) cables
- Adjusting and final testing of Isolated Phase Bus insulators.

Mechanical activity focused on:

- Installing HVAC systems
- Installing a fire standpipe system
- Installing piping for the shaft seal, service water, dewatering, compressed air and fire systems including testing and flushing
- Completing start-up for two air compressors
- Installing oil/water separator system components
- Installing a deluge system for the generator step-up transformers.

CONCRETE PLACEMENT

With 98 percent of concrete in place at the beginning of the fiscal year, less than 1 000 cubic metres were placed during the past twelve months, mainly in the powerhouse and miscellaneous structures. By August 31, 2011 all major pours had been completed with a project total of 120 336 cubic metres placed in all structures.

Total concrete placement over the life of the project by structure includes:

- Spillway 11 150 cubic metres.
- Service Bay 16 050 cubic metres.

In early summer, the new 165-kilometre transmission line from Herblet Lake to the Ralls Island station was completed. This concluded the three-year design and construction stage of the transmission project.

- n s t
- Intake 29 000 cubic metres.
- Powerhouse 34 200 cubic metres.
- Tailrace 19 075 cubic metres.
- South Transition 2 800 cubic metres.
- Miscellaneous Structures 8 061 cubic metres.

CONSTRUCTION CAMP

The main construction camp has been in operation since 2008 providing single-room bunkhouse accommodations for hundreds of workers.

All camp support facilities continued operating this year including: the kitchen diner, the fire hall with fire truck and ambulance, the water treatment plant and sewage lagoon, the recreation centre with full-size gymnasium, racquetball courts, weight and exercise room, pool tables, TV and internet rooms, and a chapel that doubles as a training facility.

Sports fields were available for baseball and soccer and an outdoor ice rink was constructed over the past two winters to provide additional recreation activities. A commissary provides for various personal purchases.

With construction nearing completion and the ongoing evolution of the work at the project site, the camp population continues to decrease resulting in demobilization of some bunkhouses and their removal from the site.

MAJOR CONTRACTS

Manitoba Hydro acting as Project Manager continued to oversee work underway for the following contracts:

- General Civil Works
- Supply and Installation of Turbines and Generators
- Supply and Delivery of Motor Control Centers
- Supply of Isolated Phase Bus
- Supply of Standby Diesel Generator
- Supply of Generator Circuit Breakers
- Supply of Generator Step-up Transformers
- Supply of 600-volt Switchgear
- Supply and Installation of Electrical and Mechanical Systems and Services
- Supply and Installation of Powerhouse and Service Bay Elevators
- Supply of Station Service Transformers
- Supply of Catering and Security Services
- Supply of Cross-Cultural Services.

TRANSMISSION PROJECT

Manitoba Hydro has been responsible for constructing the transmission lines that connect Wuskwatim to the Manitoba Hydro grid for distribution of Wuskwatim power. Several project components were completed by summer 2011. Protection upgrades at the Mystery Lake and Kelsey stations were completed in May 2011 followed by final termination and commissioning of the 137-kilometre transmission lines from Herblet Lake station to Wuskwatim Gas Insulated station.

In early summer, the new 165-kilometre transmission line from Herblet Lake to the Ralls Island station, the longest line built for the project, was also completed. This concluded the three-year design and construction stage of the transmission project.

Two new stations, Thompson Birchtree Station and Wuskwatim Gas Insulated Station made significant progress in 2011, with commissioning of Birchtree completed in August, which concluded the five-year design and construction phase for the station. Construction of the Wuskwatim Gas Insulated Station was also completed in August, however power from the new generating station is required to complete the station's final commissioning.

Other significant milestones included completion of the Wuskwatim collector lines that run from the Wuskwatim Generating Station to the Wuskwatim Gas Insulated Station, the sectionalization of the K24W Transmission Line (Kelsey to Mystery Lake), and final commissioning at Ralls Island and Herblet Lake stations.

Workers moved forward on preparation and preservation of shorelines.

The end of summer was considered the unofficial completion of the Wuskwatim Transmission Project with nearly 99% of all work completed, except for some minor work at the generating station that will be completed after first power in 2012.

PROJECT MONITORING

Manitoba Hydro, acting as management service provider, with participation in some areas by Nisichawayasihk Cree Nation conducted:

- Analyses of project employment, labour income, purchases and other economic indicators for the sixth year of construction activities
- Heritage resource investigations at Wuskwatim Falls, Wuskwatim Falls Island and the south shore of the Burntwood River below Wuskwatim Falls where human remains were found
- Summer and fall Ethinesewin tours involving NCN Elders and youth in sharing traditional knowledge and wisdom of the Nisichawayasihk people, as part of monitoring the project site and surrounding areas to ensure appropriate protection of aquatic and terrestrial environments, and cultural and heritage sites
- An aerial survey of Wapisu woodland caribou to estimate the size of the herd

- A breeding-bird survey to determine if birds are choosing areas close to disturbance or preferring areas deeper into the forest. The study concluded that little difference in abundance of birds or diversity (number of species) exists between transects closest to the access road and transects further into the forest
- Water-quality monitoring for various parameters including nutrients at 13 locations upstream and downstream of the station from Wuskwatim Lake to Split Lake, with no change in water quality detected
- Wastewater lagoon sampling and analysis during final release for routine parameters, including ammonia, with analyzed samples indicating provincial guidelines were met
- Total suspended solids and turbidity monitoring in the Burntwood River and Split Lake before, during and after major in-stream construction activities (including removal of both upstream and downstream cofferdams, the systematic watering up of the intake
- and tailrace and forebay impoundment) with monitoring indicating no significant change in total suspended solids during in-stream construction
- Aerial and land-based baseline evaluation surveys to locate beaver lodges and food caches, and assess the level of beaver

activity throughout the project area

- Collection of muscle and liver samples from beaver, muskrat, otter and mink throughout the project area and analyzed for mercury concentration as baseline information
- Inspections along the access road that detected invasive species such as alfalfa, with a management plan being prepared
- Tree seedlings planted as part of rehabilitation efforts are monitored for success. Growth and survival of a large proportion have been observed.

ABORIGINAL PARTICIPATION

Achievements in Aboriginal participation on the project included:

- Maintaining over 37 percent of hires as Aboriginal since the start of construction
- Expenditures over \$14 million during the past year on goods and services from Northern Manitoba Aboriginal businesses totalling almost \$158 million since the project began
- Continuing with culturally appropriate, retention-support programs aimed at keeping Aboriginal workers employed on the project and ensuring sensitivity and



respect for local culture is present throughout construction

- Continuing employment of an Employee Liaison Officer to act as an employee representative at site and to assist NCN citizens and others interested in employment at Wuskwatim
- Continuing to provide a shuttle van service that runs from the site to Thompson and Nelson House to accommodate workers without vehicles
- Conducting 14 cross-cultural awareness workshops using NCN-trained facilitators with NCN Elders, bringing the total number of workshops since start of construction to 106 involving 1 514 workers
- Performing 35 ceremonies and sweats since the start of construction, including ten sweat lodge ceremonies and three pipe ceremonies
- Conducting site ceremonies at key milestones using NCN Spiritual/ Traditional Citizens to respect local culture and traditions.
- Involving Elders and community Citizens in an open house to share results of monitoring programs
- Hiring four NCN Citizens as apprentices with Andritz Hydro, the contractor installing Wuskwatim's three turbines and generators, to pilot the company's recruitment approach for its Aboriginal Careers Program
- Operating periodic site tours from Nelson House to the Wuskwatim site for NCN

Citizens' interested in visiting the facility, which involved 10 tours for 185 NCN Citizens over the fiscal year.

PROJECT COMMUNICATIONS

Since the project's inception, Wuskwatim Power Limited Partnership has provided on-going project communications including:

- The project website, www.wuskwatim.ca, provides comprehensive project information:
 - Regularly updated construction progress, schedule and employment statistics
 - A Website photo gallery updated several times a year and an annual video summary of project progress prepared in English and Cree
- Each year, WPLP prepares and publishes this Year in Review report as well as a detailed Monitoring Overview report that highlights activities and findings of the environmental and socio-economic monitoring programs; both reports are distributed to NCN Citizens on and off reserve and Cree audio summaries are available on CD
- The project's Monitoring Advisory Committee schedules an annual open house in Nelson House to provide Citizens with information on the monitoring programs and to answer their questions and engage in discussions
- Periodically the Wuskwatim Implementation Office in Nelson House publishes projectrelated newsletters, which are distributed to NCN Citizens on and off reserve.

SAFETY

The Accident Frequency Rate at the Wuskwatim site continues to be better than the Manitoba average. Safety-related items during the year included:

- Five lost-time injuries resulting in 98 days lost, which is a considerable decrease in both lost-time injuries and days lost compared to last year. In April of 2011, a fatality occurred at the Wuskwatim site when a metal bar struck a contractor worker during the decommissioning of a building on site. The Department of Labour undertook a thorough investigation and issued a corrective action order to the contractor to ensure remaining work was completed as safely as possible.
- Ongoing provision of a comprehensive sitespecific safety orientation for all employees.

TRANSITION TO OPERATING PHASE

With the in-service date of Wuskwatim's first unit only months away, NCN and Manitoba Hydro continued to discuss operational issues including construction-camp infrastructure, potential direct contract opportunities, access management and Wuskwatim Generating Station employment. Ongoing dialogue will continue throughout the upcoming year. Acting on a commitment in the 2006 PDA, the partners continue to work collaboratively to maximize NCN Citizen employment in Manitoba Hydro's ongoing operations.

Ethinesewin tours involve NCN Elders and youth as part of monitoring the project site and surrounding areas to ensure appropriate protection of aquatic and terrestrial environments, and cultural and heritage sites.

Financial Report



Partnership Assets, Liabilities and Equity (as at March 31)

(in millions of dollars)	2012	2011
Assets		
Construction in progress - generating station	1 259	1 098
Construction in progress - transmission line	296	265
Other assets	3	7
	1 558	1 370
Liabilities and Equity		
Long-term debt	1 201	1 058
Other liabilities	54	48
Equity	303	264
	1 558	1 370







Partners' Capital (as at March 31, 2012)

	Units	%	Capital (in millions of dollars)
General Partner ¹	30.283	0.01	-
Manitoba Hydro	202 868.050	66.99	203
Taskinigahp Power Corporation	99 935.000	33.00	100
	302 833.333	100.00	303

Financing and Investing Activities (for the year ended March 31)

2012	2011
39	75
143	254
182	329
(156)	(299)
(27)	(31)
1	1
(182)	(329)
	2012 39 143 182 (156) (27) 1 (182)

¹ The business affairs of WPLP are carried out by a general partner (GP), 5022649 Manitoba Ltd., a wholly-owned Manitoba Hydro subsidiary.



www.wuskwatim.ca

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