



**WUSKWATIM**

Power Limited Partnership

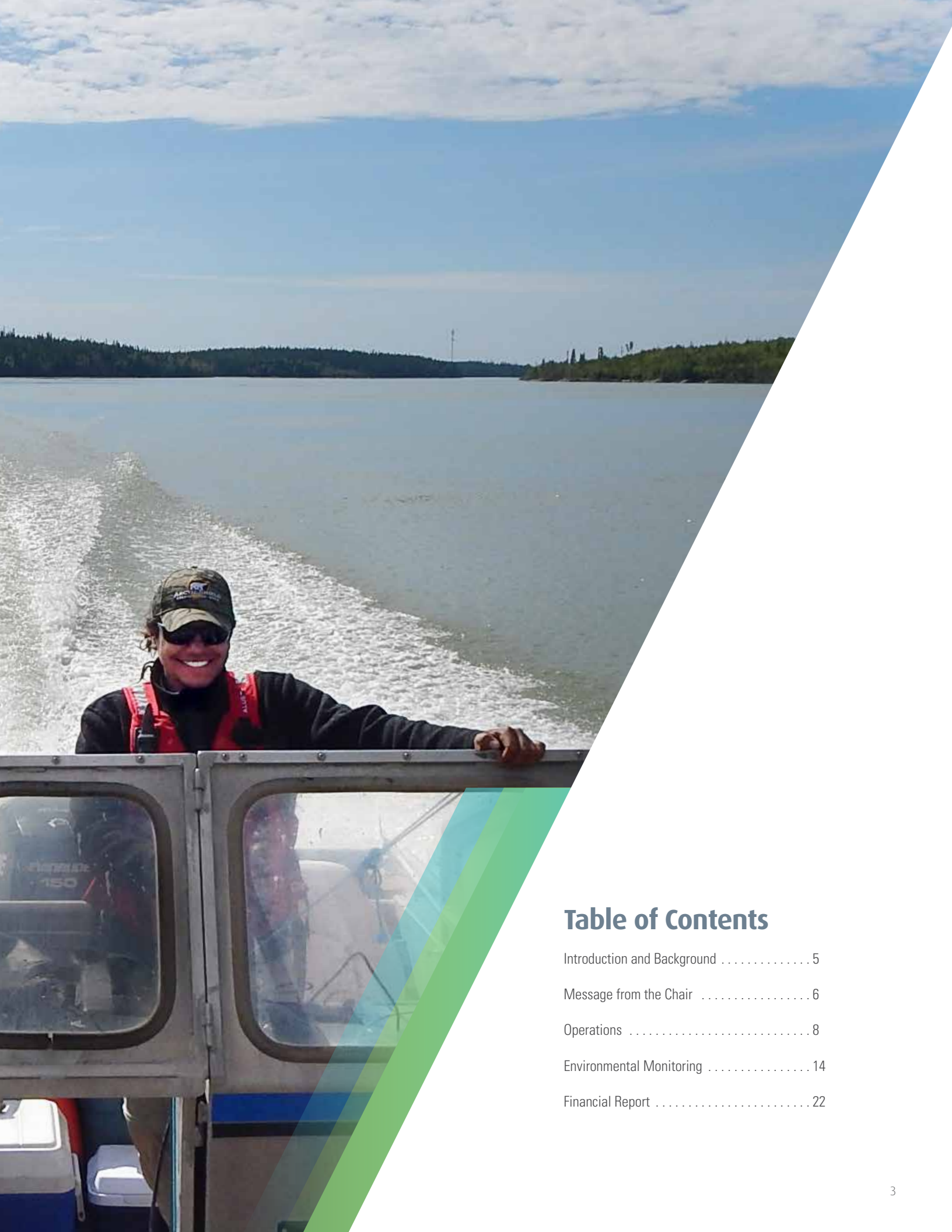


2013-2014

# Year in Review

**FOR THE YEAR ENDED MARCH 31, 2014**





## Table of Contents

Introduction and Background .....	5
Message from the Chair .....	6
Operations .....	8
Environmental Monitoring .....	14
Financial Report .....	22



**DIRECTORS OF THE GENERAL PARTNER OF WPLP  
(L TO R)**

- Lorne Midford, Chair (Manitoba Hydro)
- Nancy Willms (Manitoba Hydro)
- Darren Rainkie (Manitoba Hydro)
- Wesley Penner (Manitoba Hydro)
- Marcel Moody (Nisichawayasihk Cree Nation)
- Jimmy Hunter Spence (Nisichawayasihk Cree Nation)



## Wuskwatim Power Limited Partnership

Wuskwatim Power Limited Partnership (WPLP), a legal entity involving Manitoba Hydro and Nisichawayasihk Cree Nation (NCN) through its wholly owned Taskinigaahp Power Corporation (TPC), has developed the Wuskwatim Generating Station on the Burntwood River in northern Manitoba. It 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 and operate a hydroelectric project. Manitoba Hydro provided construction services and continues to provide management and operational services to WPLP in accordance with the Project Development Agreement (PDA).



# Introduction and Background

**N**isichawayasihk Cree Nation and Manitoba Hydro spent nearly a decade discussing, planning and undertaking the environmental studies and regulatory processes for the 200-megawatt Wuskwatim Generation Project now completed and operating in NCN's traditional territory on the Burntwood River downstream of Wuskwatim Lake at Taskinigup Falls.

In 2006, the Wuskwatim Project Development Agreement (PDA) that governs all aspects of the project was approved by NCN Citizens and signed by senior Manitoba Hydro officials and NCN's Chief and Council. Construction started in August that year. The agreement provided the option for NCN to own up to one-third of the Wuskwatim Generating Station through its wholly owned Taskinigahp Power Corporation. At first power, in June 2012, NCN confirmed its intent to maintain its 33 percent ownership position in the Wuskwatim Project.

The Wuskwatim Power Limited Partnership (WPLP) Board of Directors, consisting of two NCN and four Manitoba Hydro representatives, governs a general partner (5022649 Manitoba Ltd., a wholly owned Manitoba Hydro subsidiary) to carry out WPLP's business affairs. Pursuant to the PDA, WPLP contracted Manitoba Hydro to construct, manage, operate and maintain the Wuskwatim Generating Station.

Manitoba has a large self-renewing supply of waterpower with many hydroelectric generating stations developed to provide electrical energy for its citizens. Wuskwatim became fully operational in October 2012 and produces clean, renewable hydroelectric power. It is the first generating station project to be built in Manitoba in nearly two decades. It adds to Manitoba's generation assets and helps to meet Manitoba's future domestic needs and provides energy to export customers.



# Message from the Chair



**Lorne Midford,**  
Chair, Wuskwatim Power Limited Partnership

**F**iscal year 2013-2014 marks the first full year of operations for the Wuskwatim Generating Station since construction ended in December 2012.

With the shift from construction to full operating mode, the Year in Review and Monitoring Overview reports have been combined to reflect the change in activity.

This first fiscal year of plant operation was quite successful. Wuskwatim produced nearly 1.6 million megawatt-hours of electricity this year, about 102 percent of its forecasted production capacity due to favourable water flows that allowed production to exceed the average forecast output.

From a financial perspective, WPLP reported a net loss for 2013-14 of \$67 million which is \$4 million favourable when compared to the expectations for the first full year of operations. Hydro-electric generating stations characteristically show losses in the early years of operations due to high up-front carrying costs associated with significant initial capital investment.

All generators passed their one-year warranty inspections without issues. This will allow for a three-year maintenance schedule going forward and improve overall productivity.

Some issues were experienced with the generators and station in general, however confidence is high for their satisfactory resolution. The most significant issue was failed studs on the bottom discharge ring of the draft tube liner for each generating unit which took them out of service for 35 days. Temporary repairs are in place with a permanent repair under development.

Wuskwatim's availability factor was 93.4% for the fiscal year, which is very acceptable for the first year of operations. Wuskwatim's forced outage rate of 2.42 percent was higher than the one percent target for a new station and is largely attributable to the discharge ring stud issue. However, Wuskwatim's performance is expected to improve significantly in the next fiscal year.

Wuskwatim now operates with a full-time staff complement of 20 personnel and three shared positions, with 14 staff of Aboriginal descent. Including eight mechanical and electrical trainees on rotation as of March, a total of seven NCN Citizens were working at Wuskwatim.

To provide catering, housekeeping, maintenance and security services, WPLP signed a three-year services contract with the NCN Sodexo Joint Venture.

This year, the staffed security gate providing entry to the Wuskwatim access road was converted to an automated gate. More than 13,600 vehicles used the road this year with no safety incidents reported.

Although construction formally ended, some residual construction-related activity continued. This included extending a boat-launch breakwater and revegetating disturbed sites with native plants. Aski'otutoskeo Ltd. (AOL), NCN's environmental monitoring logistics company, hires NCN Citizens for tree-planting. This extensive program is expected to be complete by 2015.

AOL also conducted a 10-day *Ethinesewin* Traditional Knowledge tour of the Wuskwatim

generating station and surrounding area. The tour was led by NCN Elders and assisted by NCN youth.

A 15-year Wuskwatim monitoring plan will continue during operations. The first six years are scheduled, with the programs to be re-evaluated in the seventh year to determine future schedules.

Staff safety is a high priority, so ensuring safety training, procedures and protocols are in place is important. Over the past year, a joint health and safety committee with another Manitoba generating station was established and Wuskwatim personnel have been undergoing training and certification exercises. No lost-time incidents were reported since operations began, and only one no-lost-time incident was reported and investigated.

Wuskwatim is one of the newest and most modern generating stations in the world, and as a result requests are often made to tour the plant and this year we hosted five group tours, including 40 delegates from the U.S. Midwestern Governors Association educational conference.

Changes to the board of directors occurred this past year. Ken Adams, Chairperson since inception, retired from Manitoba Hydro and the Board. Joanne Flynn completed her term on the board and was replaced by Wesley Penner. Manitoba Hydro's Darren Rainkie and Nancy Willms remain. Marcel Moody, Nisichawayasihk Cree Nation Chief and Elder Jimmy Hunter-Spence continue to represent NCN.

The board extends thanks and appreciation to Ken and Joanne for their valuable contribution

and service and also to the many people who have contributed to the success of our first year of operations.



Lorne Midford  
Chair of the general partner of  
Wuskwatim Power Limited Partnership  
(5022649 Manitoba Ltd.)



# Operations

The early focus of operations was on commissioning the plant to ensure the complex array of plant equipment functions to specifications and integrates with other equipment and systems. All commissioning activities, some of which started before the plant began operating, were complete by the end of the fiscal year.

Critical activities in this first full year of operation included: assuring station performance, maintenance and repairs, staffing and staff training, systems and procedures, safety and access-road management.

## Station Performance

Manitoba Hydro uses three main criteria to measure generating station performance: Net generation output, unit availability and unit forced-outage rate. This is the first full year (April 1 to March 31) these measurements have been available.

### Net Generation Output

Wuskwatim produced 1,583,375 megawatt-hours of electricity this year, about 102 percent of its forecasted production capacity. Favourable water flows allowed production to exceed the average forecast output even with the extended repair and warranty-inspection outages experienced this past year.

Monthly production averaged 123,615 megawatt-hours with peak production of 140,461 megawatt-hours in May and a low production of 85,785 megawatt-hours in September due to the shutdown for repairs.

### Unit Availability Factor

The station demonstrated an average monthly unit availability factor of 93.44 percent, which is a measure of when the station is available to run when required. This was higher than the 90 percent target. Only two months were below target, September at 56 percent availability and June at 85.5 percent.

### Unit Forced-outage Rate

The station demonstrated a forced-outage rate of 2.42 percent, a measure of when an electrical or mechanical problem develops that removes the unit from service. This is higher than the target of less than one percent due to the discharge ring stud issue.

## Maintenance and Repairs

A regular maintenance schedule is required to ensure the generating station operates at peak efficiency and reliability. Maintenance schedules for the plant are being prepared or are completed.

Unexpected equipment malfunctions require repair or replacement of equipment parts and may result in shutdown of all or part of the generating station while malfunctions are addressed.

### One-Year Generator Warranty Inspections Successful

All generators were removed from service for their one-year warranty inspections and passed

## Wuskwatim Monthly Net Generation Output



\* September's low generation output resulted from shutdowns of all three generators to address discharge ring stud issues.



with minimum turbine cavitation wear reported. These generators will withstand a three-year maintenance interval quite easily thus increasing the plant availability.

### Discharge Ring Stud Replacement Required

All three units were forced out of service in late September 2013 due to failed studs on the bottom discharge ring of the draft tube liner of each unit. A remedial design by the equipment installer was accepted, and temporary studs were installed. Permanent stud materials will be provided. The bolts on all units were scheduled to be replaced starting the end of March and completed by the end of April, 2014.

### Oil Release Contained

In September, failure of a high-pressure oil pipe in the Unit 2 governor resulted in the release of 300 litres of oil, which was captured and contained.

### Redesign To Address Sump Cover Leakage

In September, bearing sump covers of Units 2 and 3 generators were observed to be leaking, requiring Wuskwatim operations staff to monitor them daily. New seals were installed but were unsuccessful. The equipment installer is designing an improvement and addressed the issue during the shutdown for discharge ring stud replacement late in the year.

### Bearing Drain Leak Monitored

Also in September, the Unit 1 generator bearing drain valve was reported leaking with containment in place and the valve monitored daily.



### Staffing

#### Full-time and Shared Positions

As of the end of March, Wuskwatim employed 20 full-time staff and three shared positions. These positions include technical/specialized jobs and non-technical positions. Examples of the technical and specialized jobs are: Plant Manager and Engineering Technician; examples of the shared non-technical positions are: Office Supervisor and Planner/Analyst.

Besides the regular complement of Wuskwatim employees, the plant also hosted five mechanical and three electrical trainees on rotation throughout Manitoba.

#### Aboriginal and NCN Representation

Of the regular station employee complement at the end of March, 14 are of Aboriginal descent. Including the mechanical and electrical trainees on rotation, there were a total of seven NCN Citizens working at Wuskwatim in March.

*The energy output of Wuskwatim provided all the electrical energy needs of approximately 97,000 Manitoba households during this fiscal year.*



### Cultural Awareness Workshops Held

NCN's cross-cultural coordinator was recruited to coordinate Aboriginal cultural-awareness workshops for all operations staff in summer 2013.

### Staff Accommodations

Most remote generating stations provide a dedicated staff house to provide employees with comfortable accommodations and meals while away from home on their job rotations. Part of Wuskwatim's original construction camp was retained and reconfigured to provide ongoing accommodation and catering services.

### Direct-contract Opportunities

In May 2013, NCN and Sodexo Joint Venture negotiated a three-year services contract, its first for Wuskwatim operations. The contract covers staff-house catering, janitorial, housekeeping, security, grounds keeping and general maintenance, snow removal for roads and grounds and water treatment plant operation.

As part of the automated gate construction, Nisichawayasihk Construction Limited Partnership (NCLP) was awarded a direct-negotiated contract for required earth works.

### Systems and Procedures

Initial operations activities reported in last year's Year in Review focused on developing work management systems, procedures and documenting station equipment. Following is the status of those items by the end of the 2013-2014 fiscal year.

- Developing the station's Operating Procedure Manuals, which began in 2011, is 75 percent complete
- Implementing the Work Management System:
  - Determining maintenance frequencies, work scheduling and implementing the station's Safety and Environmental Management System are complete

- Recording all installed equipment and establishing maintenance requirements and draft procedures is 50 percent complete.

### Safety

Monthly safety incident and activity reports are prepared. Notable safety activities the past year include:

- Training Wuskwatim Emergency Response Crew members and forming a joint Workplace Safety and Health Committee with the Kelsey Generating Station
- No lost-time incidents since operations began.

### Access-road Management/Use

Construction of the 48-kilometre access road was started in 2006 to link the generating station site with Provincial Road 391. Originally it provided access for workers and materials throughout construction, but now serves operations. WPLP owns and maintains the road. From the outset, access has been restricted and controlled by a gate staffed 24 hours per day, seven days per week.

### Automated Gate Installed

In early 2013 a decision was made to install a fully automated gate, which was identified as a future possibility years earlier. Construction began in October and the gate was operational by late February 2014.

The gate still maintains 24-7 access control using proximity cards issued to authorized users, or by remote control from the station. A video-monitoring camera provides visual security and a database records access information. An access-management protocol is in place that allows access to local trappers and hunters. The long-term Operations Access Management Plan was revised to incorporate

this change and a revised Access Restrictions brochure was prepared.

### Access Road Traffic

Over the fiscal year, 13,648 vehicles used the road averaging 37 vehicles per day or 1,137 per month. No safety incidents occurred during the reporting period.

### Navigation safety

A dedicated access road to the site was recognized as a way to increase opportunities for access and bring more people in contact with Wuskwatim Lake and areas downstream of the station on the Burntwood River. NCN and Manitoba Hydro implemented safety measures to mitigate potential effects of increased access and to assist resource users in reaching their trap lines safely.

Two winter trails along with safe-haven cabins for use by resource users such as hunters, fishers and berry pickers were established around the Wuskwatim site before construction.

During the 2013 open-water season, two NCN Citizens were hired through Manitoba Hydro's Waterways Management Program to patrol Wuskwatim Lake and gather data on debris type and quantity. The crew regularly patrolled a 33 kilometre travel route on the lake and removed 454 pieces of debris over the season. Work will continue in the open water season of 2014.

No safety incidents were reported over the past year on Wuskwatim Lake or downstream of the Burntwood River in the vicinity of the station.

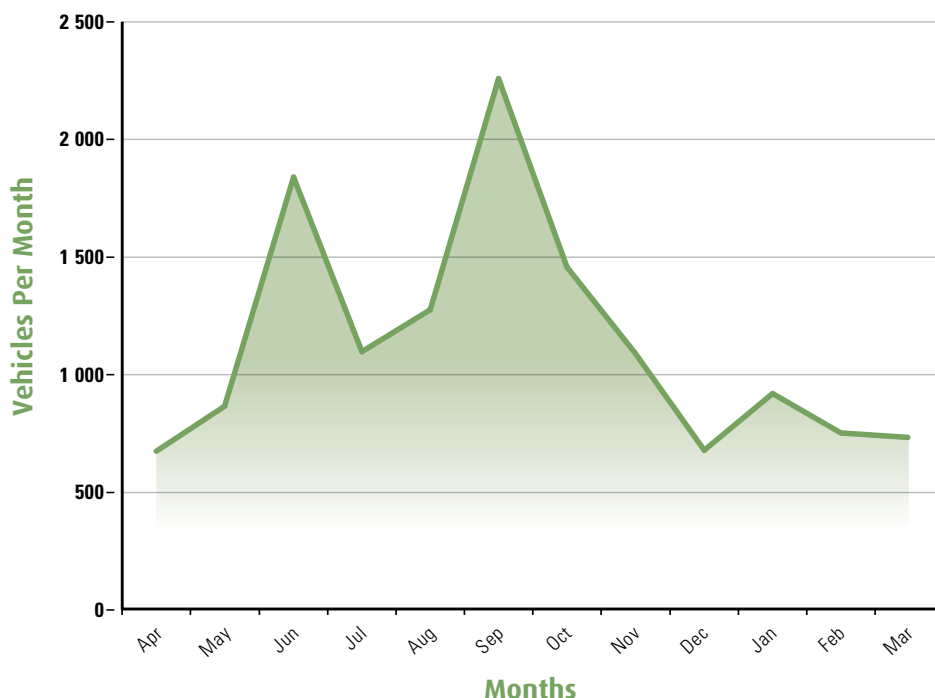
### Plant Tours

As one of the newest and most modern generating stations in the world, requests are often made by diverse groups to tour the plant. This year five tours were provided:



A fully automated gate was operational by late February 2014.

### Wuskwatim Access Road Traffic Volume



The access road handled over 13,600 vehicles last year averaging 37 per day.



Wuskwatim delivered 1,583,375 megawatts of electricity this year to Manitoba Hydro's southern and export markets. This was about 102 percent of its forecasted production capacity due to favourable water flows.

- 40 delegates from the U.S. Midwestern Governors Association educational conference involving 22 U.S. guests, along with Manitoba Hydro CEO Scott Thomson, senior Manitoba Hydro staff and NCN Leadership
- Nelson House Resource Management Board
- A regional land-managers association representing 22 Manitoba First Nations
- Joint Keeyask Development Agreement Operational Jobs Initiative working group
- Students from R.D. Parker Collegiate in neighbouring Thompson.

### Site Improvements and Rehabilitation

Several construction-related projects have continued into the operations phase including the extension of a breakwater, creation of a weir to enhance fish habitat, and continued activity to rehabilitate sites disturbed for construction but not needed for operations.

#### Breakwater Extension Constructed to Enhance Boater Safety

To improve safety on Wuskwatim Lake, construction of a breakwater started in 2010 to shelter the boat launch upstream of the Wuskwatim Generating Station and provide safe refuge for boaters. Only half (approximately 30 metres) of the proposed breakwater was initially built due to steeper-than-expected depth contours at the location.

The breakwater was extended and completed in 2013, consistent with the original design, with water-quality monitoring conducted during construction in accordance with the Wuskwatim Aquatic Effects Monitoring Plan. The monitoring results indicated that turbidity and total suspended solids remained relatively consistent across all monitoring locations and depths during the monitoring period.



### Road Converted To Weir to Enhance Fish Habitat

The No Net Loss Plan for Wuskwatim requires constructing and operating a rock-filled weir to maintain water levels in a 4.4-hectare bay downstream of the Wuskwatim Generating Station to enhance fish habitat. A construction access road crossing the bay was identified for conversion to the weir, with construction taking place in July and August 2013. A notch was initially cut in the road to enable fish passage, with a layer of clay and gravel used to seal the face of the existing access road. To complete the conversion, geotextile fabric was used to line the structure before riprap was overlaid. Fish using this bay are monitored as part of operations-phase monitoring.

### Generating Station Disturbed-site Rehabilitation Ongoing

The environmental approvals process for constructing the Wuskwatim Generating Station committed the Partnership to rehabilitate areas disturbed to build the project but not required for long-term station operation.

Rehabilitating approximately 550 hectares of disturbed land, including borrow pits, construction camps, contractor work areas, etc. is currently underway. To date, those activities include site preparation (sloping, grading and loosening compacted ground), establishing permanent erosion-control works, and re-vegetating cleared areas with native species.

Site re-vegetation involves hydroseeding (spraying a slurry of seed and mulch over the disturbed area) and tree planting. About seventy-seven hectares are seeded with native grass species. Tree planting is ongoing with about 280,000 jack pine, black spruce and white spruce tree seedlings already in place.

Aski'otuskeo Ltd. (AOL) hires NCN Citizens to conduct the tree planting with guidance from ecologists and a tree-planting company. It is a challenging task considering the short time available in spring and fall to plant the required number of seedlings but the AOL workers have gained considerable capacity and experience. Tree planting is expected to be completed by 2015.

WPLP has committed to restoring areas disturbed by construction with native tree species compatible with soil and topographic conditions.



# Environmental Monitoring

As part of Wuskwatim's federal and provincial licensing requirements, a rigorous environmental-monitoring program has been in place since before construction began.

With the generating station now operating, the monitoring program has evolved to focus on potential operations-related components to determine if the station is having any long-term environmental impacts upstream or downstream, on lands along the access road and at the station site. The Monitoring Advisory Committee (MAC), in place since construction began, met four times during the year. MAC hosted an open house in December 2013 in Nelson House.

## Ethinesewin Monitoring

*Ethinesewin* is the traditional knowledge and collective wisdom of Nisichawayasi

Nehethowuk (the people from where the three rivers meet and who speak the language of the four winds) that has been communicated orally for generations.

Like the traditional knowledge systems of other Aboriginal peoples, *Ethinesewin* includes observation, classification, description and recording observations and results. The central focus of *Ethinesewin* is on relationships with and between the land, nature and people.

Nisichawayasi Nehethowuk, and in particular the NCN Elders, have been sharing *Ethinesewin* with Manitoba Hydro and Aski'otutoskeo Ltd. as an integral part of the environmental monitoring activities conducted during station construction and the current Wuskwatim operation phases. Shared *Ethinesewin* is vital to ensuring the project achieves *Kistethichikewin*, meaning the

conduct of a person must adhere to the sacred responsibility to treat all things with respect and honour, according to *Kihche'othasowewin* (the Great Law of the Creator).

## Tour Conducted in August

In August 2013, NCN Elders assisted by NCN youth and support personnel conducted a ten-day *Ethinesewin* working tour of the Wuskwatim Generating Station and surrounding area. Participants used the Octagon at Wuskwatim Village on Wuskwatim Lake as their operations centre while on the tour.

Neither generating station construction nor operation required increases to water levels on Wuskwatim Lake, which now serves as the reservoir impounded by the Wuskwatim Generating Station and its earth-fill dam. The lake's water level was stabilized near the upper end of the range established with the 1970s-era Churchill River Diversion flows into

The inspection team sampled the fish population at the Mouth of Moose Creek, an important tributary to Wuskwatim Lake.



the Burntwood River system. The *Ethinesewin* monitoring participants are closely observing the lake for possible construction-related changes since 2006.

### Moose Creek Assessed for Fish Conditions and Future Use

At one inspection stop this year where a traditionally familiar tributary stream named Moose Creek flows in, the group set a net to capture and assess the ongoing condition of resident fish. One fish caught was a 60 cm walleye tagged earlier during the biophysical study program, conducted as part of the project's planning and licensing activities. This exercise provided a parallel opportunity to pass along knowledge about fishing practices to the accompanying NCN youth.

Although some Elders remembered the lake at one time being clear enough to see to the bottom before the river-diversion project, their focus now is considering future possibilities for the site. If cleaned of its woody debris, the mouth of Moose Creek could be enhanced as a spawning area, a transplant site for medicinal plants, or even a camping or burial-repatriation site. The creek already produces *wehkuskwa*, a traditional mint. The Elders believe it would also be ideal for harvesting *wihkis*, or ginger root, although none has been found in this creek so far.

### Forebay Inspection to Determine Adjustment to New Regime

The immediate forebay between Wuskwatim Lake and the generating station, a distance of just over one kilometre on the Burntwood River, has undergone significant changes from project construction. These include:

- Increased water depths, shoreline flooding, tree removal and rock excavation to



Gravesite remediation work and study is an important part of each *Ethinesewin* tour. The group manufactured new crosses at Wuskwatim Village to mark existing graves and replace deteriorated markers.

improve flow conditions at the entrance to the forebay

- Boulder garden placements as possible spawning habitat
- Cattail transplanting to erosion-susceptible shoreline areas.

The Elders are keenly interested in continuing to monitor this area to follow progress of the forebay's recovery and adjustment as a new aquatic regime. Particular attention during this year's inspection focused on the unanticipated rapid early erosion that was experienced along the new forebay's southwest shoreline and on what the best management measures are that may be applied there.

### Long-term Gravesite Remediation Remains a Priority

For many years, NCN Citizens and the Manitoba Historical Resources Branch have focused on remediation work and study of traditional gravesites along the Wuskwatim waterways as shoreline erosion from the earlier Churchill River Diversion continues. This year's group visited several sites to undertake some maintenance and conduct traditional ceremonies. The group's consensus was that ongoing work is needed to preserve the sites, including: erosion monitoring, possible shoreline protection measures, and managing woody debris on the shoreline, which continues to make access to the sites difficult.



NCN *Ethinesewin* participants prepare ginger root, a traditional medicine, gathered during the inspection tour. Ginger root is used to treat colds, respiratory problems and to boost energy levels.



Over the past two years, *Ethinesewin* tour participants have compiled a list of important cultural, archaeological, and otherwise historically important sites in the Wuskwatim area during their field inspections. Through discussion, the group continues to consider how this now-recorded information may be developed into educational tools and presentations for people touring the generating station site. This will also assist the Nisichawayasi Nehethowuk in preserving sites and handing down important cultural traditions.

### Soil Bioengineering and Fish-habitat Enhancement

Several Wuskwatim soil bioengineering and fish-habitat enhancement sites were reviewed this year to check on overall conditions and assess successes and/or failures of different methods used. The Elders see this work as an important part of giving back to Mother Earth. At each site, Elders observed that some methods were obviously working well, others were showing partial success and some were not showing encouraging results. For example:

- Some sites showed signs of new or ongoing erosion and bank instability while others showed no evidence
- Brush mattresses and crib walls (both methods designed for slope/bank stabilization) seemed to be working well in most places
- Where live stakes were planted, most sites had failed
- Raspberry and grass growth on the remediated slopes appeared to be developing well
- Rock armouring along shorelines needs to allow for the full range of water level fluctuations that are experienced
- Woody debris was noted to have repopulated the shorelines along many of the sites.



**Access Controls Proposed to Protect Borrow-Site Recovery**

The NCN team monitored progress in rehabilitating the access-road borrow pits this year by examining a variety of ongoing regrowth, including planted trees and naturally responding grasses, willows and raspberries. Trees planted where the surface soil is mainly sand have been lagging behind the others. The inspection group suggested additional access controls be established to protect borrow-site recovery.

**Stream-Crossing Rehabilitation Producing Results**

The NCN team has regularly monitored conditions at stream crossings along the Wuskwatim access road every year since the crossings were initially installed. During the August visit, the team observed clear water with minnows present and stable stream banks. Some beaver have become active building dams in the streams, and moose and caribou tracks have been found along with droppings indicating other small aquatic furbearers and birds are present.

The revegetation process is still underway in ditches at the stream crossing sites, and it is apparent that maintaining the rock dams and silt fencing will be needed for some time until the ditches have stabilized with erosion-resistant plants. Streams like these are a recognized source of medicinal plants and good harvesting areas.

**Identifying Opportunities for Cultivating and Harvesting Traditional Medicines a Priority**

This year, the NCN Elders and the rest of the monitoring group focused specifically on opportunities for cultivating and harvesting traditional medicines in the Wuskwatim area and, in particular, familiar shoreline medicines that will be affected by the long-term water level stabilization on Wuskwatim Lake.

These plants include: *wihkis* (ginger root);

*wehkuskwa* (mint); and *mwakopukwahtekwu* (Labrador tea).

*Wihkis* was harvested at sites on Wuskwatim Lake and prepared by the Elders for traditional use, which provided another learning opportunity for the NCN youth on the inspection tour.

The team proposed that the study of other shoreline plants and traditional medicines and possible effects of the water regime changes become the subject of future fieldwork involving medicinally knowledgeable NCN members.

**New Accessible Berry-Picking Sites Found**

The group also looked at new opportunities for berry picking provided by new access and construction sites created as part of the Wuskwatim hydroelectric generation and transmission projects. So far, small patches of blueberries, mossberries and cranberries have been identified at accessible sites located away from difficult shorelines.

The inspection team revisited the Wuskwatim Lake south-shore breakwater and Generating Station upstream boat launch site and was pleased with recent installations to help protect boaters travelling in the area: the extended breakwater, the new beacon light, and relocating an octagon shelter to the boat launch site.

**Stabilized Wuskwatim Water Levels May Reduce Erosion**

Erosion along the Wuskwatim Lake shore is evidently continuing, but may be slowed or otherwise changed by the reduced water level fluctuation with the Wuskwatim Generating Station in full operation. The Elders believe long-term shoreline-erosion monitoring on the Lake both upstream and downstream should continue indefinitely to confirm and quantify any actual changes that may relate to the project.



Balsam fir seedlings are being grown for planting in areas temporarily disturbed by construction or to replace stands lost to construction.



Inspections of access-road stream crossings generally indicated healthy aquatic vegetation growth, clear water flowing, and fish using the streams.

### Potential Sites For Balsam Fir Replanting Found Near Wuskwatim Village

Finally, the inspection group searched the area on the north side of Wuskwatim Lake around Wuskwatim Village to see if that area might be a successful location for introducing balsam fir being planted to replace stands lost with construction of the Wuskwatim Generating Station. Both younger and older balsam fir were found near the shoreline, indicating new plantings indeed could be successful in that area. Further assessment work to choose specific replanting locations is planned for the spring of 2014.

### Biophysical Monitoring

#### Harvest Calendar Study

A Harvest Calendar Study was initiated in December 2013, designed to compare pre- and post-project household harvesting

activities. It identifies any change primarily in the NCN Resource Management Area. Approximately 80 households are participating in the one-year study. It is expected to conclude in December 2014.

#### Soil Bioengineering on Wuskwatim Lake

Soil bioengineering uses locally available plant species to secure stream banks and help prevent erosion. Soil bioengineering was conducted at five trial sites on Wuskwatim Lake to monitor erosion rates and to assess effectiveness compared to adjacent unprotected sites. Monitoring activities took place in August 2013. While definitive conclusions will require more time, the trial sites are doing well overall. Monitoring vegetation and erosion rates will continue.

#### No Net Loss Plan

The No Net Loss Plan was developed to compensate for fish habitat affected by the

Wuskwatim Generating Station and related construction. Compensation included removing woody debris in tributaries and planting aquatic vegetation on Threepoint Lake, Wapisu Lake and Wuskwatim Lake. Rock and boulder gardens were also constructed in Wuskwatim Lake to create diverse fish habitat. A key focus of this plan involves monitoring to confirm whether fisheries enhancement activities are working as planned. In 2013 sites were sampled on Wapisu, Threepoint and Wuskwatim Lakes.

High water and ice conditions in spring prevented monitoring to determine whether debris removal increased use by spring-spawning fish. Sampling will be repeated again next year using different techniques to determine whether fish are using the tributaries. Sampling at the rock-and-boulder garden sites on Wuskwatim Lake confirmed large numbers of diverse species are using these areas in late summer.



### Other Monitoring Activities

Other monitoring conducted this year included:

- Mapping invasive plants and monitoring terrestrial mammal movements along the Wuskwatim access road
- Monitoring fish use and aquatic vegetation in fish-habitat enhancement areas
- Planting jack pine, black spruce and white spruce tree seedlings as part of site rehabilitation.

### Physical Monitoring

The Physical Environment Monitoring Program (PEMP) is an adaptive program designed to measure various physical environment components that may experience some change from Wuskwatim Generating Station operations. Physical environment components addressed in the PEMP include: climate, water regime, erosion, sediment transport and woody debris.

The geographic area subject to PEMP monitoring includes a section of the Burntwood River upstream of the Wuskwatim Generating Station to the foot of Early Morning Rapids, including Wuskwatim Lake and downstream to Birchtree Lake.

#### Climate

To characterize climatic conditions in the Wuskwatim monitoring area, weather data from six meteorological stations within the region was analyzed. The 2013-14 annual average temperature recorded at Thompson was colder than 1981 to 2010 normals, with total annual precipitation also below normal. No new daily extreme temperature or precipitation events were recorded during this monitoring period.

#### Water Regime

Flows at the Notigi Control Structure were near the operating maximum for much of the monitoring period, however, they were initially



Shorelines are surveyed during open-water season to assess and compare the shape of the banks from year to year.

reduced in mid-May and further reduced in late June. Increases to the operating maximum began in mid August and were completed by month end. Wuskwatim Lake operated within its licence limits of 233.75 metres to 234.0 metres, with the exception of five days when the lake exceeded 234.0 metres by up to a few centimetres.

#### Reservoir Greenhouse Gasses

Greenhouse gas monitoring results at the Wuskwatim Generating Station for 2012 and 2013, the first two years following Wuskwatim reservoir creation, show greenhouse gas (GHG) concentrations within the reservoir are in the same range as pre-impoundment conditions.

To establish a base line, pre-impoundment aquatic concentrations of CO<sub>2</sub> and CH<sub>4</sub> had been monitored from 2008 to 2011 as part of Manitoba Hydro's reservoir greenhouse gas program. To observe greenhouse gas concentrations at multiple locations over time, sampling took place during the ice-free season within the designated area of the station reservoir, upstream in Wuskwatim Lake and downstream along the Burntwood River.

Post-impoundment monitoring was conducted in 2012 and 2013 at the same sampling locations. In addition, a monitor was installed in the Wuskwatim Generating Station to continuously measure gas concentrations within the reservoir.

#### Shoreline Erosion

Erosion monitoring consists of surveying shorelines at 35 erosion-monitoring sites during open-water season to assess the shape of the banks and compare positions of the banks and nearshore underwater slopes from year to year. All sites were surveyed in 2012 and 2013.

#### Lake Monitoring Sites

Comparing 2013 to 2012, annual bank recession rates at lake monitoring sites show higher than average rates as compared to 2012 and 2011.

Of the 26 unaltered sites surveyed:

- 13 had negligible average bluff recession rates since 2012 (less than 0.25 metres per year)
- Eight had moderate recession rates (0.25 to 0.99 metres per year)
- Five had recession rates greater than one metre per year.

## River Monitoring Sites

Of the seven unaltered riverbank erosion sites downstream of the station:

- Five had negligible bluff recession (less than 0.25 metres per year)
- One had a moderate recession rate (0.25 to 0.99 metres per year)
- One had a recession rate greater than one metre per year.

The post-project increase in erosion rates at lake sites is consistent with a predicted increase due to the Project. It was also predicted that rates would decrease over time as shorelines gradually erode back to bedrock.

## Sediment Transport

Sediment transport data was collected in summer 2013 at 22 locations upstream and downstream of the Station. Total suspended solids (TSS), turbidity and sediment grain size data were measured at each site and bed load samples were measured at three sites.

With slightly above average 2013 flow conditions, average suspended-solids concentrations and turbidity levels observed were generally lower than in previous years. Results for sediment-grain-size analyses were consistent with past observations in the monitoring area. The results do not indicate any changes in sediment-transport conditions at the monitoring sites due to transitioning to the operation phase from construction.

## Socio-economic Monitoring

During construction a socio-economic monitoring program was in place. Construction employment was tracked and social monitoring undertaken, recognizing that the influx of hundreds of construction workers could potentially impact on housing and social stability particularly in Nelson House and Thompson. With the generating station now operating, socio-economic monitoring has concluded. Operations employment will be tracked throughout the life of the Project.

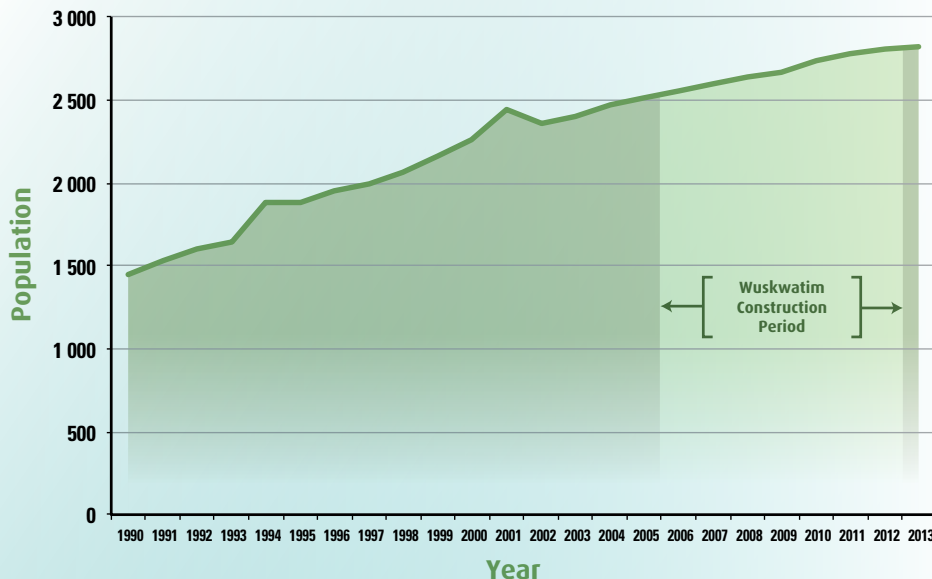
## Population Follow-up

Evaluation of population data for Nelson House and Thompson for the first full year following construction indicates little or no apparent impact on population trends attributable to Wuskwatim construction for either community when seen in the broader context of pre-construction and construction-era data.

## Social Survey

In July 2013 NCN's Aski'otutoskeo monitoring company and Manitoba Hydro conducted a joint survey project to provide a retrospective view of the effects of Wuskwatim Generation Project construction on community life in Nelson House, Nisichawayasihk Cree Nation's home community. Key community service providers were interviewed to determine their perspectives and observations as well as lessons learned. These representatives were invited to a follow-up workshop to review the survey results and provide additional details and perspectives.

## NCN On-Reserve Population (1990-2013)



Population graph for Nelson House from 1991 to 2013 shows minimal changes during the 2006-12 Wuskwatim construction period.

## NCN Impact Management Process

In October 2013 a comprehensive independent review of Wuskwatim training and employment initiatives and results was completed by Deloitte Consulting. The evaluation information summarized many successes that should be shared and repeated for future projects, and lessons that could inform future efforts.

## Construction Employment Updated to December 31, 2012

At the time the 2012/13 annual Monitoring Overview was published, employment data was only available up to November 30, 2012 (numbers in brackets following).

Since then, validation of the employee database was completed using labour reports provided by contractors that gives a more complete analysis of person-years\* of employment to December 31, 2012. The database validation indicated direct employment created on the project totalled 3,535 (2,859) person-years. Of this, 63 (70) percent, or 2,230 (2,001) person-years represented Manitoba employment. Total northern Manitoba and northern Manitoba Aboriginal employment represented 53 (54) percent or 1,174 (1,089) person-years and 44 (47) percent or 973 (944) person-years, respectively, of Manitoba employment.

\* A person-year of employment is defined as one full-time job for one year, typically about 2,000 hours of work.

### Multi-year Monitoring

With the transition to operations, a 15-year, two-phase monitoring plan was developed beginning with the 2013-14 fiscal year. Phase 1 ending in 2018-19 is mapped out in detail. Once Phase 1 findings are complete and analyzed, a Phase 2 plan and schedule will be developed to cover the subsequent seven-year period ending in 2025/26.

### Biophysical Monitoring

The biophysical plan covers three broad categories.

- Aquatic monitoring covers seven components: water quality, fish community, invertebrate's fish turbine passage, fish movements, bioengineering sites and mercury in fish. Four components, water quality, fish community, invertebrates and mercury in fish will be monitored every two years beginning in 2014/15. Fish movements will be monitored twice, in 2015/16 and 2017/18. Bioengineering sites will be monitored twice, in 2013/14 and 2014/15. Fish turbine passage will be monitored once in 2015/16.

Components	Year 1 2013/14	Year 2 2014/15	Year 3 2015/16	Year 4 2016/17	Year 5 2017/18	Year 6 2018/19	Year 7 2018/19
<b>ETHINESEWIN Monitoring</b>							
Traditional Knowledge Annual Tour	◆	◆	◆	◆	◆	◆	
<b>BIOPHYSICAL Monitoring</b>							
<b>Aquatic</b>							
Water Quality		◆		◆		◆	
Fish Community		◆		◆		◆	
Invertebrates		◆		◆		◆	
Fish Turbine Passage			◆				
Fish Movements			◆		◆		
Bioengineering Sites	◆	◆					
Mercury in Fish		◆		◆		◆	
<b>Terrestrial</b>							
Birds		◆		◆		◆	
Plants	◆	◆	◆	◆	◆	◆	
Mammals	◆	◆	◆	◆	◆	◆	
<b>Resource Use</b>							
Harvest Calendar Study	◆	◆					
<b>PHYSICAL Monitoring</b>							
Climate	◆	◆	◆	◆	◆	◆	
Water Regime	◆	◆	◆	◆	◆	◆	
Erosion	◆	◆	◆	◆	◆	◆	
Sediment Transport	◆	◆	◆	◆	◆	◆	
<b>SOCIO-ECONOMIC Monitoring</b>							
Operations Employment	◆	◆	◆	◆	◆	◆	

Evaluation and Adaptive Management

- Terrestrial monitoring covers birds, plants and mammals. Plants and mammals will be monitored annually. Birds will be monitored every two years starting in 2014/15.
- Resource-use monitoring will involve a two-year harvest calendar study that began in the 2013/14 fiscal year.

### Physical Monitoring

Physical monitoring examines climate, water regime, erosion, and sediment transport.

Monitoring will take place annually for the first six years, after which the monitoring frequency will be evaluated and subject to adaptive management going forward.

### Ethinesewin Monitoring

The *Ethinesewin* program administered by NCN will continue with one tour per year.

### Socio-economic Monitoring

Operations employment will be tracked throughout the life of the Project.

# 2013-2014 Financial Report

## Statement of Loss (For the year ended March 31)

(in millions of dollars)	2014	2013
<b>Revenue</b>	47	25
<b>Expenses</b>		
Operating and administrative	11	5
Finance expense	71	41
Depreciation	20	12
Amortization	7	4
Water rentals	5	3
	114	65
<b>Net Loss</b>	(67)	(40)

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

(in millions of dollars)	2014	2013
<b>Assets</b>		
Property, Plant and Equipment		
In-service (net)	1 305	1 313
Construction in progress	2	1
	1 307	1 314
Intangible Assets		
In-service (net)	294	299
Other Assets	10	9
	1 611	1 622
<b>Liabilities and Equity</b>		
Long-term debt	1 350	1 288
Other liabilities	39	47
Partners' capital	222	287
	1 611	1 622

## Partners' Capital (as at March 31, 2014)

	Units	%	(net) Capital (in millions of dollars)
General Partner <sup>1</sup>	32.867	0.01	-
Manitoba Hydro	220 173.800	66.99	149
Taskinigahp Power Corporation	108 460.000	33.00	73
	328 666.667	100.00	222

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

(in millions of dollars)	2014	2013
<b>Operating Activities</b>		
Cash receipts from customers	45	20
Cash paid to suppliers	(16)	(5)
Interest paid	(70)	(25)
Cash used for operating activities	(41)	(10)
<b>Financing Activities</b>		
Proceeds from issue of units of WPLP	2	24
Net proceeds from long-term debt	63	87
Cash provided by financing activities	65	111
<b>Investing Activities</b>		
Additions to property, plant and equipment	(22)	(87)
Additions to intangible assets	1	(14)
Other	(3)	-
Cash used for investing activities	(24)	(101)

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



**WUSKWATIM**  
Power Limited Partnership

[www.wuskwatim.ca](http://www.wuskwatim.ca)

Wuskwatim Power Limited Partnership  
360 Portage Avenue  
P.O. Box 815 Winnipeg, MB R3C 2P4  
Telephone: (204) 360-3860  
Fax: (204) 360-6131