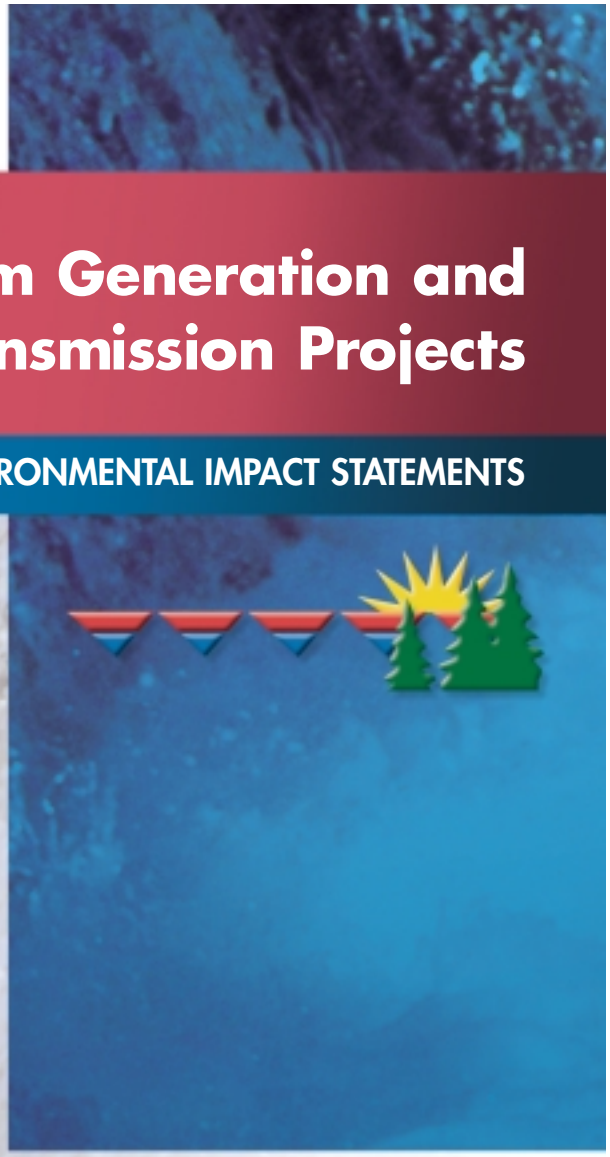
Wuskwatim Generation and Transmission Projects

INTEGRATED EXECUTIVE SUMMARY OF ENVIRONMENTAL IMPACT STATEMENTS



Manitoba Hydro

NISICHAWAYASIHK CREE NATION

APRIL 2003

TABLE OF CONTENTS

EXECUTIVE SUMMARY PREAMBLE

This Executive Summary highlights results of Environmental Impact Statements for the Wuskwatim Generation Project and Wuskwatim Transmission Project. Further detail is available in the Environmental Impact Statement for each Project, which is made up of a main volume and a series of supporting volumes. All documents will be available in the Manitoba Conservation Public Registry. The Executive Summary and main Environmental Impact Statements will be available on the Manitoba Hydro website (www.hydro.mb.ca/wuskwatim; once on the site, click Wuskwatim Generating Station from the Generation list). You may also order a CD through the website.

Wuskwatim Generation Project

Volume 1 Wuskwatim Generation Project – Environmental Impact Statement

Supporting Volumes:

Volume 2 Public Consultation and Involvement

Volume 3 Project Description and Evaluation of Alternatives

Volume 4 Physical Environment

Volume 5 Aquatic Environment

Volume 6 Terrestrial Environment

Volume 7 Resource Use

Volume 8 Socio-Economic Environment

Volume 9 Heritage Resources

Volume 10 Cumulative Effects Assessment

Wuskwatim Transmission Project

Volume 1 Wuskwatim Transmission Project – Environmental Impact Statement

Supporting Volumes:

Volume 2 Terrain Analysis and Ecological Land Classification

Volume 3 Aquatic Environment

Volume 4 Wildlife Environment

Volume 5 Forestry Environment

Volume 6 Land and Resource Use

Volume 7 Socio-Economic Environment

Volume 8 Heritage Resources

Note To Readers

This Executive Summary uses concise language to summarize several complex subjects. Readers are referred to the full Environmental Impact Statements for a complete understanding of these subjects.

1.0 INTRODUCTION

The Wuskwatim Generation Project (the Generation Project) involves development of a 200 megawatt generating station at Taskinigup Falls on the Burntwood River, and associated access road, construction camp and other infrastructure. The Generation Project is located in the Nelson House Resource Management Area (RMA) southwest of Thompson and southeast of Nelson House. A separate project, the Wuskwatim Transmission Project (the Transmission Project), involves development of associated transmission lines and stations to connect the new generating station to the existing Manitoba Hydro transmission system. These transmission facilities extend beyond the Nelson House RMA to Thompson, Snow Lake and The Pas.

Manitoba Hydro's current projections show that Manitoba domestic demand for new power generation for Manitobans is not required until 2020. By advancing the in-service date of the Wuskwatim Generation Project from 2020 to 2009, additional export revenues and profits will be possible. The additional power from the Wuskwatim Generation Project will assist in offsetting the decline in exports resulting from growth in demand from Manitoba. Such advancement will also contribute to reliability of power supply for Manitobans in the early time period and will assist in providing additional power in the event of higher than expected load growth. Current economic evaluations show an attractive rate of return on investment consistent with the relatively low risks associated with the Project. Review of the need for and alternatives to the Wuskwatim Generation and Transmission Projects is being undertaken by the Manitoba Clean Environment Commission. For further information see "Submission to the Manitoba Clean Environment Commission: Need for and Alternatives to the Wuskwatim Project," Manitoba Hydro, April 2003.

One of the exciting features of the Projects has been the involvement of NCN. Manitoba Hydro and Nisichawayasihk Cree Nation (NCN) have been jointly undertaking all the necessary engineering, environmental, consultation and other related activities to allow for the decision to commence construction of the Wuskwatim Projects (the Projects) in December 2003, with a targeted first power in-service date as early as 2009. Manitoba Hydro and NCN are proud of their cooperative approach to planning these projects, including the contribution of both Traditional Knowledge (TK) and scientific knowledge to environmental assessment studies. Under current understandings between NCN and Manitoba Hydro, NCN has an option to be a partner in the Generation Project with an interest of up to 33 per cent.

A separate Environmental Impact Statement (EIS) submission has been prepared for each of the Projects. Each EIS has been prepared in accordance with EIS Guidelines issued in April 2002, setting out the information required by government agencies. Provincial and federal regulatory approvals are needed, after review of the EIS filings, before any decision to construct can be made.

No decisions will be made to proceed with the Project pursuant to the current environmental applications until a Project Development Agreement has been completed, voted upon by NCN members, and approved both by NCN and Manitoba Hydro, which is expected by mid-October 2003.

NCN Elders consider the entire Nelson House Resource Management Area to be sacred and many areas therein – including the sensitive and important Wuskwatim Lake area – to still be disrupted as a result of flooding in the 1970s related to hydro-electric development. NCN's vision is to exercise sovereignty, including responsibility to the land and the yet unborn. Manitoba Hydro has its own environmental management policy, stating the Corporation's commitment to protecting the environment. Consequently, as a result of the new cooperative approach between NCN and Manitoba Hydro, every effort has been made to design the Wuskatim Projects so as to minimize further adverse effects to these lands and waters, to restore this environment where this is possible, and to sustain a prosperous socio-economic future in the decades to come for both the Nisichawayasihk Cree Nation and the rest of the people of Manitoba.

The involvement of the public, particularly the extensive involvement of NCN in all facets of project planning and the environmental impact assessment studies, has contributed substantially to planning that has limited adverse effects and enhanced positive effects of the Projects.

Senior Manitoba Hydro officials participated in the Wuskwatim site ceremony conducted by the Nisichawayasihk Cree Nation at Wuskwatim Lake. (From left: Chairman Vic Schroeder, NCN Chief Jerry Primrose, President and CEO Bob Brennan and Vice-president Al Snyder)

The Environmental Impact Statements conclude that the Projects are expected to create no significant adverse effects on the biophysical environments (i.e., land, water and air environments and associated aquatic life and terrestrial life) or related socio-economic environments (e.g., resource and other land use; economy; infrastructure and services; personal, family and community life; heritage resources). This reflects the choice of a design for the dam that minimizes flooding, an operating plan that reduces current annual fluctuations on Wuskwatim Lake resulting from the Churchill River Diversion (CRD) (even though some daily fluctuations will increase), careful routing of transmission lines and the access road that avoids environmentally and culturally sensitive sites, and appropriate mitigation measures that reduce or eliminate remaining potential adverse effects. Some residual adverse effects (for example, erosion and land use changes) are anticipated but are not considered to be significant. Given mitigation measures set out in the EIS, these conclusions apply to the Projects when considered individually, in combination with each other and with other known or planned projects (i.e., cumulative effects).

At the same time, positive biophysical effects are likely to result from displacing global green house gas emissions as well as reducing annual fluctuations in levels at Wuskwatim Lake that were caused by CRD. Positive effects for people are likely to result from construction-related employment and business benefits for NCN and other communities in the Northern Region, improved access to the Wuskwatim Lake area for NCN, and a Transmission Development Fund to provide ongoing community benefits to Aboriginal communities whose traditional use areas are traversed by the Transmission Project. Once in operation, the Generation Project is expected to yield long-term sustaining benefits for Manitoba Hydro (profits from export sales), for all Manitobans (export sales revenues helping to keep energy rates low; reliability of power supply), and for NCN (return on investment) if they choose to participate in ownership of the Generation Project.

1.1 OVERVIEW OF THE WUSKWATIM PROJECTS

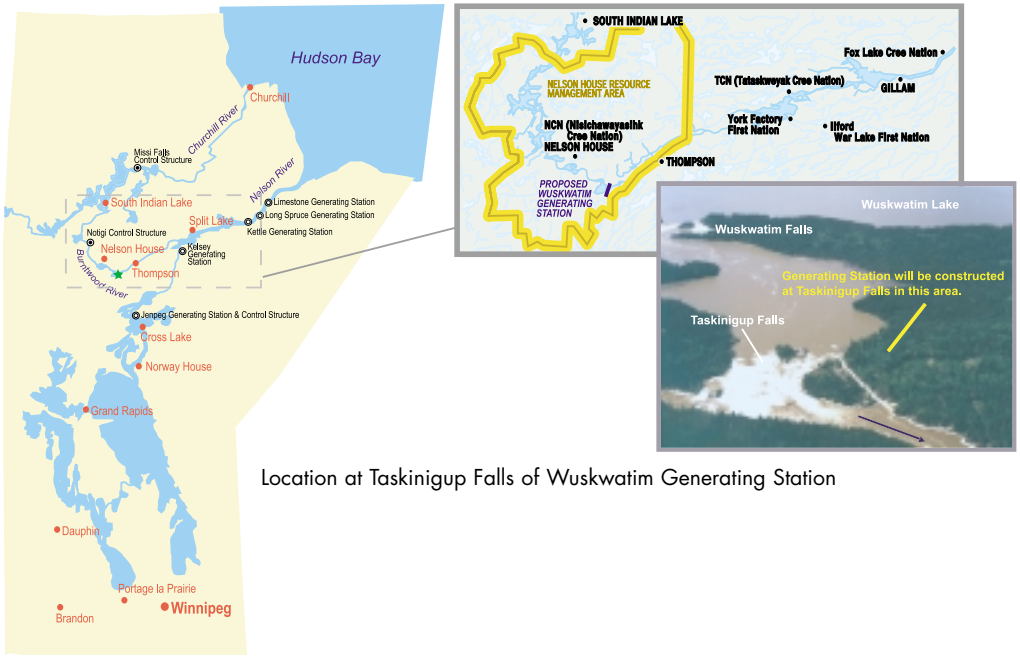
1.1.1 The Wuskwatim Generation Project

The Generation Project will be located about 45 kilometres southwest of Thompson (35 kilometres southeast of Nelson House) at Taskinigup Falls on the Burntwood River, near the outlet of Wuskwatim Lake (see Figure 1). With the generating station, normal elevation on Wuskwatim Lake will be at or very near 234 metres Above Sea Level (ASL; Hudson Bay is approximately sea level), which is near the upper range of water levels currently experienced under the CRD.

After discussion between NCN and Manitoba Hydro, a low head design was chosen over a high head design for the Generation Project. The low head design produces 200 megawatts of power compared to 350 megawatts from a high head design. The low head design minimizes environmental effects by reducing the amount of flooding to less than one-half square kilometre (about 37 hectares or 91 acres) compared to about 140 square kilometres with a high head design.

An example of beached debris along the northeast shore of Wuskwatim Lake

figure 1



Location at Taskinigup Falls of Wuskwatim Generating Station

Churchill River Diversion

During the 1970s, Manitoba Hydro built the Churchill River Diversion project. The CRD involved the construction of Missi Falls and Notigi control structures and the diversion of a major portion of the Churchill River down the Rat and Burntwood rivers into the lower Nelson River. The CRD resulted in substantial flooding in Southern Indian Lake, the Nelson House RMA, at Wuskwatim Lake and at Nelson House.

The CRD contributes to the generation of approximately 3,500 megawatts of generating capacity downstream of Split Lake on the Nelson River (Kettle Rapids, Long Spruce and Limestone). The CRD will continue to operate as it is operated today. This means that the Projects will operate under all CRD-related licenses and permits.

Water Levels and Flows

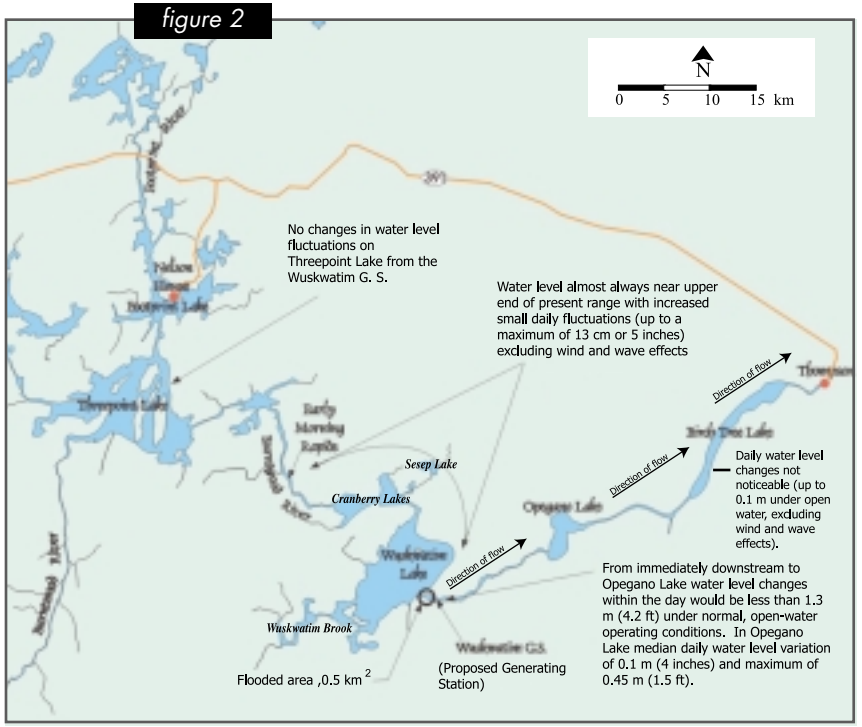
Water levels and flows along the Burntwood River upstream of Early Morning Rapids will not change, and downstream of Opegano Lake (Jackpine Falls) will not change noticeably, as a result of the construction and normal operation of the Generation Project. In the reach between Taskinigup Falls and Early Morning Rapids (including Wuskwatim Lake), the magnitude of annual water level fluctuations will be significantly reduced by the Generation Project. Between Taskinigup Falls down to and including Opegano Lake, daily water level fluctuations in the Burntwood River will be more frequent and greater in magnitude than at present (see Figure 2).

Less than one-half square kilometre (about 37 hectares or 91 acres) of land between Taskinigup Falls and Wuskwatim Falls (the outlet of Wuskwatim Lake) will be flooded (see Figure 3); water levels will rise approximately seven metres (23 feet) in the area immediately upstream of the generating station.

The generating station will normally be operated such that over a 24-hour period the amount of water flowing into Wuskwatim Lake will be the same as the amount of water discharged from the station. With respect to upstream water levels, the Generation Project will maintain Wuskwatim Lake and adjacent waterbodies (Cranberry Lake, Sesep Lake, and Wuskwatim Brook) at a year-round level typically near the upper range of water levels currently experienced under CRD. Operation of the generating station will result in increased, small daily water level changes on Wuskwatim Lake, up to a maximum of 13 centimetres (5 inches) excluding wind and wave effects.

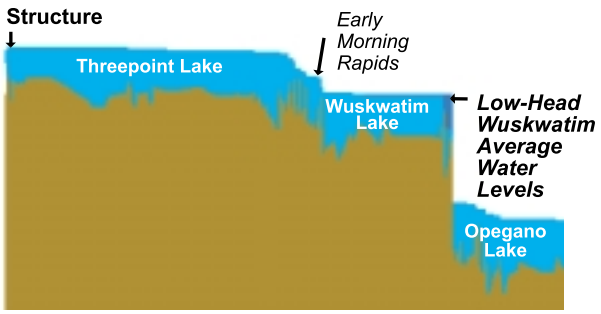
Under routine operating conditions (97.5 per cent of the time on a long-term basis), water levels on Wuskwatim Lake will be between elevations 233.75 metres (766.9 feet) and 234.0 metres (767.7 feet) ASL. Under abnormal operating conditions (i.e, during summer months with multi-year periods of low flow conditions and high power demand) or short-term emergency conditions, the full designated forebay operating range of one metre (3.3 feet) between 233 and 234 metres ASL may be used. Annual water level fluctuations on Wuskwatim Lake typically have been around one metre (three feet). Wuskwatim Lake has ranged between a minimum elevation of 232.6 metres (763.1 feet) and a maximum elevation of 234.3 metres (768.7 feet).

figure 2



Water Levels

figure 3



Average Water Levels with the Wuskwatim Generating Station

Low-Head Design

Shows average water levels on the Burntwood River between the Notigi Control Structure and Opegano Lake as will exist in the future with a low-head Wuskwatim Generation Project. The only change from existing water levels is an increase in water levels between Taskinigup Falls and Wuskwatim Falls, resulting in flooding of about 1/2 square kilometre of land (about 37 hectares or about 91 acres).

Operation of the generating station will result in daily water level fluctuations in the Burntwood River downstream. The largest fluctuations in downstream water levels will occur in the area immediately downstream of the generating station, ranging from 0 metres to 1.3 metres (4.2 feet) under normal, open-water operating conditions.[1,2] The daily fluctuations will decrease with distance downstream. The median daily water level fluctuation at Opegano Lake is estimated to be 0.1 metres (four inches) and the maximum is estimated to be 0.45 metres (1.5 feet). Downstream at Birch Tree Lake the daily water level changes due to the generating station would be "smoothed out" by the upstream lakes and rapids and would not be noticeable.[3]

Access Road and Camp Alternatives

An access road will be constructed between PR 391, at Mile 17, and the project site (see Figure 4). For the six-year construction phase, a construction camp, located adjacent to the project site, will house construction workers.

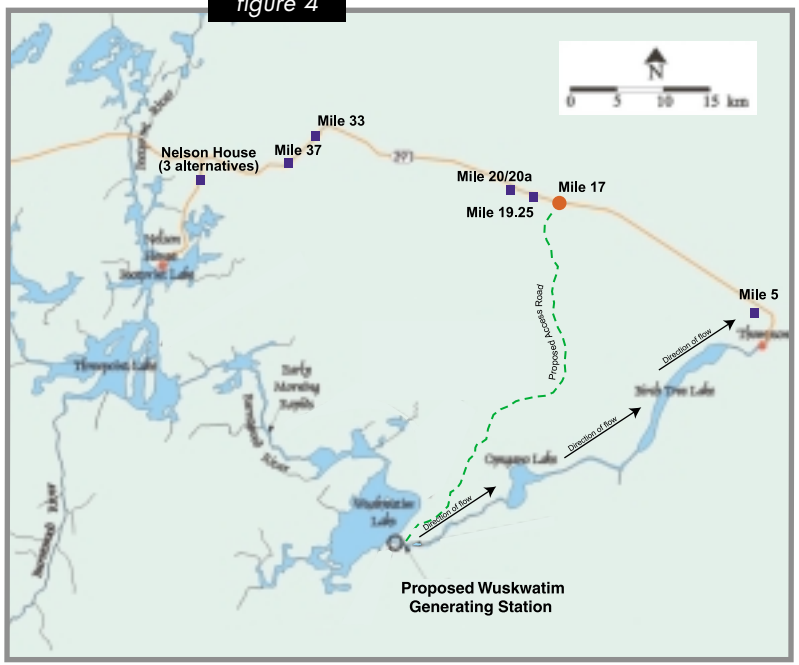
Road and camp locations were selected jointly by NCN and Manitoba Hydro from among a number of alternatives. The joint Manitoba Hydro and NCN committee examined and compared alternative access road and camp alternatives, considering effects on the environment, benefits and drawbacks for NCN and effects on the cost and schedule for the Project. NCN Elders consider the entire RMA to be sacred. Through this process, Traditional Knowledge (TK) was used to identify and avoid the most sensitive areas within the RMA when siting these facilities.

[1] Zero to 1.5 metres (4.8 feet) under normal winter operating conditions.

[2] This could be exceeded under emergency conditions (e.g., a coincident loss of Hydro DC transmission lines during low flow conditions on the Buntwood River and only one turbine in operation at the generating station). Under emergency conditions, water-level fluctuation immediately downstream of the station could be 2.75 metres (9 feet) for a few hours, which would be smoothed out by Opegano Lake.

[3] Daily water level fluctuations (wind and wave effects excluded) on Birch Tree Lake will be kept within 0.10 metres under open water conditions (0.15 metres under winter ice conditions).

figure 4



Wuskwatim Access Road and Points at which Other Alternatives Considered Intersect with PR 391

Manitoba Hydro and NCN will prepare an Access Management Plan that specifies how access should be managed on the new access road during the construction phase of the Wuskwatim Generation Project (2003 to 2009) -- how the benefits of the road (such as improved access for resource harvesting) can be retained and the problems (such as concern for over-hunting, over-fishing and vandalism to trappers' cabins) can be mitigated. The operations phase portion of the Access Management Plan (focusing on the period from 2009 onwards) will be prepared in consultation with the Nelson House Resource Management Board prior to 2009.

1.1.2 The Wuskwatim Transmission Project

The Generation Project will require the development of new transmission lines and stations to deliver electricity into the existing transmission system. The points of connection to the existing system will be at Thompson (at a proposed new station to be called Birchtree Station), at Snow Lake (at the existing Herblet Lake Station) and at The Pas (at the existing Rall's Island Station) (see Figure 5).

One 230 kilovolt transmission line will be required between Wuskwatim and the proposed Birchtree Station; two 230 kilovolt lines will be required between Wuskwatim and the existing Herblet Lake Station; and one 230 kilovolt line will be required between the existing Herblet Lake Station and Rall's Island Station. The 230 kilovolt transmission line between Wuskwatim and Birchtree Station (initially tapped from an existing 230 kilovolt line) will be used initially to provide construction power for development of the generating station.

The proposed Birchtree Station will be located to the east of Provincial Trunk Highway (PTH) 6, south of the City of Thompson, along the right-of-way of the existing K24W transmission line. Manitoba Hydro had previously purchased property in the area, but additional properties will have to be acquired for the station site. The station development will entail connection of the Wuskwatim to Birchtree Station line; connecting K24W to the site; and associated equipment installations. A new Wuskwatim Switching Station, to be located within the footprint of the generating station site, will be required to connect the 230 kilovolt lines from each of the three generating units, from Wuskwatim to Birchtree Station, and from Wuskwatim to Herblet Lake Station.

The connection of Wuskwatim to the transmission system at Snow Lake will be made at the existing Herblet Lake Station. Development of the proposed project will require connection of the two new 230 kilovolt lines from Wuskwatim, connection of the new 230 kilovolt line to Rall's Island Station at The Pas, and related equipment additions at Herblet Lake Station.

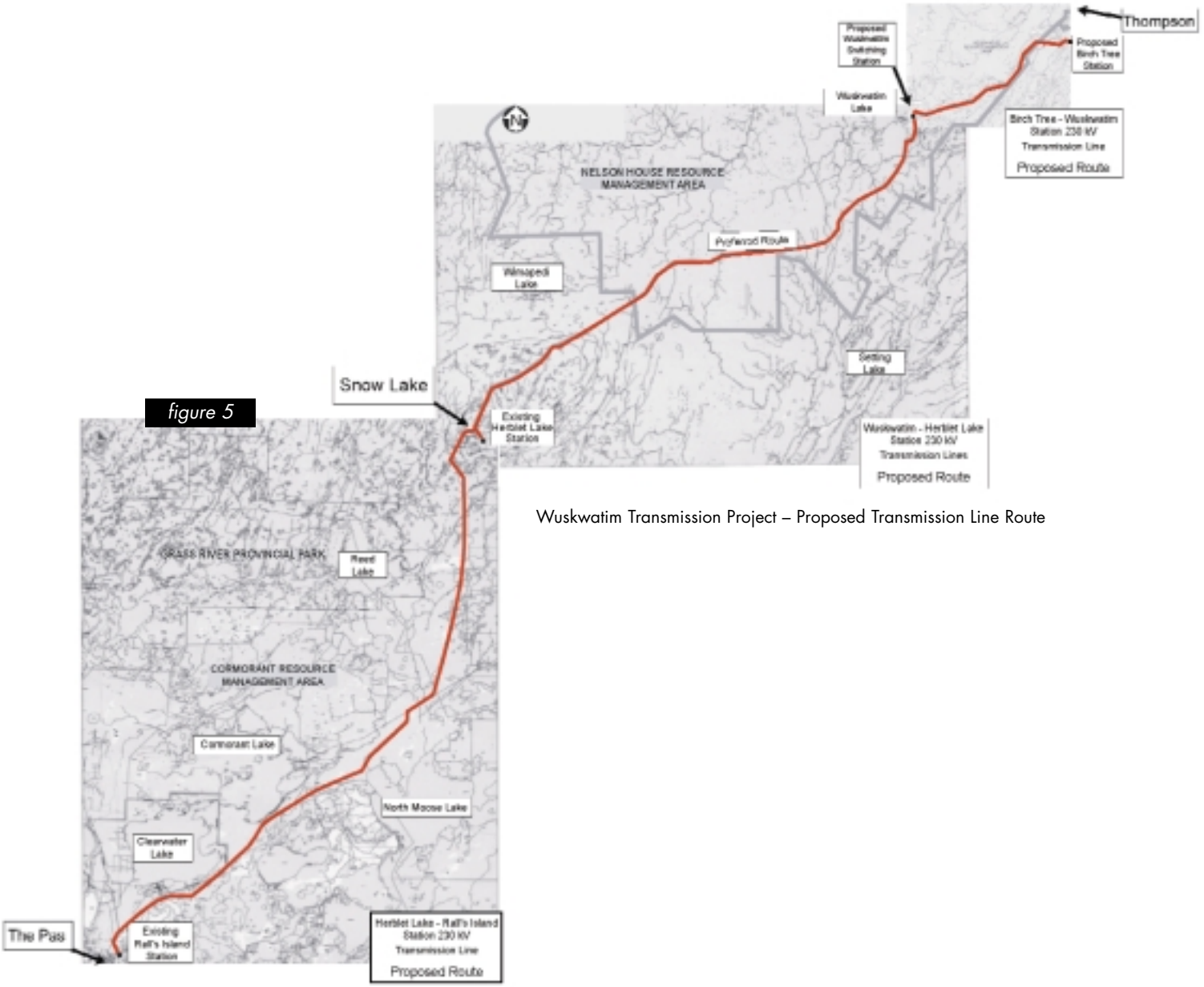
Development of the project will also require connection of the 230 kilovolt transmission line from Herblet Lake Station and related equipment additions at the existing Rall's Island Station. At both stations, equipment additions will be contained within the existing station sites. Although development of the various components is triggered directly by the need to deliver the Wuskwatim electricity to the system, the Herblet Lake to Rall's Island transmission line will improve system performance and reliability.

Site Selection and Environmental Assessment Process

To identify proposed routes for the transmission lines, a Site Selection and Environmental Assessment (SSEA) study was initiated. The collaborative assessment approach for the project used scientific analysis and evaluation of environmental effects, as part of the SSEA process, together with TK, local input and knowledge, and other perspectives on measures for avoidance, minimization and mitigation of potential adverse effects. Manitoba Hydro and NCN have attempted to balance biophysical, socio-economic, technical (engineering) and cost perspectives, with input from an ongoing public involvement program, in route selection for the proposed transmission lines.

The SSEA process seeks to avoid adverse environmental effects and enhance potential benefits wherever possible and practical. Where effects cannot be avoided, routes that best lend themselves to effective mitigation and sound management for limiting potential adverse effects are selected.

figure 5



Wuskwatim Transmission Project – Proposed Transmission Line Route

The SSEA process involved the systematic refinement and reduction of the project area to identify issues and assess the best balanced choice of preferred routes. The SSEA process is a staged approach which includes the following:

- Describing regional characteristics within the general project area (including potentially sensitive biophysical, socio-economic and cultural features, as well as routing opportunities);
- Identifying regional and site-specific constraints and opportunities for transmission line routing;
- Identifying alternative routes, and evaluating and comparing them;
- Selecting preferred routes that balance technical considerations, effects on the environment and people, and cost; and
- Identifying potential effects and mitigative measures to manage effects (e.g., to reduce adverse effects and enhance benefits).

Public involvement is an essential part of the planning process and has involved a series of ongoing public involvement activities with First Nations, Aboriginal people, local governments, environmental interest groups, as well as potentially affected stakeholders, resource users and the general public.

Alternative Routes for the Wuskwatim Transmission Lines

Alternative routes for the proposed transmission lines were identified following an initial round of public involvement with NCN and other potentially affected communities outside the Nelson House RMA. TK and the advice of NCN members were key to the identification of alternative (and preferred) routes in the Nelson House RMA between Wuskwatim and Birchtree Station, and Wuskwatim and Herblet Lake Station.

The second round of public involvement focused on alternative routes for the proposed transmission lines. Once the alternative routes were identified, they were evaluated and compared on the basis of public input (including local and TK), biophysical, socio-economic, technical and cost considerations.

For each transmission line, alternative routes were compared and evaluated according to the various factors identified above, including the following: TK and local input in identification of sites of potential effect; effects on people, including proximity to cabins and potential effects on existing land uses including mining operations, airports, and other uses; effects on the environment; technical limitations; routing opportunities; and cost. Following the evaluation and comparison of alternative routes, preferred routes were identified and were the focus of the third round of public involvement.

Transmission Development Fund

Manitoba Hydro will be talking with Aboriginal communities about a proposed Transmission Development Fund to provide long-term community benefits to Aboriginal communities whose traditional use areas may be traversed by the development of the Wuskwatim Transmission Project.

The Transmission Development Fund will be linked to the capital costs of the relevant new transmission facilities being developed on Crown lands traditionally used by Aboriginal communities in the vicinity of the new facilities. The Fund will continue for the life of the transmission facilities.

The capital of the Fund, which will remain the property of Manitoba Hydro, will be invested in secure eligible investments. Manitoba Hydro will consult with Aboriginal communities who have an interest in the Fund before reaching understandings on how the income will be distributed from the Fund and the guidelines regarding appropriate use of the income to be distributed.

1.2 NCN INVOLVEMENT IN PLANNING FOR THE WUSKWATIM PROJECTS

In 2001, NCN and Manitoba Hydro ratified an Agreement-in-Principle regarding possible future development of the Projects, including the opportunity for NCN to invest in ownership of the Generation Project. The Agreement-in-Principle was subject to a ratification vote of all NCN members and passed with a large majority. The Agreement-in-Principle is not legally binding, but sets out a series of topics to be discussed between the parties to develop a binding Project Development Agreement and related agreements. When completed in 2003, the Project Development Agreement will also be subject to a ratification vote of NCN members and approval by the Manitoba Hydro-Electric Board.

NCN has been actively involved with Manitoba Hydro in all aspects of planning for the Projects. This has included working with Manitoba Hydro on key aspects of the Projects, such as choice of a low head design for the generating station, joint selection of an Environmental Management Team (to undertake environmental impact assessment studies), design, implementation and review of environmental impact assessment studies and development and implementation of the joint public involvement process.

The NCN Future Development Team has made community involvement a key component of their planning for the Wuskwatim Projects. The involvement of NCN members is essential to determining whether the Projects are right for the community.

Significant community-based planning activities have been undertaken since 1999. Consultations with NCN members have occurred on all aspects of the Projects to be located within the Nelson House RMA, including assessment of alternative road and construction camp locations and those portions of the transmission lines located principally within the Nelson House RMA. NCN members have also played key roles in gathering field information and providing Traditional Knowledge to the studies being conducted for the Projects.

In addition to a secret-ballot vote on the Agreement-in-Principle, other community involvement measures have included:

- **Community Consultants:** Local residents hired by NCN in Nelson House and South Indian Lake to assist in consulting with NCN members and planning for the Projects.

NCN Community Consultants (Back left: Conrad Moore, Dennis Linklater, Crystal Wood, Val Dysart, Donna Linklater-Moore, Ryan Spence, Mike Dumas. Front left: Henry Wood, Charlie James Hart, Jimmy D. Spence, Mark Linklater. Missing From Photo: Earl Hart, Terry Linklater, Charlie Joe Hart.)

- **Open Houses and Community Meetings:** Held with NCN at key times to provide information and gain valuable input from NCN members for decision-making purposes.

- **Future Development Newsletters:** Highlight the planning activities for the Projects and are produced and distributed on a regular basis by Community Consultants in Nelson House and South Indian Lake.

NCN Elders at a Public Open House in Nelson House

- **Radio Broadcasts:** Local access radio broadcasts have been used at Nelson House both to provide information about the projects and to encourage people to participate in open houses, meetings and ceremonies.

- **NCN Opinion Surveys:** Surveys of members living in Nelson House (2000) and South Indian Lake, Thompson and Winnipeg (2001) were undertaken to learn the opinions and concerns of NCN members about possible future hydroelectric developments, previous agreements with Manitoba Hydro and community development planning. These surveys have influenced many of the discussions between NCN and Manitoba Hydro about the Projects.
- **Wuskwatim and Suwanee Site Ceremonies:** Organized by the community to further the process of healing from previous hydro developments. These ceremonies also helped to establish a positive relationship between NCN, the governments and Manitoba Hydro. A ceremony at Suwanee Lake was held specifically for Elders.

- **Participation in Project Studies:** NCN members have assisted with a number of Project-related field studies and investigations.

1.3 THE REGULATORY SCHEDULE FOR THE PROJECTS

1.3.1 Environmental and Licensing Processes

Before the Projects can be built, both federal and provincial regulatory requirements will have to be met and licenses obtained. Authorizations are needed under *The Environment Act (Manitoba)* and *The Canadian Environmental Assessment Act (CEAA).* Other authorizations will also be required before the Projects can proceed, for example under *The Navigable Waters Protection Act, The Fisheries Act, The Water Power Act (Manitoba)* and *The Crown Lands Act (Manitoba).* Planning, construction and operation of the Projects will adhere to all applicable provincial and federal statutes, regulations and policies.

[4] The Transmission Project is subject to a federal screening review rather than a Comprehensive Study Report.

Provincial and federal regulators are working together on the environmental review process. For the licensing process, regulators have indicated that the Generation Project and the Transmission Project are considered to be two separate projects. This means that separate licensing applications and EISs have been filed for each of the Projects.

The EIS review and Clean Environment Commission public hearing process for the two Projects under *The Environment Act (Manitoba)* will occur together. At the same time, a federal Comprehensive Study Report under *The Canadian Environmental Assessment Act* is being prepared for the Generation Project.[4]

1.3.2 Regulatory Activities to Date

The provincial and federal licensing processes were initiated in December, 2001 when Manitoba Hydro submitted applications for the two Projects under *The Environment Act (Manitoba).* These documents were placed on the appropriate public registries.

Draft Guidelines for the environmental impact assessments were prepared by federal and provincial officials and made available to the public in December, 2001, and comments were invited until March, 2002. After public review meetings held in the North and Winnipeg, the Clean Environment Commission issued a report to Manitoba Conservation, including recommendations on the Draft Guidelines. Final Guidelines were issued by Manitoba Conservation in April, 2002.

The Minister of Conservation has established a Participant Assistance Program to provide financial assistance to groups or individuals participating in the Clean Environment Commission hearing process for the Projects. Eight funding applications were received and are currently being considered.

In addition to submitting the environmental applications and completed EISs, Manitoba Hydro and NCN periodically have provided information about the Projects and the progress of the environmental impact assessment studies to provincial and federal regulators.

Manitoba Hydro and NCN have developed a Public Involvement Plan (PIP) outlining their approach to public consultation for the Generation and Transmission Projects. This plan was submitted to federal and provincial regulators in August, 2002.

2.1 PUBLIC INVOLVEMENT OBJECTIVES

The purpose of the Public Involvement Plan is to provide the public, particularly those who may potentially be affected by the Projects, with early and ongoing opportunities to receive information and provide their views about the Projects. The PIP provides opportunities for public input at various stages and through a variety of mechanisms, adapted as required in response to issues, concerns and challenges. A focus of the PIP is meaningful consultation with First Nation and Aboriginal peoples.

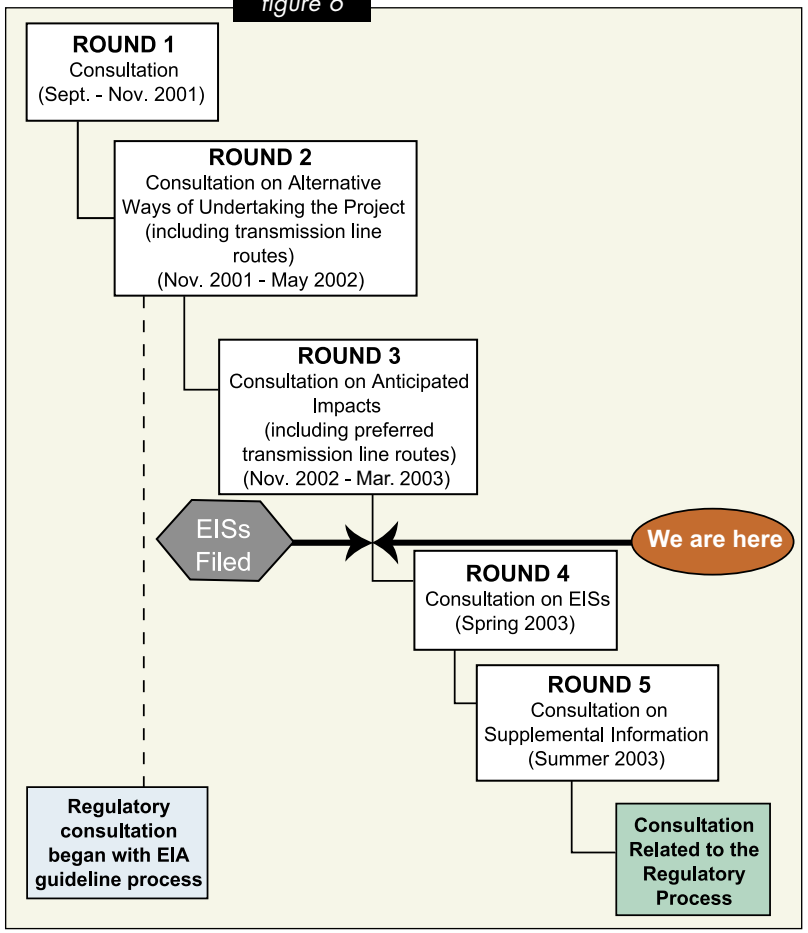
Public Involvement Plan community meeting

2.2 STAGES OF PUBLIC INVOLVEMENT

Prior to 2001, initial public involvement activities focused on NCN members resident at Nelson House, South Indian Lake, Thompson and other locations. This stage of consultation, which was carried out over several years, identified and discussed initial planning relevant to NCN and Manitoba Hydro (see Section 1.2). Consultations with NCN are ongoing, led by NCN's Future Development Team.

From 2001 onward, five rounds of consultation have been planned. Three of these were planned and have been completed for the period prior to submission of the EISs. Two will follow submission of the EISs, prior to Clean Environment Commission hearings (see Figure 6).

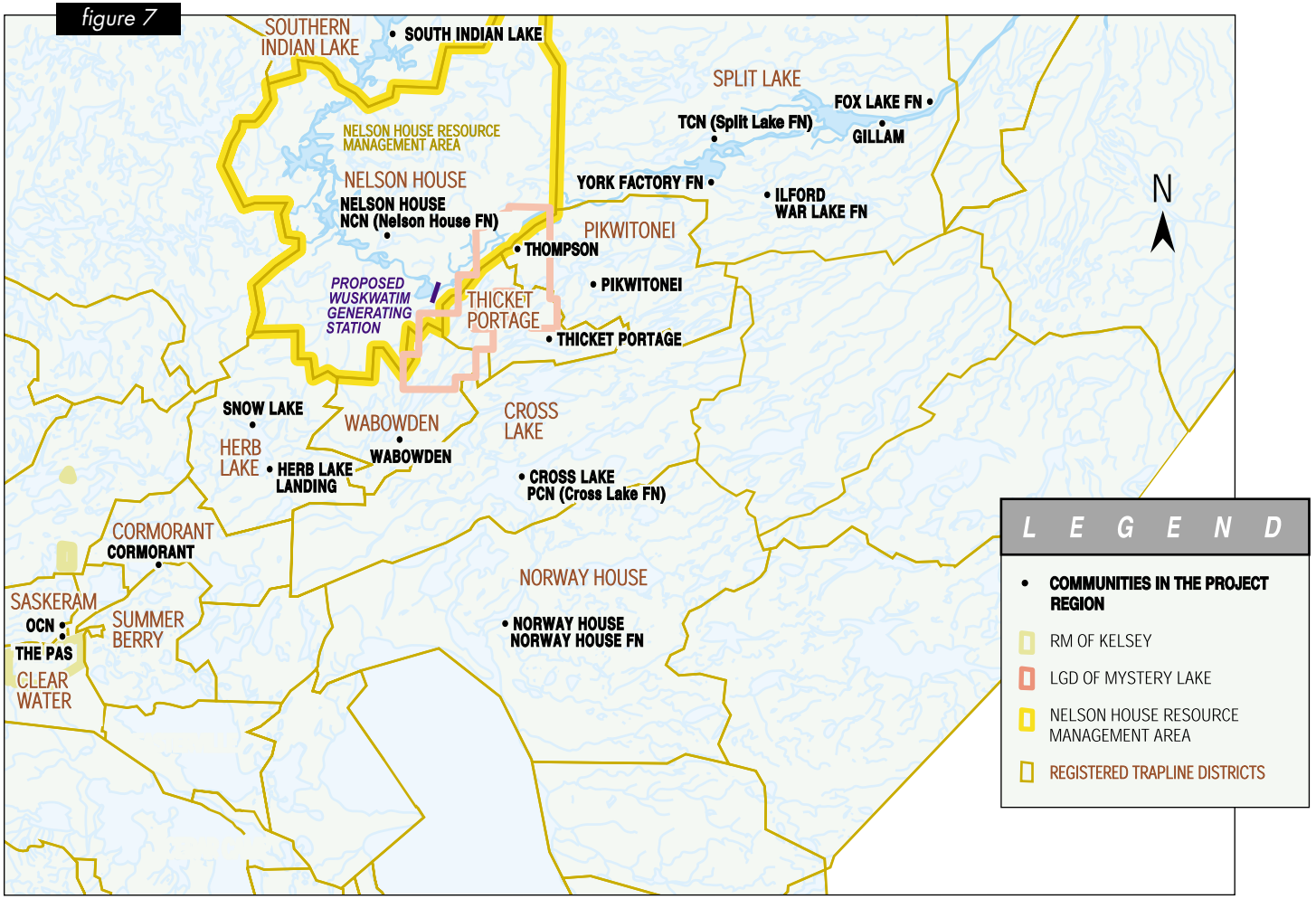
figure 6



Public Involvement Stages for the Wuskwatim Projects

Round One of public involvement (between September and November, 2001) introduced the Projects to elected officials from communities in the Project Region (see Figure 7), heard about any of their initial concerns or questions and heard their views about how they would prefer that future rounds of public involvement be undertaken. Round One newsletters were provided to the Manitoba Eco-Network and interested member organizations.

figure 7



Communities in the Project Region

Round Two (most activities took place between November, 2001 and May, 2002) extended discussion to community members through a series of community meetings and open houses in the Project Region. This round provided information about the Projects, including alternative means of carrying out the Projects (such as alternative transmission line routes). Round Two heard from people about any concerns, comments or questions they had. Round Two newsletters were provided to the Manitoba Eco-Network, member organizations and selected other non-governmental organizations. A web site was launched by Manitoba Hydro and NCN in February 2002.

Round Three (between November 2002 and March 2003) was the final round before filing the EISs. Through meetings and open houses, it discussed with people, both in the Project Region and in Winnipeg, key anticipated effects of the Generation Project on the environment and people, and measures to address those effects. It also presented and discussed preferred transmission line routes for the Transmission Project.

Rounds Four and Five of the PIP will be held in the months to come, prior to the Clean Environment Commission public hearings.

2.3 CONSULTATION BY REGULATORS

Provincial and federal regulators are also undertaking their own consultation activities. Measures taken by the regulators to date include public notices, making Project-related documents available on the public registry, and requesting the Clean Environment Commission to hold public meetings on the Draft Guidelines. The Clean Environment Commission will hold public hearings on the Project proposals after the EISs have been filed and reviewed.

2.4 HOW PUBLIC INPUT HAS AFFECTED THE WUSKWATIM PROJECTS

All concerns, questions and issues raised by NCN and others are given careful consideration in the environmental assessment process and, as appropriate, incorporated into planning for the Projects. This has included the following:

- NCN involvement has played a key role in evaluation and selection of road, camp and transmission line locations, as well as earlier key choices regarding design for the dam and other matters.
- The design of the public involvement program was directly influenced by the input of elected officials. Participants were asked how they would like to be consulted and what type of information would be most useful. Discussion about methods of consultation with local communities continues.
- As a result of issues raised, the area within which water quality samples were collected for the pre-Project baseline was extended from Birch Tree Lake to downstream of Thompson. Concerns raised by downstream communities led to a further expansion of the water quality sampling area to include sample collection between Thompson and Split Lake.
- Public input was important for the identification, evaluation and selection of alternative transmission line routes. In particular, public input helped to identify sensitive areas and possible routing opportunities. It also helped in the comparison and selection of alternative routes.

Since late 1999, the Environmental Management Team, jointly selected and guided by NCN and Manitoba Hydro, has carried out EIS studies for the Generation and Transmission Projects. Local input and Traditional Knowledge have been incorporated into the analysis through liaison with NCN members and through liaison with First Nations, other Aboriginal people and communities during the public involvement program. Local area TK was shared by NCN members through their own TK interview study. This study included interviews with resource harvesters, Elders and others. TK was also shared by the many NCN members who worked with study scientists in field programs.

All of the studies were reviewed with NCN through their Future Development Team and several community open houses. They were also shared with other communities through Round Two and Round Three Public Involvement Plan community meetings and open houses.

Project effects were predicted in all of the EIS studies by comparing (a) what is expected to happen with the Projects, and (b) what would be expected if the Projects were not developed (the "baseline", including current and ongoing effects of the CRD in the case of the Generation Project). Ways to reduce the main adverse effects (called "mitigation") and improve positive effects (called "enhancement" measures) were considered. Cumulative effects of the Projects were assessed by examining the potential effects of the Projects in combination with other planned projects. Residual effects (effects which remain after mitigation or enhancement measures are considered) were identified and significance of adverse effects assessed. The EISs also describe monitoring studies and follow-up measures that will be carried out if the Projects are constructed.

3.1 CUMULATIVE EFFECTS ASSESSMENT

Cumulative Effects Assessment (CEA) looked at the potential overlap in time and space between effects of the Generation Project and Transmission Project as well as between the Projects and other known and planned developments.

Existing or past projects or activities (for example, the effect of the CRD, PR 391 and INCO's Thompson operations) were considered as part of the evolving "baseline" or existing setting for the assessment. Future projects and activities considered in the CEA included the companion Wuskwatim Project (Generation or Transmission), currently planned future hydroelectric development (Gull/Keeyask, Conawapa, or Notigi generation projects and associated transmission lines and stations; the Bipole III High Voltage Direct Current transmission facility) as well as maintenance activities that will contribute to supply side enhancements (such as the upgrade of turbines in the Kelsey Generating Station), future forest harvest, increased NCN cabin development in the immediate Generation Project area, and NCN Treaty Land Entitlement in the Wuskwatim Lake and adjoining area. Climate change is addressed in the biophysical CEA.

Future NCN development plans in the Nelson House RMA are not included because they are, for the most part, focused away from the area affected by the Projects, are commercially confidential at this point in time or are not developed in sufficient detail. It is understood that NCN's internal reviews of the Projects will fully consider any such other plans and projects to the extent that they may have cumulative effects associated with the Project.

The CEA analysis for the biophysical components indicated that small negative effects of the Generation Project remained insignificant when the potential cumulative effect of other developments and activities were considered. This was based on the assumption that other developments would employ appropriate mitigation measures, in particular in the case of woodland caribou and balsam fir forest. These groups were identified

as vulnerable to potentially significant changes in the event of numerous developments in the region. Results of the CEA also indicate that construction employment and business effects of the Generation and Transmission Projects on the local economy (Nelson House, Thompson, and Northern Region to a lesser extent) would be enhanced and extended by the development of future hydroelectric projects.

3.2 RESIDUAL EFFECTS AND SIGNIFICANCE

The EISs describe both positive and adverse predicted residual environmental effects of the Projects after implementation of mitigation measures. As discussed above, residual effects were then considered in the context of any relevant cumulative effects. Residual effects are characterized, in the context of any relevant cumulative effects, as to whether they are significant or insignificant according to criteria set out in the EIS Guidelines. Although a broad range of environmental components is considered in the environmental impact assessment, the determination of significance focuses on specific environmental components (called Valued Environmental or Ecosystem Components) selected for their direct importance and interest to stakeholders and/or as indicators of broader environmental effects.

Significance of effects was evaluated using criteria in the Final Guidelines. This evaluation focused on duration, magnitude, and geographic extent. Assessment of biophysical effects also considered other components such as frequency (whether the effect occurs more than once), confidence (confidence in the precision of analysis) and specific characteristics of the environmental component in question (such as resilience and ecological context). Assessment of socio-economic effects recognized that people have differing perspectives and values and that it is difficult to separate effects on different aspects of people's lives when considering an overall effect on any group of people. Ratings of socio-economic effects considered duration, magnitude and geographic extent of effects on communities. Significance of both positive and negative residual effects was assessed. As required by the Final Guidelines, the likelihood of adverse effects was also assessed.

Assessment of significance is presented in Sections 4 and 5.

The Generation Project has been specifically designed to be a low impact project and includes the following:

- a "low head" design that results in minimal flooding;
- an operating plan that stabilizes water levels on Wuskwatim Lake and limits the geographic extent and magnitude of downstream water level and flow changes;
- an access road that incorporated environmental and cultural considerations in the route selection process; commitment to develop an Access Management Plan; and
- a commitment to develop an Environmental Protection Plan that will assure that all work will be carried out in compliance with regulatory requirements, Project approvals, and proven environmental protection practices.

4.1 EFFECTS ON THE BIOPHYSICAL ENVIRONMENT

While the Generation Project is expected to have effects on the air, aquatic, and terrestrial environments, none of the anticipated adverse effects are expected to be significant, taking into account project plans and mitigative measures.

4.1.1 Physical Environment

Climate and Air Quality

Existing air quality at the Generation Project site is considered to be good to excellent. During construction activities, there will be minor effects, such as dust emissions, on the total air quality which are site-specific and short term. The Generation Project will reduce winter ice fog in the vicinity of Taskinigup Falls. This is a site-specific unavoidable effect of the Generation Project.

With respect to its effect on climate change, the Generation Project is expected to reduce net global green house gas (GHG) emissions, considering GHGs resulting from the construction and operation of the Generation and Transmission Projects and the displacement of coal and gas generation in export markets by the power produced by the Generation Project.

Erosion, Sedimentation and Debris

Shoreline erosion is an ongoing process where waterflow and waves break down shoreline materials and bring material into adjacent waterbodies. About 30 per cent of the shorelines on Wuskwatim Lake and adjoining waters are considered to be erodible. Most of these shorelines are located in the main part of Wuskwatim Lake. Even without the Generation Project, these shorelines will continue to erode until the underlying bedrock becomes exposed. An increase in erosion rates on erodible shorelines is expected for the initial five years after the Generation Project begins operation. Over the following twenty years, some of the highly erodible areas will continue to experience increased rates of erosion while moderately erodible areas will continue to erode at normal rates. About 25 years after the Generation Project, erosion rates in all areas are expected to be about the same as they would be without the Generation Project.

Increased rates of erosion from the Generation Project will be greatest on the eastern and southern shores of Wuskwatim Lake because these areas experience more direct wind and wave action. During the first 25 years after the Generation Project is constructed it is expected that these shorelines will recede about 32 metres (105 feet) whereas they would have receded 25 metres (82 feet) without the Generation Project. Erodible shorelines on the west side of the lake will experience smaller effects from the Generation Project because these shorelines have less exposure to high wind and wave action. These are expected to recede, on average, at about two-thirds of the rate of the eastern and southern shorelines.

The increased erosion will result in more woody debris near the eroding Wuskwatim Lake shorelines. Analysis of the shoreline erosion processes and related debris generation on Wuskwatim Lake indicates that most of this debris will accumulate in existing debris-trapping areas and will remain against the shore and not move out into the lake. NCN Elders have stated that they believe some additional debris may be mobilized as a result of the Generation Project. Provisions will be made for collection and removal of mobilized woody debris on Wuskwatim Lake, as required.

There may be an increase in localized bank erosion immediately downstream of the generating station due to the discharge from the generating station spillway. Erosion rates further downstream along the Burntwood River and into Opegano Lake are not expected to change.

4.1.2 Aquatic Environment

Water Quality

During the six-year construction period, some construction activities (e.g., placement and removal of coffer dams, construction of access road crossings) will cause some short-term water quality effects which are not expected to significantly affect aquatic biota. Wastewater, including camp sewage and water from processes such as concrete production, will meet Provincial standards prior to discharge.

Increased erosion on some shorelines in Wuskwatim Lake will result in more sediment entering the lake, particularly after major storms. The average increase in suspended sediments in the lake as a whole is expected to remain within the Manitoba Water Quality Standards, Objectives and Guidelines; however, shallow areas adjacent to eroding shorelines will become muddier, particularly during the first five years of operation when the greatest increase in sediment from erosion may occur. Dissolved oxygen (oxygen in the water that is needed by aquatic life) in certain areas (i.e., backwater areas, Wuskwatim Brook, and Sesep Lake) may decrease due to the Generation Project.

It is expected that nutrient concentrations will increase in the immediate forebay of the reservoir as a result of flooding and in areas upstream of the generating station where erosion is increased and where intermittently wetted habitat is converted to permanently wetted habitat. This effect, which may promote the growth of algae, is not expected to cause a measurable change in Wuskwatim Lake as a whole. Other water quality parameters such as pH, and alkalinity are not expected to be changed.

No measurable changes in water quality in the Burntwood River are expected downstream of the generating station after the initial period of operation. There may be some localized changes in backwater inlets and the northern part of Opegano Lake where the decomposition of peatlands may lead to declines in oxygen and increases in nutrients.

Fish, Fish Habitat and Fish Movements

Construction of the Generation Project will have local effects on fish and fish habitat. A small amount of aquatic habitat will be permanently lost due to the placement of the main dam and some habitat will be temporarily affected at stream crossings. During construction, temporary rock barriers are placed in areas such as the spillway to enable construction under dry conditions. To complete the Generation Project, these barriers need to be removed by blasting to allow water to flow down the channels. This blasting may cause fish mortality in the immediate vicinity of the blast. Increased fish harvests may also occur as a result of the Project.

The operation of the Generation Project will reduce water level fluctuations on Wuskwatim Lake and adjacent waterbodies which will convert areas that are periodically exposed due to fluctuating water levels into permanently wetted habitat. The production of benthic invertebrates (e.g., bugs, worms, and clams) and small fish, which are a main food source for fish, is expected to increase in the lake as a whole, as nearshore permanently wetted areas are more productive than areas that are periodically exposed. Invertebrates may decline slightly near shorelines with high erosion rates.

The operation of the Generation Project will affect fish populations in Wuskwatim Lake and adjacent waterbodies both positively (increased amount of food) and negatively (increased erosion/sedimentation which may affect fish spawning sites). Pickerel (walleye) and jackfish (northern pike) production is expected to increase due to the increase in the abundance of food. In the long term, the Generation Project is also expected to have a small, positive, long-term effect on tullibee (lake cisco) and lake whitefish production due to the increased food supply which will be partially offset in the first years of operation by short-term negative effects on spawning habitat due to increased sedimentation.

Presently, some fish move downstream out of Wuskwatim Lake over Wuskwatim Falls and eventually over Taskinigup Falls. During operation of the Generation Project, it is expected that fewer fish will move downstream due to reductions in water velocity at Wuskwatim Falls (unlike present conditions, most fish that move downstream over Wuskwatim Falls will be able to move back upstream into Wuskwatim Lake), poor habitat immediately upstream of the generating station, and reductions in water velocity at the generating station intake relative to Taskinigup Falls. Fish that do move downstream will generally go through the turbines which will cause some mortality. About 80 per cent to 90 per cent of the fish are expected to survive. Monitoring will be conducted once the station is in operation to determine the rates of downstream movement, fish injury and mortality.

Downstream of the Generation Project, there will be a decrease in the amount of permanently wetted aquatic habitat between Taskinigup Falls and Opegano Lake during low flow periods. In addition, the greater frequency of water level fluctuations could result in the loss of aquatic vegetation in backwater areas. The production of benthic invertebrates in these areas is expected to decline. The fluctuating water levels may also reduce the suitability of some nearshore spawning habitat. The combined effects on feeding and spawning habitat are expected to have a negative effect on fish production between Taskinigup Falls and Opegano Lake. The reduction in the number of fish moving downstream from Wuskwatim Lake also will have a small negative effect on fish numbers in this reach.

NCN community members assisted with a number of studies including those related to fish and fish habitat.

Mercury in Fish

On Wuskwatim Lake, mercury concentrations in lake whitefish, pickerel, and jackfish have returned to levels similar to those prior to CRD. The current Generation Project causes only a small area of flooding which will limit the amount of mercury produced. Increases could vary, depending on how much mercury could be released from peat areas that will become permanently wetted by the Generation Project. However, it is expected that mercury levels[5] in lake whitefish will remain around their current level of 0.1 parts per million (ppm) which is below the domestic consumption limit of 0.2 ppm. Levels in pickerel are expected to increase from 0.28 ppm to 0.35 ppm and levels in jackfish will likely increase from 0.37 to 0.5 ppm. Fish with mercury levels exceeding 0.5 ppm are generally not accepted for commercial sale. Mercury levels for pickerel and jackfish are not expected to exceed that limit.

4.1.3 Terrestrial Environment

Terrestrial Habitat and Plants

Construction of the generating station, spillway, dykes and access road and flooding of the forebay will permanently remove vegetation and terrestrial habitat. Other areas such as borrow pits, camp and work sites will cause temporary losses of vegetative cover and habitat during construction but revegetation will be promoted after construction is complete. Most of the habitat types and plants to be affected are common throughout the Generation Project area except for: jack pine on dry mineral soil along the access road right-of-way and at potential borrow sites; and white spruce/balsam fir at the generating station and construction site, cleared for generating station features and in some places where there is increased erosion. Increased human activity and traffic in the area as a result of the Generation Project will deposit dust and vehicle emissions on adjacent vegetation and may increase the number of forest fires.

Increased erosion in Wuskwatim Lake and adjoining waterbodies will affect upland terrestrial habitat along eroding shorelines. Along the shoreline, reduced water fluctuations over the year will increase the abundance of plants that grow best in a stable regime while plants that grow best with larger or more frequent water level fluctuations will decline. Stable water levels are also expected to increase the area of lake peatlands; the independent islands created by CRD water level fluctuations are expected to merge with peatlands that are expanding from the shoreline into the lake.

Downstream of the generating station, the increased frequency of water level fluctuations could break up peatlands along the shore and decrease the abundance of plants that favour a more stable water regime. Peatland break-up would create more shoreline habitat for plants that grow best in a fluctuating water regime.

Insects, Reptiles and Amphibians

The area affected by the Generation Project will be small and is not expected to result in any changes to insect populations on a regional scale.

Reptiles are not known to be present in the Generation Project area. The areas that are to be disturbed, flooded or otherwise affected by the Generation Project provide low quality habitat for small numbers of amphibians. Therefore, no significant effects are expected.

[5] Measured as mean mercury levels in muscle.

Birds and Mammals

Disturbances associated with construction activities will have small to moderate site-specific, short-term effects on birds.

Generation Project operations will cause small, long-term, site-specific effects on birds through changes in the amounts of marsh and peat habitat, habitat losses through erosion and increased human access and activity. More stable water levels upstream of the generating station will benefit shoreline nesting areas but reduce the areas of offshore marsh habitat preferred by some species. The reconsolidation of peatlands will reduce the protection currently provided to nesting waterfowl by the peat islands.

Improved access to the area may result in increased harvest of waterfowl. However, development and implementation of an Access Management Plan will mitigate concerns about overharvest.

Regional wildlife populations will experience small, site-specific long-term effects from the Generation Project.

Most of the types of wildlife habitat that will be lost as a result of the Generation Project are abundant in adjacent, unaffected areas. The access road and noise associated with construction activities may result in habitat fragmentation or alienation for some individuals.

The more stable water levels on Wuskwatim Lake and adjoining waterbodies during the operation period will benefit aquatic furbearers such as muskrat and beaver while the greater frequency of water level fluctuations downstream of the station will negatively affect these species.

As is the case for birds, improved access may result in increased harvest of wildlife. However, development and implementation of an Access Management Plan will mitigate concerns about these species.

Woodland caribou habitat and movement corridors will be affected by the Generation Project. Losses of regional primary habitat are small with the most important loss being one area of calving habitat at the generating station site (there are at least 100 other unaffected calving habitats in the Generation Project area).

Other important wildlife species such as moose, muskrat, beaver and various furbearers will experience very small, site-specific, long-term effects. Regional populations and habitat will be unaffected.

Moose, Muskrat, Beaver and Woodland Caribou

4.2 EFFECTS ON THE SOCIO-ECONOMIC ENVIRONMENT

The Generation Project is expected to have effects on resource use, the economy, infrastructure and services, and personal, family and community life. Most of these effects are expected to be positive. There are not expected to be any significant adverse effects on people related to biophysical changes from the Generation Project.

For NCN members and others living at the reserve community of Nisichawaysihk and the adjacent Northern Affairs community of Nelson House, the Generation Project will present potential opportunities (e.g., training, employment, and improved access for resource harvesting to the Wuskwatim Lake area; for NCN, ownership investment in the Generation Project) and also some potential adverse effects (e.g., stretching of services due to returning population). The City of Thompson, the next closest community to the Generation Project, is expected to see economic effects, a small amount of in-migration and limited effects on personal, family and community life. Beyond Nelson House and Thompson, effects are expected to be felt primarily through training, job and business opportunities. The provincial and national economies are expected to experience some positive economic effects.

4.2.1 Resource Use

Resource harvesting in the Wuskwatim Lake area is currently limited due to difficult access. It is expected that increased access provided by the access road will have a long-term, positive effect on both domestic harvesters, commercial fishers and trappers.

Commercial and domestic fishing

Concerns regarding overharvesting will be mitigated through the development and implementation of an Access Management Plan.

4.2.2 Economy

Pre-project training

For NCN, construction of the Generation Project will present training, employment and business opportunities throughout the six-year construction period. During the first two years of construction (infrastructure development), an estimated 81 to 93 peak positions (58 to 66 person-years of employment) could be secured by NCN members (including members living at Nelson House, the adjacent Northern Affairs community and at South Indian Lake). During the remaining four years (major works installation), an estimated 80 to 113 peak positions[6] (124 to 170 person-years of employment) could be taken up by NCN members. These positions would result in increased job skills through pre-project training (currently being planned and implemented by NCN, with assistance from Manitoba, Canada and Manitoba Hydro), through some on-the-job training, and through work experience. These opportunities will also increase incomes in the Local Region.

Other Aboriginal residents of the Northern Region will also have the opportunity to participate in employment and training opportunities during the construction phase. Beyond Nelson House and South Indian Lake, 53 to 65 peak positions 45 to 53 person-years of employment) are estimated to be filled by Aboriginal residents

[6] Peak positions refer to the maximum number of workforce positions required during the time period. The maximum peak number of workforce positions would not be required for the entire time period. Construction positions are typically short-term in nature and occur primarily during the summer construction season.

in these communities during the first two years of construction. During years three to six of construction, 181 to 256 peak positions (271 to 373 person-years of employment) are estimated to be filled by Aboriginal residents from throughout the Project Region and Northern Region (excluding the local region).[7]

Generation Project construction will also present potential business opportunities for NCN. Direct negotiation with qualifying NCN businesses will be pursued where costs are reasonable and there is no adverse effect on Generation Project schedules or the quality of delivered goods and services. If a contract cannot be concluded with a qualifying NCN business by direct negotiation, Manitoba Hydro will use restricted tendering or open competitive tendering to award the contract.

In Thompson, some businesses that provide services to construction contractors are expected to benefit and businesses that provide services to workers (e.g., restaurants, taverns) are expected to benefit when workers spend time in Thompson during their days off. The increase in business in Thompson may require more staff and the current shortage of entry-level labour in the community may make it difficult for some businesses to fill these new positions.

During the operations phase (beginning in 2009), economic effects on NCN are expected to result mainly from potential investment in the Generation Project. If NCN chooses to participate in ownership, they would receive an annual return on their investment based on profits generated by the sale of power from the facility. The revenue they receive would be based on the percentage of the partnership that they choose to acquire (potentially up to 33 per cent). During initial years, this could amount to several million dollars annually; in later years, this could grow to tens of millions of dollars annually. Annual revenue for NCN would be based on the financial performance of the Generation Project; they would share in the risks associated with the Generation Project as well as the benefits. For Manitoba Hydro, export revenues made possible with the Generation Project would contribute significantly to its financial performance. Financial evaluations indicate that, within about five years, the Project will produce positive returns (even under pessimistic export price scenarios) and within 15 to 25 years, returns to Manitoba Hydro would increase to over $50 million annually. The Project will contribute to Manitoba Hydro's ongoing ability to provide Manitobans with electricity from renewable resources that is reliable and among the most competitively priced in North America.

Employment, business and training opportunities during the operations phase are limited. For Generation Project operations and maintenance, a very small number of employees will be needed. Maintenance contracts for the Generation Project buildings and infrastructure could also provide a source of direct small-scale, long-term employment.

4.2.3 Infrastructure and Services

Community-based training and Generation Project-related construction employment may result in NCN members of working age and their families returning to Nelson House. Estimates of this migration range from 35 to 400 individuals, reflecting the high degree of uncertainty associated with migration estimates. Any return migration, particularly by young families,

Community of Nelson House

[7] Northern Region is defined as the area included in the current Burntwood Nelson Agreement (a collective agreement being renegotiated for northern hydro construction projects). Project Region is a sub-set of that region that includes communities consulted for the Generation Project during public consultation and involvement activities.

is likely to strain housing (already in short supply) and some infrastructure and services (e.g., education). Measures will be taken to mitigate this effect (e.g., clear communication to off-reserve residents about the nature and timing of opportunities). Careful monitoring of in-migration will be important information for a coordinated response group of NCN service providers who will address associated issues.

Only a small amount of migration into Thompson is expected.

4.2.4 Personal, Family and Community Life

At Nelson House, personal, family and community life can be affected by Generation Project-related changes to the economy, resource use, infrastructure and services and concern about changes to the environment, as well as changes in the environment for those who use the Wuskwatim Lake area. The effect of changes will vary for individuals and families (for example, a construction worker would experience the Generation Project differently than a resource harvester).

Transportation and Safety

During the construction phase there will be some additional traffic on PR 391, within the City of Thompson and on PTH 6 south of Thompson. At Wuskwatim Lake, measures are being planned to warn newcomers (particularly non-local construction workers) about existing travel hazards on Wuskwatim Lake and downstream on the Burntwood River.

Aesthetics

Negative aesthetic changes will result from physical changes to the land at the construction site, at borrow areas and along the access road. Work areas and borrow areas will be rehabilitated once construction is complete, but the access road, generating station and water level changes will permanently change the aesthetic character of the immediate area.

Community Health, Social Well-being and Culture

No direct effects on health are anticipated as a result of water quality changes at Wuskwatim Lake. Mercury in pike and walleye may temporarily rise somewhat, but is expected to be comparable to levels elsewhere in the local area; however, should monitoring results warrant, reduced domestic use of these species from Wuskwatim Lake would be recommended to Nelson House residents.

During the construction phase, positive and adverse effects on community health and social well-being could result indirectly from income, employment and training, from returning population and from concern about environmental changes (also during the operations phase).

NCN has identified the need for ceremonies to be undertaken before Taskinigup and Wuskwatim Falls are changed. During years three to six of construction, NCN workers are likely to encounter non-Aboriginal workers who do not speak Nehethow-we-win (Cree). This is

likely to diminish the opportunity to speak Nehethow-we-win at the construction camp. While there will be physical changes in the Wuskwatim Lake area, new access via the access road will provide opportunities for NCN members to use the Wuskwatim Lake area once again (the area has been used little since CRD due to difficulties in reaching it). Concern about environmental change may remain for some residents, despite full communication of physical and biophysical monitoring results. Monitoring and contingency planning will also be undertaken to assure that important cultural sites are protected in the Wuskwatim Lake area.

In the long term, potential new revenue for NCN, as a whole, from their investment in the Generation Project, is likely to provide new resources to address community priorities. Although it is difficult to predict the precise nature of these effects, a positive contribution to health, social well-being and culture of the community could result.

Community Organization and Governance

In the short term, participation by NCN members in planning for the Generation Project will tax key staff resources and, beginning in 2003, will begin to involve NCN service providers in some service areas. A mechanism will be developed to deal with decision-making in the long term, regarding new revenue from the ownership investment.

NCN Goals and Plans

The involvement of NCN in the planning process, and the secret-ballot vote of all NCN members on the Project Development Agreement before the Generation Project proceeds, will assure that it is consistent with the vision and goals of the community.

Thompson

At Thompson, limited effects on personal, family and community life are anticipated. Visits by workers to the community during leisure hours are expected.

4.3 EFFECTS ON HERITAGE RESOURCES

Heritage resource surveys were conducted in all areas directly affected by the construction of the Project. With the exception of a "waymarker" (which will be relocated prior to construction), no significant heritage resources were found. NCN Elders and members were consulted to identify sites of cultural importance so that appropriate measures might be taken to avoid or protect them during construction. Construction activities will be monitored to identify any previously unknown heritage resources or sites that may be exposed.

NCN Elders and members were consulted to ensure that cultural and historical areas were identified to protect the sites during construction.

Based on the results of the SSEA process, the best-balanced choice of routes was identified (Figure 5). The proposed routes were selected to minimize disruption to people and the environment within the context of technical and cost considerations. Once route preferences were established, detailed biophysical and socio-economic studies were conducted to determine more precisely the specific effects (positive and adverse) on people and the environment. Together with input received from the PIP, appropriate impact management measures were identified. Local input and TK have been incorporated into the analysis through liaison with NCN members and through liaison with First Nations, Aboriginal people and communities during the PIP.

Careful selection of the preferred routes helps to minimize potential effects. Further management and mitigation is assured through use of suitable design, and construction standards and protocols. Where applicable, Manitoba Hydro's standard environmental protection practices will be specified in development of the project. TK and local input will also assure that effects are minimized. Selection of appropriate mitigative measures for implementation will be decided in part based on discussions during the right-of-way acquisition process and during the detailed engineering design stage of the project. An Environmental Protection Plan (EnvPP) will be developed prior to clearing and construction the specific impact management measures to be applied to the Transmission Project to offset any residual effects.

Manitoba Hydro has general practices for the design and construction of stations which will be adhered to for the proposed Birchtree and Wuskwatim Switching stations.[8] Once completed, both stations will be operated 24 hours a day, year-round, and will be visited regularly by Manitoba Hydro personnel for inspections and maintenance activities. Equipment additions at Herblet Lake and Rall's Island Stations will occur within the existing fenced areas of the station sites. Effects are expected to be minor.

The Transmission Project is unlikely to cause significant adverse environmental effects given the recommended mitigative measures and the implementation of the EnvPP. Similarly, the Project is unlikely to cause significant adverse residual effects on people or the environment. The following residual effects are expected:

- **Physical Presence of the New Facilities:** The appearance of the new transmission lines and stations will alter the landscape for as long as the facilities are in operation. With respect to Birchtree Station, the site is removed from PTH 6 and is located in the vicinity of INCO's mining complex. The Wuskwatim Switching Station is part of the footprint of the generating station. In areas in proximity to communities, existing transmission lines and rights-of-way have been used to minimize visual effects. The transmission facilities will soon become "permanent" features on the landscape. Given the use of the region, it is not anticipated that the new facilities will be detrimental to the region. The presence of the transmission facilities will also result in electrical effects in the immediate vicinity of the facilities for as long as they are in operation.
- **Access:** Clearing the new transmission line rights-of-way will create some additional opportunities for access. In the Nelson House RMA, the proposed routes were selected to minimize access from non-NCN members while enhancing opportunities for NCN members. In other areas, the proposed routes were chosen in part to take advantage of more difficult terrain areas to discourage access (i.e., Snow Lake area), while elsewhere the proposed transmission lines were routed adjacent to the Hudson Bay Railway (HBR) rail line, and existing transmission line rights-of-way in the Snow Lake area and north of The Pas. Where the issue of potential increased access is important to a community or in terms of minimizing potential effects on the environment, an Access Management Plan will be prepared.

[8] Site preparation of the Wuskwatim Switching Station is being addressed by the Wuskwatim Generation Project.

- **Productive Forest Land, Standing Timber Volumes and Annual Allowable Cuts, and Loss of Wildlife Habitat:** The Transmission Project will result in the removal of productive forest land and the loss of wildlife habitat, but the effects are expected to be insignificant. Current harvest levels by Tolko and third party operators will not be affected by the Transmission Project. Manitoba Hydro will continue to promote and support reforestation and tree planting through its Forest Enhancement Program.

5.1 EFFECTS ON THE BIOPHYSICAL ENVIRONMENT

While the Transmission Project is expected to have effects on the air, aquatic and terrestrial environments, none of the anticipated adverse effects will be significant, taking into account route selection and standard mitigative measures. Some effects are expected to be positive. This section presents estimated biophysical effects and key mitigation measures to reduce adverse effects.

5.1.1 Physical Environment

Climate and Air Quality

During clearing and construction activities, there will potentially be higher vehicle and dust emissions affecting local air quality. This is not expected to be a concern given that the effects will be short-term at any one location. Winter clearing and construction will further minimize any potential dust effects. Similarly, ongoing operations and maintenance activities are unlikely to affect local air quality as these effects are short-term and localized. Clearing activities along the rights-of-way will also involve the cutting, piling and burning of slash resulting in emissions that will potentially affect local air quality. Effects are not expected to be significant given that they will be short-term and localized.

Soils and Terrain

Clearing activities have the potential to affect sensitive terrain locations, such as permafrost layers. As clearing and construction activities are planned to occur during the winter months, potential effects will be minimized. Prior to clearing and construction, additional terrain analysis will be conducted and documented as part of the EnvPP.

Disturbance to soil and vegetative ground cover during excavation and placement of tower foundations will affect only a limited area. Where possible, structures will not be located on sites underlain by permafrost. Thermal erosion of permafrost should be minimized through winter construction and maintaining a compacted snow cover over work areas. The locations of permafrost will be detailed in the EnvPP.

To minimize effects of off-road travel on soils and terrain, access to work sites will be limited to the rights-of-way, and existing winter roads and access trails where necessary. Where construction access must be developed outside the right-of-way or existing access roads, an assessment will be undertaken to avoid sensitive terrain and will be outlined in the EnvPP. Care will be taken to assure the ground is frozen and a protective cover of snow is maintained.

Following construction of the proposed transmission lines, some opportunities for access along the rights-of-way may be created. The relative remoteness of the proposed rights-of-way and the terrain in some areas (i.e., rock outcrops, difficult river crossings) will limit access, particularly in the spring and summer months. The proposed routes within the Nelson House RMA were selected to minimize access by non-NCN members while enhancing opportunities for NCN members. North of Snow Lake, the proposed routes were in part chosen to take advantage of more difficult terrain areas, while a portion of the proposed Herblet Lake to Rall's Island Stations route parallels a portion of the existing HBR line to Churchill. Where the issue of potential increased access is important to a community or in

terms of minimizing potential effects on the environment, an Access Management Plan will be prepared prior to clearing and construction of the proposed transmission lines. Manitoba Hydro and NCN have committed to preparing an Access Management Plan for the transmission lines within the Nelson House RMA.

With respect to the proposed Birchtree Station, many of the localized potential effects on the physical environment will be minimized by following Manitoba Hydro's environmental protection practices (i.e., site preparation and clearing during the winter).

5.1.2 Aquatic Environment

Accidental spills and leaks of fuels and lubricants, and grouting to secure tower foundation supports in the ground have the potential to contaminate surface or ground water. Any such risk is expected to be small, highly localized, and short-term because of the nature of the water resource and its limited use in the area. Adherence to Manitoba Hydro's standard environmental protection practices and TK will minimize potential effects.

Clearing and construction will be conducted during the winter months, thereby reducing potential effects. Adherence to Manitoba Hydro's standard environmental protection practices and to all relevant legislation and regulations will minimize effects. Specific mitigative measures include avoiding construction on or near floodplains along the proposed routes and avoiding removal of vegetation near waterbodies. The EnvPP will outline further mitigative measures and site-specific mitigation plans for four crossings along the proposed routes classified as having important fish habitat that is sensitive to disturbance.

Clearing of vegetation for tower placement can disturb soil and cause erosion, and there is potential for contamination of surface water as a result of anchoring the support structures in the ground. The proposed transmission lines will be supported by steel lattice structures that will have no direct effect on the aquatic environment. Any disturbed ground in the vicinity of the towers will be repaired to assure erosion potential is minimized.

The presence of a workforce during construction and increased access to waterbodies after construction can lead to an increased fish harvest. Effects are expected to be small as most waterbodies along the rights-of-way are located away from existing roads and would remain relatively difficult to access. Any increase in harvesting that may occur would be regulated by Manitoba Conservation through existing fisheries regulations. Where there is concern about managing access by others, an Access Management Plan will be implemented prior to clearing and construction.

Overall, construction and operation of the transmission facilities are expected to have an insignificant effect on the aquatic environment. Strict adherence to standard Manitoba Hydro environmental protection practices, a project-specific EnvPP, and monitoring will minimize the possibility of long-term effects.

5.1.3 Terrestrial Environment

Vegetation and Forestry

Implementation of Manitoba Hydro's environmental protection practices and adherence to all federal and provincial legislation and regulations will minimize effects on vegetation and trees. The degree of potential effect is greatly reduced as clearing and construction activities will be conducted during winter months.

With respect to loss of or damage to habitat of rare plants, a botanical/rare plant survey will be undertaken along the

rights-of-way, focusing on areas with the greatest potential for rare species. Field investigations along the proposed transmission line routes have resulted in the identification of six plant species that are considered either rare or uncommon (according to the Manitoba Conservation Data Centre ranking system).

The field surveys conducted along the preferred route recorded any plants valued for medicinal, cultural or other uses by local communities. Further field investigations will take into consideration any plants that have been identified by the communities. Locations of rare plants found, and recommended mitigation measures, will be specified in the EnvPP.

Right-of-way clearing will result in the removal and long-term loss of forest cover. The effects are minor reductions in productive forest lands which the rights-of-way cross. Potential mitigative measures with respect to forest cover loss include: minimizing disturbance to reforested areas; salvaging merchantable timber where feasible; and conducting a forest damage appraisal with applicable compensation paid to Manitoba.

To minimize effects along forested areas near lakes, streams, etc., clearing will generally be kept to a minimum and confined within the required rights-of-way. As part of Manitoba Hydro's environmental protection practices, shrub cover is maintained and encouraged following construction to secure the integrity and stability of the sites. Damage to trees and vegetation will be minimized by conducting clearing and construction during the winter months and adherence to Manitoba Hydro's standard environmental protection practices. Given this, and adherence to applicable provincial and federal legislation and regulations, potential effects on trees and vegetation adjacent to the right-of-way will be negligible.

No chemical control will be carried out during clearing and construction activities along the proposed rights-of-way. Occasional herbicide use may be required within fenced station sites to control weed growth. If herbicides are required, they will be applied in small quantities by licensed applicators and in accordance with provincial and federal regulations. Where needed, an Access Management Plan will be prepared prior to clearing and construction. Manitoba Hydro and NCN have committed to the preparation of an Access Management Plan for transmission lines within the Nelson House RMA.

Current harvest levels by timber operators will not be affected in any way by transmission line effects associated with the Project. Manitoba Hydro will continue to promote and support education, research and tree planting programs through its Forest Enhancement Program.

Wildlife and Wildlife Habitat

Clearing activities are anticipated to have small effects on the local area, although the overall effect on wildlife is expected to be insignificant. Clearing of the transmission facilities will alter approximately 27 square kilometres of potential wildlife habitat. During clearing activities, general avoidance of human activity by most wildlife is anticipated, although some species and individuals may be attracted to the activity.

Construction and post-construction activities are anticipated to have a small effect on the local area, and therefore are considered to be insignificant. No significant adverse effects are anticipated. Construction activities will generally not result in a loss of wildlife habitat aside from the effects related to clearing activities. Low-growth vegetation will be allowed to re-establish in the rights-of-way. General avoidance of the rights-of-way during construction will likely occur, and local wildlife movement across the rights-of-way may be temporarily impaired or deterred. Operation and maintenance of the transmission lines is anticipated to have a small effect on terrestrial wildlife.

Overall, no significant adverse effects are expected on wildlife. Given the diverse nature of the habitats which will be disrupted, which are generally common to the region, it is not anticipated that any one wildlife species will be particularly affected. The project is not anticipated to have any significant adverse residual effects on wildlife after the implementation of appropriate mitigation measures.

Application of Manitoba Hydro's environmental protection practices will serve to eliminate or reduce any potential adverse effects. Site-specific effects, which require additional mitigation measures or for which residual effects will remain, have been identified and site-specific mitigation measures will be further detailed in the EnvPP.

The construction of Birchtree Station may result in a small effect on the local area, regional wildlife use and available habitat. However, no significant adverse effects are anticipated.

5.2 EFFECTS ON THE SOCIO-ECONOMIC ENVIRONMENT

The Wuskwatim Transmission Project is expected to have effects on the economy, infrastructure and services and personal, family and community life. Some of these effects are expected to be positive. There are not expected to be any significant adverse effects on people related to biophysical changes from the Project.

5.2.1 Resource Use

Clearing and construction activities may temporarily displace wildlife near the rights-of-way; however, effects are expected to be minor given that the activities are short-term in any one area. Trappers will be notified of the schedule for construction activities in advance and Manitoba Hydro's practice is to provide reimbursement to affected registered trapline holders for fur harvest losses during the periods of clearing and construction. After construction, some trappers may benefit from improved access to their traplines. There may also be concerns about managing access by others to these areas; in such cases, an Access Management Plan will be implemented. Similarly, the routes for the proposed transmission lines cross through areas which have been allocated for hunting and fishing outfitting. As clearing and construction activities in any one area will be short-term, potential effects are considered to be minor. Outfitters in the area have been informed of the project through the PIP.

The proposed routes cross several mineral leases and mining claims. As the period of clearing and construction in any one area is short-term, the effect is expected to be minor. Mineral lease and claim holders will be notified regarding the schedule for clearing and construction activities. The proposed route for the Wuskwatim to Birchtree Station line crosses an access road to INCO's Birchtree Mine site. Manitoba Hydro will continue to work with INCO during the detailed design stage to assure that adequate distance is maintained from Birchtree Mine and INCO will be notified regarding clearing and construction schedules.

The development of the proposed Birchtree Station could also potentially result in some disturbance effects on mining claims and mineral leases in the area, as well as on resource harvesting activities. Reimbursement will be provided to affected registered trapline holders for fur harvest losses during the period of clearing and construction of the station.

5.2.2 Land and Water Use

None of the proposed routes are expected to be located on any existing Reserve Lands. In one instance, a portion of the proposed route for the Herblet Lake to Rall's Island Stations 230 kilovolt transmission line is located in an Area of Special Interest (Tom Lamb WMA) as designated under Manitoba's Protected Areas Initiative. The proposed transmission line is routed through the area for approximately 47 kilometres (29 miles), of which approximately 16 kilometres (10 miles) parallels an existing rail line. As such, effects are expected to be minimal.

The Wuskwatim to Birchtree 230 kilovolt transmission line route crosses near an NCN Treaty Land Entitlement selection near Kepuche Falls and the Wuskwatim generating station site. Where appropriate, discussions will take place with the affected First Nations regarding a transfer arrangement in order to provide Manitoba Hydro with the permanent right to access, use, and maintain its facilities and rights-of-way.

The proposed Wuskwatim to Birchtree Station and a portion of the Wuskwatim to Herblet Lake Station transmission lines passes through the Nelson House RMA, while the proposed Herblet Lake Station to Rall's Island Station transmission line crosses through the Cormorant RMA, as well as through portions of Opaskwayak Cree Nation's Traditional Territory. Use of traditional lands for the proposed transmission facilities has been, and will continue to be, the subject of discussions with the affected First Nations and/or Aboriginal communities.

5.2.3 Economy

Clearing and construction are expected to result in modest economic benefits in the project area. First Nations and Aboriginal communities with construction expertise in the vicinity of the project could secure contracting opportunities made available under the terms of Manitoba Hydro's Northern Purchasing Policy. Employment opportunities for the transmission lines would be limited to the winter construction seasons when the work is being done. Operation of the proposed transmission lines is expected to result in small and generally positive economic effects (i.e., limited, short-term contracts for brush clearing).

Some minor local economic benefits may be realized through the purchase and/or contract of local goods and services associated with Birchtree Station. Station equipment installation tends to involve highly specialized labour and is unlikely to offer significant local job opportunities. With respect to the Wuskwatim Switching Station, it is expected that it will be built at about the same time as the generating station and will likely involve the same contractors and personnel.

5.2.4 Infrastructure and Services

The proposed routes cross or are in proximity to existing infrastructure features such as PTHs, Provincial Roads (PRs), the HBR railway line from The Pas to Churchill and The Pas Airport. Discussions regarding route alignment have been held with Transport Canada, Nav Canada, The Pas Airport Authority and representatives from HBR. Further discussions will be held, where appropriate, during the detailed design stage for the proposed transmission lines.

Birchtree Station is not expected to affect area infrastructure and services. Existing PTHs, PRs and local roads/trails will be used to access the site, and all legislation and regulations pertaining to such use, including any road restrictions, will be observed. Manitoba Hydro will consult with appropriate government agencies and/or corporations and will meet all operating and safety requirements for the project.

5.2.5 Personal, Family and Community Life

In general, construction-related effects on communities and populations near the proposed routes are short-term and are considered to be minor. Potential effects during construction can include public concern about the local environment, public safety and noise effects. During operations and maintenance, concerns can include potential effects on residences and cabins, outdoor travel and recreation, aesthetics, health (EMFs [9]), interference with radio and television broadcasts and changes to local ways of life.

- **Residences and Cabins:** The proposed routes generally avoid areas of residential development (residences, traditional cabins and cabins). However, north of Rall's Island Station, the community of Umpherville is located to the east of the Herblet Lake Station to Rall's Island Station proposed route. Through this area, the proposed transmission line will be routed within an existing right-of-way and a vegetative buffer exists between the right-of-way and Umpherville. As such, effects on the community of Umpherville are expected to be minor.
- **Aesthetics:** Manitoba Hydro's standard environmental protection practices will be applied to address most potential effects related to aesthetic changes and perceptions. Structure placement and routing can help to minimize potential aesthetic effects in sensitive locations. In the case of Birchtree Station, the proposed site is removed from PTH 6 and the existing wooded area will provide a buffer between the station and the road. The proposed station is also located in the vicinity of INCO's facilities and is near existing transmission line rights-of-way along PTH 6 and north of the site.
- **Noise:** Audible noise levels along the new rights-of-way, resulting from the addition of the proposed transmission lines, are not anticipated to be of concern. Right-of-way clearing and construction activities will be short-term. The proposed transmission lines are largely located in isolated areas or adjacent to existing railway and transmission lines. During construction of Birchtree Station, noise will temporarily be generated. Construction activities will be subject to all relevant legislation and regulations, and will be limited to construction working hours only.
- **Radio or Television Interference:** Interference problems with radio or television broadcasts do not generally occur with these types of transmission lines and, as such, are not expected to be a concern.

[9] Electric and Magnetic Fields (EMFs) are invisible lines of force surrounding any wire carrying electricity, and are produced by all electric tools and appliances, and transmission lines.

- **Public Health and Safety:** Adherence to Manitoba Hydro's standard environmental protection practices will mitigate potential effects during clearing and construction. Electrical effects and related safety concerns will be mitigated through the application of transmission line design standards that meet or exceed those set by the Canadian Standards Association.
- **Health Effects and EMF**: With respect to the issue of health effects and EMFs associated with transmission lines, the general consensus of the worldwide scientific community is that a public health risk from exposure to these fields has not been established. Position statements adopted by federal and provincial health agencies, and a recent EMF experts' workshop (Manitoba Clean Environment Commission, March 2001) have expressed the same view. Manitoba Hydro continues to monitor studies on this subject and makes information available to the public.
- **Worker In-migration:** Employment and business opportunities on transmission projects are limited. As a result, the migration of people looking for project-related work into communities in the project area is not expected to be a concern.
- **Local Way of Life, Culture and Community Organization and Cohesion:** Most effects are expected to be either minimal or negligible. The proposed transmission lines are not expected to have lasting effects on area hunting, trapping and fishing or on those wishing to pursue traditional lifestyles. However, it is possible that traditional harvesting may increase as a result of new access created by the cleared rights-of-way. Access management measures will be applied in circumstances where increased access might lead to inappropriate or excessive resource harvesting.
- **Outdoor Recreational Resources:** The route selection process sought to limit proximity to, and avoid or minimize the visual effects on known areas of importance to lodge operators, outfitters, canoeists and the Parks and Natural Areas Branch. Potential effects on parks and recreational resources are generally expected to be minor and mitigable. There are no lodges in immediate proximity to the proposed transmission line routes. The proposed route for the Herblet Lake Station to Rall's Island Station 230 kilovolt transmission line crosses the Grass River which is a designated canoe route. The crossing location at Grass River was chosen to optimize the location of the transmission line structures so that their visibility, relative to the shoreline and canoe routes, would be minimized. The proposed transmission line route between Herblet Lake Station and Rall's Island Station also crosses through a portion of Clearwater Lake Provincial Park, immediately adjacent to the park boundary, paralleling the north side of the existing HBR railway line. As such, the effects are expected to be minor. At the crossing location of the Saskatchewan River, there are expected to be no new visual effects as the proposed transmission line from Herblet Lake Station to Rall's Island Station will use existing steel structures to cross the river. To the north of the river, west of the community of Umperville, the line will be routed within an existing transmission line right-of-way.

5.3 EFFECTS ON HERITAGE RESOURCES

Heritage resources (i.e., archaeological sites, pictographs, etc.) were identified as a routing issue during the SSEA process. Any sites recognized through municipal, provincial or federal designation, or any cultural sites of local significance were taken into account during the alternative routing stage. Field studies along the proposed routes were undertaken.

The construction phase of the project has the greatest potential to affect unknown heritage resources through right-of-way clearing, heavy equipment operations and storage, and establishing structure foundations. The range of mitigative options includes site avoidance, preservation, landscaping and excavation, although avoidance is the preferred option. In advance of construction, Manitoba Hydro will assure that a field survey is conducted within the rights-of-way to identify any presently unknown heritage resources which could be affected by the proposed transmission lines. Newly identified sites will be flagged and/or removed following clearing and prior to construction. Survey results will be reported to Manitoba Historic Resources Branch in fulfillment of requirements for a Heritage Resource Impact Assessment (HRIA) under The Heritage Resources Act. First Nations will be advised as appropriate.

If heritage resources are encountered during clearing and construction for Birchtree Station, they will be documented as required by the Environmental Protection Plan; work will be halted and Manitoba Historic Resources Branch will be contacted immediately for further direction pursuant to The Heritage Resources Act. Operations and maintenance activities at the stations are not expected to affect heritage resources.

6.1 REGULATORY AND DECISION STEPS

Remaining activities in the regulatory and decision schedule include:

- Review of the EIS filings for the Generation and Transmission Projects by the regulators and the public, to take place in April, May and June 2003.
- Supplementary EIS filings (June/July, 2003) after receipt of all comments, and review by the regulators (July/August 2003).
- Clean Environment Commission hearings, expected to take place in fall, 2003.
- Development of the Project Development Agreement between Manitoba Hydro and NCN, and ratification vote by NCN members regarding the Project Development Agreement.
- The final licensing authorizations, anticipated to be received near the end of 2003.
- The decision by Manitoba Hydro and NCN regarding whether to construct the Project (after all of the above activities have been completed).

6.2 PUBLIC INVOLVEMENT

In the Public Involvement Plan, two more stages of public involvement are planned. Round Four is intended to communicate the format and content of the EIS documents to communities in the Project Region, as well as others who show an interest in the Projects. Discussion will focus on issues of concern to communities from earlier rounds of consultation. Round Five will focus on communicating any supplemental information that is prepared and filed with regulators, after initial review of the EIS documents. This round will focus on those directly interested in the supplemental information. NCN and Manitoba Hydro will continue to provide information to NCN members throughout the construction period.

6.3 MONITORING AND FOLLOW-UP

Monitoring of biophysical and socio-economic effects will be carried out for the Projects. Each Environmental Impact Statement presents monitoring and follow-up commitments pertaining to relevant biophysical and socio-economic effects of the Projects. For each Project, an Environmental Protection Plan will be developed prior to construction, that will commit Manitoba Hydro (in the case of the Transmission Project) and the Limited Partnership formed by Manitoba Hydro and NCN (in the case of the Generation Project) to a program of environmental protection and monitoring.

Monitoring will be undertaken for the following reasons:

- During the pre-construction period, to provide additional information useful in refining project plans (e.g., site-specific routing of transmission lines)
- To ensure compliance with environmental protection measures during both construction and operations phases
- To assess the effectiveness of mitigation and enhancement measures during both construction and operations phases
- To provide timely information to assist in management of effects, particularly in cases where actual effects are uncertain (e.g., in-migration to Nelson House during pre-construction and construction phases)
- To confirm actual effects, and identify any unanticipated effects.

7.0 NEXT STEPS

Manitoba Hydro and NCN are confident that the Wuskwatim Generation Project and Wuskwatim Transmission Project have been planned and designed with careful attention to environmental stewardship and to concerns from people in the region. The EISs demonstrate the commitment to sustainable development. Both parties look forward to public discussion of this environmental assessment.

Manitoba Hydro and NCN will continue to work jointly to complete all the necessary engineering, environmental, consultation and other related activities that would allow for the decision to commence construction of the Wuskwatim projects in December 2003. Manitoba Hydro and NCN are proud of their cooperative approach to planning these projects and will continue to plan in a way that seeks to reduce adverse effects and enhance positive effects of the Projects.