

The Manitoba Clean Environment Commission

IN THE MATTER OF:

The Wuskwatim Generation Project and the Wuskwatim Transmission Project
Public Registry Files 4724 and 4725

FINAL SUBMISSION BRIEF

**NISICHAWAYASIIHK CREE NATION
and
MANITOBA HYDRO**

MYERS WEINBERG LLP
Barristers and Solicitors
724-240 Graham Avenue
Winnipeg, MB R3C 0J7
Phone: 942-0501

MANITOBA HYDRO
820 Taylor Avenue
Winnipeg, MB R3C 2P4
Phone: 474-3639

CLEAN ENVIRONMENT COMMISSION
FINAL SUBMISSION WUSKWATIM PROPOSAL
MANITOBA HYDRO and NISICHAWAYASIIHK

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FINAL SUBMISSION

I. INTRODUCTION

The Commission, the Proponents and the participants have reached the end of an unprecedented hearing process for Manitoba, in this case the consideration of the Wuskwatim Generating Station and Transmission Projects.

It is the first such project being advanced as a partnership between Manitoba Hydro and a First Nation, the Nisichawayasihk Cree Nation.

The environmental investigations for the projects have spanned five years and have had a level of aboriginal participation in the management, direction, fieldwork investigations and consultation activities not seen in any other Manitoba project and rarely, if ever, elsewhere in Canada.

The Wuskwatim projects are the first integrated hydro generation and transmission projects to be brought forward for licensing and approvals under *The Environment Act* (the Act) and the first new hydro-electric project since Limestone was begun in 1978. It is the first time a review of "Needs for and Alternatives to" has been consolidated with a Clean Environment Commission review.

The Proponents have filed Environmental Impact Statements and Need for and Alternatives submissions which along with two supplementary filings are in excess of 20,000 pages.

The Government of Manitoba made available \$1,000,000.00 in funding to facilitate participant activities. This was several times greater than what has historically been made available.

A formalized process comprising two rounds of information requests to the Proponents resulted in over 2000 questions being posed and answers to those questions being filed prior to the hearing which added to the information available for public review.

There were also two pre-hearing Motions, one on the scope of the hearing and another on information disclosure. The CEC has now heard 32 days of testimony over four months resulting in excess of 7000 pages of transcript.

The Chair of the Commission noted as such:

The interrogatory process alone has resulted in a significant amount of information being made available to the participants, to the panel and the public which would not likely have been possible during the public hearing alone. (See: CEC transcript, p. 5 line 11-15)

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The daunting task facing the Commission is to synthesize the totality of the record into a report and provide recommendations to the Minister of Conservation in accordance with the Terms of Reference provided by the Minister.

In this final submission, the Proponents have reviewed the matters; Background; Project Description; NFAAT Submission; EIS Submission; and the Conclusions the Proponents submit should be reached based upon the totality of the evidence before the Commission.

Background

After the filing of the Environment Act Proposal Forms (EAPF) for both projects, the federal and provincial Ministers established Project Administration Team (PAT) and a Technical Advisory Committee (TAC) to deal with the projects as they moved through the regulatory phase. Draft Guidelines for the preparation of the Environmental Impact Statement were prepared, posted and circulated and the CEC was asked to undertake a process to review the draft g\Guidelines with the public and report. This input which included the views of the CEC, consumer groups, aboriginal interests and special interest groups, was provided to the Minister, considered and final Guidelines issued to the Proponents by the Minister, all in accordance with the Act.

The Guidelines provide the context and instructions for the preparation of the EIS. It is important to always bear in mind that the Guidelines are not a subject for review in this process and that they were designed to tell the Proponents what information government agencies require in order to consider the Wuskwatim projects. (Guidelines: 2.3.1 Intent) The Scope set out in 2.3.2 and the specific topical sections following articulate the matters which must be considered in the EIS.

Prior to the hearing commencing March 1, 2004, the EIS had been made available for regulatory and public review and comment. During this period comments were received from the TAC and certain of the participants. These comments led to the proponents making two supplementary filings. The Project Administration Team concluded that following receipt of the Supplementary Filings, the Proponents' filings were sufficient for purposes of proceeding to public hearing. (See: CEC transcript, p. 5317, 5319- 5321, cross-examination of PAT by CEC).

II. CEC TERMS OF REFERENCE

The Terms of Reference given to the CEC by the Minister circumscribe the task of the CEC in relation to the consideration of the Wuskwatim projects. Moreover, they set out explicitly what the Minister requires of the CEC in relation to the Wuskwatim projects. After considering the justification, needs for and alternatives to and the environmental, and socio-economic effects as articulated in the EIS and after sharing the public concerns, the CEC shall provide a recommendation on ***“whether Environment Act Licences should issue for the Wuskwatim Projects”***.

In essence there is a mandatory obligation on the CEC to recommend yes or no to the Proponents' request that Environment Act licences be issued. Regardless of the decision it can only be based on the assessment of the Wuskwatim projects.

If the CEC recommendation is positive, the CEC is asked to recommend mitigation measures and monitoring or research relative to the Wuskwatim projects.

The CEC must also be mindful of two other matters; firstly, that which the Minister did not require the Proponents to undertake as part of the EIS and secondly, that which the Minister did not ask the CEC to address in the course of its work.

The Minister, in the Guidelines did not ask the Proponents to undertake a post project impact assessment of 45 years of northern hydro development in Manitoba nor did the Terms of Reference request the CEC to undertake such a review. However, a significant amount of the CEC process was taken up with the issue of the effects of 45 years of hydro development in northern Manitoba. Significant volumes of testimony were received about effects of past developments not having been addressed. The record indicates that such is not the case. While it may be that those who spoke were not happy with the agreements approved and entered

into by a community or group or programming put into place, the fact remains that issues were addressed.

The CEC was also not asked to make any recommendations relative to the issuance of the Water Power Licence. This process has its own regulatory framework and its own consultative mechanisms under *The Water Power Act* and Regulations through the Department of Water Stewardship

It was suggested to this Commission by CNF/MW Elizabeth May that the proponents' material is deficient because it fails to provide an adequate environmental assessment of alternatives to the projects. The terms of reference do not include environmental assessment of alternatives to the project. The environmental effects of Wuskwatim relative to alternative resources were considered by the proponents at a conceptual level in its NFAAT study.

In other cases, such as South Indian Lake, there are four groups (CASIL, DRSIL, MMF and O-Pipon-Na-Piwin) that say they represent, in certain cases the same people and, most certainly, all those who were covered by the agreements with the community association (CASIL) and the housing association (SILHA). In addition, NCN as a Co-Proponent finds itself in a position of also having to consider the concerns of these same people, as about 90% are NCN Members.

The Guidelines were not prescriptive as to methodology. Rather they indicated information and certain process requirements. The choice among accepted methodologies and manner of presentation of the information was left to the professional judgment of those who developed and approved the EIS. The Proponents recognize that there are competing methodological paradigms. However, the fact that the Proponents chose a method which is not preferred by some participants or advisors does not necessarily make it wrong or the EIS deficient. It is simply different as there is no single approach authorized by legislation or practice. The EIS was prepared as an integrated EIS designed to

deal with effects issues. There is nothing in the record to suggest that the EIS is suspect on methodological grounds.

The Guidelines were not prescriptive as to public consultation. The process should be responsive to get at the issue of local knowledge and information and the potential impacts of the project upon those living within the project region. Much has been made about alleged failures to speak with one or more special interest groups. In some instances these groups do not possess first hand knowledge or experience and can operate only as collectors and filters of information collected by others.. It cannot be disputed that those in the region having the potential to experience effects of the Wuskwatim projects would be in the best position to provide the best information and evidence to the Proponents.

The CEC was not asked to interpose itself into the issue of aboriginal and treaty rights. The Proponents were not asked to define these rights by the Guidelines and the CEC was not asked to opine on rights or the consultative process relative to those rights by the Minister. While there can be a delegation of the Crown's authority to administrative tribunals in appropriate circumstances, that authority was not delegated to the CEC in this case.

While it is true that the EIS process must include public consultation in order to help define what rights may be in issue, it does not follow that the CEC is the adjudicator of that process, especially when that process has not been completed. The Proponents do, however, recognize that the CEC must be aware of constitutional and statutory rights as it carries out its mandate of recommending whether the Environment Act licences should be granted for the Wuskwatim proposals, and if so, upon what conditions.

Moreover, to make recommendations on what may be seen by some as outstanding issues from other projects is beyond the CEC's jurisdiction in these proceedings. Furthermore, the CEC did not engage in and was not requested to engage in a full review of existing settlement agreements and the various dispute

resolution processes available to the parties under those agreements, most of which contain arbitration mechanisms.

The CEC was requested to provide advice to the Minister on the Wuskwatim projects as submitted. It is not open to the CEC to suggest a different project. The CEC either recommends the licences for the projects as submitted or does not.

Through the course of this process the CEC has heard repeatedly from special interests that the Guidelines are wrong or that the Terms of Reference are too narrow. These issues were the focus of the September 30, 2003 motion and were front and centre in the further disclosure motions in January 2004, after the interrogatory process was completed. In all cases the CEC declined to expand its Terms of Reference or interpret the Guidelines in the manner suggested. It should be noted that if the CEC had determined that there were areas outside the Terms of Reference which ought to be explored, the CEC was explicitly authorized to request that the Minister review or clarify the Terms of Reference. There is no evidence that the CEC thought it necessary to do so.

III. PROJECT DESCRIPTION

1. WUSKWATIM GENERATION PROJECT

As described in the evidence before this Commission, the proposed Wuskwatim Generation Project is a 200 megawatt generating station located on the Burntwood River just downstream of Wuskwatim Lake at Taskinigup Falls, 37 km southeast of Nelson House. It would develop a combined drop of about 22 metres (72 feet) between Wuskwatim Lake and the base of Taskinigup Falls (15 metres at Taskinigup Falls and 7 metres at Wuskwatim Falls).

The proposed Wuskwatim project would become part of the Manitoba Hydro 5000 MW system. The Manitoba Hydro generation and transmission system, export market operations, the role of Wuskwatim in that system and an overview of the effects of Wuskwatim on that system were the subject of a detailed presentation by Mr. Cormie (See: CEC transcript, pp. 73 – 100). There was extensive cross examination of this evidence by CEC counsel, Commission members and participants at various points throughout the proceedings. Nothing adduced during cross examination in any way detracted from the position advanced by the Proponents.

Minimal new flooding of less than one half square kilometre would result from the development. This would be the smallest amount of flooding of any generating station in Manitoba Hydro's system.

The design and planning for Wuskwatim has assumed that the CRD would continue to be operated as it is currently, including the annual modifications to the Interim License ("the Augmented Flow Program or AFP). (See e.g.: Correspondence outlining normal AFP conditions, Exhibits MH/NCN 1045 and CASIL 1008 and 1010 , CEC transcript, p. 6563). The CRD seasonal flow patterns that are currently experienced would continue. No water level or flow effects of the project would be experienced upstream of Early Morning Rapids. This conclusion was confirmed by Duncan and Associates Limited, the independent engineer retained by CASIL and others (See: DAL Report, CASIL Exhibit 1011, at p. 10, para. 1).

Wuskwatim Lake would be maintained by the operation of the project at or near an elevation of 234 metres above sea level almost all the time, a level which is within, and near the upper end of, the range currently experienced from operation of the CRD with the AFP. To maintain this water surface elevation, flow out of the lake would normally be adjusted to match the total flow into the lake each day. By the time the flow reached Birch Tree Lake, project-related daily water level changes would not be noticeable in the Burntwood River in comparison to everyday-normal

wind and wave effects.

The area between Early Morning Rapids and Birchtree Lake, there is not expected to be any perceptible change in water regimes of rivers or lakes due to the Wuskwatim Project. The advancement of the development of the Wuskwatim Generating Station from the time it would be needed for domestic load within Manitoba (about 2020) to the earliest in-service date of 2010 when its output would be fully allocated to extra-provincial sales would result in management and operation of the water in the Manitoba system to shape Wuskwatim output to match most advantageously the prices within the export market.

On a daily basis, mismatches between the timing of Wuskwatim output and export sales demand would be balanced on the Lower Nelson River using the Stephens Lake reservoir. On a seasonal basis, shifting of available surplus export energy to higher value months could be undertaken using Lake Winnipeg storage, depending upon the portfolio of export sales at the time. Such adjustments would result in no perceptible changes in the hourly and daily water levels along the Lower Nelson River and in the flows and water levels resulting from the seasonal regulation of Lake Winnipeg.

Zone of Influence

Understanding the hydraulic zone of influence of the Wuskwatim Generating Station was integral to the assessment of the bio-physical effects of the proposed projects and to assessment of the cumulative effects of the projects.

Some of important findings used by the assessment team are:

1. There will be some hydraulic effects upstream of the generating station:
 - a) water levels on Wuskwatim Lake will be stabilized within the existing range of variation of Wuskwatim Lake at or near 234.0 m ASL (this is

a cumulative effect which will offset variations caused by CRD);

- b) daily water level fluctuations will occur on Wuskwatim Lake, typically less than 0.06 metres, but monthly and seasonal water level changes will no longer occur (this is a beneficial cumulative effect which offsets an effect of CRD); and
- c) the backwater effect from the generating station will not extend upstream of Early Morning Rapids (which are about 27 km upstream from Wuskwatim Lake) at any time (in summer or winter).

(Volume 1, WGS, Section 5, p. 5-15 and Volume 4 Physical Environment).

2. There will also be some hydraulic effects downstream of the generating station:

- a) water levels in the river immediately downstream of the generating station will vary (to some extent) during daytime hours about 60-90% of the time (depending on changes in the operation of the three turbines); but
- b) fluctuations will be at the maximum immediately below the generating station and will reduce as the water flows downstream;
- c) water level fluctuations immediately below the station will range from 0 to a maximum of 1.5 metres;
- d) the largest fluctuations will reduce to a maximum of 0.4 metres by the time the water flows to Opegano Lake (which is 13 km downstream from Wuskwatim Lake); and
- e) by the time the river flows downstream to Birch Tree Lake (49 km

downstream of the generating station), the maximum water level fluctuations are expected to be not noticeable (less than 0.1 m in open water and 0.15 in winter).

(Volume 1, WGS, Section 5, p. 5-16 and Volume 4 Physical Environment.

The Proponents have a high level of confidence in these water regime analyses, as described by George Rempel under thorough questioning by Commission counsel (See: CEC transcript, p. 2715-2717). The zone of influence of the proposed Wuskwatim generating station therefore is limited to the (CRD) waterways from the foot of Early Morning Rapids (about 27 km upstream of the generating station) to Birch Tree Lake (about 49 km downstream of the generating station).

2. WUSKWATIM TRANSMISSION PROJECT

The Wuskwatim Transmission Facilities include a 45 km 230 kV transmission line along a 60 m right of way between the Birchtree Station, south of Thompson, and the Wuskwatim Switching Station, near the Wuskwatim Generating Station. This line, connected to the Manitoba system, would initially provide construction power for the generating station. Two parallel 137 km 230 kV transmission lines along a 110 m right of way would link the Wuskwatim Switching Station to the existing Herblet Lake Station, near Snow Lake. A single 165 km 230 kV transmission line along a 60 m right of way would connect the Herblet Lake Station to the Rall's Island Station, at the Pas.

An extensive review of alternative routes was considered by the Proponents (EIS Transmission, Vol. 1, pp. 6-1 to 6-118) and tested by the Commission and others throughout the hearings (See: CEC transcript, pp. 2528-2250).

IV. SYSTEM OPERATIONS

Manitoba Hydro system effects, attributable to the addition or deletion or change in an integral component such as a generating station, water control structure, transmission line, or electricity delivery commitment, occur as a result of changes in the mismatch between the electricity production capability and customers' demand. This is happening continuously as the Manitoba Hydro system evolves.

The Proponents confirmed in its filings and through the evidence before this Commission that the placement of the Wuskwatim Projects into service by approximately 2010 would have some effect on the operation of the overall hydraulic system due to the difference between the quantities and timing of electricity that could be produced with the new facilities and the quantities and timing of the firm and non-firm electricity export sales opportunities at that time.

A full range of possible scenarios for the period after the Projects' in-service date have been considered and tested through extensive cross-examination by the CEC, and Participants. Export market variations and system water supply variations and, through system simulation, the likely effects throughout the lakes and rivers affected by hydroelectric operation have been evaluated (See: MH/NCN - EIS - DFO S-39; CNF/MH/NCN I - EIS - FUTPROJ - 261a; PCN/MH/NCN I - EIS - 4,5; PCN/MH/NCN II - EIS - 2,3).

No contrary credible evidence has been presented. Preliminary quantitative assessment of possible cumulative operational changes that could arise from the later addition of the Gull/Keeyask and/or Conawapa generating stations (along with the Notigi generating station) was also carried out. It was concluded that, depending upon system configurations and the electricity markets, they could be larger than Wuskwatim effects, or zero, or offsetting.

It was further concluded that whatever the eventual sequence of future project

development, the Lake Winnipeg/Nelson River regulated water regime would remain within its historical and licensed range and flow and water level effects in CRD and LWR waterways outside the immediate project area would be small in comparison to existing wind, ice, and wave effects and they would not be discernible [e.g., typically on the order of 0.1 foot in Cross Lake at any one time (maximum 0.4 feet in 86-year record with the less likely sensitivity assumption of no firm export sale) and within the seasonal operating range which is approximately 8 feet (See: PCN/MH/NCN I - EIS - CEC transcript, p. 96-99)].

There was also significant discussion before the Commission on the issue of the Augmented Flow Program, (AFP). The AFP is an important part of Manitoba Hydro's ongoing operations and will not be altered with the introduction of the proposed Wuskwatim Generating Station. Although the AFP provides a critical contribution to the operations and economics of Manitoba Hydro operations of the large lower Nelson River plants, inclusion of the AFP in the final CRD license is not essential to Wuskwatim economic viability. The AFP will be considered in conjunction with the finalization of the Churchill River Diversion license under The Water Power Act and is not a matter before this Commission.

V. NFAAT

The Wuskwatim Projects proposed for a 2010 in-service date represent an advancement of approximately nine years against domestic requirements. In coming to a determination to recommend this advancement for export purposes, a rigorous analysis of the projects was carried out. This included financial and economic analysis of advancement, review of options or alternatives available to provide additional capacity and energy to the Manitoba Hydro system, and the environmental benefits of adding the Wuskwatim projects to the system. Mr. Harper on behalf of CACMSOS indicated that "... the opportunity for increased export revenues and more importantly, increased profits, does represent a

legitimate need for Manitoba Hydro's perspective for the projects." (See: CEC transcript, p. 5460, lines 20-25). A unique adjunct to the analysis is that the generation project is proposed to be constructed in partnership with the Nisichawayasihk Cree Nation who has the ability to acquire up to 33% interest, through a limited partnership, in the generation project.

During the course of the hearings there was considerable debate and evidence on two of the supply alternatives, Demand Side Management (DSM) and wind power. In considering these two specifically and other alternatives, it must be noted that the Wuskwatim projects are being proposed not as either-or propositions but rather, as part of a greater and balanced supply portfolio. The essence of the differences among the Proponents and participants is one of degree.

Evaluation of Wuskwatim & Alternative Resources

All of Manitoba's Principles and Guidelines of Sustainable Development have been applied to the Wuskwatim Project. The principles include: Integration of Environmental and Economic Decisions; Stewardship; Shared Responsibility and Understanding; Prevention; Conservation and Enhancement; Rehabilitation and Reclamation; and Global Responsibility. The Wuskwatim Project contributes towards meeting the needs of the present without compromising the ability of future generations to meet their needs.

The principals of sustainable development and their applicability to the Wuskwatim projects have been discussed extensively in the original submission, interrogatories and through these proceedings. See for example:

- NFAAT-Vol. 1; 1.2 Manitoba Hydro Mission & Corporate Context
- NFAAT-Vol. 2; Appendix 1: 2000 Sustainable Development Report
- CNF/MH/NCN II – EIS – PUB POL – 9a
- Opening Presentation EIS; Pages 69 & 70
- Transcript Pages 5394 - 5401

Manitoba Hydro through its Resource Planning Process optimizes the resource portfolio considering economics, rates, risks, reliability, customer satisfaction and the environment. On an ongoing basis Manitoba Hydro reviews a wide range of generation and conservation technologies as potential resources. Manitoba Hydro screens these resources to determine those that are the most attractive and warrant greater and more detailed study. For instance, the screening considers hydro, conventional thermal, Alternative Energy, Demand Side Management (“DSM”), Supply Side Enhancements (“SSM”), imports and others.

The economic screening of alternatives was performed comparing the levelized cost of various options expressed in dollars per unit of energy produced by the option over its useful life.

As a part of the screening process, Manitoba Hydro also compares the environmental characteristics, levelized on an average basis over their entire lifecycle. Lifecycle analysis introduces the impacts not just from the direct operation of the facility (e.g. the combustion of fuel) but also the indirect impacts associated with the other parts of the lifecycle, such as materials, manufacture, construction (and the land use associated with each) and upstream fuel extraction. Manitoba Hydro’s environmental screening process has been discussed extensively in the original submission, interrogatories and through these proceedings. Please note the following selected references:

- NFAAT-Vol. 1; 4.2 Resource Screening
- NFAAT-Vol. 2; Appendix 10 Pembina Institute Study
- Transcript Pages 1828 – 1833 & 1244 – 1245

These screening studies indicated that while individual DSM programs exhibited a wide range of costs, many DSM programs have attractive low costs. SSE projects are evaluated on an individual basis as opportunities, such as equipment outages,

present themselves. DSM and SSE are generally assumed to have very low environmental impacts.

The results of the GHG environmental indicator makes it clear that it would be very difficult to identify an alternative form of generation with lower emissions than the Wuskwatim Project. While wind also has very low GHG emissions, they are not lower than Wuskwatim. Wuskwatim's levelized costs are lower.

"The purpose of this screening overview and analysis is not to provide a final evaluation of each resource, but to try to differentiate between options that are clearly not attractive and those that require more detailed evaluation. (See: Ch. 4, pg.38, lines 2-4).

The resources that are identified as being the most attractive are the subject of much more detailed evaluation including economic, financial and environmental evaluation. "While levelized costs and environmental indicators are useful tools for initial screening analysis, they are not appropriate for detailed study and commitment level decisions". (See: Ch. 4 pg.38, lines 6-8).

Levelized costs offer useful insights in comparing resources, but there are limitations associated and do not review all issues that need to be considered before a resource is developed. (See: Ch. 4, pg. 28, lines 1-5)

The more attractive resources are subject to more detailed economic evaluation of options using system simulations models. Simulation modeling takes into detailed account the various system constraints, such as the range of river flows from low to high constraints and the ability to export power which is limited by tie line interconnection capability. Project economic attractiveness was measured using IRR (Internal Rate of Return). Wuskwatim has an attractive rate of return at 10.0 % real. "The IRR for Gull and Conawapa were slightly lower than the IRR for Wuskwatim. ...And IRRs for wind, were less than Wuskwatim's IRR as well." (See: CEC transcript, p. 523 lines 15-24).

The Proponents have demonstrated that all alternative resource options have been considered, that Wuskwatim has been selected on reasonable grounds, including economic viability as an export market driven project.

Economic Analysis

The resource options which are most economic are Wuskwatim and some DSM programs. Manitoba Hydro has demonstrated that Wuskwatim is economically viable as an export market driven project.

Manitoba Hydro has further demonstrated that, although it will be adopting more DSM after its DSM update studies are complete, there is no reasonable projection of economic DSM such as to render Wuskwatim uneconomic. Therefore, any portfolio of the most economic resource options available would include Wuskwatim. Similarly, any portfolios of resource options which did not include Wuskwatim would not be as economic as a portfolio of options which did include Wuskwatim. For example, because Wuskwatim is more economic than wind, a portfolio which includes Wuskwatim and DSM will, by definition, be more economic than a portfolio with wind and the same amount of DSM. This argument is referenced in Manitoba Hydro's TREE/RCM Rebuttal in the section "Attractiveness of Wuskwatim in Comparison to Distributed Generation."

Economic evaluations compare the present value of the benefits to the present value of the costs over a specified study period. The IRR is the discount rate at which the present value of the costs and benefits is equal. The IRR is utilized to assess the economic attractiveness of a particular project and also to compare the economic attractiveness of competing projects. The economic attractiveness of the project is determined by comparing the IRR to the hurdle rate which is selected according to the level of project risk. The hurdle rate is the minimum IRR required to provide a sufficient level of return, considering the degree of risk expected with the project. Financial analyses are more detailed analyses that consider year-by-

year costs and revenue impacts to the Corporation, financial stability, and customer rates.

The economic evaluation conducted by Manitoba Hydro determined the Internal Rate of Return (IRR) of advancing Wuskwatim is 10.0% real (CAC/MSOS/MH/NCN I – NFAAT – 2b). Relative to the low risks associated with the project, Manitoba Hydro considers an appropriate hurdle rate to be in the range of 6 to 10%, and thus Wuskwatim is a very economically attractive option. CAC/MSOS evidence suggested that the IRR calculation ought to be segregated to provide only a Manitoba Hydro perspective as opposed to a project perspective.

Manitoba Hydro clearly states on page 5 of the Overview Chapter of the NFAAT main submission that the economic evaluations are for the entire project without reference to the Manitoba Hydro and Nisichawayasihk Cree Nation partnership parameters and interests. Further to this point, the rebuttal evidence provided to the Commission on February 27th, 2004, states that it is appropriate that the entire project be evaluated regardless of MH/NCN ownership arrangements, in order to determine whether it is the best available alternative. Thus, the economic evaluations calculate the IRR of the total cash flows of the project, regardless of who owns or finances it.

It is the intent of the financial evaluation to assess rate impacts on Manitoba Hydro's customers and provide assurance of the corporation's continuing financial stability and thus, it includes Manitoba Hydro's share of the revenues and costs from the partnership arrangements, as well as financial impacts of its loans to NCN.

At the request of CAC/MSOS, Manitoba Hydro applied a special purpose calculation which considers only costs paid and revenues received by Manitoba Hydro and determined that this reduces the Wuskwatim Project IRR by 0.9% (9.4% versus 10.3%, CAC/MSOS/MH/NCN I NFAAT 86a). This calculation includes cash equity contributions from NCN and cash dividends to NCN which

factor in NCN's interest and principal repayment obligations. This is not truly an IRR calculation, since IRR would normally not include sources of financing (CAC/MOS/MH/NCN II NFAAT 30a). In fact, it is much more appropriate to view financing arrangements with NCN as providing a separate return above and beyond that from Hydro's share of the project and from NCN's perspective, it provides reasonable access to financing so NCN can be an equity participant in the project.

Economic studies conclude that under current assumptions, the Wuskwatim Project has the highest expected IRR compared to the IRR of alternative projects such as wind, Gull and Conawapa. In addition, proceeding with Wuskwatim does not preclude Manitoba Hydro from pursuing other options such as DSM, SSE and wind where they are technically, economically and financially viable, nor does proceeding with the other options have a significant impact on the attractiveness of Wuskwatim.

In coming to the economic conclusion, a rigorous sensitivity analysis was carried out. This sensitivity analysis demonstrates that the IRR for Wuskwatim is robust under a wide range of assumptions, including higher levels of Demand Side Management, wind generation, and lower load growth, capital cost increases or decreases, export price variation, reduced water flows and system drought, increases or decreases to tie line capacity, in-service date delays and system drought. (MH/NCN NFAAT S-2a, revised January 16, 2004). Even with a combination of downside events or "worst-case scenario" represented by a low export price forecast, 15% higher capital costs and a 10% flow reduction on the Burntwood River System, the IRR, at 6.6%, is still greater than the Weighted Average Cost of Capital of 5.98%(CAC/MSOS/MH/NCN/II-NFAAT-5a and CAC/MSOS/MH/NCN/II-NFAAT-3a).

Manitoba Hydro did sensitivities on Wuskwatim where DSM was doubled and everything else was kept the same. And the IRR of Wuskwatim only dropped 0.05

per cent.... So doubling DSM didn't affect the economics of Wuskwatim." (See: CEC transcript, E. Wojczynski, March 10, pg. 1462, lines 4-15),

Although more than doubling the DSM is not considered a realistic possibility, it was considered. "If we went to the equivalent of at least five times DSM and we did a sensitivity that said 0.3 per cent drop in the IRR of Wuskwatim, that would mean that that DSM that was there to make up to five times, it also would still have been economic using more or less the same parameters. ...So we can be confident that the Wuskwatim going in would not adversely affect a couple of multiples of DSM." (See: CEC transcript, E. Wojczynski, March 10, p. 1462, lines 21-25, & p. 1463, lines 1-3) Manitoba Hydro is "confident putting in Wuskwatim would not adversely affect the economics of the range of DSM that's reasonable possible." (See: CEC transcript, E. Wojczynski, March 10, p. 1463, lines 15-17) (See also: CAC/MSOS/MH/NCN I-NFAAT-121b: 2xDSM Scenario. & CAC/MSOS/NFAAT/S/6.)

The impact of the most recent Market Potential Study results on the IRR for Wuskwatim would not be expected to exceed the IRR impact that was calculated for the 2xDSM sensitivity, i.e. 0.05%, as provided in the August Supplemental Filing and "5xDSM only reduces the Wuskwatim IRR by 0.3%. (See also: TREE/RCM/MH/NCN I-NFAAT-006c for more detail on this sensitivity.)

These sensitivities demonstrate that Wuskwatim economics are robust to a much higher degree of additional DSM and/or additional supply enhancements, and/or additional wind generation beyond what was already included. (Interrogatory TREE/RCM/MH/NCN NFAAT – 006C).

Further, while the submission by Mr. Torrie, representing TREE attempted to indicate that changes in the load forecast combined with additional DSM would result in more energy for export than Manitoba tie-lines could accommodate, evidence submitted by Manitoba Hydro showed this not to be the case. In re-examination of Mr. Torrie by Mr. Bedford, Mr. Torrie agreed that Manitoba Hydro

would not market long term sales beyond that which could be accommodated by low flow conditions. (See: CEC transcript p. 5791 lines 8-21). Mr. Bedford presented evidence pictorially showing that under low flow conditions, it would take about 12 times DSM to fill up tie lines. (See: CEC transcript p. 5974 lines 11-22). Mr. Torrie agreed that his recommendation would be for less than 12 times DSM (See: CEC transcript, p. 5975 line 17-25 and 5796 lines 1-4). Previously MR. Torrie had indicated that even 3 times DSM was a stretch target (See: CEC transcript, p. 5696 lines 1-6).

CAC/MSOS acknowledges that at even two to three times DSM that the Wuskwatim project is economic. (See: CEC transcript, p. 5506 lines 5-9)

“MIPUG supports...continued pursuit by Manitoba Hydro of appropriate economic DSM opportunities does not seem to be a reason to forego the development of Manitoba resources such as Wuskwatim.” (See: CEC transcript, B. Turner, March 10, p. 1532, lines 6-14) “MIPUG is strongly supportive of development and long term investment in Manitoba, and sees the Wuskwatim project as a beneficial component of the Hydro system.” (See: CEC transcript, B. Turner, March 10, p. 1534, lines 18-22)

On the issue of capital costs, CAC/MSOS, has expressed concerns relating to capital cost risks associated with the Wuskwatim Project (See: CEC transcript, pp. 5519-5522). Although the cost estimate has increased slightly since the time of the original submission, Manitoba Hydro and NCN remain confident in their evaluation of the potential risks of capital cost variation and that these risks are being managed appropriately. The sensitivity analysis contained in the filing indicates that an overall capital cost increase of 15% would only reduce the project IRR by 1.1%.

Extensive planning, concept development, site investigation, engineering, scheduling and estimating have taken place to date to produce the current estimate. Senior Manitoba Hydro staff and consultants responsible for planning

and design have considerable experience and expertise in large construction projects.

The Proponents also retained a consulting firm, Both Belle Robb Limited, who reviewed the range estimating process, assumptions and major inputs used for the Wuskwatim GS cost estimate. Both Belle Robb concluded that the approach used by Manitoba Hydro was consistent with prudent estimating practice and that the method of risk analysis used had the merit of reducing subjectivity in the estimator. The contingency allowance of approximately 9%, which is included in the 2010 in-service estimate, was judged to be reasonable by the external review.

In considering compensation costs, it was indicated that the capital cost estimates contain an estimated amount for compensation. This amount will be protected by the contingency allowance and further is included in the 15% sensitivity analysis. By settling and fixing the amount of compensation one element of uncertainty is removed from the capital cost thereby reducing sensitivity.

On the issue of export pricing and environmental premiums, the scenario bands provided in the filings represent the use of independent forecasts and the application of reasoned professional judgement. In the development of the export price forecast, Manitoba Hydro recognizes there is great uncertainty to the degree of future legislation and regulation related to emissions and pollutants and has taken the approach of developing a range of possible outcomes. The reference scenario is based upon the forecasts of four independent and reputable energy industry consultants and assumes no further regulation of emissions other than what is currently legislated. The expected forecast is derived by weighting a series of forecasts, each based on the reference price combined with a possible future environmental price premium.

While CAC/MSOS indicated that Manitoba Hydro's expected export price forecast may be high, they further indicated that the low export price scenario sensitivity is reasonable.(See: CEC transcript, p. 5543 lines 2-8) and that the low export price

scenario is a reasonable one for doing sensitivity analysis. (See: CEC transcript, p. 5533 line 25 and p. 5534 lines 1-3) Manitoba Hydro's low export sensitivity shows an IRR of 8.5%.

When considering the issue of environmental premiums one additional consideration although difficult to quantify on its own is the benefit of Wuskwatim in the context of Greenhouse Gas Emissions. Any efforts which can be made to produce a net reduction in emissions have both local and wide ranging societal benefits. The Proponents have demonstrated that Wuskwatim adds very little to Greenhouse Gas emissions and has the potential in concert with wind and DSM to effect significant emission reductions. Wuskwatim is complementary to DSM and wind resources, not detrimental.

Wuskwatim is a comparatively small addition to the Manitoba Hydro system. Independent forecasts such as U.S. Department of Energy indicate that U.S. load growth is expected and that utilities are planning additions of coal and other fossil fuel resources. There is no reason to believe that between approval and completion of the project that the output may not be sold on a longer term basis.

These sensitivities were closely questioned especially in the areas of capital cost, market risk, pricing, and alternatives such as DSM and Wind. (See: CEC transcript, pp. 393-498, 674-695, 697-729, and 499-674). Again while there may be differences of opinion about weightings or probabilities, no party advanced any evidence that the analysis was flawed or deficient.

Financial Analysis

The purpose of the financial analysis is twofold: (1) it confirms that the advancement of Wuskwatim will not adversely affect Manitoba Hydro's financial stability; and (2) it assesses the potential impact on customer rates. It builds upon the engineering economic evaluations by taking the same revenue and cost flows, applying accounting rules and financing assumptions, and translating them into

projected financial statements. The resulting numbers precisely delineate how the Wuskwatim advancement affects Manitoba Hydro and its ratepayers after incorporating the effects of the partnership with NCN. This is a much clearer and more comprehensive way to provide the Manitoba Hydro perspective than the special purpose IRR calculations advocated by witnesses for CAC/MSOS.

The financial projections have also been tested against the most important sensitivities including low and high export prices (See: Ch. 7, Att. 7, CCC/NFAAT/S/7/August 2003 Supplementary Filing), severe drought (See: CCC/NFAAT/S/5/August 2003 Supplementary Filing), a 15% capital cost increase (See: CCC/NFAAT/S/9/August 2003 Supplementary Filing), a combination of these scenarios (See: Undertaking MH/NCN 1027), and the financial affects of combining Wuskwatim advancement with two times DSM and 250MW of wind generation (See: Undertaking MH/NCN 1019).

In all of these scenarios, even when the effects of low export prices, extreme drought and capital cost overruns are combined – the impact on Manitoba Hydro's debt ratio never exceeds 2% and there are always projected rate savings within a few years of project start-up. The expected scenario contained in the April 2003 submission estimates a cumulative reduction in customers' electricity bills ranging from \$87 million to \$216 million beginning within five to eight years of Wuskwatim's in-service. These amounts are in 2003 dollars. If they are converted into the dollars of the day when savings are realized, they are equivalent to annual customer benefits of \$10-30 million per year. (See: CEC transcript, pp. 165-168).

Mr. Williams has recognized these benefits albeit with faint praise, arguing, through tortured statistics, that they represent only a small percentage of total consumer costs. However, it should be recognized that the \$10-30 million per year represent ongoing annual savings, which are robust under a range of circumstances and which arise from a project presenting minimal risks to Manitoba Hydro ratepayers.

None of the intervenors at these hearings took serious issue with Manitoba Hydro's financial conclusions. The CAC/MSOS witnesses stated that the filing does not contain a formal assessment by Manitoba Hydro of the business risks associated with the partnership arrangement. However, they do acknowledge that this assessment may have been made privately by Manitoba Hydro outside the scope of the submission. I can assure the Commission that matters relating to Manitoba Hydro's relationship with NCN have been given very careful consideration by Hydro's Executive management and Board (See Manitoba Hydro rebuttal p.5, lines 26-31).

The CAC/MSOS witnesses also expressed the view that "there should be a proper ring fencing of the partnership costs and revenues" (See: CEC transcript, p. 5523, line 5-10)., from other Manitoba Hydro costs and revenues through an ongoing process of PUB oversight. While Manitoba Hydro does not disagree that periodic PUB review is in the interests of ratepayers, we believe there is virtually no risk that partnership and corporate costs will be muddled. The Commission and intervenors have had the opportunity to review the Summary of Understandings between Manitoba Hydro and NCN, and has heard reference to the substantial legal texts that will lay out the obligations between parties. It is difficult to believe in this circumstance that the allocation of costs and revenues to the partnership would be anything other than extremely meticulous.

As to the concern raised by Mr. Harper in his oral testimony that Manitoba Hydro might provide hedging services to the partnership without compensation, the Commission's attention is directed to interrogatory responses in which it is made clear that the partnership will make its own decisions with respect to the amount of US debt required to hedge US partnership revenues (See CAC/MSOS/MH/NCN1 - NFAAT 82a and CAC/MSOS/MH/NCN2 – 28a). Moreover, the response (See: CAC/MSOS/MH/NCN 1 – NFATT 65e) alluded to by Mr. Harper – albeit unclearly worded - was intended to refer to Manitoba Hydro's share of the partnership.

In summary, the financial analysis is an important component of the submission in allowing interested parties to see how Manitoba Hydro's future financial statements and rate scenarios will be affected by the advancement of Wuskwatim including the partnership with NCN. If the objective is to assess the project from Manitoba Hydro ratepayers' perspective, this is the only feasible approach. Using Mr Williams' analogy, it allows the homeowner assessing renovation alternatives to see not just what his return will be but also the timing of his cashflows in terms of annual borrowings, expenditures and profits.

While Manitoba Hydro believes that the financial analysis provides the most appropriate decision making platform for assessing ratepayer impacts. it is a part of an integrated process that begins with the IR perspective which provides the basis for the comparison and screening of alternatives.

Demand Side Management and Load Forecast

Manitoba Hydro's Power Smart program is one of the most aggressive DSM initiatives in North America (Manitoba Hydro/NCN's NFAAT submission, Chapter 4, pages 14-18),. This position is supported by extensive documentation filed with the CEC (Manitoba Hydro's TREE Rebuttal, March 2, 2004 and Manitoba Hydro/NCN Exhibit 1037, Manitoba Hydro's TREE/RCM Rebuttal, May 3, 2004), including:

- A comparison was provided of Manitoba Hydro' Power Smart initiative with other energy efficient programs in Canada. Over the past fourteen years, Manitoba Hydro offers one of the most aggressive and long-standing commitments to DSM in North America and most certainly in Canada. This position is supported in testimony (See: CEC transcript, p. 5773, lines 16-20) by TREE's consultant, Mr. Torrie. Specifically, that "Manitoba would definitely in Canada rank among a very short list of Provincial electric public utilities that stayed in the DSM game".

- A comparison was provided of Manitoba Hydro's Power Smart initiative with other energy efficient programs in the United States. Manitoba Hydro places within the top 10% of utilities with respect to DSM savings when compared to a recent study completed by the US Department of Energy - Energy Information Administration. For example, TREE/RCM pointed out that the top ten states spend from US\$8.43 to US\$19.48 per capita. In comparison, in the most recent fiscal year, Manitoba Hydro spent US\$10.44 per capita and is projecting to spend over US\$14 per capita in 2004/05.

TREE/RCM also state that the leaders in DSM spend from 0.9% to 2.3% of electricity revenues on DSM initiatives. In comparison, Manitoba Hydro spent 1.83% of electric revenues during 2003/04 and is projecting to spend 2.5% of electric revenues in the current fiscal year. Clearly, these are strong indicators supporting the position that Manitoba Hydro's DSM efforts are one of the most aggressive in North America.

- A comparison of Manitoba Hydro's Power Smart program to ACEEE's "Best Practices". Using these observations and common traits, Manitoba Hydro's Power Smart program consistently exhibits exemplary design and best practices for energy efficiency programs in today's markets.
- Manitoba Hydro's Power Smart program is in a state of "continuous improvement", whereby significant enhancements have been made to the initiative since its inception, and with plans for further enhancement through the addition of strategically chosen programs and redesigns of existing programs.

DSM is an integral component of the Corporation's business and DSM options are evaluated as a component of Manitoba Hydro's overall integrated resource planning process. During the resource planning process, all options are evaluated

for the purposes of meeting domestic load requirements and for purposes of pursuing export marketing opportunities. The resultant resource plan, in general involves pursuing an aggregate of resource options. For example, the current plan includes pursuing a combination of Supply Side Enhancement initiatives, DSM initiatives, and constructing new generation alternatives, including 250 MW of wind generation.

TREE/RCM state (Interrogatory Response CNF/TREE/RCM I NFAAT – 11) that “the history of the Power Smart is one of plans made but not implemented” and that Manitoba Hydro’s Power Smart programs are characterized as being “on-again, off-again”. In reality, Manitoba Hydro’s Power Smart plans merely reflect the results of emerging and lost export opportunities for Manitoba Hydro. For example, during the last fourteen years Manitoba Hydro experienced a number of significant new and lost export opportunities and its resource plan was modified accordingly. During the early 1990s when Manitoba Hydro entered into a contract to sell 1000 MW to Ontario Hydro, Manitoba Hydro adopted an aggressive DSM strategy and pursued the construction of a large new hydraulic generating station, Conowapa. The plans subsequently changed when Ontario Hydro cancelled the sale. The construction of the new generating station was cancelled and the aggressive DSM strategy was modified to a less aggressive strategy. During the early 2000’s, Manitoba Hydro again adjusted its resource plan to pursue new export opportunities in the United States. This resource plan included pursuing an aggressive DSM strategy and pursuing the construction of a new generating station, Wuskwatim.

TREE/RCM state that there are more DSM savings achievable in Manitoba beyond that identified under the recently completed DSM Market Potential Study. TREE/RCM also produces a revised estimate of the DSM potential in Manitoba. TREE/RCM’s estimate of the DSM potential in Manitoba should be viewed in consideration of the following issues:

- TREE/RCM state that this is only a rough estimate and that a full scale analysis of the economic potential for DSM was not undertaken.
- The estimate is of economic potential and not “achievable” potential, the latter being the relevant estimate in assessing the issues associated with constructing Wuskwatim.
- To obtain the substantially higher estimate for economic potential, TREE/RCM adjusts the Cost of Conserved Energy from Manitoba Hydro’s avoided cost number of 6.15 cents to an arbitrary 8 cents – a 30% percent increase to account for non energy benefits. As provided in Manitoba Hydro’s rebuttal to TREE/RCM, Manitoba Hydro already takes these benefits into account in determining the achievable DSM potential in the market. Therefore, this assumption is both inappropriate and unsupported.

The estimate for economic and achievable DSM which was provided by Manitoba Hydro’s consultant is reasonable. The study was intended to provide an estimate of the economic and, more importantly, the achievable potential in Manitoba. These studies, by nature, are not expected to capture the economic potential with 100 percent accuracy. These limitations are recognized and taken into account during the detailed program design phase where Manitoba Hydro will establish its revised targets for DSM. As already provided in testimony, Manitoba Hydro anticipates that the revised targets will be approximately 1.5 to 2 times the current targets in 2017/18 (See: CEC transcript, p. 1133, lines 12).

As part of the discussion of DSM, the energy requirements for the province and the advancement of Wuskwatim, Manitoba Hydro’s Load Forecast was debated. Manitoba Hydro takes the position that its load forecasting is sound and based on reasonable methodology. To support Manitoba Hydro’s position, a detailed discussion and analysis were filed with the CEC(Manitoba Hydro’s TREE Rebuttal, March 2, 2004 and Manitoba Hydro/NCN Exhibit 1037, Manitoba Hydro’s TREE/RCM Rebuttal, May 3, 2004).

The following highlights the rationale for Manitoba Hydro's position:

- Manitoba Hydro's load forecasting methodologies have been developed and refined over the years and now consist of a set of methodologies that are providing forecasts with accurate results. Evidence to support this is provided by the forecast accuracy realized and this has been provided in testimony (See: CEC transcript, pp. 1860-1873). For example, the forecast looking out five years, has been on average only 1.8% on the high side over the most recent fifteen year period. The forecast looking out ten years, has been on average only 6.8% high over the most recent fifteen year period.
- Manitoba Hydro's forecast is based on an overall approach that uses methodologies best suited for forecasting electricity load growth in specific market sectors. This customized approach incorporates a balanced view for a number of considerations, including reasonable productivity improvements, historical trends, anticipated future changes in electricity intensities, customer specific information, national economic activity as it impacts Manitoba's economic activity and the relative provincial advantage for attracting industry.
- Most certainly, Manitoba Hydro is not forecasting the future based solely on the past. For example:
 - The 2002 Load Forecast projects a low growth rate of 0.3% per year for residential electricity sales. As a benchmark, historical residential electricity sales increased 1.7% per year.
 - Manitoba Hydro's 2002 Load Forecast projects a growth rate of 0.8% per year for commercial electricity sales. As a benchmark, historical commercial electricity sales increased 1.9% per year. In contrast,

TREE/RCM's adjusted Load Forecast projects commercial electricity to actually decline 0.4% per year. The TREE/RCM commercial sales forecast is intuitively low and is unsupported by any detailed analysis.

- Manitoba Hydro's 2002 Load Forecast projects a growth rate of 1.6% per year for industrial electricity sales. As a benchmark, historical industrial electricity sales increased 3.4% per year. In contrast, TREE/RCM's adjusted Load Forecast projects industrial sales to increase only 0.8% per year. TREE/RCM's industrial sales forecast is intuitively low considering that electricity intensive industries are continuing to expand in Manitoba and there is no supporting evidence to suggest that this trend is going to radically change.
- The 2002 Load Forecast projects an overall growth rate of 1.0% per year for electricity demand in Manitoba. As a benchmark, historical total electricity sales increased 2.4% per year.
- The 2002 Load Forecast contains significant electricity productivity improvements. The residential sector is forecast to improve 2.0% per year, which is significantly higher than the 0.5% annual improvement experienced in the past. The commercial sector is forecast to improve 1.4% per year, which is significantly different than the 0.2% annual improvement experienced in the past. The industrial sector productivity is forecast to improve 0.7% per year, which is significantly higher than the 1.2% annual decrease in productivity experienced in the past.
- The only challenge to Manitoba Hydro's forecast was offered by TREE. In that challenge, they offered an alternate forecast. It is easily seen that this alternate forecast is unrealistic by undertaking a basic "reasonableness" check. For example, the TREE/RCM Reference Projection forecasts total provincial sales to be only 19 830 GW.h by 2017/18. Manitoba Hydro's

billing records indicate that actual sales have already reached a level of 19 206 GW.h for the 2003 calendar year – only 624 GW.h or 3% less than TREE/RCM's forecast for electricity load projected by 2017/18 – fourteen years into the future. Clearly, this would involve a radical change occurring almost immediately in the Manitoba market. TREE/RCM's adjusted Load Forecast is intuitively low, radically different than historical information and is unsupported by any detailed analysis.

Wind

Manitoba Hydro is committed to develop up to 250 MW of wind generation in the next 10 years if it is technically, economically, and financially feasible (April 2003 NFAAT Submission, Chapter 4 page 10, lines 17-19). These wind developments could include a contribution of Manitoba Hydro developed wind and/or non utility generation development of wind power. At the May 12 CEC hearing, page 5498 line 6-14, Dr. Roger Higgin, CAC/MSOS witness, testified that Manitoba Hydro should facilitate private wind development rather than develop wind itself, at least for the time being, so as to isolate Manitoba rate payers from some of the risks.

Manitoba Hydro is determining the potential of wind development in Manitoba on the basis of the outcome of wind integration studies. As provided in CNF/MH/NCN I – JNFAAT-WIND-352a, Manitoba Hydro has engaged a consultant to assist in determining what the wind integration costs are, as wind integration is case specific. In the April 2003 NFAAT Submission Chapter 4 page 35 lines 6-16, Manitoba Hydro stated that a 5% penetration limit, equivalent to about 250 MW, is likely achievable and that further penetration is possible. Wind penetration limits will be highly influence by wind integration costs (transmission firming and shaping, regulation, load following, capacity reserves, etc.) which will increase as wind penetration increases beyond 5%, increase further beyond 10% and increase dramatically at higher percentages.

In the main submission, Manitoba Hydro has submitted studies which indicate that Manitoba Hydro owned generation in Manitoba exhibits poor economics. Subsequent analysis, as provided in the Rebuttal and Exhibit CAC/MSOS 1008 (Corrected) incorporated cost of capital reductions (2.5% per year) recommended by Manitoba Hydro consultants (refer to CNF/MH/NCN I -JNFAAT – WIND 353a) which result in a pricing structure that could become economic in the future (possibly in 5 – 8 years). (The 2.5% real decline (4.5 % current dollar decline) per year is consistent with the 3-5% current dollar decline Mr. Hornung put in evidence on behalf of the Canadian Wind Energy Association in his April 6 presentation on slide 9.) There is some uncertainty in the future capital costs reductions for wind turbines and also in the associated integration costs, particularly at penetration levels greater than 250 MW. On March 9, 2004 during the CEC Hearings, Manitoba Hydro submitted (exhibit # MH-NCN 1004) a one page summary entitled “Approximate Calculation of IRR for 250 MW of Wind,” the main point of this calculation is that the internal rate of return (IRR) of 6.12% for 450 MW of wind in addition to the initial 250 MW is much lower than the 8.2% IRR associated with only 250 MW of wind. Thus larger and larger amounts of wind become more uneconomic.

Also it is important to note that in the April 2003 NFAAT Submission Chapter 4 page 38 lines 6-16, Manitoba Hydro stated that a levelized cost comparison between hydro and wind is not the entire basis of making decisions, specifically because the value of the products is not the same. Wind has a lower value than hydro (April 2003 NFAAT Submission, Chapter 4 page 40, lines 20-30).

Social issues for power plant development are also important. On page 13 of the February 27 Rebuttal filing (MH/NCN Rebuttal, Attachment 1), the study “Social Net Benefits of Wuskwatim vs. Wind Development”, Mr. Shaffer reports, “Overall, the net social benefits of Wuskwatim are estimated to be \$376 million greater for Wuskwatim than wind at a 6% discount rate; \$237 million greater at an 8% discount rate. (page 13)

During the hearing on March 15, Mr. Wojczynski made the statement that wind power typically will not be produced when the ambient temperature is below -30°C (page 1851 line 9). During later testimony (March 18, 2004), Mr. Nichols (CNF witness) countered "In fact, we have no days, winter or summer, where the turbines don't produce some power," (March 18, page 2442, line 3). Manitoba Hydro later prepared a supplementary information package (refer to exhibit MH/NCN-1031) to clarify the issue of cold weather wind turbine operation, which was submitted as evidence to the CEC and to the President of the Canadian Wind Energy Association, Mr. Hornung. This information package re-enforced earlier Mr. Wojczynski testimony that wind turbines typically shut down below -30°C. During testimony on April 7 from Mr. Hornung, another CNF witness, at the CEC hearings, he agreed with the information package, page 4106. This then contradicts Mr. Nichols statement that wind generators are not shut off during extremely cold weather.

Partnership Considerations

During the course of the hearings significant discussion occurred regarding the efficacy of the partnership, arrangements proposed for Manitoba Hydro and NCN. Although the CEC was not requested to undertake a review of the proposed partnership evidence was received alleging that the Peace of the Braves Agreement between the Government of Quebec and the James Bay Cree was a far superior arrangement. The Proponents take the position that attempting to compare the two arrangements is not a meaningful exercise in that they are rooted in very different origins and seek to accomplish very different goals.

As a starting point one must understand the different historical contexts of the Cree of Northern Manitoba and the James Bay Cree. In Manitoba, the federal government entered into treaty arrangements with Aboriginal peoples in the late 19th and early 20th centuries which, amongst other things, provided for First Nations to have the continuing ability to pursue traditional activities on unoccupied Crown Land and created "lands reserved for Indians" for signatory First Nations.

Upon the signing of the Treaties, Canada assumed full “administration and control” of Crown Lands within the Province which was later transferred to the province under The Natural Resources Transfer Act in 1930.

In Quebec, provincial boundaries were established pursuant to The Quebec Boundaries Extension Act in 1912 which provided to the province the territory in Northern Quebec and an obligation to settle the land questions of the Aboriginal people. The fulfillment of this obligation and the “surrender” of aboriginal title did not occur until the signing of the *James Bay and Northern Quebec Agreement (JBQNA)*.

In Manitoba, as a consequence of the planning and construction of the Churchill River Diversion and Lake Winnipeg Regulation works, the *Northern Flood Agreement* was negotiated with First Nations and federal, provincial governments and the Manitoba Hydro to provide the framework for addressing and resolving concerns relating to the predicted adverse effects of the Project. Four of the five signatory communities later entered into comprehensive arrangements which provided for land, resource management, and compensation monies which were to be preserved in a trust with annual expenditures available for community use and enjoyment following a community approval process, as well as other ongoing arrangements such as the Article 8 future development planning process and develop employment by NCN to jointly plan the Wuskwatim projects.

The situation in Quebec was more complicated. Ongoing efforts between the Government of Quebec and the James Bay Cree to resolve issues relating to Aboriginal title, the full array of resource harvesting issues (including grievances associated with both past and proposed new hydroelectric developments), and responsibility for the provision of various social and economic services became mired in numerous protracted litigation challenges. The resolution of the various actions included a number of negotiated understandings including the JBQNA, the 2002 Peace of the Braces Agreement, and several other agreements between Hydro-Quebec and the Quebec Cree negotiated over a period of almost 30 years.

Hydro Quebec and Manitoba Hydro have both advanced their thinking and understanding of Aboriginal rights and interest and the importance of traditional knowledge in an effort to improve the planning, design and delivery of projects and also their respective approaches to mitigation and compensation. Both Manitoba Hydro and Quebec Hydro have undertaken marked efforts to increase the participation of Aboriginal peoples in corporate activities, and to minimize the effects of ongoing operations on natural resource's and peoples use of those resources.

As was shown to the CEC in the Proponents exhibit comparing and contrasting the two arrangements, a comparison of a business arrangement between Manitoba Hydro and NCN and the comparison of an agreement between the Government of Quebec and the James Bay Cree is misleading. They are unique arrangements grounded in different history and objectives.

Conclusion

In assessing the needs for and alternatives to Wuskwatim, the CEC can and should come to the conclusion that Wuskwatim is an appropriate project to go forward in Manitoba. Wuskwatim is being advanced for consideration not as an exclusive proposition but rather as one of a many initiatives (wind, DSM, SSE) which will increase system resources, minimize environmental impacts and provide benefits to Manitobans

The record demonstrates (and the fundamental positions of the proponents were tested but not seriously challenged) that: the proponents have considered all reasonable resource options and in mixes that are appropriate; the advancement of Wuskwatim will have positive long term benefits for Manitoba ratepayers and will not adversely affect Manitoba Hydro finances; the advancement of Wuskwatim, as a market driven initiative presents little if any market risk; on the basis of environmental screening, Wuskwatim is one of the best projects from an

environmental perspective; and Wuskwatim meets the Principles of Sustainable Development.

VI. EIS ISSUES

1. OVERVIEW

In support of the environmental assessment conclusions reached by the Proponents, this Commission has before it the comprehensive work completed by the environmental assessment teams, together with detailed responses to information requests filed by this Commission and the other Participants. With respect to the whole of the EIS, this Commission has the benefit of Commission counsel's comprehensive testing of the information provided by the Proponents in response to each aspect of the requirements in the Guidelines and in the Commission's Terms of Reference. Participants through cross-examination of their own witnesses, were also able to test the oral and documentary evidence submitted by, or on behalf of the Proponents. The Proponents' conclusions and the Participants' evidence have also been thoroughly tested throughout the hearing process by the Commission.

2. METHODOLOGY

Cumulative Effects integral to the Assessment

As Commissioner Sargeant noted on May 26, 2004 (See: CEC transcript, p. 6581), the EIS Guideline says that the assessment shall include examination of cumulative environmental effects of the Wuskwatim Generation Project that are likely to result from the project, in combination with other projects or activities that have been or will be carried out. The EIS Guideline for the Transmission Project has the same requirement.

Therefore, in preparing each EIS the Proponents were required to describe for each component of the environment the likely effects of each proposed Wuskwatim project; but in doing this, the Proponents had to “look at all effects that are likely to result from the project when they are likely to occur in combination with other projects or activities that have been, or will be carried out.” (EIS Guidelines) In both cases, the Guidelines also directed that this cumulative effects assessment “shall form an integral part of the environmental and socio-economic assessment”.

The Proponents understood these requirements to mean that the effects of the proposed projects were not to be predicted as if they would occur in isolation or in a pristine environment, separate from the conditions in the real world in which the projects would exist. The cumulative effects requirement was intended to ensure that the assessment was oriented to the reality of the environmental conditions with which the proposed Wuskwatim projects could reasonably be expected to interact. In this regard, the Proponents considered that cumulative effects assessment “is environmental assessment as it should always have been: an Environmental Impact Assessment (EIA) done well.” (CEAA, Cumulative Effects Assessment Practitioners Guide, section 2.1, quoted at CEC transcript p. 3660-3661).

The question in carrying out the assessment therefore was not whether to include the relevant effects of past and future projects, but how to do it and how to present the results.

While the cumulative effects requirement is simple to state, carrying it out is complex and multi-faceted. As explained by the Proponents’ environmental management team, there is also more than one way to accomplish the goal of taking into account the effects of past and future projects when assessing a specific new project. (See: CEC transcript, p. 6585 and 6644; transcript, pp. 4638-4651; also CEC/MH/NCN I – 103b which addressed different acceptable ways for placing the cumulative effects assessment in a project EIS, based on Section 5 of the CEAA Cumulative Effects Assessment Practitioners Guide.)

Subject to the requirement for a project-specific assessment throughout on effects likely to result from each Wuskwatim Project under review, the Guidelines left to the Proponents the choice of *approach* to the cumulative effects assessment and the *specific methods* of assessment.

“The environmental impact statement shall explain the approach and methods used to identify and assess the cumulative effects ... “.

The Proponents applying both Western technical judgment and traditional knowledge, chose assessment methods which reflect and incorporate consideration where relevant of the *past, current/ongoing, and future effects* of past projects or activities (such as CRD) into the consideration of each component of the environment. The assessment was to also consider the potential effects of future projects that “will be carried out”. The EIS here also considered potential future projects such as Gull/Keeyask and Conawapa) where such effects could overlap spatially and temporally with the Wuskwatim Projects and have the potential to create a cumulative effect with respect to the Wuskwatim Projects.

The result was that consideration of the *interaction* between the effects of the proposed projects with past and future projects, which is the “cumulative” effect, was integral to the analysis. Instead of describing each part of the assessment in separate layers, each EIS integrated the cumulative effects analysis regarding past and existing projects or activities into the assessment of each environmental component. Assessments of future projects or activities that are not yet part of the environmental baseline were described separately for each environmental component (under a separate heading “cumulative effects assessment”). As required by each EIS Guideline, final assessments of each Wuskwatim Project’s residual effects for each environmental component fully considered the integrated assessments of effects likely to result from the Wuskwatim Project when they are expected to occur in combination with other project or activities that have been, or will be carried out. (See: CEC transcript, pp. 3705-3706 provides a specific example for the Generation Project assessment of possible aquatic effects

pathway interactions for Wuskwatim combined with Notigi, Gull and Conawapa. (See: CEC transcript pp. 3714-3717 which reviews the rationale for including specific possible future Manitoba Hydro activities in the Wuskwatim cumulative effects assessment – see also response to PCN/MH/NCN II EIS-4j and 4k.)

Since the EISs were filed, the Proponents' environmental assessment approach (including cumulative effects assessment) has been tested throughout the pre-hearing and hearing processes.

- March 1, 2004, MH/NCN presentation (Transcript Vol 1, Rempel/Cormie on project description and systems operations pp.51-101, Osler on EIS approach including CEA methods pp. 178-209 and Exhibit MH/NCN – 1000)
- March 18, 2004, CEC EIS cross of MH/NCN on definitions and approach (Transcript Vol. 10, pp. 2579-2699); also further MH/NCN presentation on transmission line routes (Transcript pp. 2527-2576)
- March 19, 2004, CEC EIS cross of MH/NCN on definitions and approach, baseline, scoping, TK, significance, consultation, and related matters (Transcript Vol 11, pp 2708-2784, 2807-2811, 2830-2855)
- April 6, 2004, CEC EIS cross of MH/NCN on CEA, significance, scoping, thresholds, specific environmental components (Transcript Vol 16, pp. 3659-3923)
- April 8, 2004, CEC EIS cross of MH/NCN on EMF, Access Management Plans and EnvPP, monitoring, mitigation, decommissioning (Transcript Vol 18, pp. 4341-4426)
- April 13, 2004, CASIL EIS cross of MH/NCN, including CEA issues (Transcript Vol 19, pp. 4440-4586); CAC/MSOS EIS cross of MH/NCN, including CEA and other EIS methods (Transcript Vol 19, pp. 4590-4676); MH/NCN presentation on access road route selection (Transcript Vol. 19 pp. 4677-4688)

- April 14, 2004, OPCN EIS cross of MH/NCN, including CEA and baseline issues (transcript Vol. 20, pp. 4797-4924); TREE/RCM EIS cross of MH/NCN (Transcript Vol. 20, pp. 4940-4949)
- April 15, 2004, CNF EIS cross of MH/NCN (Transcript Vol. 21, pp. 5105-5161); other EIS cross (B. Moore) and information (transcript Vol. 21, pp 5081-5100)
- May 11, 2004, CEC EIS cross of MH/NCN on culture, TK, significance, sustainability, licensing (Transcript Vol. 22, pp. 5364-5438)
- May 14, 2004, MMF EIS cross of MH/NCN on consultation, culture and related issues (Transcript Vol. 25, pp. 5844-5881)
- May 25, 2004, DRSIL EIS cross of MH/NCN (Transcript Vol. 26, pp. 6371-6423)
- May 26, 2004, CEC EIS cross of MH/NCN on AFP/CRD, filings with DFO, CEA baseline approach, monitoring approach (Transcript Vol. 27, pp. 6544-6647); CASIL EIS cross of MH/NCN on CEA issues (Transcript Vol. 27, pp. 6648-6652)
- May 27, 2004, MH/NCN provide additional information on CRD issues (Transcript Vol. 28, pp. 6780-6790)
- June 7, 2004, MH/NCN EIS redirect (Transcript Vol. 30)

Treatment of Cumulative Effects of Past and Current Projects and Activities

Cumulative effects issues were also thoroughly addressed by Commissioners throughout the hearing with additional clarification being sought once most Participants had presented. (See: CEC transcript, p. 6581ff and pp. 6591-6595)

The Guidelines clearly do not require, or contemplate, that the EIS would do any "post project impact assessments" of past projects such as CRD. Cumulative effects assessment for a specific project such as Wuskwatim does not involve trying to isolate which past project causes specific effects that we see today. (See: CEC transcript, pp. 6644-6645)

The approach adopted in the EIS fully considered relevant effects of past projects such as the CRD when describing the existing environment and how the Wuskwatim Project will interact with the effects of such past projects. The approach adopted was integral to the overall environmental assessment analysis of the existing or baseline environment and the expected effects of Wuskwatim on that environment.

One example of the integrated nature of the cumulative effects assessment regarding past and existing projects is the inclusion of the effects of CRD in the Generation EIS. Some of the effects of the past activities are reflected by the inclusion and description of existing environmental components in the study area (i.e., where Wuskwatim Project effects pathways will interact with the environmental component) that were created or affected by the CRD. For example, the existing environments as described in the EIS include: "flooded terrestrial habitat"; "peat islands"; and "rafted debris", all of which were created by the CRD.

The *existing or ongoing effects* of the CRD also were also reflected in the EIS descriptions of existing environments in the study areas. For example, it was noted that:

- muskrat and beaver populations were low and vulnerable in some areas due to water level fluctuations caused by CRD;
- the low number of shorebirds reflected the continuing effects of the CRD on the shoreline areas; and
- the restricted use of shoreline areas by moose was an ongoing effect of CRD that was considered in the assessment.

The potential future effects of the CRD on each environment in the study areas were taken into account where relevant by looking at trends for the key components without each Wuskwatim Project. For example, the assessment

addressed these questions with regard to biophysical environments in the study areas affected by the Wuskwatim Generation Project:

- are mercury levels (which were affected in the past by CRD) increasing or decreasing without the Wuskwatim Project? (See: CEC transcript, pp. 2735-2740; 2750-2751; pp 3683-3684; pp. 6594-6595)
- are the peat islands growing or disintegrating without the Wuskwatim Project ? (See: CEC transcript, pp. 6604-6605)
- is shoreline erosion increasing or decreasing without the Wuskwatim Project? (See: CEC transcript, pp. 2742-2747, pp 3832-3839, p. 6593)
- is debris increasing or decreasing without the Wuskwatim Project?
- are total suspended solid levels increasing or decreasing without the Wuskwatim Project? (See: CEC transcript, pp. 3832-3842, pp. 6577-6578)

In analyzing some of these trends, past, current/ongoing, and future effects of the CRD all had to be considered to determine the potential cumulative effect of the Wuskwatim generating station in combination with the CRD. For example, pre-CRD, post-CRD, and current mercury levels all were examined to determine if levels were continuing to increase or decrease. The effect of Wuskwatim on mercury levels was then determined by adding the expected increase or decrease in future mercury levels resulting from the CRD, to the increase in mercury levels resulting from the WGS, to the existing mercury levels.

Similarly, cumulative effects were taken into account in the transmission line EIS. Assessment of issues such as loss of wildlife habitat, loss of forest resources and

increased access required consideration of the effects of both past and future projects and activities. The past and current/ongoing activities are reflected by the inclusion and description of these projects in the existing baseline setting for the transmission line, including for example:

- existing Manitoba Hydro generating stations and transmission facilities;
- PR 391 and other existing public or forestry roads/trails;
- INCO's Thompson Operations and ongoing mineral exploration activities;
- current forestry plans by Tolko;
- population growth in the Project Region; and
- other resource use activities.

But, the cumulative effects assessment **was neither**:

- A regional planning study; nor
- A post-project environmental assessment of the effects of hydro-electric development.

Manitoba's legislation does not require any proponent of a proposed project to conduct a regional planning study of environmental conditions. Further, the Guidelines are clear that this cumulative effects assessment was to be a **project specific assessment** of the proposed projects, not a regional study. Nor was there a requirement to conduct a post-project environmental assessment of the effects of existing hydro-electric development. Further, the goal was not just to take into account the effects of Manitoba Hydro's past projects. To be effective, the assessment had to consider the **relevant effects of all past, existing and future developments**. Manitoba Hydro is not the only resource user in the region. If cumulative effects assessment had required post-project environmental assessment, NCN and Manitoba Hydro would have to have studied all the effects of all the existing and past developments in the project region, whether hydro-electric, forestry, mining or energy or other activities. This was not required by the

Guidelines. The obligation on the Proponents was to consider the effects of the proposed development in the real world. This is what the assessment achieved.

For all of these reasons, it is submitted that not only can this Commission be confident that it was within the Proponents' discretion to choose the cumulative effects method, but that the method chosen represents an appropriate and reasonable approach to cumulative effects assessment.

The Reference Guide (1994) published by the Canadian Environmental Assessment Agency (CEAA) supports the appropriateness of the approach selected by the Proponents. (See: CEC transcript, pp. 4646-4652)

The CEAA Cumulative Effects Assessment Practitioners Guide also offers similar guidance as to acceptable practice (See: CEC transcript, pp. 4640-4646 and response to MH/NCN Undertaking 57, CEC transcript, pp. 3739-3744.

Cumulative Effects Issues re: Significance and Thresholds

Commissioners and CEC counsel, as well as CASIL and CAC/MSOS, also asked questions about how the EISs, and in particular the cumulative effects assessments for the Wuskwatim Projects, addressed the issue of determining what is a reasonable significant threshold of past, current and future effects on any one environmental component. (See: CEC transcript, pp. 6586-6605 and 6644-6647; transcript, pp. 3676-3682, pp. 3712-3714, and pp. 3744-3752 response to MH/NCN Undertaking 56; Vol, 19, pp. 4575-4578 and 4630-4635, 4651-4662).

The EISs addressed issues related to significance and thresholds separately for each Wuskwatim Project as required for each environmental component. The extent to which existing environmental components are vulnerable at this time (due to past projects, rare or endangered status, or other factors), or may be made vulnerable in the future due to interactions with existing and future projects, was fully considered in these assessments. (See: CEC transcript, pp. 3744-3752

provides, in response to MH/NCN Undertaking 56, an overview of the approach adopted).

Cumulative Effects Issues re: System Operations

Several participants in the hearing raised concerns about how operation of the Manitoba Hydro system might change with Wuskwatim, thereby creating cumulative or other adverse effects outside the Wuskwatim Generation Project study areas.

The Proponents considered the cumulative effects of changes in system operations. The relevant analysis was reviewed by Mr. Rempel and Mr. Cormie on the first day of the hearing. (See: CEC transcript, pp. 51-101)

Contrary to the assertions made by Pimicikamak, the Proponents rely on detailed technical analysis which has been subjected to extensive cross-examination by CEC counsel and others. As explained in the presentation by David Cormie on the first day of these hearings, the Proponents also carried out detailed and comprehensive technical analysis to determine if the addition of Wuskwatim would result in changes in the operation of the Manitoba Hydro system at Cross Lake or elsewhere outside the Wuskwatim study area, and to assess the effects of any minor changes as could be expected to occur. Extensive cross-examination of Mr. Cormie was undertaken by Commission Counsel.

It is submitted that this Commission must take into account that Pimicikamak failed both to cross examine the Proponents and to provide any evidence to contradict the Proponents' conclusions, notwithstanding the ample opportunity afforded to Pimicikamak to carry out cross exam and to provide evidence during the hearings.

CASIL, as well, participated actively throughout the hearing. CASIL's initial arguments concerning the alleged relationship between Southern Indian Lake and the Wuskwatim Generation Project (i.e., that the Wuskwatim Project would affect water levels at Southern Indian Lake, well upstream of Early Morning Rapids) are

contradicted by Duncan and Associates Limited (DAL)'s acceptance of the Proponents' experts' conclusion that there is a hydraulic break at Early Morning Rapids. (See: CASIL Exhibit 1010; CEC transcript, pp. 6277-6287 and also pp. 6221-6222 where in response to a question from Commissioner Mayer, CASIL responded that they do not dispute that any changes in water levels created by the Wuskwatim Project would not go further upstream than Early Morning Rapids.) Mr. Cormie and Mr. Adams have also addressed other concerns raised by CASIL with regard to past and current operation of the CRD/AFP without Wuskwatim Generation, and how the CRD/AFP operation would not be affected by or changed as a result of Wuskwatim construction or operation. (See: CEC transcript, pp. 6562-6563).

Trapline 18 did participate, but failed to demonstrate any error in the Proponents' conclusions that Trapline 18 cannot be affected by Wuskwatim Generation or by the CRD. NCN Elders familiar with the area, and trappers in the vicinity of Trapline 18 contradicted the assertions made by Trapline 18 representatives. (See: CEC transcript, pp. 3272-3292; pp. 6515-6516 and pp. 6521-6522; See also: MH/NCN Rebuttal evidence February 27, 2004, re: Trapline 18, pp. 30-34).

Traditional Knowledge (TK)

This Commission has heard evidence that not only was the cumulative effects assessment integral to each EIS, traditional knowledge was integral to the cumulative effects assessment.

Traditional Knowledge was integrated throughout the Environmental Impact Assessment process beginning with the development of terms of reference for the studies to be undertaken. This led to NCN developing a written definition of traditional knowledge. This definition was first presented publicly to the CEC during the Guidelines process at the meeting held in Nelson House on February 2002. TK is reflected throughout the EIS, including the conclusions found in the Environmental Impact Statements because NCN believes that Traditional

Knowledge (TK) is essential to its people. While there are many different definitions, NCN has its own views about what Traditional Knowledge is and how it should be collected and used.

For NCN, Traditional Knowledge is:

- The observation and experience of the land;
- Aboriginal law regarding how the environment works;
- The understanding of NCN's place in the world – how things are connected, including spirituality and the relationship to the land;
- The goals and aspirations of NCN;
- The outlook on the proposed projects – concerns that we may have and the acceptability of the projects to us;
- NCN's identity and culture;
- The stewardship of the land;
- A base for natural resource management.

NCN believes Traditional Knowledge comes from Elders and others, and includes both traditional and ongoing modern knowledge.

One example of how past cumulative effects was considered in relation to the proposed Wuskwatim Project, is how the adverse effects of floating peat islands (created by CRD) were balanced against the positive contribution that these islands are making to muskrat and bird populations (See: CEC transcript p. 6605), and whether impacts would arise from the Wuskwatim Project. Another example presented during the hearings related to the size and location of the caribou herds (See: CEC transcript, pp. 4602-4604 and pp. 4606-4607). This type of assessment was made possible only by the combination of an integrated approach to cumulative effects assessment with reliance on traditional knowledge.

TK has played essential roles in planning for the Projects and in carrying out the environmental studies, by:

- Providing an understanding from the beginning of the environmental assessment process about what should be studied;
- Selecting a low head design that will reduce flooding to less than one-half square kilometre compared to high head options;
- Selecting locations for the road, camp and transmission lines that will minimize effects on the environment and on people;
- Adding in a major way to the understanding of the “baseline” conditions – how things were in the past, how they are today and how they may change in the future without the Project; this included understanding how various factors (e.g., CRD, Natural Resources Transfer Act) affected the environment, and NCN in particular, over time;
- Selecting Valued Environmental Components for detailed study, such as woodland caribou, and helping with an understanding of how those VECs are connected to the whole environment;
- Contributing, along with science, to conclusions about the effects that the Projects may have and where results did not agree, both were included in the EIS reports;
- Helping to identify things that should be done to manage effects (for example, holding ceremonies and site visits during the process and the need for further ceremonies at the Wuskwatim site before any changes begin); and
- Helping to identify where monitoring will be needed (for example, monitoring water levels at Wuskwatim Lake in the vicinity of important

cultural sites and downstream of Thompson to address concerns raised by other Cree Nations).

(See: CEC transcript, pp. 183-187 and p. 264)

A key issue throughout the pre-hearing and hearing process has been the degree of documentation of TK in EISs. (See: e.g.: Generation EIS (Volume 1, Section 2.2) and Transmission EIS (Volume 1, Chapter 2, Section 2.3).

Supplemental Filing #1 – CNF-S-56, 57, 58, 60, 61, 66

Supplemental Filing #2 – PIP-S-2

Round 1 interrogatories – CEC 105a, 107a, 109a, 117a/b, CNF EIS consult 7a, CNF

EIS land 94a/b/c/d, 97a, 98a, 102a, 103a, 104a, 106a/b

CEC Transcripts:

- March 18, Vol. 10, cross of Dr. Bayne by H. Nepinak, page 2503
- March 18, Vol. 10, cross of EIS panel by D. Abra, page 2612 – 2621
- March 18, Vol. 10, cross of EIS panel by K. Avery-Kinew, page 2620 and 2636 – 2638
- March 19, Vol. 11, cross of EIS panel by D. Abra, page 2764 – 2769
- April 13, Vol. 19, cross of EIS panel by CAC/MSOS, page 4606
- April 14, Vol. 20, cross of EIS panel by OPCN, page 4818 – 4819, 4821
- April 15, Vol. 21, cross of EIS panel by CNF, page 5111 and 5135
- May 11, Vol. 22, cross of EIS panel by D. Abra, page 5384
- May 11, Vol. 22, cross of EIS panel by K. Avery-Kinew, page 5420 – 5430

However, preservation of confidentiality in accordance with undertakings given by NCN, Hydro and EMT, was also a critical issue that was referred to throughout the hearing. (See: CEC transcript, pp. 5421, 5427-5429).

3. SHORELINE EROSION, SEDIMENTATION AND DEBRIS

Shoreline Erosion

The Wuskwatim Generation Project will be located on the Burntwood River, which has been disrupted by the CRD. The database information about project shoreline erosion rates and recession for the existing CRD modified environment has been considered as it would evolve without the Project AND how it will change if the Project is developed.

As described in the GS EIS, Vol. 1, Section 5, and Supplemental Vol. 4 (Physical Environment) and in oral evidence before the Commission (See: CEC transcript, pp. 216-219, the development of the Wuskwatim GS will result in an initial increase for the first five years, in average shoreline erosion rates on Wuskwatim Lake in those shorelines that are presently eroding. The erosion rates will increase initially because water levels on Wuskwatim Lake behind the WGS, will be kept constant at the upper end of the post-CRD range, thus exposing erodible shorelines more frequently to wind-driven waves. During the subsequent 20 years, the erosion rates are expected to return to present erosion rates, which are about the same as pre-CRD erosion rates.

The immediate forebay between Wuskwatim Falls and Taskinigup Falls will experience flooding (less than 0.5 km²) but little erosion. This part of the Lake will be a low wave-energy environment (short exposure to wind) and, further, the north shoreline will be protected by the placement of excess fill and rock material.

Overall, the Wuskwatim Generating Station will result in some incremental shoreline erosion on Wuskwatim Lake which will decline to background rates over a moderate timeframe. The CEC questioned the confidence of MH/NCN in these erosion estimates (See: CEC transcript p. 3836).

The EIS panel is confident in the conclusions drawn based on a number of factors, including:

- the availability of erosion measurement data from MH at 45 different monitoring sites on Wuskwatim Lake (15 sites with 3 profiles at each site) over the past 10-12 years;
 - the extensive classification of shorelines on the Lake according to the erodibility at water levels at or near the future reservoir level (through boat patrols, helicopter surveys, and aerial photography);
 - the availability of good wind characteristics data (for wave energy prediction);
 - the future Wuskwatim reservoir level will be within the range of current water level variations (Wuskwatim Lake has exceeded the proposed forebay elevation of 234.0 for over 15% of the time post-CRD); and
-
- the collective judgement of professional engineers with a long history of direct experience studying erosional processes in northern Manitoba lakes and river systems.

(See: CEC transcript pp. 3837-3839)

These conclusions were tested through cross-examination, but no contrary evidence was presented that challenges that the erosion forecasts are sound and likely on the conservative side. (See: CEC transcript, pp. 2665-2666)

Sedimentation

During operation, the stabilized water level on Wuskwatim Lake will result in initial increases in shoreline erosion which will mean more sediment will be introduced into the lake. This sediment is expected to be deposited in accordance with the estimated current patterns of deposition, i.e., about equally distributed between near-shore (150 m to 300 m from shore) and deep water deposition. (These estimates considered the research done by Freshwater Institute on Southern Indian Lake; Volume 1, Section 5, Physical Environment). Effects on deep-water deposition are expected to be very small. Based on sediment deposition data, the deposition rates are low and declining since CRD (See: CEC transcript p. 3847-3850). This deposition in both the near-shore and deep water is expected to decline to current levels over the 5-25 year post-project timeframe.

During construction, there will be in-river construction activities that will result in increases in suspended solids in the river flowing downstream of the WGS site. These effects can be mitigated through careful construction techniques, as outlined in Volume 3 (Project Description) p. 4-52 and in IR DFO S-1 Supplemental Filing August 2003 (See: CEC transcript p. 3859-3881). In response to concerns from DFO, MH/NCN developed a comprehensive Sediment Management Plan, which has been submitted to DFO and Manitoba Conservation. This plan outlines a program of management/construction techniques that are expected to keep sediment increases to acceptable levels (generally within Manitoba Surface Water Quality Guidelines; transcript p.3859-3881). The Plan also identifies a number of investigations that will be undertaken to provide guidance on further potential mitigation measures, such as selective armouring of the river channel, to avoid excessive sediment transport. As well, a comprehensive construction monitoring program is outlined in the Sediment Management Plan (See: CEC transcript p. 3859-3881).

MH/NCN remain confident that sedimentation issues during construction and operation are being addressed in a very responsible adaptive management manner which will continue to incorporate traditional and scientific knowledge.

Woody Debris

Woody debris is a natural component of the northern boreal ecosystem. The diversion and impoundment of water under the Churchill River Diversion increased the amount of debris in this system.

Manitoba Hydro now has a system-wide Debris Management Program (DMP). The DMP has evolved and its implementation incorporates environmental science and engineering practices, best practices of hydro-electric utilities across North America, and traditional knowledge. Protocols for the removal of debris have been developed in consultation with the departments of Fisheries and Oceans and Manitoba Conservation, with the input of scientists, elders and resource harvesters. The protocols are designed to ensure that, in removing debris, valuable fish habitat is not disturbed and shorelines are not exposed to increased erosion.

Experimentation in shoreline re-vegetative and bio-engineered shoreline stabilization techniques along certain shoreline reaches have also shown promise.

Manitoba Hydro's DMP is a community based adaptive management approach designed to address concerns of resource users. Implementation of the program includes the use of boat patrols that travel the length of the waterways on a routine basis. These patrols use buoys to mark fixed hazards and safe travel routes and monitor those routes to remove any debris that might constitute a hazard to navigation. They also keep a record of where debris is located along the waterways and direct the removal of shoreline debris where it constitutes a potential risk.

Under this program, Manitoba Hydro is committed to exploring, with First Nations and local communities, their debris related issues and to addressing the priorities of local users. This includes removing accumulated debris and improving shoreline accessibility in areas of interest to resource harvesters and in areas of cultural or other significance or local priority.

With respect to the proposed project, Manitoba Hydro has worked closely with NCN to study the potential effect of the WGS on debris generation. While shoreline erosion on Wuskwatim Lake is expected to increase in the initial years of the WGS operation, the EIS predicts that there will be little change in floating debris, i.e. most debris will be trapped along the shoreline (See: EIS GV1 S5.0 and CEC transcript, pp. 219-220 and pp. 3858-3859). Some TCN Elders believe there will be more.

4. AQUATIC ENVIRONMENT

Water Quality - No Long Term Impacts

The proposed Wuskwatim Generation Project is not expected to result in significant changes to water quality.

During construction, some activities will cause short-term water quality changes (GS EIS, Vol. 1 Section 6.5.2.1) which will be managed through various mitigation measures (GS EIS Vol.3, Section 4.3.2, 4.6.6, 4.6.3.3, 4.6.4.2, 4.10, and 4.11).

During operation, there is expected to be an increase in turbidity in the near – shore zone adjacent to the erodible shorelines on Wuskwatim Lake, mainly due to increased rates of erosion, in particular during the first five years after the Project is constructed. Impacts related to flooding are expected to be minimal due to the small area (less than 0.5 km²) affected. Conversion of intermittently exposed to permanently wetted habitat is predicted to cause short-term changes to water quality in affected areas (e.g., Wuskwatim Brook) but no measurable change is predicted in the main body of Wuskwatim Lake or downstream. Local effects to

water quality are generally not expected to cause measurable changes in the Lake as a whole or the Burntwood River downstream due to the small magnitude of the anticipated effect in comparison to the large volume of water (See: CEC transcript, p. 4582-4583). For example, little change in suspended solids in the outgoing water is expected, compared to typical range of 3-20 mg/L TSS (See: Volume 1, WGS, Section 5, p.5-30 and See also: CEC transcript, pp.3850-3854).

Water Quality Monitoring

Water quality conditions have been monitored at various lakes and river sites from upstream of the anticipated extent of water level changes, through the Wuskwatim Lake area, and downstream in Opegano and Birchtree lakes to encompass the anticipated spatial extent of effects to water quality (See: GS EIS, Vol. 1, Section 6.5.1; Vol. 5, Section 5.2.3). In addition, water quality conditions have been measured at a number of sites even further downstream in the area of the City of Thompson and downstream to First Rapids (located upstream of Split Lake), to address concerns expressed by downstream communities. Water quality has also been monitored in Split Lake (and additional downstream areas) in relation to the baseline environmental studies for the proposed Gull (Keeyask) Generation Project.

Water quality monitoring would continue through the construction and operation of the Project and would include monitoring in the Burntwood River downstream of Thompson (See: GS EIS, Vol. 1, Section 6.13; GS EIS, Vol. 5, Section 12.0; Draft Wuskwatim Generation Project: Aquatic Effects Monitoring Program). Intensive monitoring is planned for the construction period during in-stream construction activities when effects to water quality are anticipated. Periodic monitoring is proposed during the first 15 years of the operational period. The need for further monitoring beyond that time period will be considered based on an assessment of results to that point. An adaptive approach has been suggested to ensure timely adjustments to the program as required. (See: CEC transcript, pp. 7141-7145).

Fish and Fish Habitat

It is expected that, overall, the Project will have a small, but positive, long-term (insignificant) impact on VEC fish species (walleye, lake whitefish, lake cisco, and northern pike) in the study area (GS EIS, Vol. 1, Section 6.11.4).

Mitigation measures are expected to minimize the duration and magnitude of most construction-related impacts on VEC fish species. However, some effects, such as periodic increases in TSS levels, will result in small, short-term negative effects to fish in a given area (GS EIS, Vol. 1, Section 6.8.2.1). Overall, it is expected that construction will have a short-term, small, local and, therefore, not significant negative effect on VEC fish species in the study area (GS EIS, Vol. 1, Section 6.11.4).

Upstream of the generating station, the Project (during operation) will stabilize water levels at the upper end of the existing range, which will result in more spawning and feeding habitat for most species, more fish food, and unrestricted movement between Wuskwatim Lake and the area between Wuskwatim Falls and Taskinigup Falls for most larger fish (See: GS EIS, Vol. 1, Section 6.11.4, Table 6.11.4). The presence of the generating station will also result in fewer fish (particularly larval fish) moving downstream out of Wuskwatim Lake and the immediate forebay. For lake whitefish and lake cisco, these positive effects will be offset somewhat by a short-term (5-10 years) decrease in the quality of spawning habitat due to sedimentation along eroding shorelines (See: GS EIS, Vol. 1, Section 6.8.2.2).

Downstream of the generating station, the Project will increase daily water level fluctuations which will result in less spawning and feeding habitat and less food (See: GS EIS, Vol. 1, Section 6.11.4, Table 6.11.4). The number of fish moving downstream from Wuskwatim Lake and the immediate forebay is also expected to decrease.

The area upstream of the generating station that will be positively affected by the Project is approximately 9,000 ha, while the area downstream which will experience some negative effects is approximately 1,100 ha (See: GS EIS, Vol. 1, Section 6.6.2.2). Given that a much greater amount of habitat will be positively affected, the overall effect of the Generation Project on fish populations in the entire study area will be positive. (See: CEC transcript, pp. 3760-3766).

In addition to the above, NCN and Manitoba Hydro have developed a draft Fish Habitat Compensation Plan that would provide compensation for the habitat that would be negatively affected by the Project (See: MH/NCN Exhibit 1017, CEC transcript, pp. 3766-3781). The Habitat Compensation Plan, which has been submitted to the Department of Fisheries and Oceans for their review, would provide additional positive effects to fish and fish habitat in the study area.

The potential for increased mercury levels in fish tissues was identified as a key concern by NCN members during the initial scoping process. As a result, a considerable amount of effort was expended to ensure that the issue was fully addressed. The assessment considered the limited flooding associated with the Project and the potential for mercury releases from peat areas that will become permanently wetted. The assessment concluded that increased mercury levels, even under a worse case scenario, would be relatively small and may not be distinguishable from natural variation (See: GS EIS, Vol. 1, Section 6.9.2.2, and See also: CEC transcript, pp. 2735-2745).

NCN and Manitoba Hydro are committed to monitoring the effect of construction and operation of the Wuskwatim GS on the aquatic environment to verify impact predictions and to assess the effectiveness of mitigation measures and habitat compensation works. A long-term, detailed draft aquatic monitoring program has been designed and submitted to the Department of Fisheries and Oceans for their review (See: CEC transcript, p, 3781 and pp. 4368-4372).

5. TERRESTRIAL ENVIRONMENT

No Significant Effect on Terrestrial Environment

While the Commission has heard some criticisms of the Proponents' work on the terrestrial environment, it also has heard evidence which responds directly to the concerns that have been expressed. The environmental public interest groups, CNF and the Boreal Forest Network, focussed their comments almost entirely on the effects of the transmission line project on animal habitat. In support of their concerns about effects on caribou and other species, they relied on testimony from Mr. Soprovich and Drs. Bayne and Schaefer.

Mr. Soprovich appeared to be concerned solely with the use of HSI models as a method for assessing effects of proposed developments on habitat. The complete answer to this concern is that habitat models were only one of at least ten tools used by the Proponents to consider the effects of the proposed projects on terrestrial habitat. In fact, this Commission has heard unchallenged evidence that the Proponents' work relied most heavily on:

- specific information about the location of animals and their use of habitat obtained through *consultation* with aboriginal and other local resource harvesters;
- aerial and terrestrial surveys guided by traditional experts in tracking, wildlife and wildlife habitat; and
- extensive field research guided by traditional knowledge and science.

One example of the use of such knowledge is the decisions that were made on the basis of consultation in Snow Lake during the transmission line site selection and environmental assessment process. Several individuals from Snow Lake, who have personal knowledge of the physical environment in that area, identified

caribou calving areas in locations around Highway Lake and Bujarski Lake (See: Transmission EIS, Vol. 1, Chapter 5, pp. 5-37, and 5-51 to 5-52). Accordingly, the proposed route from Herblet Lake Station to Rall's Island Station avoids these areas. Such information could not have been obtained without focusing the assessment and route selection on consultation with traditional and local resource users.

Dr. Schaefer focused entirely on woodland caribou. It is submitted that the Proponents' findings of no significant adverse effects on woodland caribou are clearly supported by the EIS and supplementary documentation. These findings and the related assumptions are consistent with Alberta research which, while involving areas of extensive forestry and oil and gas activity, does involve woodland caribou in a boreal ecology not entirely dissimilar to that of the Wuskwatim Projects. Most importantly, the findings are based on extensive consultation and on incorporation of traditional and local knowledge both in route selection for the access road and transmission lines, and in assessment of probable impacts and effects.

The proponents do not disagree with the generic issues and concerns raised by Dr. Schaefer with respect to the historic effect of range regression and population decline on woodland caribou, nor with the apparent correlation of these with human encroachment.

However, his testimony offered little or no direct evidence that these effects pose an imminent threat to the woodland caribou potentially affected by the Wuskwatim Projects. In fact, during the course of his testimony, it was suggested that at least three of the four herds potentially affected by Wuskwatim are relatively stable.

The estimates of lost caribou habitat contained in Dr. Schaefer's "plausible" scenarios are, in fact, an exaggeration of the likely adverse effects, based on what

amounts to a worst-case application of research findings elsewhere—research findings from studies which involved different subspecies of caribou (reindeer in Norway), studies done in terrain which is substantially different from the Wuskwatim study area (for example, mountainous and above the 60th parallel) or studies of areas which have already been substantially more affected by development and human encroachment than would be the area affected by Wuskwatim. Other research findings cited by Dr. Schaefer show distinctions in the reduction in use of habitat between different types of linear disturbance (For example, the disruption caused by transmission lines is different from that caused by roads) — distinctions which are not included in Dr. Schaefer’s scenarios.

Dr. Schaefer commented at the hearing that he has limited experience or specific understanding of caribou in Northern Manitoba. (See: CEC transcript, p.4741, response to question about specific Manitoba research was “It would be speculation given my lack of understanding of the area.”)

As well, it appeared that Dr. Schaefer had not had the benefit of reviewing the detailed answers that the proponents provided to pre-hearing CNF information requests. These answers demonstrated that the studies Dr. Schaefer relied on were considered by the Proponents’ team (See: CEC transcript, pp. 4765-4766, Dr. Schaefer’s reply to Bedford’s questions about the studies reviewed in the MH/NCN answer to CNF 182(a)). These documents demonstrated that the information contained in the studies relied upon by Dr. Schaefer had been considered by the Proponents’ environmental assessment team and used where appropriate.

Dr. Schaefer criticized the use of HSI models, but seemed unaware that the specific route selection, in fact, was based on consultation with experts in local and traditional knowledge. His recommendation was “*to evaluate these alternate routes on the basis of the caribou themselves*” (See: CEC transcript, p. 4713-4)

In fact, the evidence shows that the work done by the Proponents goes further than the use of any scientific model could do - it uses consultation with Elders and local resource users to identify the areas of significance to the specific caribou living in the area and avoid them. The validity of drawing conclusions on the basis of such information is unchallenged. The Proponents' own work suggests that even radio collaring does not provide information superior to the information provided through traditional knowledge. In other words, the routing of the transmission line was done, as Dr. Schaefer suggested, to the extent possible, "***on the basis of the caribou themselves.***"

In fact, Dr. Schaefer himself agreed that he would accord some deference to the knowledge provided by NCN Members of the caribou in their Resource Management Area. He also endorsed the practice followed by NCN of controlling management of the caribou harvest in that area. (See: CEC transcript, p. 4774-5)

The knowledge base that the Proponents have relied upon for woodland caribou is extensive and incorporates both traditional and western science. Traditional knowledge provided a long term view of the status of the population as well as information on movements, important habitat, and current harvest levels. Such information was strongly supported by scientific studies, such as aerial surveys (for population counts), VHF and GPS radio-collaring studies (to determine movement patterns and important habitats), tracking studies (to determine habitat use), break string studies (to determine movements across existing corridors), harvest studies (to determine current harvest levels), and the review of existing scientific information (See: GS EIS V1 Section 7.4.5, p. 7-13).

The knowledge base also included an extensive traditional knowledge study conducted by Manitoba Conservation on caribou in the Nelson House Resource Management Area that Dr. Schaefer acknowledges that he was not familiar with. (See: CEC transcript, beginning at pp. 4736 and pp. 4747-9).

Dr. Schaefer could not have been expected to be familiar with specific information given to the environmental assessment team by aboriginal resource users, when such information was not filed due to confidentiality concerns. However, it is submitted that it was necessary to keep it confidential as it could not have been obtained on any other basis and, such information is invaluable in planning developments in accordance with the principles of sustainable development - that is, in ensuring development today does not compromise the needs of future generations.

The other main concern expressed by Dr. Schaefer was controlling human access to the boreal forest. Unfortunately, he was not familiar with the Access Management Plan filed by the Proponents in February. Consistent with Dr. Schaefer's recommendations, the proponents are committed to monitoring programs, to implementation of access management plans, and to caribou awareness initiatives which they believe will ensure ongoing confirmation and understanding. The Proponents support the use of adaptive management to address any effects on woodland caribou.

It is submitted therefore that this Commission can make its recommendations in full confidence that there are no significant direct or cumulative effects on caribou. It is anticipated that potential effects will be substantially mitigated by work (for example the Road Access Management Plan) done by NCN and Manitoba Hydro in accordance with their joint planning and management of the project. In addition, NCN has managed caribou in the area for generations by limiting harvest, which is generally conducted by only a few Elders who share the meat with the community (See: EIS GS Volume 6, p. 9-52). The evidence obtained through traditional knowledge is that as a result of such management is that the number of caribou **has increased** (See: EIS GS V6, p. 9-52). It is submitted, therefore, that there is no valid reason for doubting the conclusion that there will be no significant effect on caribou and every reason for recommending those mitigation and monitoring measures which have been identified in each EIS.

Similarly, it is submitted that the concerns identified by Dr. Bayne about habitat loss and fragmentation, the effects of invasive species, and the particular sensitivity of woodland caribou and boreal birds to these effects are potential concerns that are known to and have been carefully reviewed by the Proponents' environmental assessment team. Specifically, the evidence demonstrates that:

- Dr. Bayne's conclusion that the Proponents' literature review was out-of-date was based on inadequate access to the materials filed by the Proponents; (See: CEC transcript, pp.2508-2512)
- Dr. Bayne's comments on the effects of "linear disturbance" and "edge effects" were made without review of the extensive consideration given by the Proponents to these issues, including Dr. Ehnes' description of the ecological framework in Appendix F of Volume 1 or Technical Volume 4 of the t-line EIS, which provides information about the Proponents' analysis of wildlife-related linear disturbance effects and corresponding scientific literature review);
- Although Dr. Bayne expressed concern about road-related effects, he had read none of the Proponents' material which addresses that component of the project. (See: CEC transcript, pp.2508-2512)
- Dr. Bayne too was concerned about caribou, but, because he had not reviewed the technical material prepared by the Proponents, he was not able to effectively comment on the EIS conclusions than was Dr. Schaefer. Dr. Bayne also acknowledged, as Dr. Schaefer's work did not, that different linear disturbances can have different environmental effects. This confirms the Proponents' approach to the use of information in studies on the effects of different types of linear corridors (e.g. roads versus transmission corridors).

- Dr. Bayne commented favourably about the work done by the Proponents on limiting human access and on the use of HSI models (criticized by Mr. Soprovich and Dr. Schaefer).
- Dr. Bayne thought that key woodland caribou studies had not been used in the assessment, but the Proponents' filings demonstrate that the studies cited by Dr. Bayne (as well as numerous other studies) were included in EIS documentation that Dr. Bayne did not have the opportunity to review.
- While Dr. Bayne expressed concern about summertime forestry activity disrupting nesting migratory birds, he failed to realize that the Proponents' intention was to fully avoid such impacts by building the transmission line in winter when migratory birds are not present in northern Manitoba.
- Dr. Bayne's assessment that the Proponents' treatment of edge effects was weak and its literature review out of date appears to reflect his failure to read the relevant portions of the EIS, in which, for example, Technical Volume 4 contains 26 literature references to fragmentation and edge effects for birds and wildlife generally and appendix F of Volume 1, which discusses the edge effect concept and includes abundance-of-caution estimates of the limited extent of such effects).

It is submitted that, given the resources provided to the funded participant, and given the relevance of Dr. Bayne's experience and academic qualifications to the work that has been done, much might have been gained if Dr. Bayne had had an opportunity to read the technical volumes of the EIS and if he had been given the Proponents' detailed answers to CNF's information requests. That not having been the case, it is respectfully submitted that the general concerns expressed by Dr. Bayne do not provide fair comment on the detailed technical and traditional work done by the Proponents. Nor do they provide a basis for challenge to the route selections and other environmental assessment conclusions drawn by the Proponents' team.

Alternate Transmission Route

It has been suggested that this Commission consider recommending a transmission line route which has not been proposed by the Proponents, the purpose of which would be to avoid an essentially undeveloped portion of the Nelson House Resource Management Area.

This Commission's mandate is to provide the Minister with a recommendation on "whether Environment Act licences should be issued ... for the Wuskwatim Proposals." It is respectfully submitted that while this Commission must consider if the proposed route should be recommended to the Minister, it has not been asked to recommend a different proposal than the Wuskwatim transmission proposal which is before the Minister. Nor does the CEC have a mandate do so. In short, the Commission's recommendation is whether or not to recommend the project as it has been proposed.

Further, it is submitted that this Commission should have full confidence that it can recommend the issuance of an Environment Act licence for the transmission line as proposed by the Proponents. Such confidence should be based on the fact that selection of this route was preceded by approximately 20 months of discussion about alternative transmission concepts, between December 1999 and August 2001. The decision to proceed with the concept of a line from Thompson to Wuskwatim, which would serve initially to provide construction power to the Generation Project site, and two lines from Wuskwatim to Snow Lake, was then subjected to approximately 20 months of further discussion with respect to specific routing alternatives and environmental assessment of the preferred routes, between September 2001 and April 2003.

NCN input was central to this process. The proposed routes, to a large extent, were selected on the basis of traditional knowledge and the advice of resource harvesters. The routes are specifically located so as to avoid areas known

traditionally to be important to caribou, to avoid sacred sites, to improve access by NCN members to areas south of the Burntwood River, which have been relatively difficult and dangerous to access from Nelson House since CRD, and finally, through attention to terrain and river crossing constraints, to discourage inappropriate access by others. The first route rejected by NCN was the proposed alternate route along Highway 6. (See: CEC transcript, pp. 7213-7219)

Further, the review of alternative concepts and routes considered options which would have located a larger proportion of the new lines adjacent to existing linear corridors and rejected those options in part because of environmental implications.

Further, the proposed routes have been subject to rigorous environmental assessment based on a full range of methods, including field research, incorporation of traditional and local knowledge, a thorough review of the relevant scientific literature, and peer review. While some adverse residual effects have been identified in the EIS documentation, none were considered significant.

It is submitted that two of the residual effects, the physical presence of the lines and the loss of habitat associated with clearing of the rights-of-way, would be substantially increased in the case of the un-studied alternative. The third residual effect is the potential for increased access. It is submitted that this effect has been adequately mitigated through route selection and the Proponents are confident that current work with NCN to develop an Access Management Plan will ensure that the effect is mitigated still further. While the un-studied alternative would, in some respects, limit the risk of increased access to portions of the Resource Management Area, its substantially shorter and wider footprint between Highway 6 and Wuskwatim would considerably increase the risk of unmanaged access in that area.

In response to questions from the Commission respecting the advantages of this alternative and the general merits of consolidating linear corridors, it should be noted that both Dr. Bayne and Dr. Schaefer were cautious and, further, that these

qualified responses are fully consistent with the NCN/Manitoba Hydro response in the interrogatory process (See: CEC/MH/NCN 1-NFAAT-69c).

In the result, it is submitted that such benefits as might flow cannot offset the substantial loss of financial benefit to both partners and the additional environmental dis-benefits. These have been estimated to include a capital cost penalty of over \$35 million (an increase of nearly 55% over that of the proposed routes) and a corresponding operations and maintenance cost penalty arising from the estimated line length penalty of 176 kilometres (an increase of over 55% as compared to the proposed routes); a reduction in saleable energy, through line losses, equivalent to over \$300,000 annually; an increase in habitat loss, attributable to the necessary additional right-of-way clearing over the increased line length, conservatively estimated to be nearly 30% (in the order of 7.2 km²); and a reduction in the security of transmission of Wuskwatim power.

Finally, and perhaps most importantly, a CEC recommendation for further consideration of this alternative would fail to respect the very substantial and effective efforts of NCN and its members to comply with proper route selection and environmental assessment process. The message, in effect, would be that over three years of intensive community-driven planning should be set aside, and that NCN should go back to the drawing-board to now consider the first route they rejected. Even if that message were acceptable, proper review and assessment of the alternative would entail approximately 20 months of additional review and consultation, to secure what would be, at best, a modest reduction in some insignificant adverse effects, at substantial economic cost. Most importantly, the issues of access into the region by non-NCN Members would be less amenable to control. (See: CEC transcript, p. 7214).

For all of these reasons, it is submitted that this Commission ought to have confidence in recommending the acceptance by the Minister of the proposed transmission line. NCN and Manitoba Hydro's environmental study team has incorporated traditional and local knowledge in the assessment, and, with the

assistance of potentially affected communities and individuals, it has routed and designed the transmission lines so as to minimize any residual adverse effect. The EIS has concluded that the proposed transmission line developments will not have any significant adverse effect on the environment. It is submitted that this Commission can make its recommendations to the Minister in full confidence that the work being done by the Proponents and the study team to develop Environmental Protection Plans, Access Management Plans, and monitoring programs is more than sufficient to ensure that this project will have no significant adverse effects to the terrestrial environment.

6. EIS CLIMATE CHANGE CONSIDERATIONS

Contrary to the submissions of CASIL and Elizabeth May, on behalf of MW/CNF, Manitoba Hydro and NCN have provided a comprehensive body of information and analysis with respect to climate change and the Wuskwatim Project. This information is contained in found in the original NFAAT and EIS submissions, subsequent filings and responses information requests, and was explained in re-direct testimony at these hearings. The proponents' analysis examined the specific impacts of biophysical changes on carbon stocks through to the significant global climate change benefits resulting from emission displacements. It considers how impacts have been or can be mitigated and identifies both the cumulative and residual effects.

Notwithstanding CASIL's comments about the local production of greenhouse gases (GHGs), all GHG emissions, regardless of where they occur, contribute to the same cumulative effect. Local greenhouse gas emissions do not have any greater impact on local climate change than do emissions from remote locations.

The report prepared by the Pembina Institute for Appropriate Development demonstrated that total lifecycle greenhouse gas implications of the Wuskwatim Projects, including impacts of land-use changes, reservoir, fuel-use during

constructions, and emissions imbedded in materials, are very small; smaller in fact than the other renewable resources such as wind and biomass generation (NFAAT-Vol. 2; Appendix 10).

The very small emissions resulting from these projects are minute compared to the projects' ability to displace very large emissions that are remote to this project. This issue was dealt explored comprehensively in the original submission (e.g. NFAAT-Vol. 1; 4.2.1-4.2.3), the supplementary filings (e.g. Suppl. Filing I EIS; NRCAN-S-13), and in witness testimony (See: CEC transcript, pp. 1172-1215 and 4517 to 4521). Further, the reduction in carbon stocks associated with the projects is very small (Table 2.4.2 Vol. 1, WGS, p. 2-16). The net impact is that these projects will reduce global emissions which will contribute to a reduction in climate change damages throughout the world including to the local environment near the projects.

Both CASIL and Elizabeth May, on behalf of MW/CNF, alleged that the proponents were unwilling to look at the global climate models. Ms May went so far as to allege that Manitoba Hydro is not aware of and does not believe in the science of climate change or the application of climate change models. Nothing could be farther from the truth. Manitoba Hydro has a sophisticated understanding of the science of climate change, as explained in re-direct testimony by Mr. Wojczynski on June 7, 2004.

There are numerous references in the proponents' material to global climate change science (for example, EIS Gen-Vol.4; 2.3.3 and EIS Trans - Vol.5; Appendix 9). In EIS Gen-Vol.4; 2.3.3, it was indicated that climate change is driven by human-induced and natural processes such as solar activity, alteration in the earth's orbit and volcanic activity. It states that there is a consensus among scientists that anthropogenic (man-made) activities are having a discernible impact on global climate. Section 2.3.3 goes on to discuss the global climate models (GCMs) and regional climate models. It cites the International Panel on Climate

Change (IPCC) which stated: "GCMs are the only credible tools available currently for simulating the physical processes that determine climate change" (IPCC 2001).

The potential implications of climate change for the boreal forest were examined in both the transmission and generation EISs (EIS Gen-Vol.10 Cumulative Effects Assessment 3.4.6 and EIS Trans-Vol.5 Forestry Environment, Appendix 9)

Manitoba Hydro has been actively tracking the results of the various Global Climate Models (GCMs). While all GCMs agree that temperatures will tend to increase, the various GCMs vary in their projections of long-term precipitation trends with most of the models and scenarios projecting an increase in global annual precipitation. Participants such as CASIL and CNF appear to have made the assumption that climate change will result in **decreased flow** into Wuskwatim Lake. In fact, for the Wuskwatim region, **most of the models project increased precipitation**. However, the net effect of increased precipitation on runoff and river flow remains uncertain.

While there is no clear indication that the stream flows will increase or decrease, the environmental effects of an illustrative 10% increase or decrease in river flows have been considered and explained in detail in re-direct testimony (See: CEC transcript, pp. 7130-7132), along with the proponents' conclusions on the effects of climate change on the proposed project. The conclusions are that under all reasonable scenarios, the project will result in a net reduction in global emissions. Further, any change in operation of the project as a result of climate change would be slight and would not change any of the conclusions of the environmental impact assessment.

7. PUBLIC CONSULTATION AND INVOLVEMENT

Consistent with Section 4 of the EIS Guidelines, Manitoba Hydro and NCN developed a Public Involvement Plan (PIP) based on an integrated approach to public consultation for the Wuskwatim Generation and Transmission Projects.

This Plan is detailed in the Volume 2 of the Wuskwatim GS EIS filed in April 2003. Volume 1, Section 3 of the GS EIS and in the Wuskwatim Transmission EIS, Volume 1, Chapter 5 and Volume 2 GS EIS. In summary, the purpose of the integrated Public Involvement Plan was to:

“...provide different segments of the public, particularly those who may be potentially affected by the Wuskwatim projects, with meaningful opportunities to receive information on and provide their views about these projects.” (Wuskwatim Generation Project EIS, April 2003, Volume 1, page 3-1)

Prior to completion of the EIS, a potentially affected public was defined as those who might see themselves as being affected by Project-induced biophysical changes (e.g. by upstream or downstream water-based effects, by effects on land or air, or by related biophysical or resource effects) from any component of project construction or operation. Being defined as a potentially-affected community did not necessarily mean that significant environmental effects predicted in the EIS. (See: Wuskwatim Generation Project EIS, April 2003, Volume 1, page 3-1).

In summary, the objectives of the PIP were to provide:

- Opportunities for early involvement
- Opportunities for ongoing involvement
- Opportunities at various stages, including:
 - When initial issues are identified
 - When alternative ways of undertaking the project are considered (including alternative routes)
 - When initial effects assessments are reviewed and ways are considered to mitigate or enhance identified effects
 - When EISs have been filed with regulators for review and comment

- When supplementary EIS information may be filed with regulators.
- A mechanism to obtain public input including consultation with Aboriginal People
- An adaptive approach that would respond to issues raised

Five rounds of public consultation have been held for the Projects. They have included, among other things, key person interviews, meetings with specific groups of resource users, First Nations and other stakeholders, newsletters, opinion surveys (NCN), workshops and open houses.

Public Open Houses were extensively advertised and letters of invitation were sent to an extensive list of contacts including elected officials, stakeholder/interest group representatives (Resource Management Boards, Trapper Associations, Fishermen's Associations, Local fur councils, etc.), other resource users (registered trapline holders; local outfitters) and others (industry, etc). In addition, numerous meetings were held during the public involvement process for the Projects. Manitoba Hydro and NCN responded to individual, interested parties and stakeholder requests for meetings throughout the process (Wuskwatim Transmission EIS, Volume 1, Chapter 5.0; Wuskwatim Generation EIS, Volume 1, Section 3.0).

Questions on Public Consultation and Involvement

A number of questions related to EIS public consultation and involvement have been raised during the course of the CEC hearings. In particular, representatives of the Community Association of South Indian Lake (CASIL) inquired about the definition of consultation used in the EIS process and the method used for consultations with NCN members at South Indian Lake (See: CEC transcript, pp. 4445 and 4458). Consistent with the EIS guidelines, consultation includes providing, as well as receiving, information about the design of the PIP, various aspects of the project, and conclusions from the different stages of the EIS and CEC processes.

Regarding the method of consultation with South Indian Lake, a community meeting with elected officials was held during Round One of the PIP, two community consultants were hired to liaise with NCN members in South Indian Lake. An opinion survey of NCN members living at SIL was conducted. (See: CEC transcript, pp. 4452-4457 and 4459 to 4462). Numerous attempts were made to hold meetings in SIL, but the meetings were cancelled, or attempts frustrated by SIL Leaders (See: CEC transcript, pp. 6313-6314 and MH/NCN Exhibit 1039).

Beyond specific concerns raised by CASIL the overlapping PIP and separate process have resulted in a number of changes to the Wuskwatim Transmission & Generation Projects and the analysis undertaken by, or on behalf of the Proponents. For example, through dedicated meetings with Tataskweyak Cree Nation, water quality sampling was expanded twice to its current scope that includes sites between Thompson and Split Lake (See: Wuskwatim Generation Project EIS, April 2003, Vol. 1, pp. 3-23).

For the Wuskwatim Transmission Project, public input was particularly important during the Site Selection and Environmental Assessment (SSEA) process for routing the proposed Wuskwatim transmission lines. Potentially affected parties

were contacted and invited to participate at key junctures during the SSEA process. Each stage of the process was adjusted to incorporate Traditional Knowledge and local input.

Public and community involvement during Round One of the PIP was an important aspect in the delineation of the project area and study area characterization. During Round One of the PIP, meetings were held with elected officials in the project area communities. Round One introduced the project to elected officials; heard about initial issues and concerns; answered questions regarding proposed project; and heard views about how future rounds of public involvement should be conducted. Subsequent to the initial meetings, a number of follow-up workshop meetings were held at the request of the elected officials to share information about the proposed project and to obtain additional feedback on possible routing constraints and opportunities.

For example, at the request of Cormorant Mayor and Council, a workshop regarding routing issues was held with council and community members. Cormorant identified areas of concern (i.e., Pickerel Creek, an important fish spawning area for the community) and possible routing opportunities (i.e., paralleling the existing Hudson's Bay Railway line which crosses diagonally through the Cormorant Resource Management Area). Representatives from Cormorant indicated that it would be preferable for the proposed transmission line to avoid crossing through the northwest corner of its RMA as the community views this area as essentially undeveloped. In addition, at a follow-up workshop meeting, Snow Lake Mayor and Council requested that the routes avoid Wekusko Lake as it is important to the community in terms of recreational and tourism opportunities. In both cases, the proposed routes for the transmission lines avoided areas of local concern. In the case of Comorant, the proposed route for the Herblet Lake Station to Rall's Island Station 230 kV transmission line parallels the Hudson Bay Railway line through the Cormorant RMA to the extent possible. (Transmission EIS, Volume 1, Chapter 5.0, Pages 5-23 to 5-27).

Round Two of the PIP involved identifying and discussing the preliminary alternative routes for the proposed transmission lines. In particular, input was sought with respect to the identification of any potential local issues/sensitive features associated with the preliminary alternative routes and the practicality of the preliminary alternative routes that were identified. A number of meetings were held with elected officials, interested parties and stakeholders. A number of Public Open Houses were held in project area communities.

Helicopter over-flights of the alternative routes were undertaken with representatives from the Thicket Portage Fur Council, NCN resource users, elders and other NCN members, the Cormorant Resource Management Board, Cormorant trappers, Opaskwayak Cree Nation Resource Council members and Opaskwayak Cree Nation trappers. Input from NCN members following the helicopter over-flights and Public Open Houses assisted in the identification of the most southerly alternative in the Nelson House Resource Management Area as the proposed route for the Wuskwatim to Herblet Lake Station 230 kV transmission lines. This route avoided important cultural sites and potential caribou calving areas. (See: Transmission EIS, Volume 1, Chapter 5.0, pp. 5-29 to 5-46; Chapter 6.0, Page 6-85 and Figure 6.25 and MH/NCN Exhibit 1049, NCN community consultants and CEC transcript, p. 7201).

In the vicinity of Snow Lake, several preliminary crossing locations of the Grass River were identified with local individuals, including a nearby lodge owner, Snow Lake Mayor and Council, and the Integrated Resource Management Team of Manitoba Conservation from The Pas.

Round Three was intended to obtain input on the preferred routes and to solicit input on potential mitigative measures to minimize negative impacts. In particular, input was sought regarding any further information regarding the preferred routes which could optimize route preferences. This included a number of meetings and Public Open Houses. (See: Transmission EIS, Volume 1, Chapter 5.0, Pages 5-55 to 5-65).

In addition, a program of interviews with key persons in communities within the study area (for the Wuskwatim Transmission Project) and within the Local Region and Thompson (for the Wuskwatim Generation Project) was undertaken.

NCN Consultation with its Members

NCN's consultations with its members have been extensive and ongoing since the inception of the Projects. (See: CEC transcript, pp.1759-1767 and MH/NCN Exhibit 1028).

Early on in the process NCN Members were hired as community consultants to assist in conducting consultations with its members, including four members who can provide translation services for Cree speakers. The consultants have been involved in one-on-one meetings, dissemination of information, answering questions from the public, participation in open houses and other project-related events. There has been a consistent effort to provide information orally as well as in written form. These efforts have involved members in Nelson House, South Indian Lake, Winnipeg, Brandon and Thompson. (See: CEC transcript, pp. 1760-1761 and pp. 7104-7113 and MH/NCN Exhibit 1048)

Community members have been provided with many newsletters summarizing the progress of various aspects of negotiations and the environmental assessment process. They have also received overview documents, question & answer guidebooks based on questions from the community consultants and community members, and complete copies of the Agreement in Principle and the Summary of Understandings. The newsletters as well as community meetings and open houses provided information on the environmental and socio-economic studies, the routing of the access road, the road access management plan, employment and training opportunities, the routing of the transmission lines within the Nelson House RMA, as well as on the Agreement in Principle and the Summary of Understandings.

The EIS Executive Summary was translated into Cree by the NCN Community Consultants and was available in CD format to participants, and members of the public. A portion of the CD was presented at the CEC hearings in Thompson and The Pas. (See: CEC transcript, p. 3073)

In addition, there have been site ceremonies, including that which took place at Wuskwatim Lake in June 2000, a Cree Nation Gathering in Nelson House in July 2002, and a meeting of SIL and Nelson House Elders at Suanee Lake in the summer of 2003.

Manitoba Métis Federation Consultation Issues

The issue of consultation with Métis people has attained prominence in this hearing process. This issue has been presented by the MMF as a confounding mix of rights and interests, effects, jurisdiction and representational capacity. The CEC has been invited into the middle of this debate and to make determinations on the array of issues.

In determining an approach to the issues it is useful for the CEC to return to the Guidelines and the Terms of Reference. The Guidelines required the proponents to describe the regulatory environment, and to assess environmental impacts. There is no direction in either document that there should be a review of other processes. Certainly one process can inform the other however, no determination is required. There is no requirement to make a determination of the nature, scope or extent of aboriginal rights or the degree of impairment of such rights arising from the effects of the Wuskwatim projects. These are complicated questions of fact and law.

The CEC is called upon as part of their requirement to review the projects and make recommendations. The Proponents submit that the CEC does not have to "determine" a number of extremely complicated and unclear questions of law

concerning the rights of the Métis in order to make its recommendations about the Wuskwatim proposals. The CEC can decide, based on the evidence, that there will be no significant environmental impacts on activities which could be protected as aboriginal rights, in which case the issue of impact on aboriginal rights does not arise. If, on the other hand significant environmental impacts are established, the issue of rights associated with such impacts can and should be resolved through the Crown consultation process which provides for discussion of compensation, mitigation or a combination thereof.

In providing the basis for the impacts discussion through the EIS process the proponents have, contrary to opinions of others such as the MMF, made unprecedented inclusive efforts to consult with Aboriginal communities and resource users including:

- consulting directly with every local community in the affected area;
- finding and speaking directly with every trapper (save two who live on the land almost exclusively) along the proposed transmission route;
- searching for and interviewing or attempting to interview every resource user who could be affected by any part of the Project or who could advise regarding resource information and resource use;
- attempting to locate, take into consideration and **address the interests** of every person who engages in an activity that could be affected by the Project, whether or not that activity is or could be defined as a constitutional right;
- consulting in every potentially affected community, where the majority of the community is comprised of non-status aboriginal people who may consider themselves to be Métis, and communities such as South Indian Lake, in which members of a single family may identify themselves as

First Nation members, as Métis, and as non-Treaty Aboriginal (See: CEC transcript, pp. 6081-6089); and

- invitations and notices being placed in local newspapers, posted in public places and specifically directed to elected community representatives and MMF local organizations.

The success of the consultation process especially for the transmission project routing and assessment is proved by the fact that not one person who lives in the transmission project area has come forward during the process to object to the transmission line routing.

The MMF complains about a lack of consultation. The record is clear that they did not respond to any of the invitations given to them by the proponents. As a funded participant the MMF had opportunities to pursue issues through the interrogatory process but again did not. This process itself is a form of public consultation on the projects.

The proponents submit that the principles applied in a section 35 context are equally applicable to the matters before the CEC . The courts have been clear that section 35 consultations are a “two way street”. For example, in *Halfway River, Huddart J.A.* described the responsibility of a First Nation to cooperate fully in the consultation process and to:

“offer the relevant information to aid in determining the exact nature of the right in questions. The first nation must take advantage of this opportunity as it arises. It cannot unreasonably refuse to participate... [A] first nation should not be permitted to provide evidence on judicial review it has had an appropriate opportunity to provide to the decision-maker, to support a petition asserting a failure to respect a treaty right”. (underlining added)

An aboriginal group has a duty to make its concerns known and cannot successfully sabotage a project by remaining silent and then complaining that its concerns have not been taken into account. Contrary to clear direction from Canadian courts this point, this critical responsibility factor was not accepted by CASIL, PCN or MMF in their submissions. (See: CEC transcript, pp. 2217, 2220, 2250, 6094, 6095, 6313) (See also: Article 8 NCN 1996 Agreement which incorporates this concept).

There were allegations that the proponents failed to take into account Métis culture. The record is clear that culture has been included to the extent necessary to assess the effects of the proposed projects. In order for the project to have an effect on culture there must be pathways of effect. Every pathway from the projects to a potential effect on culture has been assessed. Absent a pathway there is no effect. The record will disclose that the MMF presented no evidence from potentially affected Métis in the transmission project area and that the evidence from the generating station region was consistent with that of O-Pipon-Na-Piwin Cree Nation that there is no distinct Métis community at South Indian Lake. The MMF did not provide the Commission with any body of knowledge about Métis that one would assume would be available from the *Pawley* and *Blais* litigation and other Manitoba based litigation about Métis rights.

Applying the above reasoning to the MMF in this situation, the Proponents submit that:

- a) it is currently unclear what constitutionally protected or other rights the Métis have in Manitoba, in particular outside of the historical boundaries of the Red River settlement, given the *Pawley* and *Blais* decisions which confirm that the rights enjoyed by certain Métis people are specific to their history and circumstances;
- b) the CEC does not have to determine whether such rights exist, given the Proponents' conclusions (which have been fully tested through

this process), that there would be no impact that is not fully mitigated, given the incorporation of traditional and local knowledge in relation to access road and transmission routing, among other matters that might impact the exercise of Métis aboriginal rights and that the conclusions of the environmental assessment teams have not changed following consideration of the MMF's submissions in these proceedings. (See: CEC transcript, p.7270) and Exhibit MH/NCN 1050;

- c) the Commission should acknowledge that consultation has not only been adequate, but highly effective; that the effects of the Project on culture have been adequately assessed; and that it can conclude with confidence that the concerns of persons whose activities could be affected by the Projects have been addressed, whether or not those persons are members of First Nation, Métis, members of other aboriginal groups and whether those rights are pursuant to a legal or constitutional right.

8. SOCIO-ECONOMIC AND HERITAGE RESOURCE EFFECTS

Socio-economic effects of the proposed Wuskwatim Generation and Transmission Projects are dealt with in EIS submissions, according to each set of Guidelines, as separate environmental components under the headings of resource use, economy, infrastructure and services (including population), and personal, family and community life. As per the Guidelines, culture was therefore included as part of personal, family and community life (which also considered effects on a wide spectrum of topics -- travel, aesthetics, community health, social well-being, community organization and governance and community goals and plans). Effects on physical heritage resources were addressed as a separate environmental component as required in each set of Guidelines.

Discussion of socio-economic and heritage resource effects during the CEC hearings addressed three topics:

- Generation Construction Training and Employment
- OPCN Resource Use
- Culture.

Generation Construction Training and Employment

Employment opportunities associated with the Wuskwatim Generation and Transmission Projects primarily occur during the construction phases of the Projects. Construction of the Generation Project would occur in two stages and take place over six years. Stage 1 would involve the construction of the infrastructure for the Project including the access road, construction power distribution line and the construction camp along with its associated sewer, water and electrical and mechanical services and is estimated to have a maximum peak workforce requirement of approximately 140 positions during the first year of construction (the maximum peak requirement of approximately 250 positions in year two reflects some overlap with the beginning of Stage 2 construction), as illustrated in the Wuskwatim Generation Project EIS, Volume 1, April 2003, page 9-16. Stage 2 would involve the construction and installation of the Major Construction Works including the temporary and permanent dams, powerhouse, generators, gates, turbines and electrical and mechanical services and has a maximum estimated peak workforce requirement of approximately 540 positions (see Wuskwatim Generation Project EIS, Volume 1, April 2003, pages 4-21 and 9-16). Construction of the Transmission Project would offer limited employment opportunities over the six year construction period (See: Transmission EIS, Supporting Volume 7, pages 7-61 and 7-62).

The construction of the Wuskwatim Generation Project would be governed by the Burntwood-Nelson Agreement (BNA), a collective bargaining agreement, which

would include conditions prohibiting any strikes or lock-outs in order to ensure labour stability for the duration of Project construction. The BNA is currently being re-negotiated, a process which will be concluded before the start of Project construction. The BNA will apply to all workers on the site except for contractor supervisory and management positions and Manitoba Hydro staff. All workers on the site will be required to be union members. It is understood that the BNA will include provisions for a priority employment preference for Aboriginal residents of northern Manitoba, as well as provisions for northern Aboriginal contractors engaged in direct contracts with Manitoba Hydro to directly hire Aboriginal residents of northern Manitoba. In the EIS for the Generation Project, it was assumed that a first employment preference would be in effect for Aboriginal residents in the region defined by the Burntwood and Nelson Rivers (See: Wuskwatim Generation Project EIS, Vol. 1, April 2003, pp. 9-17). It was also assumed that northern Aboriginal contractors working on contracts negotiated with Manitoba Hydro under the terms of its Northern Purchasing Policy would be able to directly hire Aboriginal residents of northern Manitoba (See: Wuskwatim Generation Project EIS, Vol. 1, April 2003, page 9-17).

To prepare for employment opportunities during the construction of the Wuskwatim Generation Project, NCN is developing and implementing pre-project training programs for its members. Training issues will be available for positions in the designated trades as well as the non-designated trades and construction support occupations. (See: Wuskwatim Generation Project EIS, Volume 1, April 2003, page 9-16 and Wuskwatim Generation Project EIS, Volume 8– Socio-economic Environment, Section 3, page 8-91). Pre-project training will also be available to other Aboriginal residents of northern Manitoba through Manitoba Advanced Education & Training (MAET) (See: Wuskwatim Generation Project EIS, Volume 1, April 2003, page 9-17).

Employment effects for Aboriginal residents in regions of northern Manitoba have been estimated for both the construction of the Generation and Transmission Projects. Estimates have taken into account the influences of pre-project training,

anticipated employment preference and potential negotiated contract work. Construction employment opportunities associated with the Wuskwatim Transmission Project are not significant in number, and are seasonal and short term in duration (See: Wuskwatim Transmission Project EIS, Vol. 1, April 2003, p. 7-71). Construction employment opportunities associated with the Wuskwatim Generation Project are significant in number and short term in duration (See: Wuskwatim Generation Project EIS, Volume 1, April 2003, pp. 9-26 and 9-30, and Appendix 4. See also: CEC transcript, pp. 3006-3007).

During the course of the CEC hearings a number of questions have been raised on training and employment issues. Some Participants and Commissioners have asked why there are no guarantees of a specific number of construction jobs for NCN members (See: CEC transcript, p. 3077, See also: pp. 6636-6639). Construction work is a career choice, particularly for the more highly skilled positions that NCN is pursuing. This requires significant commitments to training and work experience. Job guarantees in isolation, are not a substitute for gaining that training and work experience. (See: CEC transcript, pp. 3092-3098). During the AIP negotiation process, NCN determined that job quotas could have the effect limiting the potential access of NCN members (and other aboriginal people), to employment opportunities (See: AIP, section 6.2).

Instead of pursuing the short-term goal of job guarantees, NCN has taken a long-term capacity development approach to securing employment that is built on several factors including:

- An expected employment preference for Wuskwatim, subject to the outcome of the re-negotiation of the BNA for Aboriginal residents in the Burntwood/Nelson Region. This means that NCN members resident (in northern Manitoba) will be included in the first level of employment preference for the Wuskwatim Generation Project, as well as potential future hydro-electric development projects such as Keeyask/Gull and Conawapa. (See: Wuskwatim Generation Project

EIS Vol. 1, Section 9.3.2.1, p. 9-17 for discussion of the potential employment preference and CEC transcript, pp. 3092-3098 regarding its application to potential future projects). Hiring preference is assumed to affect jobs not covered by negotiated contracts where less than 24 months of combined pre-Project training and experience are required.

- A multi-year plan for pre-project training, including technical training and work experience components, to provide interested NCN members with the programming they need to upgrade high school prerequisites, and to develop the qualifications to work on the construction of the Wuskwatim Generation Project (See: Wuskwatim Generation Project EIS Vol. 8 – Socio- economic Environment, Section 3, p. 8-91, and CEC/MH/NCN I – NFAAT – 13a for discussion of the NCN multi-year plan and its expected effects; also see CEC transcript, pp. 1608-1609 for a discussion of PPT funding). Pre-project training, including work experience, is particularly relevant for positions requiring greater than 24 months of combined training and work experience, which are expected not to be affected by employment preference.

- Negotiated contracts with Manitoba Hydro, particularly during the Stage 1 Infrastructure Construction, which would allow NCN-owned contractors to directly hire NCN members, and other Aboriginal workers, resident in northern Manitoba without having to go through the job order process that otherwise applies (See: Wuskwatim Generation Project EIS Vol. 1, Section 9.3.2.1, page 9-17 and CEC transcript, p. 3907-3908 for further information on work experience opportunities through direct hiring on negotiated contracts with Manitoba Hydro). Catering, road construction and security are examples of such negotiated contracts.

During the hearing questions were asked about what measures there will be so contractors do not set unreasonably high job qualifications to avoid hiring NCN members, or other Aboriginal workers (See: CEC transcript, p. 3913). During Project construction there will be a review mechanism in place in order to ensure that the qualifications set out by the contractors in their job descriptions are reasonable. (See: CEC transcript, p. 3084 and p. 3913), and it is recognized collective agreement changes may also be required (See: CEC transcript, pp. 6743-6744, Dave Martin Allied Hydro Council).

OPCN Resource Use

In cross-examination of the EIS Panel (Volume 20, beginning at page 4857) and in testimony (See: CEC transcript, Volume 28), OPCN argued that traditional harvesting and thus culture for their members at South Indian Lake may potentially be adversely affected by OPCN members at South Indian Lake opting for Wuskwatim construction training and employment. OPCN also suggested that the EIS had failed to assess resource use within the South Indian Lake Trapline District areas shown as part of the Local Region..

Effects of the Generation Project flowing through the physical and biophysical environment on resource use were limited to an area well within the boundaries of the Nelson House RMA. Assessment of baseline and effects on resource use were undertaken in this area that would be directly and indirectly affected by physical and biophysical changes from the Generation Project. In response to questions from OPCN, Mr. Osler clarified that no part of the South Indian Trapline district was in fact included in the socio-economic assessment of the Generation Project, and that no direct effects on this area were expected due to the Project. Mr. Osler also clarified that the people living at South Indian Lake were included in the socio-economic "Local Region", and not any of the surrounding resource area, and that these SIL residents were so included only to the extent that these people

had a special relationship to the Project as NCN Members. (See: CEC transcript, pp. 4853-4856; 4911.)

The resource use analysis in the Generation EIS noted resource activity could potentially be affected if harvesters elected to take up employment during Generation construction and thus were not able to carry on harvesting activities during such employment periods. However, as clarified with OPCN during the hearing, the EIS did not attempt to quantify any such effects on resource use activities for residents at Nelson House, South Indian Lake or any other Project Region community. (See: CEC transcript, pp. 4857-74, 4909-4911) This specific pathway of change to resource use and subsequently culture resulting from the voluntary uptake of construction employment and training benefits could not be meaningfully quantified in the EIS. This was considered to be a weak pathway and one which could not usefully be assessed in all communities in the Project Region and the Northern Region expected to take up at least some benefits. Further, issues arising from voluntary uptake of employment opportunities clearly differ from those arising from imposed adverse effects on resource use. (See: CEC transcript, p 4910):

Culture

As required by the Guidelines for each of the Generation and Transmission Projects, cultural effects were treated as part of personal, family and community life in the socio-economic component. Related effects on physical heritage resources were dealt with separately; this was noted, for example, in cross-examination of Mr. Gilmore (See: CEC transcript Volume 18) and during cross-examination of the EIS Panel by CASIL (See: CEC transcript, p. 4467-8).

Additional evidence was provided by Manitoba Hydro and NCN, in response to Undertaking #65, regarding Elder interviews undertaken as part of the assessment of cultural effects (See: CEC transcript, p. 4586). Extensive discussion of culture also occurred during cross-examination of the EIS panel by OPCN (See: CEC

transcript, pp. 4818-4821 and following).The Commission subsequently asked questions about cultural effects of the Generation Project (See: CEC transcript pp. 5364-5378) and of the Transmission Project (See: CEC transcript, pp. 5378-5381). On June 7, 2004 (redirect) the Proponents also provided additional information about conclusions regarding effects on Métis culture in response to perspectives of the Manitoba Métis Federation. That information reviewed the scoping and approach to assessment of effects on culture as well as a summary of conclusions about effects of the Generation and Transmission Projects on culture. (See: MH/NCN Exhibit 1050 and CEC transcript, pp. 7148-7170).

The effects of the Generation Project on culture were examined using a series of nine indicators and potential pathways of change from the Project to those indicators. The study concluded that there were discernible pathways between the Generation Project and the culture of NCN Members and other Aboriginal people living at primarily at Nelson House (First Nation and non-status community). These included both potential adverse effects of physical changes in the Wuskwatim Lake area (e.g., loss of the Falls) and potential positive effects of new access to important cultural sites in the Wuskwatim Lake area (sites unaffected by the Project). Mitigative measures were identified to address adverse effects (for example, appropriate ceremonies) and a community-based NCN Culture and Heritage Resource Management Committee was identified to oversee steps to address cultural changes.

Beyond Nelson House in the Local Region, effects of the Generation Project are expected to be limited to voluntary take-up of potential construction employment and business opportunities by residents spread across many northern communities. This effect is not expected to result in discernible adverse effects on culture.

Similarly, due to the limited effect of the Transmission Project on land and resource uses and heritage resources given the incorporation of traditional and

other local knowledge throughout the process, no discernible pathway of effect to culture was identified.

9. MITIGATION / ENVIRONMENTAL MANAGEMENT and MONITORING

Mitigation and Environmental Management

Project planning was the primary means of mitigating potential adverse effects related to the proposed Projects. Selection of the low head option and the shaping mode of operation for the Generation Project significantly reduced environmental effects typically associated with hydroelectric developments, which are in large part related to alteration of water regimes and flooding of terrestrial areas. Likewise, route selection for the access road ensured that key areas (such as cultural sites and important wildlife habitat) were avoided. (EIS GS, Vol. 1, pp. 4-8 to 4-10.)

Measures to avoid, reduce, or mitigate potential impacts during construction and operation will be described in the Environmental Protection Plans (EnvPPs) and associated documents such as the Access Management Plan, Sediment Management Plan, and Monitoring Programs. The EnvPPs are site-specific user friendly documents that provide practical responses to legislation, licenses, permits, standards, contracts, agreements, designs and specifications for specific situations at specific locations. For example, the EnvPP provides a guide to appropriate clearing and grubbing practices based on terrain for each section of the access road and each stream crossing. The EnvPPs will incorporate licence conditions, will be finalized following receipt of the licence, and will be forwarded to regulatory agencies for review. (EIS Transmission, Vol. 1, pp. 2-12, 3-74, 7-100, 7-101 and EIS GS, Vol. 1, p. 4-23)

Monitoring

Monitoring consists of three related components:

- a) monitoring operational requirements (e.g. water levels, precipitation, forecasts, etc.);
- b) monitoring to ensure that prescribed mitigation is working (e.g. erosion control measures at stream crossings); and
- c) monitoring environmental effects to key environmental components to determine:
 - the accuracy of predictions;
 - if unanticipated effects are occurring; and
 - whether additional mitigation measures are required.

As such, a monitoring program is based on the principle of adaptive management and will provide the necessary feedback to Proponents, regulators, and other stakeholders. Throughout the hearing concerns have been raised about monitoring and who should conduct such monitoring. (See: CEC transcript, pp. 4372-4376 and 6611-6613).

Manitoba Hydro monitors precipitation, water levels, and flows on a real time basis throughout its system to be able to make the necessary timely water management decisions as part of its operations. This information is also used to prepare water level and flow forecasts which are communicated to various interested parties as required by agreements or licences. For example, key water levels and flows are published on Manitoba Hydro's website, and there is a monthly publication of a 90 day water level and flow forecast for several key locations along the CRD and LWR that is sent out to various government regulatory agencies and interested parties.

Manitoba Hydro has conducted, and continues to conduct, a large number of environmental monitoring programs to determine the effects of its operations. Examples of ongoing programs include the initiation of a long-term monitoring program for Southern Indian Lake fish populations in 2003 (representatives from the SIL Commercial Fishermen's Association, CASIL, OPCN, DFO, Manitoba Conservation; and Manitoba Hydro are involved in the design of the studies); environmental monitoring of the Limestone Generating Station (over 10 years of studies); monitoring of fish populations in Cross Lake and Pipestone Lake (over 12 years of studies); aquatic and terrestrial monitoring of the Churchill Weir; monitoring of mercury levels in fish; GHG in reservoirs; and ecosystem monitoring in Cedar Lake to mention a few.

These environmental monitoring programs are focused on issues that are important to the local communities and are conducted with direct community input and respect for Traditional Knowledge. The majority of the monitoring programs directly involve the local residents in the collection of the data and often included the direct involvement of regulatory agencies (such as the Department of Fisheries and Oceans and Manitoba Conservation) in both the design and conduct of the programs. The results of the studies are subsequently documented in reports that are provided to the local communities, regulatory authorities, and the general public. For larger monitoring programs (e.g., the Churchill Weir Monitoring Program), the results are generally presented to the community through open houses, workshops, and/or one-on-one meetings with individuals and special interest groups.

The subject of independent monitoring has been discussed at the CEC hearings and examples of independent monitoring occurring in other locations such as the Northwest Territories has been raised. It should be noted that the monitoring activities in the Northwest Territories are still conducted by the Proponents and not by Independent Monitoring Agencies. In some cases, the results of the monitoring programs are then presented to independent agencies (which often consist of the Affected Parties, Special Interest Groups, and Regulatory Agencies) for their

review and input. (See: CEC transcript, pp. 6620-6621). The responsibility for conducting the studies, however, remains with the Proponents who frequently retain independent firms to conduct the monitoring on their behalf. In Manitoba the communities are directly involved and the regulators receive the reports and ensure that the monitoring and licence requirements have been fulfilled.

A detailed aquatic monitoring program has been submitted to the Department of Fisheries and Oceans for review and will be finalized after regulatory input has been received. Monitoring programs for the terrestrial environment are currently under development, and will be finalized after the review process is complete and input from regulators has been received.

NCN Community Management Committees

The majority of adverse and beneficial effects on people of the proposed Wuskwatim Generation Project are expected to occur within the Local Region. As a potential partner, NCN has been fully involved in planning for the Project, including assessing effects and determining how best to manage effects to the make the most of the Project for NCN (i.e., reducing adverse effects and maximizing beneficial effects). This impact management includes establishing key community-based committees at Nelson House that will monitor changes and prepare and adapt detailed plans to address changes in their community.

These include a Coordinated Response Committee, made up of key NCN service providers, to monitor and address potential in-migration and other social issues. They will also contribute to the support of workers and families with the intent of making the employment opportunities a positive factor in the community (Generation Volume 8, Chapter 5). A second key committee is the Culture and Heritage Resource Management Committee, intended to oversee the important role of protecting cultural and heritage resources in the Wuskwatim Lake area and ensuring that the Project is undertaken in a sensitive and respectful way.

Traditional and scientific knowledge will continue to form the basis for all project implementation activities should the Wuskwatim Projects be approved.

VII. CONCLUSIONS

The Terms of Reference require the Commission to consider a number of matters before making its recommendation about whether an Environment Act licence should be issued. The Proponents submit that each of these matters was dealt with as follows:

1. All alternative resource options have been considered and the Wuskwatim proposals were established to be chosen on reasonable grounds. This conclusion is supported by the CAC/MSOS and TREE evidence (See: CAC/MSOS Exhibits 1006-1011; CEC transcript, pp. 5464, 5513, 5514 and 5796 cross-examination of R. Torrie - sensitivity analysis).
2. There is a net positive effect on Manitoba Hydro customer rates, which conclusion was supported by the evidence of CAC/MSOS. There would be no negative effect on Manitoba Hydro's financial stability as a result of proceeding with the Wuskwatim Project. The Partnership between the Proponents was described to the degree such information was required to understand the financial analysis and this information was fully tested throughout the pre-hearing and hearing processes.
3. The environmental, socio-economic and cultural effects of the Wuskwatim proposals relative to alternative resources was considered at a conceptual level and was considered throughout the pre-hearing and hearing processes.
4. Manitoba Hydro's electricity generation capability, market prospects and risks in relation to the Wuskwatim Proposals were considered. Load growth in

export jurisdictions and energy pricing trends and industry restructuring issues were fully considered in the filings, pre-hearing and hearing processes.

5. The potential environmental, socio-economic and cultural effects of the Wuskwatim Proposals outlined in the Environmental Impact Statements and the public concerns in relation thereto were fully considered and tested by the Commission throughout the hearing.

An assessment of the Wuskwatim projects must be more than simple confirmation that matters of interest to the Minister of Conservation were reviewed and that the projects pass muster.

Testimony at this hearing has illustrated, sometimes quite compellingly, that Hydro-electric development has affected many lives in this province in major ways and, that along with the obvious blessings it has brought, there have also been serious, adverse consequences to a great many people.

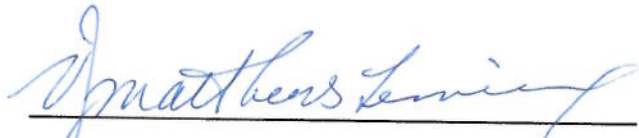
All of those who have worked on the projects – be they employees of Manitoba Hydro, Members of the Nisichawayasihk Cree Nation or consultants retained by Manitoba Hydro and NCN - have been conscious of this history and the great responsibility placed upon them to learn from it so that the Wuskwatim projects would be planned and developed differently.

The Wuskwatim projects, through their design, the unprecedented level of consultation and incorporation of traditional knowledge, reflect a sincere and sustained respect for the environment and the care that must be taken with any alteration to it. And, through the development of a partnership in which they have shared in the planning, and will share in the ownership of the Wuskwatim generating station, Manitoba Hydro and NCN have opened a new era in hydro-electric development, an era in which developments promise to bring people and cultures together for the benefit of all Manitobans. For these reasons, the projects

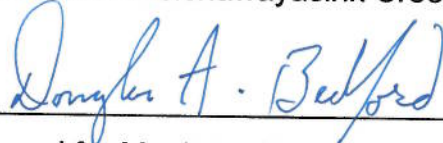
do not simply pass muster, they are a remarkable achievement and deserve to be so recognized.

Therefore, the Proponents respectfully submit that the Commission recommend that the Minister of Conservation issue the necessary Environment Act Licences.

ALL OF WHICH IS RESPECTFULLY SUBMITTED this 9th day of June, 2004.



Counsel for Nisichawayasihk Cree Nation



Counsel for Manitoba Hydro