

Review of Community Health Issues and the Manitoba Hydro Bipole III Transmission Project

November 7, 2012

Table of Contents

Introduction	1
The Role of HIA in Best Practice EA.....	2
How Community Health Issues Are Currently Addressed in the Bipole III EIS.....	4
Stakeholder Concerns Around Community Health.....	7
Gaps on Community Health Issues	8
Conclusion: Utility of an HIA for the Manitoba Hydro Bipole III Project.....	12

Authored by Marla Orenstein and Murray Lee, Habitat Health Impact Consulting Corp., Calgary, Alberta

Introduction

This report was produced by Habitat Health Impact Consulting Corp. in November 2012 at the request of the Public Interest Law Centre of Legal Aid Manitoba.

Large development projects such as the Manitoba Hydro Bipole III Transmission Project have well-characterized effects on biophysical, social and economic environments. They also exert a strong influence on health in nearby communities. Many, although not all, of these health effects are secondary to direct changes caused by the project—for example, changes in air quality, in wildlife availability or in the demographic makeup of towns. However, the health changes themselves are often a lens through which affected stakeholders view the benefits or costs of the project. As such, appropriately framing project impacts from a community health perspective can be essential in helping all stakeholders understand the trade-offs implicit in the project, through a common valued component.

The purpose of this report is to discuss the extent to which the Manitoba Hydro Bipole III project EIS appropriately examines the potential effects of the project on community health outcomes.

Qualifications

Murray Lee, MD, MPH, is a practicing physician who specializes in rural and remote medicine. He has worked extensively with Aboriginal populations across Canada's North and is currently the regular visiting GP for Repulse Bay, Nunavut. In addition to his medical qualifications, Dr. Lee holds a Master's Degree in Public Health from the University of California, Berkeley, with a special emphasis on the impact of the built environment on community health and human health behaviours. Dr. Lee is a Clinical Assistant Professor in the Department of Community Health Sciences at the University of Calgary, a Research Affiliate with the Population Health Intervention Research Centre, and Chair of the Population Health course at University of Calgary medical school. Murray co-founded Habitat with Marla and has since been involved in many of Habitat's HIAs and other population health projects. He has spoken widely about the determinants of health and HIA to diverse audiences, including the Conference Board of Canada's Roundtable on the Socio-Economic Determinants of Health.

Marla Orenstein, M.Sc., is an Epidemiologist, a founding partner of Habitat Health Impact Consulting, and an international leader in the field of Health Impact Assessment. She has led over a dozen HIAs, mainly for resource development projects including oil & gas developments, sustainable energy projects, mining projects, and linear features. In addition, Marla has helped develop HIA practice standards, and has provided mentoring and assistance to external agencies to help them complete their own HIAs. She has worked with government to help develop HIA processes for public policy and has offered HIA training on behalf of the World Health Organization, the International Association for Impact Assessment, the National Collaborating Centre for Environmental Health, the National Collaborating Centre for Healthy Public Policy, and the Health Impact Project. She is currently co-authoring a textbook on HIA that will be published by Springer in 2013. Marla has a M.Sc. in Epidemiology from the University of Edinburgh. Marla is a member of the International Association of Impact Assessment, and is a founding member of the Society for Practitioners of Health Impact Assessment.

The Role of HIA in Best Practice EA

Health Impact Assessment (HIA) is an approach that is increasingly being used by project proponents, governments and other stakeholders to explicitly consider the potential impacts – both adverse and beneficial -- of major development projects on human health. Health impact assessment is a process that is analogous to environmental impact assessment; however, where EIA examines the potential for impacts to the biophysical environment, HIA examines the potential for effects to the health of people in affected communities.

While many EIAs include consideration of the potential for exposure to chemical contaminants, discussion of human health effects is generally limited to this toxicologic perspective. HIA differs in that it considers a broader range of health impacts that are important to stakeholders, such as nutritional outcomes, mental health and wellbeing, chronic and infectious disease and injury, as discussed on the following pages. In doing so, HIA acts as a lens to transparently bring together relevant information on health in a way that makes sense to residents, decision-makers and other stakeholders.

The types of projects for which an HIA can provide valuable information are generally those that cause large changes in the biophysical, economic, social and/or institutional environments. Industrial development projects are typical of these. The HIA can be undertaken either as part of an EIS or as a stand-alone process.

There is precedent for the use of Health Impact Assessment in projects of the type and scale that is proposed for the Manitoba Hydro Bipole III Transmission Project. While many of these HIAs are not in the public domain, the list below points to some examples of areas in which this has been done.

Health impact assessments conducted on linear projects

- Health Impact Assessment done for Shell Canada's Quest Carbon Capture & Storage pipeline (Alberta) (Habitat, 2010; document not public).
- Community Health Impact Assessment being conducted as part of the EIA for a major pipeline project proposed by KinderMorgan for Alberta and British Columbia (Habitat, 2012, currently in process)
- Health Impact Assessment conducted on the Chad-Cameroon pipeline (see Utzinger J. et al, Assessing health impacts of the Chad–Cameroon petroleum development and pipeline project: challenges and a way forward. *Environmental Impact Assessment Review*. 25 (2005) 63–93.

Health impact assessments conducted on hydroelectric projects

- Health Impact Assessment of an Aluminum Smelter and Hydroelectric Project in Greenland (conducted by ERM for Alcoa Global Primary Products, 2009).
- Health Impact Assessment and Public Health Action Plan for the Nam Theun 2 Hydroelectric Project (published as part of the Nam Theun 2 Project Social Development Plan, 2005).
- Health Impact Assessment and Public Health Action Plan for Trung Son Hydropower Project. (conducted by L.N. Ha and S. Kaul, 2010).

The use of HIA is supported or promoted by Health Canada¹, several resource development industry associations² and international lenders³. In addition, there are a number of corporations—including Shell, Chevron, Rio Tinto and Barrick Gold—operating within Canada that have internal requirements for HIA to be done for major proposed projects even when an HIA is not required within the regulatory context.

Issues that HIA is designed to address

There are a number of health-related issues associated with large development projects that are generally understood and voiced by affected communities, but are often not accounted for or made explicit within the EIA process.⁴ These include:

Health effects associated with social and economic change. Employment and income can lead to health benefits for a local population including decreased stress, improved use of health care services and improvements in overall indicators of wellbeing. However, many communities that have experienced surges in income have also experienced increases in drug and alcohol use and commensurate increases in prostitution, violence, and crime. This trend is particularly strong where changes in the local social fabric are also a result of economic change, or where there has been a demographic shift as a result of the project.

Infectious disease transmission. Infectious disease in the context of development projects in Canada results from an influx of people (e.g., a project construction workforce) moving temporarily into a rural or remote area, combined with high density or overcrowding in homes or camps. Respiratory and gastrointestinal disease transmission is a concern; increases in sexually transmitted infection rates are very common.

Impacts on diet and nutrition. Where a project affects the availability of or access to wildlife, there may be implications for diet and nutrition among people who depend on the wildlife as a food source, including First Nations and Métis communities. Contamination of wildlife and other subsistence food sources is an issue that is often examined in the context of environmental contamination. However, equally important is the potential for change in the way that people eat, due to a change in the availability of foods, purchasing power, time available for subsistence activities and perceptions of the relative healthfulness of food sources (e.g., the perception that subsistence food sources are contaminated, whether or not “real” contamination exists). These dietary shifts can have consequences for metabolic and nutritional outcomes.

Injury and public safety. Increases in traffic-related injuries and fatalities can occur where there is a project-related increase in the volume of traffic.

1 Environmental Health Assessment Services, Health Canada (2004). *Canadian Handbook on Health Impact Assessment*. Ottawa: Health Canada.

2 ICMM (International Council on Mining and Metals), 2010. *Good Practice Guidance on Health Impact Assessment*. London, UK: International Council on Mining and Metals.

International Petroleum Industry Environmental Conservation Association (IPIECA) and the International Association of Oil & Gas Producers (2005). *A Guide to Health Impact Assessments*. London: IPIECA.

3 IFC (International Finance Corporation), 2009. *Introduction to Health Impact Assessment*. Washington, US: International Finance Corporation.

4 For documentation on these health effects in the context of large development projects, see, for example: Barron, T., M. Orenstein, and A. Tamburrini. January 2010. *Health Effects Assessment Tool (HEAT): An Innovative Guide for HIA in Resource Development Projects*.

Stress and mental wellbeing are commonly affected in a subset of local residents. The degree to which effects manifest is affected by a number of project factors. A given project may increase stress and anxiety among some residents, while simultaneously decreasing it among others.

Impacts on emergency health response. Emergency response planning for a large project usually involves drawing on emergency response capabilities in the region, such as ground and air ambulance, emergency care and tertiary care. The way in which emergency response is coordinated or carried out will have an impact on the availability of services for other stakeholders.

Impacts on health care service provision. Several challenges face health care service providers that may be exacerbated by temporary or permanent project attributes. These stressors on health care provision include a larger population that requires service; increased need for certain services (generally emergency services and drug/alcohol treatment); and difficulty in recruiting or retaining health personnel due to strained working conditions or a decrease in affordable or available housing.

These issues are in addition to those normally assessed within the impact assessment process, such as health effects that may be related to exposure to contaminants in air, water or soil, or the effects of noise.

An appropriately scoped impact assessment must account for the full range of health externalities, both in characterizing the impacts of the project and in formulating appropriate recommendations to mitigate potential health harms or to enhance health co-benefits.

How Community Health Issues Are Currently Addressed in the Bipole III EIS

This section provides a brief overview of where community health issues are addressed in the Bipole III EIS. The information is partitioned to correspond with different sections of the EIS: Specific chapters in the original EIS filing and the Supplemental Socio-Economic Filing submitted on July 31, 2012.

The purpose of presenting this information is two-fold. First, it demonstrates the extent to which relevant information on health determinants and health outcomes is present or is absent in the Manitoba Hydro filing.

Second, it highlights the fact that it is difficult to gain a complete picture of community health impacts in the original EIS because the data is spread throughout multiple sections of the reports.

Bipole III EIS – Chapter 3: Existing Environment

Section 6.3.2.9, Domestic Resource Use, discusses Aboriginal Traditional Knowledge studies that were conducted for the Bipole III EIS. This section discusses the types of ailments that medicinal plants are used for, lists out the communities that participate in harvesting of edible plants and berries, and use of wood products.

Domestic fishing, hunting and trapping are discussed at a high level in terms of identifying species of interest and listing communities that partake.

Section 6.3.4.3, Emergency and Policing Services (p. 6-199), discusses health services in non-Aboriginal and Aboriginal communities. Health care services by community are listed in Appendix A of the *Bipole III Socio-Economic Baseline Data Technical Report*. This section in the EIS details health care service capacity for the community of Gillam. Towns that have ambulance services are listed.

Section 6.3.5.2 Existing Road Network and Traffic Volumes, provides collision rates for the roads in and around the town of Gillam and Thompson.

Section 6.3.6, Personal, Family and Community Life, section 6.3.6.3, Health, lists the regional health areas (RHA) that are within the project area and provides baseline measures for infant mortality, and life expectancy at birth and at 65 years. A brief discussion of premature mortality rates is also provided. Particular health areas of concern were identified for the Burntwood RHA, which has the poorest health ranking in Manitoba.

Aesthetics are also discussed in this section. A brief description of the various landscapes and industries along the route is provided.

Section 6.3.7, Culture and Heritage Resources, section 6.3.7.1, Culture, provides a very interesting discussion of Aboriginal connection to the environment and his/her surroundings and how that connection is strongly linked to their sense of culture.

Bipole III EIS – Chapter 8: Effects Assessment and Mitigation

Section 8.3.2, Resource Use, explores impacts to domestic resource harvesting (hunting, fishing, trapping, plant and berry harvesting, wood collecting) which are important determinants of health for the Aboriginal communities living in the project area.

Section 8.3.4, Services, explores impacts to infrastructure and services including emergency services, health care and social services, For traffic, impacts from local traffic, workforce traffic and shipping of materials are examined along with traffic accidents. Impacts to policing services in Gillam are also assessed.

Section 8.3.5, Personal, Family and Community Life, examines impacts to public safety (via access to site), construction and operations noise, vibration, dust, EMF and aesthetics. For the Keewatinoow Converter station additional impacts are discussed from worker interaction (especially with Fox Lake Cree Nation), including gang- and drug-related activities.

Section 8.3.1, Soils and Terrain, discusses implications of herbicide application on traditional plants harvested by Aboriginal populations.

Section 8.3.6, Culture and Heritage Resources, provides an assessment of impacts to Aboriginal culture. A very nice description is provided on the meaning of culture to Aboriginal populations overall.

Section 8.4, Accidents and Malfunctions, presents potential impacts from hazardous materials and malfunctions in the context of fire response and emergency preparedness.

Supplemental Socio-Economic Filing

Tabs 3.1, 3.2 and 3.3, provides additional baseline information for housing and temporary accommodations in Gillam and for the Fox Lake Cree Nation. Population information and baseline public safety information was also provided for Gillam and Fox Lake Cree Nation. The public safety section focuses on the past experiences of Gillam and FLCN members with hydroelectric construction crews that came through both Gillam and Bird (mainly social pathology effects). This section also discusses safety programs available in Gillam and in Bird including policing and social programming.

Section 8.3.4, Services, provides additional information for the assessment of impacts on services during operations for the Keewatinooow Converter Station. The assessment takes into consideration additional information that was made available in the Keeyask Generation Project EIS. Impacts focus on housing availability, waste and water management, emergency services, and community facilities and services including the Gillam Hospital and social services.

Section 8.3.5, Personal, Family and Community Life updates the assessment of worker interaction during construction and provides additional information on operations impacts. Worker interaction in the town of Gillam is very thoroughly assessed. Impacts to public safety for construction are considered to be moderately significant.

Bipole III EIS – Chapter 9: Cumulative Effects Assessment

Section 9.3.3 examines cumulative impacts on public safety and traffic and road conditions. The assessment is descriptive and does not provide details on expected impacts. Mitigation focuses on continued relationship building and agreement development with FLCN.

For operations, impacts of concern that were noted include habitat alteration and fragmentation from creation of the right-of-way, improved access to new areas for hunters and predators, bird line-strikes, noise and potential disturbance from lines, maintenance vehicles and equipment. These impacts were merely mentioned and not assessed. Impacts from workforce and disturbance effects on wildlife are expected to decrease.

In addition to the health-related issues listed above, there are also several sections of the report that discuss key determinants of health⁵. Those sections include: Resource Use; Economy, Community Services, Existing road network and Traffic volumes.

⁵ Determinants of health—or health determinants—are the underlying factors that shape health in a community or population. These include elements such as age, sex and other personal characteristics; individual behaviour and choices; social and community structure and function; economy, employment and income; and physical environments (including both the natural and built environments including housing) and infrastructure. There is an enormous body of literature demonstrating that biophysical and mental health outcomes are strongly affected by health determinants.

Stakeholder Concerns Around Community Health

As demonstrated in the section above, the EIS along with the supplemental socio-economic filing discuss a number of important and relevant issues related to community health.

However, the information requests (IR) submitted by various stakeholders in response to the EIS suggest that stakeholder concerns remain regarding gaps in baseline health data and analysis of health-related issues. Table 1 presents a list of references to specific IRs that query various aspects of data and analysis related to community health. The queries include requests for supplementary information on baseline data; examination of additional impacts, a more quantified analysis of some impacts (particularly for cumulative effects), and community involvement in various aspects of project planning and monitoring. The table is not intended to provide an exhaustive list of all comments relevant to health in the IRs and some relevant comments may not be included. Rather, the citations included in this table indicate that—while the original filing addressed human health in a limited manner—there appears to be a stakeholder-driven need/desire to supplement the currently available information with a broader examination of human health impacts.

Table 1. Health-related gaps identified in Information Requests submitted for the Bipole III EIS

Category	Reference
Health effects associated with social and economic change	CEC/MH-VI-355 CEC IR #6 (Project sustainability Assessment, S10.2, p. 10-5) CEC/MH-VII-420 CEC/MH-V-194 CEC/MH-IV-148 CEC/MH-V-189
Impacts on diet and nutrition	CEC/MH-VI-344b (Baseline human health, p. 6-210)
Injury and public safety	CEC/MH-VII-421 (CEC/MH-IV-144)
Impacts on health care service provision	CEC/MH-VI-345b (Economy, S. 8.3.3. 10.2, pg. 10-5)
Exposure to contaminants	CEC/MH-VI-343a CEC/MH-VII-478 CEC/MH-VI-346b (Human Safety and Human Health, S.8.3.5.2., pp. 8-316 to 8-342) CEC/MH-VI-346c (Human Safety and Human Health, S.8.3.5.2., pp. 8-316 to 8-342) CEC/MH-VI-344a (Baseline human health, p. 6-210)
Community engagement/involvement	CEC/MH-VII-363 CEC/MH-VII-363 CEC/MH-VI-351 (Chapter 11, section 11.3.4.2, Attachment 11-1, section 6 and Appendix H, section 4) CEC/MH-VII-505 (CEC/MH-III-073) CEC/MH-V-197 CEC/MH-V-196
Missing baseline data on Metis community	CEC/MH-VII-501 CEC/MH-VII-502 CEC/MH-VII-505
Sustainable development (economic, social, health, environmental)	CEC/MH-VI-353 (Chapter 10) CEC/MH-VI-354 (Chapter 4)
Accidents and Malfunctions	CEC/MH-VI-346a (Human Safety and Human Health, S.8.3.5.2., pp. 8-316 to 8-342) CEC/MH-VI-346c (Human Safety and Human Health, S.8.3.5.2., pp. 8-316 to 8-342)
Cumulative impacts	SIR MMF #11

	CEC/MH-VI-347a (Section 9 Cumulative Effects) CEC/MH-VI-347b (Section 9 Cumulative Effects) CEC/MH-VI-347c (Section 9 Cumulative Effects)
Monitoring	CEC/MH-VI-347c (Section 9 Cumulative Effects) CEC/MH-VI-350 (Attachment 11-1, Appendix H)
Other comments related to community health assessment and human VECs	CEC/MH-VI-347b (Section 9 Cumulative Effects) CEC/MH-II-020b CEC/MH-V-190

Gaps on Community Health Issues

This section discusses the existing gaps in community health data and analysis for the Bipole III EIS. Both the original EIS as well as the supplemental socio-economic filing were considered in the gap analysis.

Health effects associated with social and economic change

As recognized in the National Energy Board (NEB) filing manual⁶, resource development projects can bring about changes to social and cultural wellbeing through an influx of temporary or permanent workforces, construction camp location, income and employment, and disruption to culture, tradition and social cohesion. All of these factors have well-established links to health outcomes including changes in alcohol and drug misuse, sexually transmitted infection rates, violence, injury and trauma, emergency room use, and mental wellbeing outcomes such as stress, anxiety, and suicide rates.

Although the EIS and supplemental socio-economic filing consider the impacts of influx of workers into the community of Gillam, the scope of health issues explored is limited. Issues related to influx of workers are of great concern to community members in the area surrounding the proposed Keenatinoow Converter Station. This concern arises from real past experiences with construction crews working on hydroelectric projects. Especially in Gillam and Bird, more detailed baseline information should be provided on baseline rates of alcohol-related injuries and deaths and levels of alcohol and drug dependence (small population numbers may pose a problem in reporting this type of data). Hospital admissions rates for injuries presented at the Gillam hospital should also be reported as well as an indication of the proportion of traffic accidents where drugs or alcohol were involved. These indicators should be monitored over the course of project construction in order to ascertain whether changes are taking place and if those changes can be partially or fully attributed to the Project; especially since there is a history of worker interaction in the community and demonstrated health outcomes.

Infectious disease transmission

The Bipole III Project will create circumstances that could exacerbate the spread of certain infectious diseases, in addition to the sexually transmitted infections mentioned above. Crowded working or living conditions can increase the spread of infectious diseases such as influenza, tuberculosis and lower respiratory tract infections. Camp, kitchen and workplace conditions can also influence the spread of gastrointestinal illnesses. These infections are a problem for workers, but can also spread back into the host community, where the elderly and young are particularly at risk for serious outcomes.

⁶ See the National Energy Board of Canada Filing Manual, Guide A.2 – Environmental and Socio-Economic Assessment, Table A-3 - Filing Requirements for Socio-Economic Elements. Updated October 15, 2012. Available at: <http://www.neb-one.gc.ca/clf-nsi/rpblctn/ctsndrgltn/flngmnl/flngmnl-eng.html>

Infectious disease transmission is not currently discussed in the EIS. The issue is of relevance to this project because of the influx of workers into various small communities and the use of worker camps. Housing shortages in the area also may lead to crowding which could exacerbate the spread of infectious disease. The EIS should provide baseline data for the relevant project areas on gastrointestinal disease outbreaks, levels of crowding in both the FFLN community of Bird and Gillam, and current rates (if available) of sexually transmitted infections in the area. Services that could provide treatment for all of the above mentioned ailments should also be discussed in terms of location and service capacity. Mitigation strategies should discuss measures to reduce risk.

Impacts on diet and nutrition

The construction and operation of the Bipole III Project will disturb traditional lands used for subsistence harvesting and hunting, particularly among First Nations and Métis communities. Subsistence food sources are important for maintaining a healthy traditional diet, for preventing a nutrition transition to less healthy store-bought foods and the resulting changes in chronic disease prevalence, and for cultural and spiritual importance. Baseline data on nutrition-related diseases should be reported on (e.g., diabetes, cardiovascular disease, obesity and food insecurity) as well as levels of reliance on subsistence food in First Nations and Métis communities. Key assessment pathways that are missing are impacts on diet and nutrition-related outcomes from 1) real contamination of food (including via accidents and malfunctions); 2) perceived contamination and a resulting change in consumption of traditional foods; 3) changes in availability or accessibility to subsistence food sources leading to less successful hunting and trapping or gathering attempts.

Injury and public safety

The Bipole III Project will change traffic and rail patterns in the study area. These changes have the potential to increase risk of injury or death from vehicle or pedestrian collisions. Although it was noted that some roads in the Gillam study area are reaching maximum capacity, more detailed information on baseline traffic collision rates were missing. Baseline levels of death due to injury and injury-related hospital admissions should be reported. If data are available for alcohol or drug-related injuries and hospitalizations, these data should also be reported. The RCMP will likely have information on number of vehicle collisions resulting in injury or fatality for key roads in the project area; these values should also be reported. Service capacity of the local RCMP should also be further explored.

Stress and mental wellbeing

There is no discussion of stress and mental well-being. Income and employment can also contribute positively to stress and mental well-being outcomes among some populations, and this should be discussed. However, stress and mental wellbeing can also be adversely affected; contributing factors include influx of workers into a community with potential changes to social cohesion, levels of drug and alcohol use, and stresses of shift work. Baseline indicators that could be added include: perceived life stress; self-rated mental-health, self-rated community health.

Aboriginal health should be a key focus of this section. Within the EIS the authors do a very good job of articulating the importance of culture to the overall well-being of Aboriginal Peoples in the study area. They go on to define culture including the notion that culture is rooted in the interrelationships of all things, the importance of being engaged in traditional activities and the intergenerational passing on of traditional knowledge. In chapter 5, the authors also do a good job at identifying “Pimatisiwin” or overall health and well-being and “Aski” the land, water, resources, animals and their interrelationships for future generations which are integral to the cultural identity of FLCN and treaty and aboriginal rights. However, these concepts are not brought forward into baseline or the assessment of impacts. Although the authors talk about some impacts that would occur to land, animals, and plants of great importance to the FLCN, the

authors fail to make the well-established link between these impacts to culture and health outcomes including stress and mental wellbeing.

Impacts on emergency health response

It is not clear from the EIS what the capacity is of EMS to respond to medical emergencies at the worksite. More information could be provided on air ambulance services and their ability to access key sites like the Keenatinoow Converter Station.

Impacts on health care service provision

Health care service provision may be affected in the context of the project by an increase in the population that needs to be treated, or by a change in service demand among the existing population that could result from increases in injuries, diseases, stress or mental wellbeing problems or need for alcohol/drug treatment programs.

The socio-economic baseline technical report does list out health services that are available in each of the communities along the Bipole III route and does provide descriptive data on capacity. However, the information in each community is limited and is sometimes not mentioned at all (e.g., 5.5 War Lake First Nation and Ilford Community Council). Also, the report relies on statements such as “The overall health and well-being of Thompson is quite strong. The level of emergency services within the community is very high” to describe health status of populations and levels of service capacity. Although qualitative data obtained from interviews is very useful for describing the current status of indicators in HIA, it should not be the only information that is relied upon. Indicators such as physician-to-patient ratios, potentially avoidable mortality from treatable causes, and ambulatory care sensitive conditions can be used to describe service capacity in a quantitative way. Many indicators available from Statistics Canada and the Canadian Community Health Survey could be included. Where possible, trends over time should also be presented for health care service capacity, because this illustrates the context of service demand into which Project-related changes will fall.

It should also be noted that although the EIS states that health care service capacity in Gillam is stretched (wait times in Gillam are long and there is only one doctor) the authors conclude that these services have the capacity to handle an increase in demand. This conclusion is questionable since little evidence to support it is presented.

Noise

Noise is a well-established determinant of health. Noise may cause annoyance in individuals, as well as sleep disturbance, potentially leading to stress-related illness. The EIS does a good job at identifying sources of noise for project construction and operations, yet does not report on baseline noise levels at key receptors along the route—such as schools, hospitals, proximate houses or other areas where noise levels may be high or be especially problematic—or provide estimates of project-related noise at these receptors. It should be determined whether noise modeling is necessary.

Exposure to contaminants

Several information requests stated the importance of conducting a Human Health Risk Assessment for the Bipole III EIS. The need for an HHRA is addressed by the report *Comments on Manitoba Hydro Bipole 3 Application Regarding Need for Improved Air Quality Assessment, Health Risk Assessment, Community Health Impact Assessment, and Cumulative Effects Assessment*. If an HHRA is to go ahead, baseline measures of cancer and respiratory disease should be included.

Accidents and malfunctions

There is no mention of the impact of a spill of fuel, lubricants, gasoline, solvents or herbicides on traditional foods (fish, plants). Overall this section is very generic. If possible, it would be useful

to identify the sites where spills would most likely occur and have an assessment of impacts specific to the region. At the very least, Aboriginal population groups and hunters and fishermen should be identified as being particularly vulnerable to health impacts from accidents and malfunctions because of their relatively intense use of the land and waterways. Commercial uses of the land and waterways may also be impacted depending on the location of the accident or spill.

Cumulative impacts

The cumulative impacts discussion should explore the potential impacts to community health from past projects as well as future planned projects; a discussion that is currently lacking. Since Manitoba Hydro has been the proponent on many past projects in the area and will be the proponent on other future projects, there is a unique opportunity to understand fully the numbers of workers expected in the area, the accommodation requirements, the levels of traffic on the roads, and other factors that are influenced by multiple Manitoba Hydro projects, allowing for a much more thorough and considered assessment of impacts on community health.

Specific impacts that are missing include the assessment of impacts on culture resulting from changes to accessibility of plants, animals, etc.; a more detailed analysis of health impacts related to public safety in Gillam and Bird (worker influx) including infectious disease, sexually transmitted infections, health care service capacity, policing capacity, and social services capacity. Since Manitoba Hydro is involved in the majority of future projects they should have a good understanding of the number of employees that will be coming into the area over the next five to ten years, for example during the construction period of the Keenatinoow Converter Station as well as other activities such as those at Keeyask and Conawapa. This is critical information to bring forward in any discussion of cumulative impacts on health, as a wide range of health outcomes associated with development are driven by changes in population numbers and composition stemming from the in-migration of a workforce.

The housing development in Gillam is also described as having no adverse cumulative impacts; we would argue that this will add to construction crews in Gillam, contributing to all issues related to worker influx. As well, once the housing development is completed it would mean that more people would have the ability to move into Gillam. With hospital and policing services already at their maximum, this may overextend the service capabilities in Gillam, possibly leading to significant health outcomes. Demand for housing could also increase housing costs and cause an overall inflation effect in Gillam. This has implications for health impacts related to food security and infectious disease due to crowding.

Impacts to culture should be reconsidered based on stress and wellbeing conversation above.

Overall the potential for significant health impacts to result in Gillam appears to be understated. It is particularly important to focus the examination of potential community health impacts on specific areas such as Gillam where project activities will be concentrated.

Conclusion: Utility of an HIA for the Manitoba Hydro Bipole III Project

In summary, the current documents that have been filed about the Manitoba Hydro Bipole III project have provided valuable information and discussion on a number of important health determinants and health outcomes. However, two main problems remain.

First, the information related to health is spread throughout the reports, making it difficult for a reader to understand the information coherently. Since health is often an emotional issue and can be a catalyst for questions or for dissatisfaction, pulling the health-related information into one place would benefit stakeholders and may ultimately benefit Manitoba Hydro as well. This could be housed within the socio-economic assessment or developed as its own parallel section or report.

Second, gaps remain that are related to important health issues, as discussed elsewhere in this report. These gaps are supported by the literature on industrial development and health outcomes; they have also been identified by stakeholders via the Information Requests.

The presentation “Socio-Economic Effects Overview” given to the panel on October 29, 2012, stated that an HIA was “not required” given the “nature of development, mitigation measures & short-term duration of construction”. The presentation further stated that there were “no pathways to effects—project will not have health effects on local communities/residents”. We agree that the nature of the Bipole III development, the proposed mitigation measures and the short-term duration of construction are factors that would reduce the strength, duration or extent of health impacts experienced by community residents. However, as shown in this document, the statement that there are no pathways to effects and that the project will not have health effects on local communities/residents is questionable, and little or no evidence has been given that would demonstrate a lack of effect potential. In addition, there have been comments made by stakeholders that clearly question the potential linkages to health.

Given these conditions, we believe it is in the best interests of Manitoba Hydro, local residents and other stakeholders to develop a Health Impact Assessment that would specifically examine the full range of potential health issues brought up in this report and mentioned by other expert sources in connection with similar industrial development projects.

Finally, it is worth reiterating that there is a business case to be made for Manitoba Hydro engaging in an HIA. Birley (2005)⁷ summarizes the reasons that a large resource development proponent may want to engage in HIA, using Shell as a case example. Among the reasons he presents are management of reputation; support of sustainable development; alignment with corporate social responsibility; cost savings of improved design and operation; and management of financial risk stemming from the idea that it is cheaper to make changes in the planning stage than after a project has been implemented. The International Council on Mining and Metals⁸ also presents a business case for undertaking HIA in promoting the use of the tool to its member companies. These are: speedier achievement of a proponent’s license to operate; lower planning and associated legal and consultancy costs; access to international funding; lower risk of disruptive protest or sabotage; lower risk of damage to a project and parent company’s reputation; lower risk of future community-led liability and litigation; reduced absenteeism and health care costs for employees from local communities; improved general employee morale.

⁷ Birley, M. (2005) *Health impact assessment in multinationals: a case study of the Royal Dutch/Shell Group*. Environmental Impact Assessment Review 25: 702– 713

⁸ ICMM (International Council on Mining and Metals), 2010. *Good Practice Guidance on Health Impact Assessment*. London, UK: International Council on Mining and Metals.

As shown by these sources, HIA is not just an approach that speaks to societal sensibilities; there is a business case and a financial case to be made for Manitoba Hydro pro-actively, transparently and robustly examining community health issues of the Bipole III project, both in isolation and as part of a broader assessment of Manitoba Hydro's existing, proposed and planned projects in the area.

The level of intensity of an HIA can vary considerably. Given the large amount of work that has already gone into presenting baseline conditions and developing analyses of many critical determinants of health, the timeframe and associated cost of an appropriately-scoped HIA need not be large, and it is likely that an HIA could be conducted over a period of two to four months. Because HIAs vary so widely in their scope and the contexts in which they are used, there is no single “best example” HIA that would be appropriate as a reference. However, as an attachment to this report we are attaching a 6-page summary of the ICMM’s Good Practice Guidance on Health Impact Assessment, which succinctly describes an industry perspective on how best to approach HIA, including, timelines and methods.

SUMMARY OF RECOMMENDATION

We recommend that Manitoba Hydro develop a Health Impact Assessment that would specifically and that would bring together in one place the health-related information that has been collected to date and that would additionally examine the full range of potential health issues brought up in this report and mentioned by other expert sources in connection with similar industrial development projects.