A SUSTAINABLE DEVELOPMENT INDICATOR DESIGN PROCESS FOR MANITOBA HYDRO

By

Cory Searcy

A Practicum Submitted to the Faculty of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree of

MASTER OF SCIENCE

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Abstract

Manitoba Hydro has made a commitment to apply the principles of sustainable development in all aspects of its operations. One method the company has identified to achieve this goal is the creation and implementation of sustainable development indicators. However, before undertaking any indicator development project, the company feels that it is necessary to create a detailed plan.

To fill this need, the aim of this project was to develop a Sustainable Development Indicator (SDI) Design Process for Manitoba Hydro. Recognizing the importance of planning in the success of any indicator project, that protocol articulates a methodology for the development of indicators at Manitoba Hydro. Although effort was devoted to creating a process suitable for application to all aspects of the company's operations, particular emphasis was devoted to ensuring the process was relevant to the Transmission System.

To achieve that goal, the project was divided into two fundamental phases. The first focused on developing a generic SDI Design Process while the second focused on applying selected steps of the process to Manitoba Hydro's Transmission System. Taking a systematic approach, both phases involved an extensive review of published literature as well as consultation with internal and external expertise.

Those procedures ultimately lead to the development of a flexible, six-step SDI Design Process: (1) conduct needs assessment; (2) conduct process planning; (3) develop a draft set of sustainable development indicators; (4) test and adjust the indicators; (5) implement the indicators; and (6) review and improve the indicators. The key activities in each of these steps are illustrated in process flow charts, while other important points are described in thorough explanations. Throughout the entire protocol, special care was taken to incorporate the comments of the experts participating in the consultations.

The creation and implementation of sustainable development indicators at Manitoba Hydro could be achieved by implementing the process described in this report. During any implementation, however, consultation with key stakeholders will be required and significant time and effort will be needed to develop a set of indicators.

Acknowledgements

Funding for this project was provided by Manitoba Hydro's Research and Development Program. In addition to the funding organization, I would like to thank the following individuals for their guidance and assistance. Without their input, completion of this thesis would not have been possible.

- Dr. Carole Burnham, Consultant, Carole Burnham Consulting
- Mr. Dennis De Pape, Principal and Senior Consultant, InterGroup Consultants
- Mr. John Fjeldsted, Corporate Coordinator Environmental Management System, Manitoba Hydro
- Ms. Tammy Gibson, Policy Analyst, Sustainable Resource Management Branch, Manitoba Conservation
- Dr. Daryl McCartney, P. Eng., Associate Professor, Department of Civil Engineering, University of Manitoba
- Mr. Sheldon McLeod, P. Eng., Consultant, SLMcLeod Consulting
- Mr. Wade Munro, Senior Environmental Assessment Officer, Licensing and Environmental Assessment Department, Transmission Planning and Design Division – Transmission and Distribution, Manitoba Hydro
- Dr. Laszlo Pinter, Senior Project Manager, International Institute for Sustainable Development
- Dr. Caroline Piotrowski, Associate Professor, Department of Family Studies, University of Manitoba
- Ms. Erin Searcy, M.Sc. Candidate, Department of Biosystems Engineering, University of Manitoba

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SECTION 1.0
Introduction

1.1
Overview

In 1987, the World Commission on Environment and Development (WCED) published *Our Common Future*, a groundbreaking report that brought the terms "sustainable development" and "sustainability" into widespread use. That report defined sustainable development as "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987) and called on the global community to take steps towards that goal. Building on that definition, numerous efforts have been undertaken to put this concept into practice.

One of the most prominent activities in this regard was the development of Agenda 21 as a part of the Earth Summit of 1992. A global action plan for achieving sustainable development, Agenda 21 has provided a useful starting point for many government and industry-based projects. For instance, sustainability projects have been initiated at the national, regional, and local government levels all over the world. Many industries have also recognized the value in pursing sustainable development with forestry being one of the many examples. In any case, it is important that continued progress is made in adopting sustainable strategies across all levels of society.

One industry where progress has recently been observed is the energy sector. At the international level, organizations such as Helio International and the World Business Council for Sustainable Development have undertaken, or are in the process of undertaking, projects related to the sustainability of that industry. Progress may also be seen at the national level. For example, the Canadian Electricity Association (CEA) has encouraged its members to do more on the sustainability front through initiatives such as its Environmental Commitment and Responsibility (ECR) program.

These developments are of particular interest to Canadians since the citizens of this nation are among the highest per capita consumers of electricity in the world. Virtually all aspects of Canadian society rely upon some form of energy use and much of this energy is supplied in the form of electricity. This resource has become one of the

backbones of our economy and is in large part responsible for the high quality of life enjoyed by most residents of the country.

However, the consumption of such an enormous amount of electricity has not come without costs. While the benefits of electricity use are well known, there is a general consensus that our energy practices do not fully acknowledge the costs of producing and consuming energy with respect to environmental, social, and economic considerations (Manitoba Conservation, 1998). The infrastructure required in the generation, transmission, and distribution of electricity is substantial and the impacts – both positive and negative – caused by this infrastructure are wide-ranging.

Considering decisions made today in the electricity industry will have an ongoing impact on the environment, the economy, and society for decades, it is essential that clear, orderly information is available to evaluate decisions on the basis of these three interconnected categories (GRI, 2000). Fortunately, many of the electric utilities in Canada have acknowledged the need to address issues using an integrated approach considering the overall implications of their decisions. One such utility is Manitoba Hydro.

One of the largest electric and natural gas utilities in Canada, Manitoba Hydro is the primary producer of electricity in the Province of Manitoba. With the majority generated via self-renewing water power, Manitoba Hydro provides electricity to over 400 000 customers located throughout the Province (Manitoba Hydro, 2002). Given the impact such operations have on life in Manitoba, it is significant that the concept of sustainable development has been supported by the company. In its most recent *Sustainable Development Report*, Manitoba Hydro stated it "will apply the principles of sustainable development in all aspects of its operations to achieve environmentally sound and sustainable economic development" (Manitoba Hydro, 1998).

To this end, the Corporation has adopted a sustainable development policy identifying thirteen key principles outlining Manitoba Hydro's sustainability goals. The thirteen sustainable development principles outlined by Manitoba Hydro address critical elements of sustainable development such as integration of decisions, efficient use of resources, stakeholder participation, and responsibility for actions on the local and global levels. A copy of the full sustainable development policy and principles is available in

Appendix A. Since the energy sector is one of the cornerstones of sustainable development (Manitoba Conservation, 1998), it is important to ensure continued progress is made in the effort to put these principles into practice.

Determining progress, or lack thereof, demands measurement (CEA, 2000). Without the feedback provided by a measurement system, it is impossible to know how close or how far one is from achieving their goals. An absence of feedback also makes it difficult to ascertain where adjustments to the systems are necessary and virtually impossible to conclude exactly what effect these adjustments had. Equally difficult is attaching accountability to any decisions made with respect to the system in question. In other words, one can only manage what is measured.

Building on that premise, in order to achieve a company operating according to the principles of sustainable development, Manitoba Hydro must be able to recognize the presence or absence of sustainability, or threats to sustainability, in the systems under its stewardship (Bossel, 1999). However, one of the most challenging aspects of pursuing a commitment to sustainable development is determining a method of measuring progress towards that goal (IISD, 1997). Sustainable development is such a broad concept it is often difficult to even know where to start.

One method in which these challenges may begin to be addressed is through the creation and implementation of sustainable development indicators. Sustainable development indicators provide a means with which to measure progress towards sustainable practices. While recent initiatives at Manitoba Hydro, such as the ongoing implementation of the ISO 14001 Environmental Management System (EMS), have helped raise environmental awareness in the company, there is still much work to be done with respect to integrating sustainable development considerations into the day-to-day operations of the organization. As previously noted, sustainable development is much more than an environmental idea. Corporate accountability is increasingly not just about the environment, but about people and values too (Elkington, 1999).

According to internal personnel, one of the largest gaps in the developing EMS at Manitoba Hydro is the lack of sustainable development indicators. Currently, there are few measurable, tracked indicators in place and those that are tracked are not widely used

in decision-making. However, existing programs have provided a strong base upon which a move to more sustainable practices may be initiated.

While there are several sustainable development indicator programs in existence, most of these programs deal with issues on an international, national, or regional level. A discussion of some existing programs is presented in Section 2.0. Though some lessons learned from these existing programs may be transferable to issues faced by an electric utility, there are currently no well-established indicator development processes particularly suited to an electric utility. Since careful planning is critical to the success of any indicator project, a systematic approach that takes a holistic perspective will be needed to develop a process relevant to the specific needs of Manitoba Hydro.

1.2 Purpose

The purpose of this project was to develop a Sustainable Development Indicator (SDI) Design Process for Manitoba Hydro. As a complement to the programs already in place at Manitoba Hydro, this protocol provides the company with a guide on how to produce sustainable development indicators for all aspects of its operations. Although effort was devoted to creating a process suitable for application to all aspects of the company's operations, particular emphasis was devoted to ensuring the process is directly relevant to the Transmission System.

1.3 Scope

As noted in Section 1.2, one of the major objectives in this research project was to ensure the overall SDI Design Process was flexible enough to be applied to all aspects of Manitoba Hydro's operations. However, since the operations of the company are so extensive, it was not possible to examine in detail every project with which Manitoba Hydro is involved. Therefore, it was necessary to set some boundaries, assumptions, and limitations on which the study was based.

Like many other projects, the two most pertinent limitations to which the study was subjected were time and, to a lesser extent, budget. As a direct consequence of these