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1 **1 Introduction**

2

3 **1.0 Chapter Overview**

4 Manitoba Hydro is a Crown Corporation mandated by *The Manitoba Hydro Act* (Section 2) to
5 “provide for the continuance of a supply of power adequate for the needs of the province, and
6 to engage in and to promote economy and efficiency in the development, generation,
7 transmission, distribution, supply and end-use of power and , in addition are... b) to market and
8 supply power to persons outside the province on terms and conditions acceptable to the
9 board.”

10

11 In light of a demonstrated need for new Manitoba generation, Manitoba Hydro’s obligation to
12 serve the needs of Manitobans has resulted in the formulation of a Preferred Development
13 Plan. This plan and alternatives to the plan will be assessed through a Needs For and
14 Alternatives To (NFAT) review under the auspices of the Public Utilities Board (PUB), beginning
15 with the submission of Manitoba Hydro’s business case for its plan. The submission compares
16 the Preferred Development Plan against alternative plans to demonstrate that the plan is in the
17 best long-term interests of Manitobans.

18

19 This chapter consists of:

- 20 • A description of how the government established the NFAT review process, the Terms of
21 Reference (TOR) for the panel as well as associated regulatory processes.
- 22 • An outline of the contents of the NFAT submission. A profile of Manitoba Hydro and its
23 approach to development as well as a summary-level description of its integrated
24 planning process. Key planning assumptions used in the submission are identified.

25

26 **1.1 Approvals Sought**

27 *The Manitoba Hydro Act* 16(1) requires that approval from the Lieutenant-Governor in Council
28 be granted for the development of new generating stations, interconnections, and contracts for

1 major power exports and imports. As part of this NFAT review process, the PUB panel is to
2 provide a report to the Minister responsible for the administration of *The Public Utilities Board*
3 *Act* no later than June 20, 2014. The report will include recommendations to the Government
4 of Manitoba on the need for the Preferred Development Plan and whether the plan is in the
5 best long-term interest of the province compared to other options and alternatives.

6 7 **1.1.1 NFAT Terms of Reference**

8 The NFAT TOR outlines the components of the review by the PUB panel and what aspects are to
9 be considered when reviewing the Preferred Development Plan. The panel is to review the plan
10 and assess alignment with *The Manitoba Hydro Act*, *The Sustainable Development Act* and the
11 Manitoba Clean Energy Strategy; whether the need for the plan is justified; how the plan
12 addresses reliability and security of Manitoba electrical supply; and the reasonableness,
13 thoroughness and soundness of all critical inputs and assumptions that Manitoba Hydro relied
14 upon for its justification. The panel will also assess the Preferred Development Plan as
15 compared to alternatives, looking at factors that include financial and economic risks; the
16 impact on domestic electricity rates; the reasonableness of forecasted inputs; the socio-
17 economic impacts and benefits of the plan to northern and aboriginal communities; and
18 whether the plan has been justified to provide the highest level of overall socio-economic
19 benefit to Manitobans, and is justified to represent the preferable long-term electricity
20 development option for Manitoba when compared to alternatives.

21 22 **1.2 Needs For and Alternatives To Review and Submission**

23 As a matter of public policy the Province of Manitoba has the ability to require that any major
24 new investment in power generation stations undergo a public review process. In a letter to
25 Manitoba Hydro dated January 13, 2011, (see **Appendix 1.1 – Terms of Reference and Order in**
26 **Council**) the Minister Responsible For Manitoba Hydro stated that it was the provincial
27 government’s intent to assign responsibility to an independent body for carrying out an NFAT
28 assessment of Manitoba Hydro’s proposed new hydro-generation projects. Under *The Public*

1 *Utilities Board Act*, the Province has the ability to assign special reviews to the PUB beyond the
2 board’s regular mandate. Thus on November 16, 2012, the Province indicated that it had asked
3 the PUB to conduct the NFAT review of “upcoming Manitoba Hydro projects including the
4 Keeyask and Conawapa generating stations and their associated transmission facilities” (see
5 ***Appendix 1.1 – Terms of Reference and Order in Council***).

6
7 The public review process was officially initiated with the issuance of an Order in Council on
8 April 17, 2013 (see ***Appendix 1.1 – Terms of Reference and Order in Council***) assigning the
9 NFAT review to the PUB and providing the TOR.

10

11 **1.3 NFAT Submission: Explanation of Chapter Structure**

12 This NFAT submission contains an Overview, Executive Summary, list of acronyms, glossary, 15
13 chapters and various appendices.

14

15 ***Chapter 1 - Introduction*** discusses the purpose of the NFAT review process for the Preferred
16 Development Plan, Manitoba Hydro’s corporate context for considering the plan (including
17 planning principles, processes and assumptions), and the content structure of the submission.

18

19 ***Chapter 2 – Manitoba Hydro’s Preferred Development Plan Facilities*** provides a description of
20 the capital projects contained within the Preferred Development Plan, including the Keeyask
21 and Conawapa generating stations and associated transmission, the North-South Transmission
22 Upgrade Project, and the Manitoba-Minnesota Transmission Project.

23

24 ***Chapter 3 – Trends and Factors Influencing North American Electricity Supply*** outlines several
25 notable trends and factors currently influencing North American electricity markets and
26 resource decisions for new and existing generation. This chapter reviews trends that affect both
27 domestic and extra-provincial decisions for existing resources, the need for new generation, the
28 costs of competing resources, and the market price.

1 **Chapter 4 – The Need for New Resources** describes how Manitoba Hydro establishes the need
2 for new resource options to meet Manitoba Hydro’s expected domestic load and firm export
3 commitments. Both current load and load-growth assumptions as well as Demand Side
4 Management (DSM) programs are described and, when combined, result in net load in
5 Manitoba. The remainder of the chapter describes Manitoba Hydro’s existing sources of supply
6 and the determination of the need for new resources based on a comparison of demand and
7 supply.

8
9 **Chapter 5 – The Manitoba Hydro System, Interconnections and Export Markets** provides an
10 overview of Manitoba Hydro’s existing supply resources and the existing transmission system,
11 the reliability and economic benefits of transmission interconnections and the properties of
12 Manitoba Hydro’s predominantly hydro system. It also covers the structure of interconnected
13 markets, with emphasis on Manitoba Hydro’s primary export market – Midcontinent
14 Independent System Operator, Inc (MISO) and a long-term outlook of the MISO market.

15
16 **Chapter 6 – The Window of Opportunity** outlines the perspectives of Manitoba Hydro,
17 Manitoba Hydro’s major export customers and the market region, and details how these
18 perspectives and needs have collectively provided an opportunity to develop a new
19 transmission interconnection to the U.S. in conjunction with developing new large hydro
20 resources in Manitoba.

21
22 **Chapter 7 – Screening of Manitoba Resource Options** describes the process followed by
23 Manitoba Hydro in screening supply resource technologies and options and establishes the
24 portfolio of resource options. The chapter provides an assessment of those technologies that
25 are available for utility-scale generation.

26
27 **Chapter 8 – Determination and Description of Development Plans** explains how the 15
28 development plans evaluated by Manitoba Hydro have been determined. The strategies behind

1 the various development plans are explained and consideration is given to the economic,
2 financial, environmental, and socio-economic characteristics of the plans.

3

4 **Chapter 9 – Economic Evaluations - Reference Scenario** presents an evaluation of the
5 economics of the 15 development plans based on inputs and assumptions associated with the
6 “reference scenario.” The 15 plans are reduced to a list of 12 plans that are further tested
7 through uncertainty analysis.

8

9 **Chapter 10 – Economic Uncertainty Analysis – Probabilistic Analysis and Sensitivities**
10 introduces the concept of scenarios and presents extensive probabilistic analysis on 12 of the
11 development plans on the factors that have a high impact on the economics of the
12 development plans. Sensitivity analysis on drought, climate change, load growth, and in-service
13 delay is also provided. Other uncertainty factors are identified with an explanation of how the
14 uncertainty of these other factors was considered in the NFAT submission analysis.

15

16 **Chapter 11 – Financial Evaluation of Development Plans** provides a comparative financial
17 evaluation of selected development plans, presents relative impacts of the plans on Manitoba
18 Hydro’s borrowing requirements and other financial criteria including effects on customer
19 rates.

20

21 **Chapter 12 - Economic Evaluation - 2013 Update on Selected Development Plans** presents an
22 evaluation of the economics of selected development plans using 2013 planning assumptions. A
23 demand side management (DSM) sensitivity and a DSM stress test are also included to
24 demonstrate whether the Preferred Development Plan remains attractive under higher levels
25 of DSM.

26

27 **Chapter 13 - Integrated Comparisons of Development Plans - Multiple Account Analysis**
28 extends the economic evaluation to take into consideration consequences for Manitobans that
29 are not fully reflected in the revenues and expenditures facing Manitoba Hydro.

1 **Chapter 14 – Conclusions** summarizes the results of the various evaluations and identifies the
2 need to ensure that any long-term decisions respond to evolving Manitoba energy supply
3 requirements. Five Development Plan Implementation Pathways are presented; these
4 recognize the inherent flexibility required when moving forward with a chosen development
5 plan.

6
7 **Chapter 15 – Implementation and Risk Management Plan for Preferred Development Plan**
8 explains that Manitoba Hydro has a well-developed and comprehensive approach to
9 undertaking the Preferred Development Plan and managing associated risks. These risks extend
10 to the development schedule, construction management (including labour availability), capital
11 costs, socio-economic impacts and environmental impacts.

12 13 **1.3.1 Additional Regulatory Processes**

14 In addition to the NFAT review process, the generation and transmission projects included
15 within the Preferred Development Plan are subject to other regulatory review processes at
16 federal and provincial levels. Stringent environmental protection requirements must be met,
17 including comprehensive environmental impact assessments which encompass wide-ranging
18 environmental and socio-economic studies that include public engagement. The list below
19 illustrates some of the approvals or authorizations required:

- 20 • *The Water Power Act (Manitoba)*
- 21 • *The Environment Act (Manitoba)*
- 22 • *the Fisheries Act (Canada)*
- 23 • *the Canadian Environmental Assessment Act (Canada)*
- 24 • *the Navigable Waters Protection Act (Canada)*
- 25 • *the National Energy Board Act (Canada).*

1 **1.3.1.1 The Water Power Act (Manitoba)**

2 *The Water Power Act* provides that the right to all provincial water powers vests with the
3 Crown and that the Minister can make orders regarding the development and use of water
4 power. In order to harness the water for power generation Manitoba Hydro requires a licence
5 under this Act; one of several authorizations or licences required to build a hydro-generating
6 station.

7
8 **1.3.1.2 The Environment Act (Manitoba)**

9 *The Environment Act* provides for assessment and licensing of projects likely to have effects on
10 the environment. The Act classifies projects into various categories that determine the type of
11 assessment required. An energy project over 100 MW is classified as a Class 3 development and
12 as such may be subject to a separate public review hearing by the Clean Environment
13 Commission, as is the case for the Keeyask project.

14
15 **1.3.1.3 The Fisheries Act (Canada)**

16 Given that activities associated with the construction and operation of a major generating
17 station have the ability to either impact fish populations or alter their habitat, the Minister's
18 approval under the Act is required to construct and operate a hydropower plant.

19
20 **1.3.1.4 The Canadian Environmental Assessment Act (Canada)**

21 The Keeyask project is currently being assessed under the *Canadian Environmental Assessment*
22 *Act* by means of a Comprehensive Study Review. The Act has now been repealed but remains in
23 effect for projects commenced before repeal date. It is expected that Conawapa will be
24 assessed under the recently passed statute, the *Canadian Environmental Assessment Act, 2012*.
25 Both statutes set out requirements issued by the Canadian Environmental Assessment Agency,
26 and in both cases there are mechanisms available for federal/provincial coordinated and
27 cooperative assessment to occur. Once the assessment process is completed (under either

1 statute) at the federal level, and assuming that the project is approved, relevant federal
2 departments then engage in permitting activities with the proponent.

3

4 **1.3.1.5 The Navigable Waters Protection Act (Canada)**

5 The *Navigable Waters Protection Act* prohibits the building of a work, such as a generating
6 station, on or across any navigable water, without the Minister’s prior approval. The Minister
7 has the discretion to impose terms and conditions on the proponent for the work being done in
8 a navigable body of water.

9

10 **1.3.1.6 The National Energy Board Act (Canada)**

11 The National Energy Board (NEB) regulates international and interprovincial aspects of the
12 electric utility industry. Since Manitoba Hydro intends to export energy to the U.S., permits will
13 be required from the NEB for both exporting power as well constructing the international
14 transmission line interconnection (“tie-line”). When deciding on an export permit the NEB
15 considers the effect of exports on adjacent provinces, the environment and fair market access
16 for Canadians. The board also has discretion regarding the need for a public hearing on a
17 permit. For the international transmission line, the board reviews and authorizes applications,
18 considers the technical feasibility of the project, its effect on adjacent provinces, and its
19 environmental impact.

20

21 **1.4 Plan Proponent – Manitoba Hydro Organizational Profile**

22 With over \$14 billion in assets, Manitoba Hydro is one of the largest integrated electricity and
23 natural gas distribution utilities in Canada, with 5,700 MW of installed capacity. Manitoba
24 Hydro serves over 542,000 electricity customers across Manitoba and 267,000 natural gas
25 customers in the southern part of the province.

26

27 Manitoba Hydro has a long and proud history of providing reliable energy to communities,
28 households and businesses in the province and operating one of the cleanest, most sustainable

1 power systems in North America. Nearly all of the electricity Manitoba Hydro typically produces
2 each year (approximately 98% on an energy basis) is clean, renewable water power generated
3 at 15 hydro-electric generating stations.¹ Manitoba Hydro also maintains two thermal
4 generating stations to back up its hydro-electric system and purchases electricity from two
5 independent wind farms. Its ongoing operations and future projects represent a major
6 contributing factor to the provincial economy, translating to employment and business
7 opportunities for thousands, especially in the northern regions where much of the new
8 development is taking place.

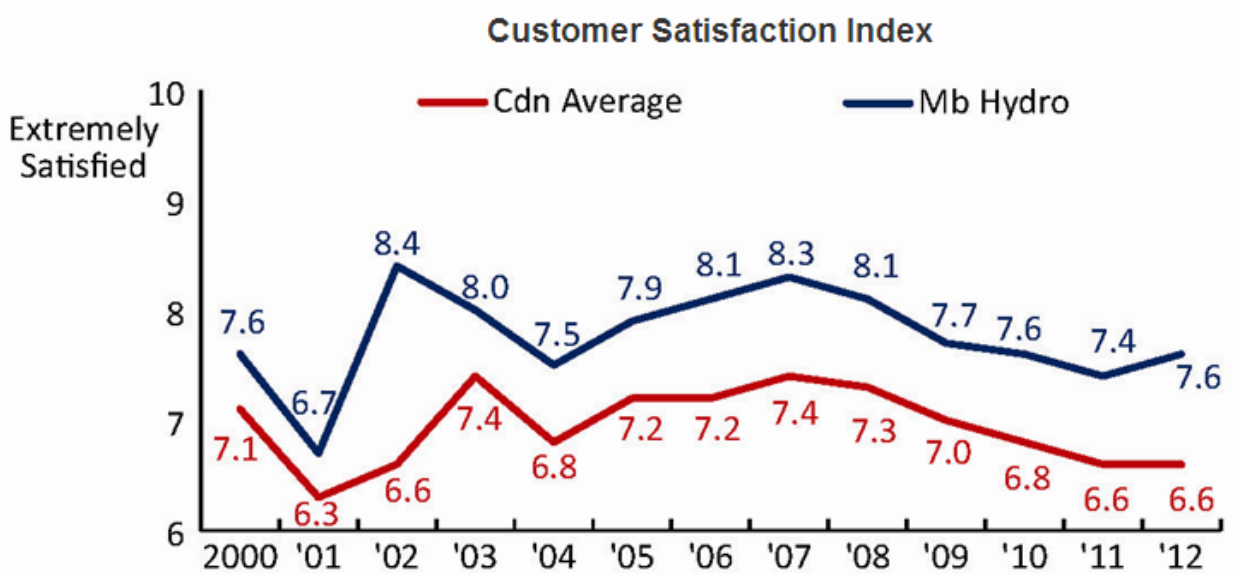
9
10 In addition to providing electricity to Manitobans, Manitoba Hydro exports surplus electricity to
11 utilities within three wholesale markets in the Midwestern U.S. and Canada. In the last decade
12 export sales have contributed \$5.2 billion in revenues to Manitoba Hydro (close to one-third of
13 total revenues); a key factor in keeping Manitoba electricity rates low. (See **Chapter 5 – The**
14 **Manitoba Hydro System, Interconnections and Export Markets** and **Chapter 6 – The Window**
15 **of Opportunity** for a discussion on the benefits of participation in export power markets).

16
17 An industry leader in customer satisfaction, Manitoba Hydro is committed to providing high
18 system reliability, reasonable rates and excellent customer service. According to the 2012
19 Canadian Electricity Association (CEA) Public Attitudes Research Project, Manitoba Hydro
20 continues to receive satisfaction ratings for all customer service, corporate citizenship and
21 corporate image components that are consistently higher than the national average for
22 Canadian electric utilities and among the “Best in Canada” for most components. See Figure
23 1.1.

¹ Of the 15 hydro-electric stations, one is owned by Manitoba Hydro in partnership with Nisichawayasihk Cree Nation.

1

Figure 1.1 CEA 2012 PUBLIC ATTITUDES RESEARCH

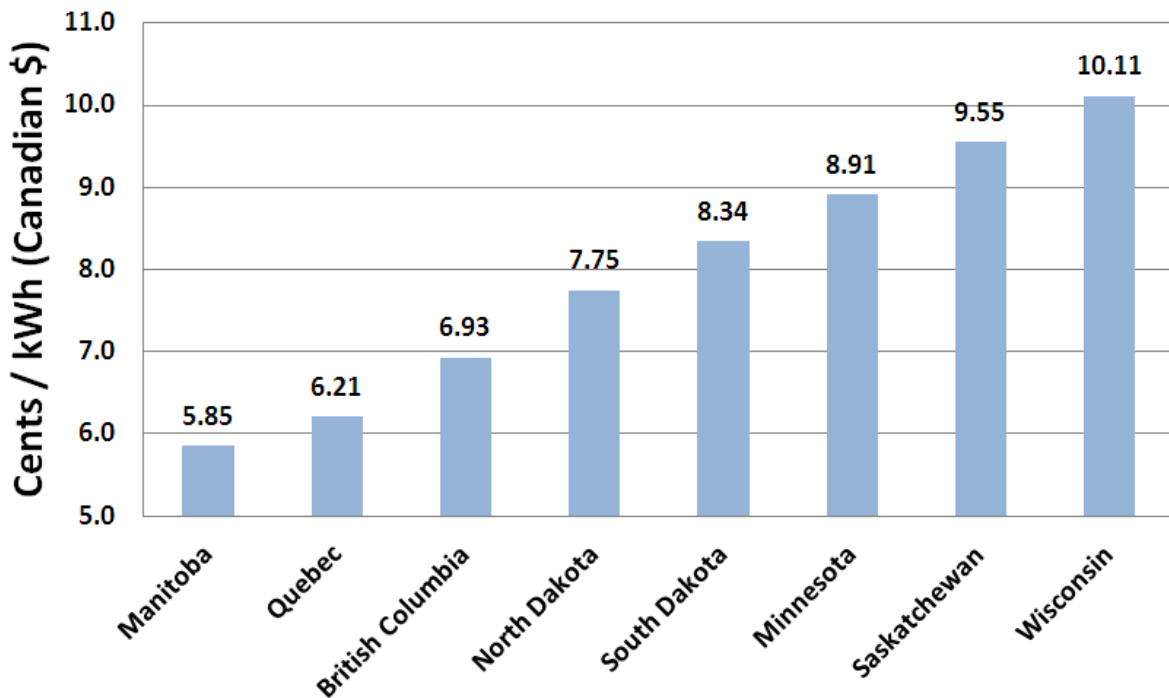


2

3 Manitoba Hydro continues to offer its customers the lowest average retail electricity price in
4 North America. Figure 1.2 below indicates Manitoba Hydro’s current weighted-average retail
5 electricity price for all customer classes as compared to neighbouring jurisdictions.

6

Figure 1.2 AVERAGE RETAIL PRICE OF ELECTRICITY



7

Source: US Dept of Energy (December 2012) & Edison Electric Institute Survey (December 2012)(Exchange rate: 1 US\$ = 1.0156 CDN)

1 Maintaining the financial strength of Manitoba Hydro will ensure that energy rates remain low
2 and predictable; protecting customers from a variety of risks and uncertainties. On an annual
3 basis Manitoba Hydro reviews and sets targets for its key financial indicators—including
4 interest coverage ratio, capital coverage ratio and debt-equity ratio—to ensure financial
5 performance meets the short- and long-term needs of Manitobans. Retained earnings, which
6 represent the equity base and Manitobans’ cumulative investment in corporate reserves, have
7 reached approximately \$2.5 billion.

8
9 Well-recognized by Manitobans for promoting energy conservation efficiency, Manitoba Hydro
10 offers a suite of residential, commercial and industrial DSM programs (Power Smart²) to help
11 customers use electricity and natural gas more efficiently, resulting in improved comfort and
12 lower energy bills. Last year (2012/13), customers reduced their electricity needs by 298 GWh,
13 saving over \$71 million on electricity bills. These reductions in domestic demand defer the need
14 for new Manitoba resources and have contributed to electricity surpluses; these surpluses have
15 been sold on the export market to support lower rates for Manitoba consumers and reduce
16 global greenhouse gas (GHG) emissions.

17
18 Manitoba Hydro is committed to preventing or minimizing any adverse impacts on the
19 environment and enhancing positive impacts, as well as meeting or surpassing regulatory and
20 other requirements. As part of this commitment, Manitoba Hydro has implemented an
21 Environmental Management System (EMS) registered to the ISO 14001 standard. An EMS
22 provides a framework that helps to manage environmental risk and improve environmental
23 performance. The Manitoba Hydro EMS enables identification of environmental impacts, the
24 setting of goals to manage them, implementation of plans to meet those objectives, and
25 evaluation of performance. Such a framework allows Manitoba Hydro to make continual
26 improvements to the EMS and to our environmental performance.

² Manitoba Hydro is a licensee of the Trademark and Official Mark.

1 On the leading-edge among utilities in managing GHG emissions, Manitoba Hydro has been
2 aggressively implementing emission-reduction opportunities for over 20 years. Examples
3 include retiring four Brandon coal-generating units, converting Selkirk coal-generating units to
4 natural gas and extending the electricity grid to remote diesel communities. The low-emission
5 intensity of hydro and wind generation makes exports a valuable resource to help reduce global
6 GHG emissions. In 2012, electricity exports from Manitoba reduced global GHG emissions by
7 6,100 kilotonnes of carbon dioxide equivalent, commensurate with removing 1.2 million
8 vehicles from the road according to estimates of passenger-vehicle emissions from the U.S.
9 Environmental Protection Agency.

10

11 Manitoba Hydro is one of the leading utilities in Canada with respect to Aboriginal
12 representation in its workforce. Currently 17.1% of Manitoba Hydro’s overall workforce and
13 42.2% of the northern workforce is self-declared as Aboriginal. Achievement of employment
14 targets are largely the result of targeted recruitment efforts and programs designed to attract
15 and retain qualified Aboriginal candidates in Manitoba Hydro’s workforce.

16

17 Manitoba Hydro’s diverse set of employees have earned a strong reputation for outstanding
18 customer service under all conditions and in emergency situations. Manitoba Hydro and its
19 employees are woven into the fabric of Manitoba communities, taking leadership roles in local
20 activities and programs throughout the province.

21

22 **1.4.1 Development Principles**

23 To meet Manitoba’s growing energy needs, Manitoba Hydro is implementing solutions that are
24 financially sound, environmentally responsible and economically and socially beneficial.
25 Developing new power resources will allow Manitoba Hydro to continue to provide reliable and
26 cost-effective electricity supply for Manitoba.

1 In terms of development principles, Manitoba Hydro has implemented an approach that
2 recognizes its stewardship role and its responsibility for considering the needs of multiple
3 stakeholders. Today’s approach leverages evolving science and progressive social values,
4 resulting in projects with reduced environmental and social impacts and greater local benefits.
5

6 **1.4.1.1 Integration of Sustainability Principles**

7 Manitoba Hydro recognizes that the economy and the environment are interrelated and
8 mutually dependent. Without a healthy environment, a productive economy cannot be
9 sustained. As well, economic development is required to pay for maintaining, restoring and
10 rehabilitating the environment. Manitoba Hydro follows 13 guiding principles of sustainable
11 development (SD) in all aspects of its operation (see **Appendix J - 10/11 Sustainable**
12 **Development Report**). In support of these principles, the following wide-ranging decision
13 criteria are applied in the assessment of major projects and plans:

- 14 • Economics (e.g. comparative NPV evaluation)
- 15 • Domestic electricity prices, including broader financial criteria
- 16 • Environmental impacts, both biophysical and socio-cultural
- 17 • Affected community acceptance and support
- 18 • Public and political stakeholder acceptance and support
- 19 • Risks and uncertainties
- 20 • Provincial and societal benefits
- 21 • System reliability and energy security.

22

23 **1.4.1.2 Consideration of Environmental Effects**

24 In an era of stringent environmental protection standards for energy operations and new
25 development, Manitoba Hydro incorporates consideration of the environment into its system
26 and project planning processes. Potential environmental impacts (including socio-economic and

1 cultural) are key considerations for project design. Compared to earlier approaches to hydro
2 development, the projects within the Preferred Development Plan will result in:

- 3 • reduced biophysical impacts through, for example, extensive field studies,
4 environmentally influenced siting and general arrangements, forebay clearing, operating
5 regime constraints, fish and terrestrial species mitigation, and the extensive use of
6 Aboriginal traditional knowledge
- 7 • reduced socio-economic and cultural impacts through, for example, intensive pre-
8 construction consultations and studies, joint planning, social and cultural mitigation,
9 infrastructure siting and the use of Aboriginal traditional knowledge.

10

11 Where possible, adverse effects are avoided and any remaining effects either mitigated through
12 remedial works, offset by replacement or substitutions, or compensated for as necessary.

13

14 For example, during planning and design for the Keeyask Generating Station, Manitoba Hydro
15 and the Keeyask Cree Nations (KCN) identified and addressed concerns to avoid, reduce and
16 mitigate project environmental effects. The project selected the lowest reservoir-level option
17 among the feasible options, resulting in the least amount of flooding and operating with a
18 small, one-meter range of reservoir levels. Special precautions will be taken to minimize
19 adverse impacts on fish populations and even create positive effects, particularly for lake
20 sturgeon, and other sensitive aquatic and terrestrial species and habitats (see **Chapter 2 –**
21 ***Manitoba Hydro’s Preferred Development Plan Facilities***). Project effects and mitigation
22 measures will be carefully monitored and adaptive-management plans will be in place to
23 address future issues that might arise.

24

25 **1.4.1.3 Local Community Support**

26 Manitoba Hydro’s innovative and respectful approach to working with local communities,
27 including Aboriginal communities, reduces environmental impacts and increases opportunities
28 for local participation in the economic benefits arising from new development. Development

1 projects are designed to provide local opportunities such that these projects are overall net
2 benefits to communities, for example, opportunities for project-related training, employment,
3 business contracts and income sharing, whether as equity owners or through other structured
4 participation arrangements.

5
6 By engaging with local communities, Manitoba Hydro has gained local and Aboriginal traditional
7 knowledge that enhances project planning and monitoring. For example, the KCN have
8 undertaken and submitted their own project environmental evaluations. A collaborative
9 approach to engagement, which includes provision of resources when required, 'levels the
10 playing field' to ensure communities have the ability to effectively represent their interests
11 about projects, impacts and opportunities.

12

13 **1.4.1.4 Early Planning, Consultation and Review**

14 Given the long lead time required to plan, approve and construct new development, Manitoba
15 Hydro starts its planning process many years prior to the required in-service date for new plant.
16 Early planning, including public consultation and review, is necessary for a variety of reasons:

- 17 • to ensure projects will be ready to meet growing Manitoba electricity demand
- 18 • to ensure the system continues to supply electricity reliably and with optimal use of
19 resources
- 20 • to meet the timeframes and requirements of regulatory bodies
- 21 • to capitalize on emerging opportunities, e.g. additional revenue streams from export
22 sales and the window of opportunity to construct enhanced transmission
23 interconnections
- 24 • to be able to compete in export markets with alternative sources of supply (e.g. coal or
25 natural gas plant in the U.S.)
- 26 • to thoroughly scope environmental and socio-cultural impacts and ways to address
27 these

- 1 • to provide early business and employment opportunities for First Nation members,
2 northern Aboriginal people and other northern and Manitoba workers
3 • to provide more time for project partners and stakeholders to develop their
4 management capacity.

5
6 Over the years, substantial costs have been incurred to address the impacts of past
7 development. Through today's more proactive approach, Manitoba Hydro is working to better
8 define projects up front and minimize adverse impacts and potential future compensation
9 costs. In the long-term, such an investment in planning will result in lower overall project-
10 related costs.

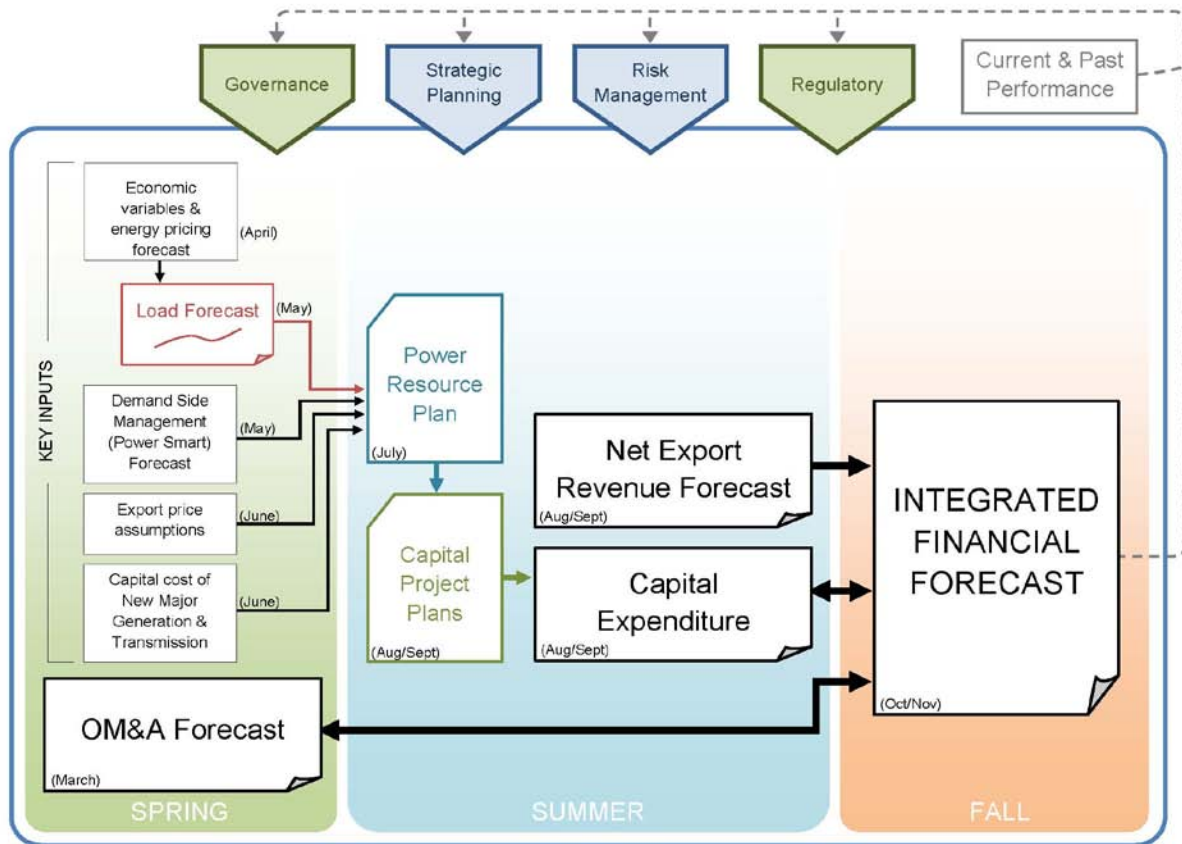
11

12 **1.4.2 Integrated Planning Process**

13 On an annual basis, Manitoba Hydro undertakes an extensive integrated planning process (see
14 Figure 1.3). With consideration given to corporate governance, strategic planning, business
15 planning and risk management, an annual cycle of information gathering, reporting and
16 approvals is incorporated into the Integrated Financial Forecast (IFF).

1

Figure 1.3 MANITOBA HYDRO INTEGRATED PLANNING PROCESS



2

3 **1.4.2.1 Corporate Governance**

4 The affairs of Manitoba Hydro are overseen by the Manitoba Hydro-Electric Board (MHEB)
 5 appointed by the Lieutenant-Governor in Council. The MHEB sits as the official planning
 6 committee for Manitoba Hydro and approves the Corporate Strategic Plan (CSP). The Audit
 7 Committee of the MHEB reviews Manitoba Hydro’s Integrated Financial Forecast (IFF) as well as
 8 the annual Corporate Risk Report.

9

10 The MHEB Chair reports to the Minister Responsible For Manitoba Hydro who in turn reports to
 11 the Manitoba Legislative Assembly. Corporate oversight and recommendations are also
 12 received from the Manitoba Crown Corporations Risk Council, Crown Corporations Standing
 13 Committee of the Legislature, and the Auditor General of Manitoba. Regulatory oversight is

1 provided by provincial agencies (the Public Utilities Board, Manitoba Conservation and Water
2 Stewardship) as well as a number of national and international bodies with jurisdictional
3 responsibilities.

4

5 **1.4.2.2 Corporate Strategic Planning and Business Planning**

6 The CSP (see *Appendix H - Corporate Strategic Plan 2012-2013*) reflects Manitoba Hydro's
7 vision, mission and goals. The CSP is prepared by the Executive management team and the
8 MHEB, and demonstrates Manitoba Hydro's ongoing commitment to maintaining reliable and
9 affordable energy while planning for long-term financial sustainability.

10

11 **1.4.2.3 Corporate Risk Management**

12 As a Crown-owned utility providing an essential and life-sustaining service to Manitobans,
13 Manitoba Hydro employs an extensive management system to address risks that can impact
14 the achievement of its mandate.

15

16 Risks are summarized into risk profiles that include an assessment of the potential impact to
17 Manitoba Hydro using financial, safety, reliability, environmental, or customer value criteria.
18 Risk tolerances are established to identify an acceptable range of variation in performance; if
19 risks are deemed to be outside this range, management action is undertaken to further mitigate
20 the risk.

21

22 Most risk management efforts are focused on reducing the likelihood of negative events
23 occurring. However, Manitoba Hydro also has plans in place to reduce the consequences should
24 a negative event occur, such as drought or tornado. In addition, all safety and reliability risks
25 are managed through strict adherence to design, construction and operating standards and
26 practices, together with extensive public education and employee training programs. A
27 comprehensive Emergency Response Plan is also in place to ensure an effective and
28 coordinated response to possible emergencies.

1 In-depth assessment of the specific risks and uncertainties associated with the Preferred
2 Development Plan and alternatives is provided in **Chapter 10 – Economic Uncertainty Analysis**
3 **– Probabilistic Analysis and Sensitivities, Chapter 11 – Financial Evaluation of Development**
4 **Plans** and **Chapter 15 – Implementation and Risk Management Plan for Preferred**
5 **Development Plan.**

7 **1.4.2.4 Annual Planning Cycle**

8 At the beginning of the annual integrated planning process cycle (Figure 1.3), a number of key
9 input assumptions and forecasts are updated, including:

- 10 • forecast of economic variables (Economic Outlook)
- 11 • forecast of energy prices (Energy Price Outlook)
- 12 • Demand Side Management Forecast (Power Smart Plan)
- 13 • Manitoba Load Forecast
- 14 • Electricity Export Price Forecast
- 15 • major generation and transmission assumptions.

16 All of these inputs are incorporated into the Power Resource Plan analysis.

18 **Annual Power Resource Plan**

19 Through the power resource planning process, Manitoba Hydro assesses the need for new
20 resources, reviews potential resource options, and evaluates new resource development plans.
21 The process and results are documented in the Power Resource Plan. The recommendations
22 define the long-term development plan which best ensures that adequate supply resources are
23 available to meet all firm domestic load requirements together with existing electricity export
24 sale commitments.

25
26 The power resource planning process begins with an assessment of the need for new supply to
27 determine both the timing and capacity and/or energy requirements over a multi-decade
28 planning horizon. Based on this assessment, Manitoba Hydro selects suitable resources from an

1 inventory of potential new resource options and combines suitable resource options into
2 several alternative development plans that cover the entire study period. Each development
3 plan is run through detailed model simulations of the Manitoba Hydro system to determine the
4 water flow-dependent costs and revenues, including variable operating and maintenance
5 expenses, fuel costs and export revenues. These outputs are combined with other costs such as
6 capital, water rentals, fixed operating and maintenance expenses, and are assessed to
7 determine their relative economic and financial attractiveness.

8

9 The Power Resource Plan is updated on an annual basis and supports the annual long-term
10 capital expenditure forecast and IFF. This NFAT submission augments the recommendations of
11 the Power Resource Plan through further economic, financial, uncertainty and socio-economic
12 (multiple-account) analysis.

13

14 **Integrated Financial Forecast**

15 Manitoba Hydro's IFF is a projection of financial statements for the corporation for a minimum
16 10-year period, forecasting the long-term financial direction of Manitoba Hydro based on
17 current assumptions of future events. The IFF integrates projections of load, generation,
18 operations, capital investment, corporate targets, policies, strategic initiatives, revenues and
19 expenses determined in the planning process described in the preceding section, and applies
20 generally-accepted accounting principles. The IFF provides information to stakeholders for use
21 in customer rate-setting, evaluating financial performance, indicating achievement or progress
22 towards financial targets, analyzing variability in key assumptions and evaluating corporate
23 strategic initiatives.

24

25 The IFF uses the results of the Power Resource Plan to determine water flow-related revenues
26 and costs, including export sales, fuel and power purchases, and water rental costs. The results
27 of the load forecast are translated into projected general consumers' revenues. The capital
28 expenditure forecast (CEF) incorporates the assumptions related to new long-term generation
29 and transmission resources required, as well as expenditures required to sustain the existing

1 infrastructure and to meet safety, regulatory and load growth requirements; depreciation
2 expense is determined from the planned in-service of the projects identified in the CEF.
3 Projected operating, maintenance and administration expenditures are determined through the
4 annual budgeting cycle and are extended for the long-term forecast. The total cash
5 requirement is determined by aggregating all of these projections and deriving borrowing
6 requirements, finance expense and revenue requirements.

7
8 In rate-setting, Manitoba Hydro employs a practice of moderate and predictable rate increases
9 to avoid drastic rate changes in any given year. The IFF proposes rate increases, if necessary, in
10 the short-term based on the projected revenue requirement; and, in the long-term, indicates
11 projected average annual customer rates based on achieving a balance of customer sensitivity,
12 financial challenges/opportunities faced by Manitoba Hydro, and maintenance or progression
13 towards financial targets.

14

15 **1.4.2.5 NFAT Submission Planning Assumptions**

16 The detailed resource planning and evaluation required by the NFAT submission reflect
17 corporate decisions made in the fall of 2012 to move forward and seek the necessary approvals
18 for the Preferred Development Plan. Manitoba Hydro's integrated planning process (section
19 1.2.2) starts in the spring with determination of economic parameters and the load forecast,
20 undertakes capital cost estimate updates and resource planning over the summer and ends
21 with the approval of the IFF in November. In consideration of the timing of this planning cycle—
22 and the internal resource intensity required to achieve it—the NFAT submission preparation
23 and evaluation have primarily utilized 2012 planning assumptions, except for primarily
24 downward adjustments to the electricity export price forecast and adjustments to the
25 economic parameters to account for preliminary forecast updates available in late 2012.
26 Uncertainty analysis including probabilistic and sensitivity analysis has also used the 2012
27 adjusted planning assumptions.

1 To recognize the impact of 2013 forecast updates, select development plans have also been
2 evaluated using the 2013 load forecast, electricity export prices, natural gas prices and
3 economic parameters (***Chapter 12 Economic Evaluation - 2013 Update on Selected***
4 ***Development Plans***). The 2013 update also includes a “stress test” to represent either a lower
5 load and/or higher potential DSM levels, testing the impact on the attractiveness of the
6 Preferred Development Plan.

7

8 To evaluate the next step in Manitoba’s electricity future, development plans have been
9 compared to each other. In reality, as forecasts and conditions change, development plans and
10 options are reevaluated and can change over time in response to changes in load growth, DSM,
11 electricity export and natural gas prices, new export contracts and other assumptions.