MANITOBA HYDRO

CORPORATE RISK MANAGEMENT REPORT

THIS REPORT INCORPORATES PRIVILEGED AND CONFIDENTIAL INFORMATION AND IS FOR INTERNAL REFERENCE ONLY

Manitoba Hydro

October 2010

TABLE OF CONTENTS

I. INTRODUCTION

The Corporate Risk Management Report is updated on a regular basis to provide management and other stakeholders with information on the status of major risks facing Manitoba Hydro as it carries out its mandate. The report identifies and assesses each risk, describes activities used to manage the risk and provides estimates of the potential residual impact to the Corporation in terms of likelihood and consequence after mitigation actions have been taken. The Corporation's tolerance for each risk and an assessment of whether the risk is within or outside the desired tolerance level is also provided.

As a Crown-owned utility providing an essential and life-sustaining energy service to Manitobans, Manitoba Hydro has a relatively low tolerance for risk. However, because Manitoba Hydro is also an important economic driver for the Province, some risks are necessary in order to take advantage of opportunities to maximize value for stakeholders.

Manitoba Hydro's business and operational risks are managed through a systematic, proactive and integrated process which is designed to balance the objectives of:

- identifying threats that affect the achievement of the Corporation's mission and mandate;
- mitigating the consequences of negative occurrences; and
- taking advantage of opportunities to provide benefits to all stakeholders.

Most risk management efforts are focused on reducing the likelihood of negative events occurring. However, the Corporation also has plans in place to reduce the consequences should a negative event occur. These plans are under continual assessment to ensure that the Corporation is prepared for emergencies and is ready to respond in an effective and coordinated manner.

Manitoba Hydro's Corporate Risk Management Report is structured to provide the following:

- An overview of immediate or emerging risk issues and actions taken to address those issues.
- A summary of the high consequence risks including:
    - Loss of infrastructure
    - Drought
    - Loss of export markets
    - Interest rates
    - Foreign exchange rates

- A Corporate Risk Map providing a visual depiction of Manitoba Hydro's risks categorized into high, medium and low likelihood of occurrence and the corresponding consequences.
- Corporate Risk Profiles - one page summaries of each of Manitoba Hydro's specific categories of risk.

II. OVERVIEW OF IMMEDIATE AND EMERGING RISKS

The risk landscape at Manitoba Hydro has changed considerably over the past eighteen months. While loss of infrastructure, drought and potential loss of export markets remain as the highest consequence risks for the Corporation, the economic downturn, the major capital expansion program and its dependence on firm export power contracts, and whistleblower impacts on Corporate reputation have emerged as immediate and potentially high consequence risks. The economic downturn is being managed, to the extent possible, through the implementation of cost constraint measures; the major capital expansion program is the focus of comprehensive planning and scenario analysis (see new Risk Profile A.2.8); potential whistleblower impacts are being addressed through ongoing efforts to present Manitoba Hydro as the open, highly ethical and environmentally responsible corporation that it is.

Other emerging issues with potentially high consequence include the following:

- **The advent of economically produced shale gas and its widespread geographic abundance.** Natural gas production levels as of the fall of 2010 are the highest they have been in over 35 years. This is due, in large part, to new supplies of unconventional natural gas from tight shale formations. Over the last 5 years, U.S. gas production has increased 23% with shale gas representing approximately one-fifth of the total production.

  The shale gas phenomenon has had a dramatic impact on the price of natural gas with current prices lower than they were 10 years ago. The extent to which this low price environment will be sustained and its impact on new power generation facilities is yet to be determined. Manitoba Hydro will closely monitor this issue.

- **The regulatory environment.** As described in Appendix A, Section H, Manitoba Hydro requires a variety of regulatory approvals and licenses to carry out its business activities. There is increased risk that regulatory requirements will negatively impact Corporate objectives and efficiency of operations. In recent years, the regulatory burden has increased significantly and has impacted Corporate productivity and, to some extent,

Corporate innovation. Manitoba Hydro will be closely monitoring this important issue in order to promote the appropriate balance between regulatory oversight and Corporate independence.

- **The generation development sequence.** In the event that the preferred development sequence involving Keeyask, Conawapa and the new U. S. interconnection does not proceed, Manitoba Hydro would likely pursue an alternate development sequence. There is increasing risk that, because of transmission uncertainties in the U.S., the major power sales to Wisconsin and Minnesota may not proceed as planned. In this circumstance, Keeyask Generating Station may not be in the sequence as planned and the issue of expenditures to date on Keeyask (totaling approximating $400 million) would need to be addressed. Manitoba Hydro is currently assessing options to deal with this issue.

III. EXTERNAL RISK REVIEWS

Since the publication of the last Corporate Risk Management Report in 2008, Manitoba Hydro has conducted a comprehensive risk management review with the assistance of two external consulting firms – ICF International and KPMG. The conclusions of ICF and KPMG are presented in the following sections:

A. ICF INTERNATIONAL

ICF International was engaged in April 2009 to conduct an independent review of export sales and associated risks. The Terms of Reference for the review were to provide comments and conclusions with respect to:

- The appropriateness, from a long-term business strategy and risk exposure perspective, of Manitoba Hydro entering into long-term firm contracts 20 or 30 years into the future;

- the adequacy of price that Manitoba Hydro derives (or will derive) from export sale transactions (both long-term firm and short-term opportunity sales);

- the risks assumed by Manitoba Hydro in selling long-term firm energy from dependable resources (in consideration of the requirements to meet firm sale commitments during periods of drought);

- the extent to which Manitoba Hydro should be involved in pure merchant energy trading transactions;

- the reasonableness of Manitoba Hydro's quantification of risk exposure related to an extended (5-year) drought; and

- the adequacy of Manitoba Hydro's drought risk mitigation measures.

Based on their independent assessment, ICF had the following conclusions related to the above six terms of reference:

1) MH should be in the power export business based on the benefits provided to the ratepayers and the Province.

2) MH has developed sophisticated structures and capabilities to manage exports and hydro variability; these structures continue to develop and improve.

3) MH has the lowest domestic electricity rates in Canada and North America in part because of exports. Export prices greatly exceed MH's embedded generation costs, and the revenues are used to decrease domestic rates and/or to provide the financial wherewithal to withstand droughts without rate shocks.

4) Proposed new long-term contracts are expected to provide several types of benefits including lower MH rates than would otherwise be the case without the contracts.

5) United States utilities are undertaking new transmission construction to facilitate MH exports. This export driven addition in new transmission can be used to support imports in the case of a drought worse than the worst-on-record.

6) Hydroelectric development, combined with long-term firm contracts, is preferred for Manitoba as it avoids the risks involved in developing fossil power plants.

7) MH has a reasonable and adequate risk mitigation plan. Even in the event of a five-year drought, MH has plans to achieve an equity cushion sufficient to accommodate the reduced cash flow due to drought without having to raise rates.

8) It is appropriate for MH to enter into long-term firm commitments for 20-30 years in the future in the manner in which MH is proposing.

9) The prices proposed for long-term firm contracts appear reasonable and adequate, and MH pricing processes appear adequate.

10) The models used by MH (hydrological forecasting models) are similar to models used by other hydro-electric dependent companies.

11) ICF considers MH's quantification of risk exposure to drought to be reasonable.

12) ICF concludes that MH's risk mitigation strategy related to an extended drought is adequate, and helps meet a key goal of avoiding rate shocks.

B. KPMG

KPMG was retained in November 2009 to carry out an independent assessment of Manitoba Hydro's risk management practices and to address assertions raised by a former consultant of Manitoba Hydro (referred to as the New York Consultant or "NYC"). The scope of KPMG's review was as follows:

- review the assertions that have been made by the NYC and the reports and services provided by the NYC;
- identify the positions of Manitoba Hydro staff on each of the assertions and the services provided by the NYC;
- perform a review and validation study of the merits of the NYC's assertions and services; and
- prepare a report summarizing KPMG's findings

In carrying out its review, KPMG focused on four major themes:

1) Forecasting models;
2) Power sales management;
3) Risk governance; and
4) Power risk management.

In their report issued April 15, 2010 KPMG provided the following **"Key Highlights":**

- There is no material risk that MH is facing bankruptcy as a direct consequence of MH's export sales practices;
- There is no material risk that MH is facing power outages as a direct consequence of MH's export sales practices;
- MH's drought management strategies are prudent in the context of a hydro-based generation system;
- There is no evidence to support an assertion of losses approaching $1 billion;
- MH has prudently utilized a strategy based on entering into long-term contracts and the securing of transmission rights in the development of its system; and
- MH has operated in accordance with its legislative mandate.

With respect to the four major themes, KPMG concluded as follows:

1) Forecasting Models

- MH has developed a suite of models that capture the key characteristics of the MH system. These models are used to help optimize system operations and to support long-term capacity planning;
- MH has taken appropriate care and due diligence in developing and maintaining these models and in using them in its operations planning process; and
- The current approach to forecasting and to calculating dependable energy appears reasonable and is consistent with practices at other North American hydroelectric utilities. It is reasonable to rely on historical flow data for estimating dependable energy.

2) Power Sales Management

- MH has made appropriate strategic choices in entering into long-term fixed price contracts for export power sales;

- MH has appropriately established the firm export volumes in these contracts; and
- MH has an appropriate methodology for arriving at the sales price in such contracts.

3) Risk Governance

- MH's power sales are asset backed. These sales are generally low risk and the MH risk governance policies and reporting relationships, including the role of the Middle Office, are evolving appropriately;
- The Export Power Middle Office is a single, independent, risk management function. It is steadily progressing in terms of its responsibilities for measuring, monitoring, controlling, and reporting the risks associated with Power Sales and Operation's opportunity power sales activity; and
- The Export Power Middle Office is undertaking an initiative to improve its risk analytics capabilities. It requires further resources, supported by risk analytics software that is integrated with MH's energy transaction management system (WebTrader). The timeliness of this risk monitoring will continue to improve with added analytical resources and related technology.

4) Power Risk Management

- Extensive corporate oversight and a deliberate internal review process related to major export contract term sheets;
- Conservative stress testing assumptions and methodology;
- Transaction processing controls consistent with prevailing practices to mitigate human error and operational risk;
- Compliance and risk monitoring performed by an independent middle office; and
- Comprehensive suite of management and performance reports.

KPMG also made a number of recommendations which support continuation of on-going activities for improvements:

- Enhance the functionality and resourcing of the Export Power Middle Office;
- Develop formal identification of all significant risks in policies and procedures;
- Enhance the number of risk tolerance limits;
- Measure market risk exposure of short-term physical positions and credit risk exposures;
- Further document how the pricing was arrived at for export contracts and term sheets, as well as document the approvals of term sheets;
- Continue to further improve the HERMES and SPLASH models;
- Conduct more scenario analyses, stress testing and back testing;
- Formally document the HERMES and SPLASH models; and
- Review its capital structure on a regular basis.

C. MANAGEMENT RESPONSE AND ACTION PLAN

Manitoba Hydro supports the conclusions of ICF International and KPMG as well as KPMG's overall conclusion that "Manitoba Hydro is following sound practices in its use of forecasting models, long-term power sales contracting, risk governance and power risk management." Manitoba Hydro has already implemented several of KPMG's recommendations and is working towards implementing others. The Corporation continues to develop its integrated risk management program and the improvements recommended in the KPMG report will ensure that Manitoba Hydro continues to be aligned with emerging best practices.

IV. SUMMARY OF QUANTIFIABLE HIGH CONSEQUENCE RISKS

The most significant risks facing the Corporation are those rated as high consequence due to the potential magnitude of impact on the Corporation's ability to achieve its mandate and objectives. The high consequence risks are shown in the following table:

RISK	POTENTIAL FINANCIAL IMPACT
INFRASTRUCTURE	
Prolonged loss of supply	> $2 billion
DROUGHT	
Water Supply/Drought	>$2 billion for a 5 year drought
LOSS OF EXPORT MARKET	> 30% of electricity revenue
INTEREST RATES	Approximately $430 million for a 1% change over 10 years.
FOREIGN EXCHANGE RATES	Approximately $125 million for a $.10 US change over 10 years

A. INFRASTRUCTURE RISK

A possible catastrophic infrastructure failure continues to be the most significant risk facing the Corporation and its customers. Potential impacts include prolonged loss of system supply, the inability to maintain minimum energy services, loss of life, severe environmental damage and significant costs to the Manitoba economy. Failure can be caused by a number of factors including an extreme weather event, sabotage, fire, human error and technical malfunction.

By the nature of its business, Manitoba Hydro has an especially low tolerance for infrastructure risk. The tolerance is defined as having no long term system outages, and maintaining compliance with reliability standards. A significant effort is expended on managing this risk in a manner that makes the consequences of a catastrophic event as close to zero as possible.

Risk Treatment

In the short term, actions are continually being taken to enhance emergency response and disaster management processes. In the longer term, major capital projects to improve system reliability and safety are underway. Management actions include:

- System expansion involving Bipole III (2017) and retermination of the 500 kV Interconnection at Riel (2014).

- Additional AC network generation (Wuskwatim, Wind, Kelsey, Kettle AC units).

- Implementation of enhanced physical and cyber security measures.

- Emergency Preparedness initiatives - Plan for managing the available resources, load and system following loss of infrastructure.

- Spare infrastructure material and equipment inventory to enable timely re-building and restoration of potentially affected assets.

- Short term emergency energy agreements with Ontario, Saskatchewan and U.S. Utilities.

- Mutual aid agreements with Ontario, SaskPower and U.S. utilities for labour, materials and equipment.

- Corporate Emergency Response Plan.

- Surveillance inspections, instrumentation monitoring, engineering analyses and condition assessments of dams and dykes within a consequence category framework.

- Systematic utilization of failure modes-based condition assessment techniques.

- Preparation, maintenance, training and testing of Emergency Preparedness Plans.

- Periodic Dam Safety Reviews by independent consultants to examine the adequacy of the design, construction, operation, maintenance, surveillance and emergency preparedness plans for individual facilities.

- Development of business continuity plans.

B. DROUGHT RISK

On average, there is a high likelihood of a drought occurring about once in every ten years. Water supply can be reduced due to drought, loss of hydraulic operating flexibility, changes to water resource regulation outside of Manitoba and/or climate

change. The cost of a repeat of the worst five year drought on historic record is estimated to be greater than $2 billion (depending on the year of drought commencement).

Manitoba Hydro is subject to significant price risk on power and gas purchases during a drought. Under lowest flow conditions, the Corporation may have to generate about 3 million MWh from gas-fired generation and purchase in excess of 7 million MWh from the market. Additional price risk has been estimated at $350 million depending on gas price assumptions.

Risk Treatment

The Corporate objective is to have adequate retained earnings to protect against a repeat of the worst drought on record. At March 31, 2010 retained earnings totaled $2.2 billion (an all-time record high for Manitoba Hydro). Based on Manitoba Hydro's financial forecasts, retained earning will continue to grow and should reach close to $4 billion over the next 10 years. It should be noted, however, that while drought is a major quantifiable risk, an adequate level of retained earnings is required for more than drought alone.

Manitoba Hydro's generation and transmission facilities are designed and operated to ensure firm demand can be supplied given a repeat of the lowest river flows since 1912. A drought more severe than the worst on record could occur and would require non-normal operations. This may include operating reservoirs outside of the normal range for power production. For example, the Lake Winnipeg Regulation Water Power License provides for operation below the minimum level for power production limit with approval from the Minister of Conservation. Non-normal operation may also include demand reduction measures such as public appeal for conservation, enforced conservation or rotating reductions of non-essential load. Actions to manage drought will depend on the duration and severity of drought and conditions at the time.

The Corporation has participated in a number of research initiatives, using both statistical techniques and techniques that employ indicators of past extremes such as tree-rings and lake sediments. This research aims to define the probability of recurrence of the worst drought on record and the likelihood of more extreme drought events.

Manitoba Hydro plans to serve its firm export contracts from its surplus dependable supply, which is that available under a repeat of the lowest historic flow conditions. Should flow conditions be worse than the lowest on record, Manitoba Hydro has the contractual right to curtail firm export deliveries in order to serve Manitoba load first.

C. EXPORT MARKET RISK

Manitoba Hydro derives over 1/3 of its revenue from export sales (under median water flows) and the potential loss or reduced access to export markets is a major risk. The impact of this risk would be significantly reduced net export revenue and could result in underutilization of the Corporation's generating facilities. Loss of export markets would also result in significantly higher domestic rates to offset the loss of revenue from the export market.

Risk Treatment

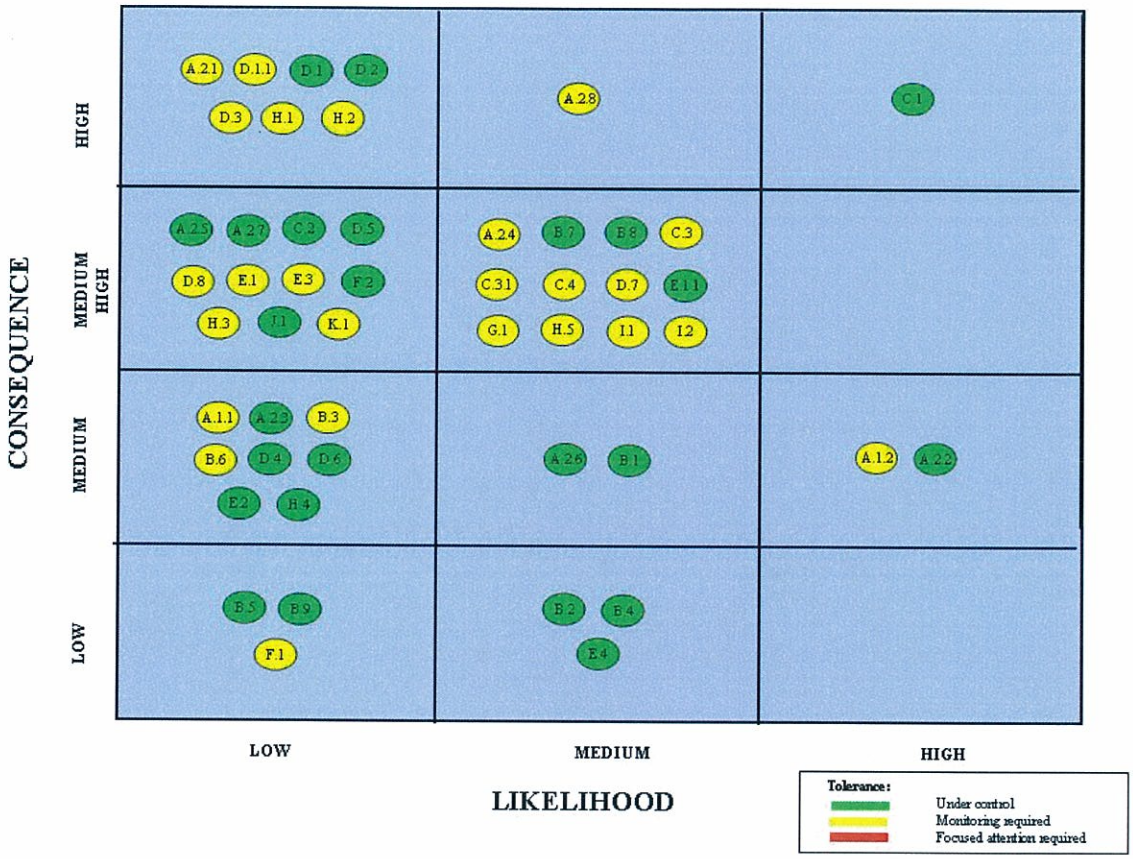
Manitoba Hydro continues to actively work to mitigate and manage market uncertainties. In alliance with other industry participants such as the Canadian Electricity Association, MISO, and Transmission Owners, Manitoba Hydro continues to lobby MISO, IESO and FERC to develop market rules that support the elimination of barriers to trade and facilitate full participation by Canadian electrical energy producers within the US markets. Manitoba Hydro also engages in extensive lobbying efforts in the US to promote waterpower as a clean, reliable and renewable source of energy and to counter special interest groups as may be deemed necessary.

Manitoba Hydro continues to develop specialized contractual relationships with Regional Transmission Operators (RTOs) in the US which allows co-ordination and comparability in operations and tariffs while maintaining Manitoba Hydro's sovereignty requirements. The Corporation is also pursuing increased diversity in its export markets to reduce singular market dependency.

V. CORPORATE RISK MAP

The following Corporate Risk Map illustrates the results of the residual risk assessment for all risks using the rating criteria provided in Appendix B.

CORPORATE RISK MAP



A. Market
1. Domestic
    1. Competition
    2. Uneconomic Loads
2. Export
    1. Regulatory Environment
    2. Competition
    3. Transmission
    4. Special Interest Groups
    5. Protectionism
    6. Domestic Requirements
    7. Commodity Availability
    8. Term Sheets with WPS and MP

B. Financial
1. Exchange
2. Interest Rates
3. Credit
4. Inflation
5. Gas Price Volatility
6. Gas Derivative Instruments
7. Capital Structure
8. Shortage Pricing / Fuel Price Volatility
9. Power Financial Instruments

C. Environmental
1. Water Supply/ Drought
2. Climate Change / Water Resources
3. Operational Impact and Infrastructure
    1. Legal - Species at Risk Act
4. Reliability of Supply

D. Infrastructure
1. Loss of Plant (all property, all perils)
    1. Dam and Dyke Structures
2. Insufficient Supply (drought peril)
3. Prolonged Loss of System Supply
4. System Shutdown (Short Term)
5. System Shutdown (Natural Gas - S.T.)
6. Technology
7. Special Interest Groups.
8. Emergency Management Program

E. Human
1. Safety and Health
    1. Infectious Disease
2. Union / Employee Issues
3. Succession Planning
4. Technology

F. Business Operational
1. Supply Chain
2. Operational Controls

G. Reputation
1. Reputation

H. Governance / Regulatory / Legal
1. Regulation and Licensing
2. Export Market Access
3. Legal Compliance
4. Contracts and Ventures
5. NERC/MRO Reliability Standards

I. Aboriginal
1. Relationships
2. Legal

J. Emerging Energy Technologies
1. Emerging Energy Technologies

K. Strategic
1. Strategic Direction and Implementation

CORPORATE

RISK PROFILES

RISK PROFILE INDEX

D. INFRASTRUCTURE

E. HUMAN

F. BUSINESS OPERATIONAL

G. REPUTATION

H. GOVERNANCE / REGULATORY / LEGAL

I. ABORIGINAL

J. EMERGING ENERGY TECHNOLOGIES

K. STRATEGIC

Likelihood	Low
Consequence	Med
Tolerance	Med

CATEGORY: A. Market

TITLE: 1.1 Domestic – Competition

RISK: Increasing competition may result in a reduction of domestic market share.

DESCRIPTION:

Over the past few decades, the energy utility industry has seen some structural changes with these changes varying somewhat throughout North America. Within these changes, there has been some movement towards creating a more competitive energy services environment with customers having a choice of energy supplier and more choice in energy products (e.g. time of use rates/green energy with electricity, fixed price products with natural gas and a carbon neutral option).

In Manitoba Hydro's service areas, customers have a choice in their primary gas supplier and no choice with all other electricity and natural gas related services. With respect to primary gas, competition is quite limited with only one broker [redacted] offering primary gas service within the SGS market and with Manitoba Hydro recently increasing its product service offerings to include fixed-price primary gas products. Currently, a significant number of natural gas residential customers (approximately 20%) have entered into contractual arrangements with brokers involving four to five year terms to deliver their primary gas needs

Although Manitoba Hydro enjoys a significant monopoly environment within the electricity and natural gas utility market, pressures may arise in the future which may change this situation. For this reason, the Corporation is exposed to risks associated with market share loss. Recently, some regions including Manitoba have reassessed their respective market structures involving primary natural gas services. During 2007, following a review of the competitive landscape of the natural gas market in Manitoba, the Manitoba Public Utilities Board (PUB) concluded that it was not satisfied with the service options and pricing of options currently available to Manitoba consumers for primary gas service. As a consequence, the PUB ordered Centra, a subsidiary of Manitoba Hydro to file a comprehensive proposal to enter the fixed-price primary gas market. In 2009, Manitoba Hydro started offering consumers the choice of 1, 3 or 5 year fixed-price primary gas products with the price and offering varying during various marketing periods.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Enhanced competition in the natural gas business would impact Manitoba Hydro's strategic goal of providing customers with exceptional value and meeting its target market share in natural gas (i.e. greater than or equal to 60% of commodity sales). Loss of market share would have a negative impact on the Corporation in terms of realizing the benefits and synergies associated with serving a larger customer base.

Introduction of competition in the electric business would impact Manitoba Hydro's implicit business strategy of being the sole supplier of electricity in Manitoba. This would result in the loss of synergies associated with being an integrated company and those benefits provided through economics of scale.

RISK TREATMENT:

The risk associated with this category is managed through all of the Corporation's strategic goals and actions. These initiatives are dynamic in nature and are outlined within the Corporation's Strategic Plan.

Likelihood	High
Consequence	Med
Tolerance	Med

CATEGORY: A. Market

TITLE: 1.2 Domestic – Uneconomic Loads

RISK: Manitoba Hydro's low electricity rates could attract energy intensive industries with little or no economic payback to the province of Manitoba.

DESCRIPTION:

Manitoba Hydro's rates to Manitoba consumers are based on the embedded cost of its operations less a credit for net export revenues. Manitoba Hydro is one of the lowest cost producers in the world, with substantial sales into export markets at prices which reflect the real value of electricity. As a result, domestic rates for all customer classes are normally substantially below market rates and marginal costs of production and delivery, a policy that is driven by the goal of providing economic benefits to Manitobans. However the economic benefits of energy-intensive industry locating in the province because of these low rates may not be commensurate with the foregone revenue. In simple terms, a MW of load diverted from the export market to domestic energy intensive industry normally reduces Manitoba Hydro's annual net income by approximately $200,000. It is not apparent that other benefits to the province, such as taxes and employment derived from energy-intensive industry, outweigh the losses due to foregone export revenue. In recent years energy intensive loads have been added at an average rate of at 50 MW per year, and significant expansions are being considered.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Continuing substantial expansion of energy intensive industry at current rates has the potential for adverse affects on attainment of the following strategic objectives: 1) Improve Corporate Financial Strength. Diverting exports to serve domestic load at current rates results in reduced annual net revenues to the Corporation 2) Maximize export power net revenues; and 3) Maximize wealth and jobs per MW of industrial load.

RISK TREATMENT:

In an Application to the Public Utilities Board, dated September 30, 2008, Manitoba Hydro proposed charging a rate which approximates marginal cost to load expansions which exceed a certain percentage, but will not apply to loads which use less than 100 GW.h of energy annually or which provide government infrastructure or services. The PUB issued an Order in July, 2009, which denied Manitoba Hydro's Application. The PUB found merit in the general proposal to charge a higher rate to load expansions, but could not support many of the specific provisions and directed Manitoba Hydro to re-apply for the rate with modified provisions as directed by the PUB.

Since the Application was filed in September, 2008, there has been a significant change in economic conditions such that market prices for surplus energy have declined and the prospects for load increases in the near term have lessened. A revised Energy Intensive Rate was filed in February 2010. Subsequent to the filing of the Application, Manitoba Hydro agreed to meet with individual customers and with MIPUG (the group that represents large industrial customers before the PUB). These consultations are ongoing and an acceptable tradeoff among three objectives (maximizing the value of Manitoba Hydro's energy, facilitating economic growth in the province, and having the rate perform as a general conservation rate) has not been found. Manitoba Hydro is currently exploring Time of Use rate concepts which would have the virtue of providing an appropriate price signal during the peak period, which is the most sensitive period for export sales.

Likelihood	Low
Consequence	High
Tolerance	Low

CATEGORY: A. Market

TITLE: 2.1 Export – Regulatory Environment

RISK: Changes in regulation in the U.S. or in Canada could restrict access to the export market.

DESCRIPTION:

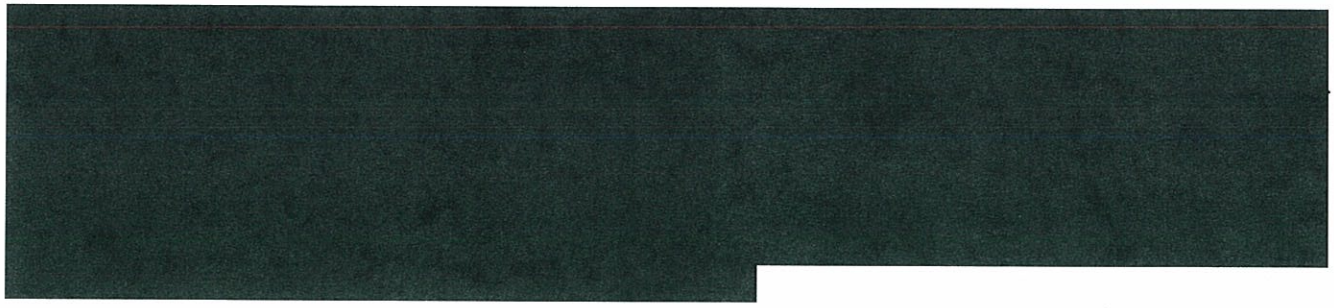
Unfettered market access is key to the Corporation's ability to maximize export revenues. Regulatory and/or industry change both in Canada and the US is considered to be a fundamental export market risk. This risk may lead to increased costs for external suppliers or limits to market access because reciprocity rules conflict with the legal requirements governing the Corporation or because of discriminatory treatment against Manitoba Hydro. Entities that influence or are responsible for these issues include MISO, IESO, AESO, FERC, NERC, MRO, NAESB, Provincial and Federal Industry and Trade departments and the CEA.

This risk profile is related to Export Market Access, Governance / Regulatory / Legal (H.2). Collectively, market access risks are legal, regulatory, or structural issues which could prevent or restrict Manitoba Hydro's surplus power from reaching a competitive marketplace.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The prime impact of this risk is reduced net revenue from the export power market. Similarly, the business case for new merchant plant would also be at risk. Furthermore, changing market structure and access rules may require both legal and organizational change (e.g. to adhere to reciprocity requirements of the export market).

RISK TREATMENT:



Likelihood	High
Consequence	Med
Tolerance	Med

CATEGORY: A. Market

TITLE: 2.2 Export – Competition

RISK: Increasing competition from other generation resources will result in a reduction of export prices and revenue.

DESCRIPTION:

New technology, cost reductions or potential subsidies to various competing generation resources in Manitoba Hydro's export market may put downward pressure on the market price and result in lower than expected export revenues and/or reduced demand for our products.

This risk profile is related to J.1 Emerging Energy Technologies

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The impact of this risk is reduced net revenue from the export power market. Downward pressure on the market price will also negatively impact the business case for new merchant generation.

RISK TREATMENT:

The Corporation continues to promote waterpower as a clean, reliable and renewable source of electricity. By maintaining a positive image, we are seen as a responsible, competitive alternative to new technology or other renewable energy sources available in the market.

Likelihood	Low
Consequence	Med
Tolerance	Low

CATEGORY: A. Market

TITLE: 2.3 Export – Transmission

RISK: Reduction in transmission interconnection capacity will reduce export revenue.

DESCRIPTION:

Available interconnection capacity is key to market access and to maximizing export revenues and reducing import purchase costs. US industry change, infrastructure changes, load growth and operating reserve requirements on the interconnected grid specifically in the U.S. can lead to derated available interconnection capacity. Reduced export capacity limits the volume of sales during high value times. Furthermore, limited export capability results in an increase in the volume of spilled energy during high water years. Reduced import ratings would cause significant increased costs during low flow or high demand periods. Under these conditions, the Corporation would be forced to import energy during higher priced shoulder or on-peak periods.

Entities that influence this risk include IESO, HydroOne, SaskPower, MISO and other non-MISO Transmission Owners.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The prime impact of this risk is reduced net revenue from the export power market.

RISK TREATMENT:

The Corporation endeavors to maintain a leadership role in and influence the policies and processes of the organizations and bodies in the USA involved with congestion management and operating reserve processes and those involved with transmission planning approvals. Manitoba Hydro staff also takes a leadership role in the activities associated with the formulation of transmission transfer limits for those facilities that may influence MH transfers with the USA. This activity occurs in a cooperative fashion (peer reviewed) with MISO, our tie line partners, and MAPP. Manitoba Hydro mitigates this risk by having skilled, knowledgeable staff representing the Corporation's interests at industry meetings.

In order to maximize transfer capability for commercial use, Manitoba Hydro participates in reserve sharing agreements (currently with MISO through its coordination agreement). The benefits of reserve sharing agreements to Manitoba Hydro include increased transmission and generator availability for commercial use. New export sales opportunities are being pursued partly as a means to access non interconnections to markets.

Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: A. Market

TITLE: 2.4 Export – Special Interest Groups

RISK: [redacted]

DESCRIPTION:

A positive corporate and product image enables the Corporation to maximize export sales opportunities and to develop generation and transmission projects required for the exports. [redacted]

Aspects of this risk profile parallel Achievement of Strategic and Operational Goals, Reputation / Image (G.1).

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

[redacted]

RISK TREATMENT:

[redacted]

Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: A. Market

TITLE: 2.5 Export – Protectionism

RISK: [redacted]

DESCRIPTION:

[redacted]

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The impact of this risk would be reduced net revenue from export power sales. [redacted]

RISK TREATMENT:

[redacted]

Likelihood	Med
Consequence	Med
Tolerance	Med

CATEGORY: A. Market

TITLE: 2.6 Export – Domestic Requirements

RISK: Significant increases in domestic load will reduce export sales.

DESCRIPTION:

There is financial risk associated with uncertainty in the domestic load forecast. Higher than forecast domestic load will result in lower net revenues as unit revenues from the export market generally exceed those from the domestic market. In addition, long-term export sales and merchant generation facilities may not achieve the expected rate of return. Sustained higher load growth may drive the need for new power resources.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The prime impact of this risk is reduced corporate net revenues, as lower export revenues will not be fully offset by increased domestic revenues

RISK TREATMENT:

The Corporation is protected against load forecast inaccuracies by appropriately distributing sales commitments over the complete range of power sales time horizons from long term down to real time. During periods of low energy surpluses the effects of medium-term load forecast inaccuracies are managed by the maintenance of increased operating reserves. In the very near term operating reserves provide some protection against various operating uncertainties including load forecast uncertainty. Similarly, working reserves are maintained in forebay storage to allow for short-term forecast variations.

The system load forecast and IFF are updated annually to reflect any changes in long-term domestic demand due to factors such as energy pricing, economic activity, population and housing, among others. In the medium term, Hydraulic Operations tracks the agreement between actual demand (normalized for weather) and the system load forecast and accounts for any consistent bias when scheduling resources. In the long term, Resource Planning & Market Analysis considers higher and lower load forecast scenarios along with the base load forecast when preparing resource development plans or long-term contract recommendations. Revisiting the resource plan every year provides an opportunity to react to changes in load growth and plan for the most economic means to meet it.

.

Likelihood	Low
Consequence	M High
Tolerance	Med

CATEGORY: A. Market

TITLE: 2.7 Export – Commodity Availability

RISK: Upstream reservoir and water usage patterns change impacting water supplies and hydraulic generation.

DESCRIPTION:

Reduced water supply is a fundamental risk to the financial position of the Corporation. The peril associated with this risk is that future water supplies are on average lower, as a result of upstream reservoir regulation changes and water diversions for irrigation or other purposes.

The risk profile is related to risk profile C.2. Climate Change/Water Resources.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Upstream regulation that affects the timing of inflows and diversion or extraction of water for irrigation or other purposes can limit the Corporation's ability to generate hydroelectric energy thereby increasing operating costs and reducing net export revenues. In addition it can make the development of new hydraulic generation less economic and cause the advancement of future generation in-service dates.

RISK TREATMENT:

Since the upstream regulation is often influenced by outside entities such as Canadian Provincial and Federal Government, U.S. State and Federal Government, and other water resource management entities, Manitoba Hydro participates where possible with these entities. Manitoba Hydro participates in the Lake of the Woods Control Board process and can influence decisions of the Prairie Provinces Water Board. Manitoba Hydro is also a member of Canadian Hydropower Association and participates in other organizations that have hydroelectric affiliations that can lead to discussions and cooperation.

The Corporation maintains a record of long-term streamflow data from 1912 to present which has been modified to reflect current use patterns accounting for increased consumption and regulation strategy changes upstream. This record is regularly updated for resource planning purposes.

Likelihood	Med
Consequence	High
Tolerance	Med

CATEGORY: A. Market

TITLE: 2.8 Export – Term Sheets with WPS and MP

RISK: Failure to convert WPS and MP Term Sheets into Power Sales Agreements.

DESCRIPTION:

There is a risk that the power sales envisaged in the Term Sheets with WPS and MP will not be finalized. Binding contracts are dependent on whether both companies can afford their allocation of the costs of a new major transmission line in the US.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Without a commitment by WPS and MP to funding the US portion of the major new transmission interconnection, the sales will not be feasible. Manitoba Hydro's long term operating and financial opportunities would be adversely impacted.

The preferred development sequence involving Keeyask, Conawapa and the new US interconnection would not be possible and a new development plan would have to be pursued. In the longer term, Corporate revenues would be substantially reduced, system reliability and energy supply security would be reduced, and customer rates would need to be increased.

RISK TREATMENT:

Manitoba Hydro is working closely with relevant utilities, MISO, regulatory authorities and others in the US to promote the project and include it in the 2011 MISO Transmission Expansion Plan as a Multi-Value Project with associated broad based cost socialization.

Manitoba Hydro continually assesses and maintains back-up options it can pursue in the event the preferred development plan becomes impractical.

Manitoba Hydro continues dialogue with MP and WPS and other potential purchasers who might be interested in the event that the Term Sheets with WPS and MP are not converted into Power Sales Agreements.

Likelihood	Med
Consequence	Med
Tolerance	Med

CATEGORY: B. Financial

TITLE: 1. Exchange

RISK: Fluctuations in foreign currency impact financial performance.

DESCRIPTION:

Exchange risk is the risk of economic loss due to unfavourable foreign exchange movements for any transaction denominated in a currency other than Canadian funds. This exposure is predominantly in United States dollars ('USD') resulting from U.S. electricity exports, electricity imports, and USD long-term debt.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Manitoba Hydro has exposure to U.S. dollar foreign exchange rate fluctuations primarily through the sale and purchase of electricity and fuel in the U.S. This exposure is managed through a long-term natural hedge between U.S. dollar cash inflows from export revenues and U.S. dollar cash outflows for long-term debt coupon and principal payments.

In the current year's offset strategy, temporary fluctuations in net USD electricity exports create the risk of having a USD short or long position in which USD cash outflows for power purchases, thermal fuel purchases and interest payments will exceed or be less than USD cash inflows. These short or long positions would be exposed to fluctuations in the USD/ CAD exchange rate.

RISK TREATMENT:

Manitoba Hydro's Exposure Management Program (EMP) matches cash outflows for U.S. debt (principal and interest) to cash inflows from net export sales (export sales net of fuel and power purchases). As a means to bridge temporary timing differences between inflows and outflows of U.S. dollar requirements, the Corporation utilizes various financial instruments (foreign exchange contracts, debt, investments, swaps etc.). Derivative foreign exchange forward contracts are used as hedging instruments in a cash flow hedge. As of March 31, 2009, the fair value of these contacts was $12 million.

The Corporation has cash flow hedging relationships between U.S. long-term debt balances and future U.S. export revenues. Accordingly, foreign exchange translation gains and losses for U.S. long-term debt obligations in effective hedging relationships with future export revenues are recognized in Other Comprehensive Income (OCI) until future hedged U.S. export revenues are realized, at which time the associated gains or losses in Accumulated OCI (AOCI) are recognized in net income.

Manitoba Hydro has fair value hedging relationships between U.S. long-term debt balances and U.S. sinking fund investments. Offsetting foreign exchange translation gains and losses on these items are recognized in net income.

Likelihood	Med
Consequence	Low
Tolerance	High

CATEGORY: B. Financial

TITLE: 2. Interest Rates

RISK: Changes in interest rates impact financial performance.

DESCRIPTION:

Interest rate risk is the risk that increases in short and long-term interest rates will result in additional interest costs for Manitoba Hydro.

Manitoba Hydro's short-term borrowing program and floating rate long-term debt portfolio have interest rates that are reset periodically based upon short-term interest rates in Canada and the United States. These short-term borrowings and the floating rate long-term debt portfolio are subject to the risk of increases in short-term interest rates.

Manitoba Hydro issues long-term financing to fund the shortfall of internally generated funds versus investment requirements, and to refinance existing long-term debt. These financing requirements are subject to the risk of increases in long-term interest rates. As well, Centra Gas is subject to interest rate risk on the floating rate portion of the intercompany advances.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

A one-percent increase in interest rates on Manitoba Hydro's long-term floating rate and short-term borrowing as at March 31, 2010 would impact net income by approximately CAD $15.0 million (floating rate debt portfolio subject to interest rate sensitivity is $1.5 billion at March 31, 2010).

A one-percent increase in interest rates on Manitoba Hydro's consolidated financing requirements over the next three year period would have an annual impact on financing costs of CAD $6.6 million, CAD $6.0 million and CAD $12.5 million respectively.

A one-percent increase in interest rates on Manitoba Hydro's floating rate component of intercompany advances to Centra Gas would result in an annual impact on financing costs of CAD $0.2 million, $0.2 million and $0.8 million over the next three year period.

RISK TREATMENT:

Manitoba Hydro's floating rate debt cannot exceed 30% of total debt and has a current target range of 15 to 25%. Manitoba Hydro utilizes fixed rate debt financing and interest rate derivatives to manage interest rates and the level of floating rate debt. Interest rate derivatives are executed by the Province of Manitoba on behalf of Manitoba Hydro and are structured such that Manitoba Hydro pays a fixed or floating semi-annual interest on a specified notional amount of debt. The counterparty (strong credit quality banks) to the interest rate swap is obligated to pay the opposite (fixed rate if Manitoba Hydro is paying floating, or floating if Manitoba Hydro is paying fixed). These swap transactions are mirrored to the interest payment dates of the underlying debt obligation, and thus can be effectively used to manage the floating rate debt portfolio or utilized to fix the interest rate on an upcoming financing/ refinancing requirement. Adequate retained earnings provide a means to smooth out annual fluctuations in net income due to the use of floating rate instruments.

Likelihood	Low
Consequence	Med
Tolerance	Med

CATEGORY: B. Financial

TITLE: 3. Credit

RISK: The Corporation is exposed to financial loss through credit default.

DESCRIPTION:

Credit risk is the risk of financial loss due to a third party defaulting on its short or long-term contractual obligation. Manitoba Hydro's gas and electric operations are subject to credit risk from counterparties defaulting on extraprovincial sales, domestic energy sales from customers, the replacement risk of prematurely terminated long-term export sales contracts, physical gas supply activities, and from financial instruments used to manage gas price volatility (see B.6) and interest rate risk.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Manitoba Hydro's credit risk exposure from monthly export sales can peak at approximately CAD $72 million of which approximately $32 million may be [redacted] for a 1.5 month timeframe as receivables are normally settled 15 to 20 days after the end of the month. In addition to the financial settlement risk associated with current receivables, credit exposure on the market price risk of long-term export contracts fluctuates depending on current and future market conditions.

Manitoba Hydro's accounts receivable for energy bills outstanding in excess of 60 days is approximately $23.5 million. Of this amount, $21 million relates to electric operations and $2.5 million to gas operations. For the electric operations $15 million is associated with amounts outstanding in [redacted], and agreements exist with the [redacted] in most cases.

Gas derivative instruments used to manage gas price volatility (see B.6) have projected credit exposure of not greater than $100 million per counterparty. Derivative instruments used to manage interest rate risk have projected credit exposures of up to $100 million per counterparty.

RISK TREATMENT:

Manitoba Hydro evaluates the financial status and credit rating of existing and potential electricity export customers, physical gas supply counterparties, and derivative counterparties to determine the amount of credit to be extended. The financial condition and credit ratings of counterparties are monitored in order to adjust credit limits for changes in creditworthiness. Transactions to reduce credit exposure on interest rate derivatives are executed whenever the mark to market position exceeds limits or the credit worthiness of the counter-party becomes a concern. Credit risk for domestic energy sales is managed through various reporting, control and collection procedures for overdue accounts. In addition, Manitoba Hydro continues to negotiate with [redacted] to resolve the outstanding accounts receivable balance in conjunction with mitigation issues.

Likelihood	Med
Consequence	Low
Tolerance	Med

CATEGORY: B. Financial

TITLE: 4. Inflation

RISK: Increases in inflation rates result in cost increases which the Corporation is forced to recover through increases in domestic customer rates.

DESCRIPTION:

Manitoba Hydro expends upwards of $1.5 billion annually for its routine operating costs, major capital projects and fuel and power purchases. Increases to these costs impact the rate of inflation and in turn, result in higher costs to the Corporation. On the revenue side, the Consumer Price Index (CPI) is also used as a benchmark to determine the reasonableness of general rate increases for electricity and for the non-commodity portion of natural gas rates. The U.S GDP implicit price deflator is one of the factors used in forecasting future export prices in the opportunity market. Other inflation indices are also used in purchasing and sales contracts. Manitoba Hydro's purchases from outside of North America are also subject to inflation risk in these other areas.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The impact of a short duration period of inflation on the achievement of Manitoba Hydro's financial objectives and the goal to maintain low rates has historically been relatively small as a large portion of costs are capitalized, spreading the impact out over a longer period of time. However, as capital requirements grow for system improvements and expansion, the effects of sustained high inflation, especially in the construction industry, are more marked. Although overall economic activity has slowed globally in recent experience, the prices of commodities such as steel and copper used in plant construction have remained high primarily due to global demand. These sustained higher costs display resiliency to downward pressures such as reduced electricity consumption. Higher construction and operating costs driven by increases in aggregate demand both domestically and internationally may have substantial impacts on the costs and economic benefits of capital projects. Prolonged higher levels of inflation will begin to have a more significant impact if export prices do not reflect the same inflationary trends in concert with rising expenses and the costs of new plant coming into service. Inflation rates in Canada and in the US, the main export market, tend to follow similar long-run patterns, but can deviate in the short-term. Higher levels of inflation for Manitoba Hydro's costs which are not offset by similar increases in export revenues could place pressure on domestic rates for electricity and/or gas.

RISK TREATMENT:

To the degree that export revenues rise as a result of corresponding increases in inflation in export markets, they can provide an offset to the higher costs of labour and materials. The Corporation's budgeting process also typically imposes limits of inflation or less on baseline spending plans. The future impacts on consumer rates due to higher capital costs will depend in part upon the long term price growth of energy exports.

Likelihood	Low
Consequence	Low
Tolerance	Med

CATEGORY: B. Financial

TITLE: 5. Physical Gas Price Volatility

RISK: A significant increase in the commodity cost of natural gas considered ineligible for hedging could result in an adverse reaction from customers.

DESCRIPTION:

The Cost of Gas component of the customers' sales rates represents approximately 70% of Centra Gas's total overall costs. Manitoba Hydro buys Alberta sourced gas at a fairly constant level over the course of the year, with the winter gas flowing directly to customers and much of the summer gas flowing to storage. In the winter months, the gas flowing from Alberta is supplemented by gas back-hauled from storage. However, in the more extreme weather circumstances in the winter months, extra gas must be purchased and delivered to Manitoba from both the Oklahoma supply basin in the U.S. or under the terms of a Delivered Service arrangement. These supplies are known as supplemental gas supplies. While it is possible to hedge the pricing of the baseload primary gas supply hedged on the monthly index, amounting to approximately two-thirds of the overall load, it is not possible to hedge the primary swing gas hedged on a daily index or the supplemental gas, as the need for those quantities is not certain.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Financial - Because it is not possible to hedge the price associated with the primary swing gas or the supplemental gas, Centra is exposed to the risk of extreme prices when there is a need to purchase swing gas and supplemental gas. However, due to a reduction in customer usage, largely attributable to customer's conservation efforts, the requirement for supplemental gas has been significantly reduced. The financial exposure to the Corporation is minimal because Gas Supply enters into special supply arrangements to mitigate any remaining price risk. Additionally, the Cost of Gas is considered a flow-through for rate-setting purposes and follows a prescribed regulatory process.

Reputation - If this extreme price risk was not covered off, the Corporation could experience an adverse reaction from customers because of their exposure to a sharp increase in the cost of gas.

RISK TREATMENT:

The inability to hedge the primary swing gas volumes is not considered material and not contracting for supplemental gas on a firm basis is the most cost-effective way to serve the Manitoba market at this point. The potential risk exposure of not contracting for supplemental gas has largely been eliminated due to shrinking market requirements. The minimal residual risk is mitigated in advance through the process of entering into short-term special supply arrangements, to the extent possible. The Company is currently performing a comprehensive analysis of the optimum suite of assets to cost effectively serve the changing characteristics of the Manitoba load.

Likelihood	Low
Consequence	Med
Tolerance	Med

CATEGORY: B. Financial

TITLE: 6. Gas Derivative Instruments

RISK: By their nature, derivatives have various risks (eg. Regulatory, market, operational) associated with them which must be managed.

DESCRIPTION:

Manitoba Hydro has had a Primary Gas Derivatives Hedging Policy in place which specifies the manner in which derivative instruments will be used to manage natural gas market price risk. for both Primary Gas Rates to be Adjusted Quarterly and Fixed Rate Primary Gas Service. For fixed-rate offerings, the Corporation will have hedges in place for 100% of estimated sales volumes. For gas rates to be adjusted quarterly, MH has hedges in place for various levels of eligible volumes for the ensuing 12 months. There is currently some uncertainty with regard to hedging practices for the quarterly rate service as the Public Utilities Board had ordered that the program be wound down in July, 2010. The Corporation subsequently filed a Review and Vary request to have the program reinstated which has been denied by the PUB.

The principle risks associated with Manitoba Hydro's use of natural gas derivatives include regulatory risk, marketing risk, operational risk and credit risk.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES

The Corporation is exposed to the following financial and reputation risks: (1) A heightened risk of regulatory disallowances should the reinstated program result in additional costs to consumers over and above unhedged market prices. (2) Potentially substantial financial losses in cases where market prices fall significantly after the placement of hedges in support of FRPGS offerings and customer demand for those offerings is materially less than that forecast. (3) Operational risks related to the execution of the purchase transactions if adequate systems and procedures are not in place, if appropriate approvals are not provided, and/or if appropriate segregation of duties does not exist. Errors could occur - or be made with intent - giving rise to a potentially substantial financial loss. (4) A credit default could give rise to a substantial financial loss. (5) A negative reaction from customers because of their exposure to potentially significant rate increases arising from any untoward events associated with the use of derivative instruments.

RISK TREATMENT:

Extensive risk mitigation steps are in place. From an operational perspective, a well structured approach is in place. The Gas Supply Risk Management Committee in coordination with the Executive Committee has oversight over all derivative related transactions and all practices are vetted before the Public Utilities Board (PUB). The Company has confirmed the directional thrust of its activities through the use of customer feedback surveys. There is full segregation of duties between Front Office and Back Office, and with Middle Office oversight. An approved Derivatives Hedging Policy with associated Operating Principles and Procedures will be in place. The documents limit the choice of instruments, the volumes hedged, the time frame and the extent to which hedges are placed out-of-the-money. Business is conducted only with "A-rated" counterparties and only when approved ISDA Agreements have been signed. The credit exposure by counterparty is limited to $100 million credit value-at-risk

Likelihood	Med
Consequence	M High
Tolerance	Med

CATEGORY: B. Financial

TITLE: 7. Capital Structure (Financial Targets)

RISK: Inadequate equity reduces financial flexibility and may impede the opportunity to adequately address ageing infrastructure and invest in new major generation and transmission.

DESCRIPTION:

The Corporation is subject to increased risk if it fails to maintain an adequate capital structure. This is defined, under current financial targets, as maintaining a minimum debt/equity ratio of 75:25. A 25% equity level is judged necessary to provide protection against the financial impact of adverse events. This allows debt levels to rise prudently as the Manitoba Hydro's assets grow, consistent with the proportion of debt borne by similar Crown corporations. This also allows for the commensurate increase in the equity level as assets and export sales grow. The equity target has been met ahead of the 2011/12 target date and was 27% at the end of 2009/10.

Notwithstanding the significant progress made towards achieving the financial targets since they were established in 1995, the current forecast, IFF09, projects that the equity ratio deteriorates up to 7 percentage points largely due to the construction of new major generation and transmission and other significant capital expenditures before recovering to the 25% equity level in the post-2023 period. The extent of pressure on debt levels as a result of construction will depend upon the export market and water flow conditions of the day and annual customer rate increases implemented. Furthermore, a simple review of historical levels of net income indicates increased earnings variability since financial targets were established. In light of the increasing pressure on debt levels, Manitoba Hydro strengthened the financial targets in 2009. The equity ratio target was revised from achieving 25% by 2011/12 to maintaining 25% except during years of major investment in the generation and transmission system and the capital coverage target was revised from the previously approved greater than 1.00 times internally generated funds to greater than 1.20 times. As a result, the temporary softening in the equity target through the heavy construction period (2016 to 2022) is viewed as manageable, absent the occurrence of major unforeseen events, due to the significant recovery in earnings and growth in retained earnings. Manitoba Hydro will continue to review the adequacy of current financial targets relative to current and projected economic and financial conditions.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

An inadequate capital structure affects the goals of maintaining a strong financial structure, extending and protecting access to North American energy markets and profitable export sales, and providing customers with exceptional value. Retained earnings are the principal means of managing all risks that the Corporation faces that could have financial impacts. Furthermore an inadequate capital structure combined with poor financial ratios will increase the level of concern of credit rating agencies regarding the self-supporting nature of Manitoba Hydro's debt.

RISK TREATMENT:

The risk of an inadequate capital structure is mitigated by: (1) formally adopting and periodically updating appropriate financial targets such as the debt/equity ratio, interest coverage and capital coverage; (2) making annual contributions to retained earnings sufficient to maintain these targets; and (3) achieving these annual contributions through a combination of cost controls, high export revenues and regular reasonable domestic rate increases even in years with favourable water conditions. The latter is necessary, recognizing the unpredictability and potentially severe impacts of individual drought years.

Likelihood	Med
Consequence	M High
Tolerance	Med

CATEGORY: B. Financial

TITLE: 8. Energy / Fuel Price Volatility

RISK: Market energy / fuel prices are high when Manitoba Hydro requires additional energy supply or low in adverse economic cycles resulting in low export prices.

DESCRIPTION:

Manitoba Hydro is subject to significant price risk on power and gas purchases during drought (D.2). Under lowest flow conditions the Corporation may have to generate about 3 million MWh from gas-fired generation and purchase in excess of 7 million MWh from the market. Recent history has demonstrated that energy prices in the short term are volatile. There is a risk that the price of purchased energy and natural gas will be high due to energy price and/or due to limitations in the mid-western United States transmission system (i.e. congestion). In addition, even under more favourable water flow conditions there is risk that market prices for opportunity sales are lower than forecasted due to factors such as cycles of adverse economic conditions and cycles of low fuel prices. Such cycles may last several years and would result in lower than forecast revenues. This risk profile is related to Commodity Availability, Export (A.2.7) and Insufficient Supply (D.2).

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

There is no risk of significant drought in 20010/11 due to very favourable water and reservoir conditions. However, in 2011/12 a volume risk of about $300 million has been identified if low flows should materialize. In addition to that, the Corporation is exposed to additional price risk estimated at $300 million should natural gas prices double compared to the prices assumed in the IFF. Past volatility in natural gas prices indicates that a doubling of gas prices compared to forecast is a reasonable possibility. In addition, shortage pricing due to congestion in the mid-western US transmission system could add up to $50 million to the cost of purchased power. These cost risks have been reduced significantly since 2008/09 as a result of the economic decline and weakening of natural gas prices. However in the longer term, given economic recovery, it has been estimated that the risk due to energy and fuel price volatility can be in excess $1.0 billion over a five year drought period. In favourable water conditions there is a risk that an adverse cycle of low export prices would result in a reduction in revenues compared to the forecast. This risk resulting from high fuel and purchased energy would significantly reduce the Corporation's ability to maintain stable rates for Manitoba customers were it to materialize during severe drought and could potentially place the Corporation in a negative equity position. Maximum exposure to this risk occurs during the winter demand period when gas-fired generation is required to meet peak loads and year round during drought conditions when gas-fired generation is required for energy supply. The risk from low prices for opportunity export energy would reduce Manitoba Hydro's equity compared to forecast and could result in the requirement for rate increases.

RISK TREATMENT:

The Corporation's strategy in managing drought risk is to have sufficient retained earnings. However, the drought of 2003/04 demonstrated that these retained earnings could be significantly depleted in a single year. A number of firm export agreements have been negotiated to include seasonal diversity arrangements, and /or to allow for curtailment under drought conditions in order to reduce the direct costs of a drought. The Corporation's strategy in managing risk due to an adverse cycle of low export prices is also based on having sufficient retained earnings.

Likelihood	Low
Consequence	Low
Tolerance	Low

CATEGORY: B. Financial

TITLE: 9. Power Financial Instruments

RISK: By their nature, financial instruments have various risks associated with them which must be managed.

DESCRIPTION:

Manitoba Hydro participates in the Midwest Independent System Operator (MISO) and Ontario (IESO) electricity markets. Participation in these markets includes the use of the following financial instruments in accordance with the Management Control Plan: Contracts for Differences/Swaps, Put and Call Options for natural gas and electricity; Financial Transmission Rights (FTRs - MISO) or Transmission Rights (TRs - IESO), and Virtual Bids and Virtual Offers

Prior to the opening of the markets, all of Manitoba Hydro's export sales and purchases were done via physical bilateral transactions as the intent was to physically deliver the power in accordance with the contract terms and conditions. With the opening of the markets it is beneficial at times for Manitoba Hydro to financially settle contracts through contracts for differences or swaps rather than to physically deliver the energy for either economic or supply security reasons. Manitoba Hydro also purchases/sells call and put options for natural gas and electricity in order to hedge either short or long positions associated with the management of its generation assets. In addition, Manitoba Hydro utilizes FTRs/TRs and virtual bids and offers in order to hedge against congestion and deviation costs and the risk of an unfavorable price spread between the Day Ahead and Real Time MISO markets. Manitoba Hydro only utilizes these instruments to the extent that it has underlying assets that are exposed to day ahead and real time price or congestion risk.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Inappropriate use of financial instruments would expose Manitoba Hydro to costs beyond those necessary for the prudent management of its assets or load obligations.

RISK TREATMENT:

The use of all financial instruments for the purchase or sale of power is governed by the Management Control Plan. Front Office signing authorities and limits have been established. Front Office and Back Office duties are separate. Manitoba Hydro has purchased a state of the art trading, scheduling, billing and settlement system that is used to record all physical and financial transactions. Manitoba Hydro ensures that appropriate master agreements are in place to govern all financial instrument transactions. The underlying framework for put and call options and contracts for differences/swaps is the International Swaps and Derivatives Association (ISDA) Agreement. Market Participant Agreements with both the MISO and IESO define the market rules for both FTRs/TRs and virtual bids and offers and bind both parties to those rules.

As per the Management Control Plan, financial instruments are utilized to the extent that the Corporation has underlying assets that are exposed to Day Ahead or Real Time price or congestion risk. This restriction ensures that financial instruments are supported by Manitoba Hydro's underlying physical power position and that financial instruments are not utilized in a manner that could create unlimited risk positions.

Likelihood	High
Consequence	High
Tolerance	Med

CATEGORY: C. Environmental

TITLE: 1. Water Supply/Drought

RISK: Reduced water supply impacts generation capabilities.

DESCRIPTION:

Reduced water supply is a fundamental risk to the financial position of the Corporation. The source of this risk consists of an extended drought, loss of hydraulic operating flexibility, changes to water resource regulation outside of Manitoba and/or climate change (cycle) effects. Key to this risk is the large degree of uncertainty surrounding the price of imports and fuel purchases required to serve firm demand commitments during an extended drought.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Reduced water supplies impact the Corporation's ability to maximize net revenue levels and maintain the current rates for Manitoba customers. The severity of impacts ranges from relatively modest costs due to subtle change in the timing of inflows, up to extreme financial losses as a result of a multi-year drought. In the event of a drought more severe than the drought of record, the Corporation would likely be unable to serve firm load for an extended duration (months/years) resulting in enforced conservation in addition to incurring a cost of further drawing on hydraulic reserves. (See D.2 Insufficient Supply)

Regulation changes that limit hydraulic operating flexibility may reduce dependable energy and, consequently, reduce net export revenue and add cost due to advancement of the in-service date for new generation. Similar effects may be realized if regulation changes upstream of Manitoba or climate change impacts alter the timing or supply of flows entering the province.

RISK TREATMENT:

The Corporation intends to have adequate retained earnings to protect against a repeat of the worst recorded drought. In addition, Hydraulic Operations constantly monitors supply conditions, updates inflow forecasts, and reviews long-term weather forecasts.

[redacted]

Likelihood	Low
Consequence	M High
Tolerance	Med

CATEGORY: C. Environmental

TITLE: 2. Climate Change / Water Resources

RISK: A changing climate can have negative impacts on hydro-electric generation

DESCRIPTION:

There is a risk that climate change impacts could result in reduced overall hydroelectric production due to lower annual runoff, increased evaporation and/or changes to the variability of the water supply.

.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Reduced hydroelectric generation would lead to a reduction in overall energy supplies to meet firm load and reduced surplus energy available for export resulting in lower export revenues to the Corporation. This could also have a negative impact on the business case for building new merchant plants. However, even if climate change resulted in an overall reduction in energy supplies, it is expected that these changes would occur over a long period of time, affording Manitoba Hydro sufficient lead time to adapt operations and resource plans.

RISK TREATMENT:

Manitoba Hydro is currently engaged in understanding the process and techniques required to develop future climate scenarios for its hydraulic system. These climate scenarios are being developed by using the direct outputs from Global Climate Models and by using statistical and dynamical (regional climate modeling) downscaling techniques. These climate scenarios will then be used in combination with a watershed model to develop an ensemble of future water supply conditions, which can be tested in Manitoba Hydro's generation system models as a step towards reducing the uncertainties regarding future flows.

Manitoba Hydro collaborates with a number of national and international bodies involved in climate change including the Ouranos, École de Technologie Supérieure, University of Manitoba, Center for Energy Advancement through Technological Innovation, and the International Institute for Sustainable Development.

Manitoba Hydro expects to have sufficient lead time to adapt its operations and resource plans to accommodate long-term impacts of climate change.

Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: C. Environment

TITLE: 3. Operational Impact and Infrastructure

RISK: Environmental concerns real or perceived can negatively impact corporate operations.

DESCRIPTION:

The Corporation operates its existing electricity supply facilities and systems on a continuous basis to meet the energy needs of its customers. While the Corporation goal is to minimize operational impacts on the environment there still remains a certain amount of negative impact. The principal risks the Corporation is faced with are interruption of operations, and/or, restrictions on how operations are carried out. These risks arise as a result of pressure from changes in stakeholder sentiment, changes to licenses and/or legislation and high profile noncompliance(s)and/or environmentally damaging event(s).

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The implications of imposed restrictions on facility and system operations can vary considerably and if significant could ultimately impact the operations of the Corporation. These restrictions could impact our hydraulic/thermal generating facilities, water management programs, transmission facilities and distribution infrastructure. These restrictions could impact the costs/revenues of the Corporation and force future domestic rates to increase.

RISK TREATMENT:

Manitoba Hydro utilizes many different types of controls and tools to manage the environmental risk to its operations and infrastructure. These include but are not limited to:

- Management and staff whose primary responsibility is to help address environmental issues and risks that the Corporation is facing.
- ISO 14001 registered Environmental Management Systems covering all corporate activities.
- Agreements with stakeholders suffering adverse affects of some of the Corporation's developments.
- Identification of and responsiveness to stakeholder concerns.
- Water regime monitoring and communication with affected communities about forecasted water regimes.
- Conducting environmental research and monitoring programs that address societal expectations and meet corporate environmental management practices.
- Shaping and responding to public policy and keeping abreast of and influencing regulatory and license changes
- Continuously improving and implementing best management practices to anticipate and address environmental concerns.
- Training of staff whose jobs may result in impact to the environment.
- Emergency prevention and response planning.

Likelihood	Med
Consequence	M High
Tolerance	Med

CATEGORY: C. Environment

TITLE: 3. Operational Impact and Infrastructure

SUBTITLE: 1. Legal - Species at Risk Act

RISK: If Lake Sturgeon is listed as "Endangered" the Corporation could face restrictions on current operations and its ability to build future projects.

DESCRIPTION:

Almost all of the Corporation's hydroelectric generating stations are located where Lake Sturgeon are found. It is likely that at most sites infrastructure and operations have negatively affected the fish and/or their habitat. Due primarily to historical overharvest, plus additional stressors including hydroelectric development, Lake Sturgeon populations have been severely depleted over the past 100 years and the species is currently under review for listing as endangered under the Species at Risk Act (SARA) at most locations in Manitoba. A decision for Winnipeg River populations is anticipated late in spring 2011, at the earliest. Decisions for Churchill River, Nelson River, Saskatchewan River and Lake Winnipeg populations are expected in spring of 2012, at the earliest.

If listed under SARA harm to individual fish will automatically be prohibited and protection of critical habitat will be required once identified. The Corporation will immediately be at risk of non-compliance with SARA at most of its facilities due to ongoing risk of harm to individual fish as they pass through facilities. New developments, including Conawapa and Keeyask as currently planned, will harm or destroy critical sturgeon habitat (spawning and nursery areas) and therefore may not be permitted, or may face delays. Under SARA a Recovery Strategy and Action Plan must be developed for listed species and could include requirements for mitigation at existing facilities, including infrastructure such as fishways and operational changes such as restrictions on cycling. Developments on specific waters could be prohibited.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Restrictions will affect the revenues the Corporation will receive from existing operations and also the ability to build future projects and meet future requirements for electricity supply.

RISK TREATMENT:

The Corporation is proactive in addressing this risk by: (1) Conducting a Lake Sturgeon Stewardship and Enhancement Program in cooperation with regulators, First Nations and other stakeholders to assist in recovery of the species, so that listing under SARA is not required. (2) Participating in the SARA review process to ensure that the Federal Government, when making their decision on whether or not to list Lake Sturgeon, understands that the social and economic costs and risk of listing far outweigh potential benefits. (3) Informing the Manitoba Government, at both executive and management levels, of the significant risks and potential consequences of sturgeon listing to both the corporation and the province and encouraging their participation in the two activities listed above. (4) Working with the CHA and CEA in pursuing changes to SARA and/or its implementation through the current Parliamentary five-year review of the Act and by working with Environment Canada and Fisheries & Oceans Canada to make it easier for the hydroelectric industry to achieve compliance while protecting and recovering listed species. (5) Informing Manitoba Members of Parliament, who will be involved in the listing decision, that the social and economic costs and risks of listing sturgeon far outweigh potential benefits.

Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: C. Environmental

TITLE: 4. Reliability of Supply

RISK: Environmental concerns could obstruct the Corporation's ability to build the necessary transmission facilities required to provide a reliable supply of energy.

DESCRIPTION:

Society's concerns over the environment will influence the Corporation's future facility requirements by either placing highly restrictive implications on their operations, alter the design specifications, or ultimately deny their construction.

The environmental review process could result in excessive time and cost that would result in the commissioning of facilities well after their required in service dates. Time delays will expose the system to increased reliability issues.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

This risk will cause the system to degrade thus causing more service interruptions. The Corporation will face increased costs to satisfy these environmental concerns as more costly alternatives will be required to meet these higher standards.

RISK TREATMENT:

The Corporation is proactive in addressing this risk by:

- ensuring environmental implications of its actions are understood
- fostering the knowledge and skills to make the right decision that reduces the environmental impact of these facilities
- effectively communicating its position to all interested parties
- establishing lobbies with major stakeholders
- forming alliances with other industry representatives
- promoting efficient use of resources

Likelihood	Low
Consequence	High
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 1. Loss of Plant (all property, all perils)

RISK: Loss of plant can affect the Corporation's finances, reputation and impact human life.

DESCRIPTION:

The Corporation is subject to a variety of scenarios whereby physical plant is exposed to loss. The types of value exposed to loss include property, net income, liability and personnel. Loss from a property value perspective includes equipment breakdown, loss of facility, dam failure, and other property damage.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Potential impact from a loss of plant infrastructure will affect the Corporation's ability to: continuously improve safety, provide exceptional customer service from a reliability perspective, improve financial strength due to reduced revenues and increased costs and maximize export power net revenues due to reduced availability.

RISK TREATMENT:

A risk management decision-making process is used to manage each exposure (identify exposure, examining feasibility of alternative techniques, selecting best technique, implement and monitor chosen techniques). Equipment failure, for example, is identified at the department level. Alternative techniques to deal with exposure include preventative maintenance (loss prevention), Reliability Centered Maintenance (RCM) and loss reduction (fire sprinkler systems, fire brigades). Alternative techniques to finance the property loss include risk retention and commercial insurance. Equipment failure from a net income exposure to loss is recognized at the department level and alternative risk control techniques are used such as spare equipment, replacement contracts for equipment or replacement energy.

The loss of facility from a property value aspect is identified at the division/department level. Perils are identified and treatment determined. Risk control techniques include loss prevention and loss reduction. Examples include fire and wind resistive construction materials, smoke and heat detection units, and automatic sprinkler protection, dyking and other measures [redacted] The loss of a facility from a net income exposure aspect is identified at the corporate/division level. Loss prevention and reduction control techniques includes duplication and segregation of exposure units, automatic sprinkler systems, emergency response plans and replacement contracts. [redacted]

The impact of loss of facility from the perspective of safety and customer service is identified at the corporate/division level. Loss prevention and reduction control techniques in place to mitigate other impacts are also designed to mitigate the impact on safety and customer service including duplication and segregation of exposure units emergency response plans, automatic sprinkler systems, spare equipment such as those used in conversion and replacement contracts.

Likelihood	Low
Consequence	High
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 1. Loss of Plant

SUBTITLE: 1. Dam and Dyke Structures

RISK: Dams or dykes can fail resulting in impacts ranging from insignificant to catastrophic, including the loss of life, financial costs, environmental damages, and loss of system reliability, reputation and public confidence.

DESCRIPTION:

Manitoba Hydro operates 16 major facilities for hydro power generation and water storage, comprising an inventory of some 220 individual dams and dykes. The facilities were designed to established standards when constructed and are being systematically maintained and upgraded to meet current standards where possible.

Dams and dykes are vulnerable to different "failure modes" including overtopping during floods, external erosion, internal erosion, sliding and equipment failure. Terrorism is also a recognized risk. Location, proximity to other facilities, closeness of human settlement and prevailing circumstances are some of the factors determining the extent of impacts of a dam or dyke failure

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Possible consequences include the loss of life, financial/economic costs, environmental damages, reduced system reliability [redacted] and loss of reputation and public confidence.

RISK TREATMENT:

[redacted]

Dams and dykes are traditionally designed with robust safety factors, and maintenance programs address dam safety deficiencies in a prioritized manner. Operating guidelines have dam safety considerations inherent. The Corporation also attempts to reduce the number of habitable structures within inundation areas.

Likelihood	Low
Consequence	High
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 2. Insufficient Supply (drought peril)

RISK: Extreme drought with a severity worse than the drought of record has the potential to cause a shortfall in energy supply. worse than record causes supply shortfall.

DESCRIPTION:

The Corporation's generation and transmission facilities are designed and operated to ensure firm demand can be supplied given a repeat of the lowest river flows since 1912. There is between a one in five and one in ten chance over the next 10 years that there will be a drought of at least the severity or duration of the worst historical drought. In the circumstance of an extreme drought that is more severe than the worst on record, there is the possibility of insufficient energy supplies being available to meet firm load demands, which will in addition, result in extreme financial impacts to the Corporation. This risk profile is related to risk profiles (A.2.7), (B.8) and (C.1).

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The peril of an extreme drought, one that is more severe than the worst on record, may limit the Corporation's ability to provide dependable power to its customers. There is potential that some firm load would have to be curtailed for an extended duration (months) through enforced conservation.

In addition to service limitations, there would be severe financial impacts to the Corporation in excess of those estimated for the worst drought on record (ref. A.2.7, B.8 and C.1). Financial impacts would extend to the Corporation's domestic customers through rate increases and the Province by requiring debt financing.

RISK TREATMENT:

To better quantify this risk, the Corporation has participated in a number of research initiatives, using both statistical techniques and techniques that employ indicators of past extremes such as tree-rings and lake sediments. Both initiatives are aimed at defining the probability of recurrence of the worst drought on record and the likelihood of more extreme drought events.

Manitoba Hydro plans to serve its firm export contracts from its surplus dependable supply, which is that available under a repeat of the lowest historic flow conditions. Should flow conditions be more severe than the lowest on record and result in a threat of insufficient energy supply to Manitobans, Manitoba Hydro has the contractual right to curtail firm export deliveries in order to serve Manitoba load first.

Likelihood	Low
Consequence	High
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 3. Prolonged Loss of System Supply

RISK: The Corporation is exposed to a catastrophic event resulting in prolonged loss of system supply and therefore not able to meet its energy supply requirements.

DESCRIPTION:

System blackout due to the loss of key infrastructure, [redacted]

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Key potential impacts of a prolonged loss of system supply are:

- Unable to serve Manitoba load continuously. Deficient up to 1050 MWs resulting in prolonged rotating blackouts throughout the province. Deficiency increases with time due to load growth.
- Severely impact business operations and the Manitoba economy.
- Unable to provide customers with exceptional value due to high infrastructure replacement costs.
- Threat to public safety due to inability to supply energy needs.
- Prolonged rolling blackouts would affect customer service, and would potentially damage corporate assets such as breakers.
- Potentially weaken the corporate financial strength due to reduced revenues from export sales and local customers and increased costs for infrastructure replacement plus purchases of import energy.
- Loss of reputation as a dependable source of supply in the export market.
- Long term loss of supply could result in political and legal consequences to the Corporation.

RISK TREATMENT:

[redacted]

Likelihood	Low
Consequence	Med
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 4. System Shutdown (Short Term)

RISK: The Corporation is exposed to an event(s) resulting in short term loss of system supply (electricity) and therefore not able to meet its energy supply requirements.

DESCRIPTION:

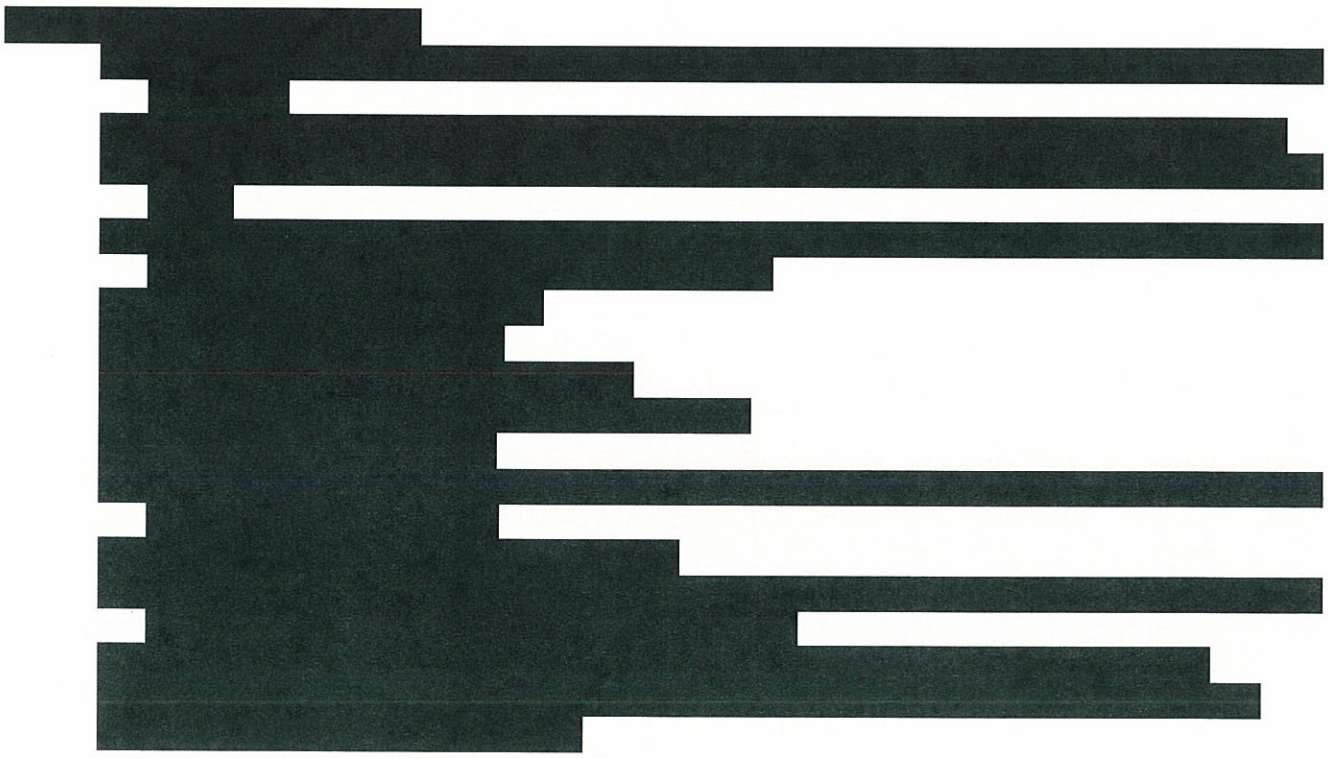
Partial or total system blackout from 8 hours to several days as a result of natural causes, sabotage, human error, or technical failure.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Key potential impacts of a short term loss of system supply (electricity) are:

- Unable to meet customer load serving obligations and expectations.
- Threat to public safety due to inability to supply energy needs.
- Threat to Corporate reputation

RISK TREATMENT:



Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 5. System Shutdown (Natural Gas)

RISK: Catastrophic system failure could result in an interruption of the supply of natural gas to approximately 250,000 customers in Manitoba.

DESCRIPTION:

A secure and continuous supply of natural gas is critical, particularly during the coldest months of the year. [redacted]

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

A catastrophic event could occur, resulting in a total loss of supply of natural gas to Manitoba for a period of four to six weeks. The potential impact could be significant. Manitoba natural gas customers could be left without natural gas for heating purposes, resulting in significant collateral damage. As well, an inordinate number of workers would need to visit each and every home at least two times before service could be restored. Gas supply connections would first have to be shut-off at all homes and then the homes would have to be entered when the lines are re-energized to ensure the appliances are re-lit and working properly. There could be substantial lawsuits arising from such a catastrophic event.

RISK TREATMENT:

[redacted]

Likelihood	Low
Consequence	Med
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 6. Technology

RISK: Unforeseen events could impact computer operations and this would affect business processes.

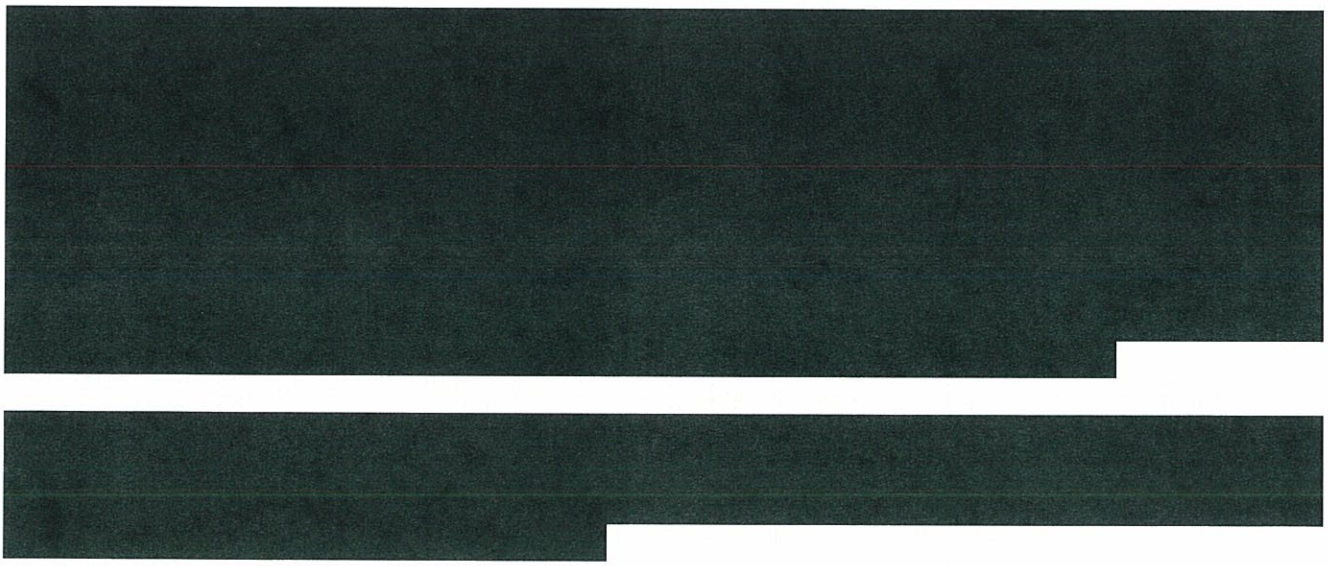
DESCRIPTION:

The Information Technology Services (ITS) Division develops implements and manages Manitoba Hydro's information systems that support the Corporation's core business processes. The Division manages a secure, stable computing infrastructure to support these information systems (EMS/SCADA, Transmission System Operations Division and Energy Trading systems, Power Sales and Operations Division have their own dedicated environment and are outside the scope and responsibility of the ITS Division). The factors that could lead to a loss of all or part of our computing environments are either physical such as fire, flood, HVAC or power failure, major weather related disasters, or human in nature resulting in sabotage to key IT System Components.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The extended loss of Manitoba Hydro's computing environment may limit the Corporation's ability to provide customers with exceptional value (rates, service, public safety, reliability and power quality). For example, the inability to access customer information normally obtained from the Customer Information System could result in incorrect/dated information being given to customers resulting in customer dissatisfaction and poor public perception. A cascading virus attack could negatively impact all Hydro systems, with the exception of Energy Trading and the EMS/SCADA systems.

RISK TREATMENT:



Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 7. Special Interest Groups

RISK: [redacted]

DESCRIPTION:

[redacted]

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

[redacted]

[redacted]

RISK TREATMENT:

[redacted]

Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: D. Infrastructure

TITLE: 8. Emergency Management Program

RISK: Failure of the Emergency Management Program to adequately respond to infrastructure failures.

DESCRIPTION:

As discussed throughout the Category D Infrastructure section, the Corporation's energy infrastructure is highly exposed to events that can have impacts ranging from insignificant to catastrophic. These include prolonged loss of system supply, the inability to maintain minimum energy services, loss of life, severe environmental damage and significant costs to the Manitoba economy. Failure can be caused by a number of factors, including major weather conditions such as the Quebec / Ontario 1998 icing, tornado/microburst, wind, lightning, flooding, sabotage, fire, human error and technical failure.

In all cases the Corporate Emergency Response Program is relied upon to effectively respond to these emergencies and disasters. The program is designed to comply with numerous industry laws and standards that set out stringent requirements.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Failure to have an appropriate Emergency Management Program (which includes mitigation, preparedness, response and business recovery) in place, can exacerbate otherwise manageable events and result in the inability to provide minimum acceptable energy services and protect human safety, the environment, the Manitoba economy and the Corporation's reputation.

RISK TREATMENT:

To help ensure that appropriate plans and programs are in place, there are policies and procedures to guide actions, staff training and emergency preparedness exercises on a regular basis. Actions are taken to follow up on and address deficiencies and to continually enhance the program and state of readiness.

Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: E. Human

TITLE: 1. Safety and Health

RISK: An accident will occur that will result in loss of life or significant in jury.

DESCRIPTION:

Due to the inherent nature of the operational work performed by Manitoba Hydro employees, safety is a key concern to the Corporation. The frequency and severity of workplace injuries are still greater than corporate targets resulting in a ongoing risk of fatalities and/or severe injuries. Beyond the human suffering element, are the tangible and intangible costs of accidents to the Corporation for compensation and benefits, lost productivity, loss of equipment, loss of revenue, and loss of public confidence.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Safety is the Corporation's principal goal. As such, safety is reflected in the Corporate Strategic Plan to ensure the Corporation has measures that safeguard the safety and health of Manitoba Hydro employees. The Corporation focuses on activities that promote accountability, safety and health leadership, safe work practices, strict compliance with environmental regulations, and preservation of employee health. These programs are put in place to reduce risk to a tolerable level and address any potential risk to the operations side of the business.

RISK TREATMENT:

Significant changes in 2009/10 included:

- Development of 400+ Safe Work Procedures
- Implementation of Work Site Visit Audit recommendations
- Development of a Pandemic Event Plan
- Compliance with Lock Out legislation; and
- Deployment of 14 Automated External Defibrillators (AED's).

Significant changes planned for the 20010/11 fiscal year include:

- Develop and implement a Job Demands Analysis Program
- Develop and implement Post Journeyman training
- Improve the quality and content of Safe Work Procedures and promote in-field use
- Develop and implement a Safe Driving Program: and
- Determine a replacement strategy for the Safety Management System

Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: E. Human

TITLE: 1. Safety and Health
1. Infectious Disease

RISK: A significant disease outbreak will impact a large number of employees resulting in major disruptions to business operations.

DESCRIPTION:

In response to the influenza A, H1N1 (Swine Flu) outbreak in April 2009 and the World Health Organization setting the pandemic alert level globally to phase six, Manitoba Hydro did form a task force on H1N1 to address the impact an infectious outbreak would have on the Corporation.

H1N1 does not diminish the threat of the H1N5 virus and that potential remains a serious and highly complex public health challenge. Given our global supply chains and increased international mobility, the pandemic could be "a large-scale outbreak of highly infectious illness" that could result in corporations experiencing severe absenteeism of 30-40 percent among its employees as a result of illness, family care responsibilities and fear of contracting the virus in a workplace perceived to be unsafe.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

There are predictions that suggest that up to 35% of the population could be impacted by the next global pandemic. Of those infected, half will require medical care and 2% could die. Applying these predictions against the number of employees at Manitoba Hydro the corporation could see 2,100 employees becoming ill, 1,050 requiring medical care and 120 deaths.

It is expected that a pandemic will result in significant and prolonged shortages with regard to the availability of employees, supplies and services. This may be enough to possibly compromise Manitoba Hydro's ability to provide safe, reliable service to customers. These impacts could further result in financial losses as revenues diminish putting added pressure on business operations. The inability to respond to system outages and customer requests could further impact the Corporations reputation. In addition, if the Corporation is unable to meet its export commitments, the utility could face potential liabilities.

RISK TREATMENT:

A pandemic is a societal problem that is best managed by the coordinated participation and cooperation of governments, businesses, organizations and citizens. The development and potentially imminent availability of approved vaccines marks an important milestone because vaccination is potentially the best form of protection for preventing or reducing the chance of severe illness or death. Manitoba Hydro worked closely with various health agencies and did form a task force on H1N1 to address the impact an infectious outbreak would have on the Corporation. Key activities included updating the "Infectious Disease – Pandemic Planning – Work force Disruption Plan", holding additional emergency pandemic simulation exercises and providing additional education to Manitoba Hydro's workforce in the area of infectious disease is being refined.

Likelihood	Low
Consequence	Med
Tolerance	Low

CATEGORY: E. Human

TITLE: 2. Union/Employee Issues

RISK: [redacted]

DESCRIPTION:

Day-to-day relations between the Corporation and its unions remain positive.

[redacted]

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Employee and union demands may not be satisfied which could result in strained relationships and possible strike.

RISK TREATMENT:

[redacted]

Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: E. Human

TITLE: 3. Succession Planning

RISK: The Corporation will not be able to attract and retain the necessary qualified workforce to meet its operational needs.

DESCRIPTION:

The electricity and gas industry will be facing significant labour force challenges in the years ahead. For Manitoba Hydro, the workforce will be impacted by retirements, position growth and a changing labour market.

Retirement will have the most significant impact on human resource requirements due to the movement of the large cohort of "Baby Boomer" employees into retirement. Retirements will shift from a long-term average of 80 employees per year to a new long-term average of at least twice that. Approximately 650 employees are expected to leave within five years.

The need to retain knowledge and ensure the right employees are ready to fill key positions is essential for long term success.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

A loss of knowledgeable, experienced employees and a shortage of trained and skilled labour can have negative effects on all areas of the Corporation including reduced reliability, increased cost of production, infrastructure project delays, and decreased safety and productivity. By way of example, a reduced skill base in Power Supply would negatively impact the Corporation's ability to plan, maintain, operate and market the power system. In the Gas Supply area gas supply strategies would be impaired as it could diminish Manitoba Hydro's ability to deliver reliable, safe, sustainable and competitively priced gas.

RISK TREATMENT:

To ensure knowledge retention and transfer and the supply of qualified candidates, the completion and maintenance of detailed succession plans for all key strategic & critical positions is necessary.

Manitoba Hydro has developed the capacity to continuously update retirement forecasts and recruitment plans. The Corporation has also become more systematic about workforce planning and its ability to respond to the changing internal and external workforce environment. This effort provides a multiple benefit of an accurate corporate-wide forecast of recruitment needs, the ability to respond to changing labour market conditions and the integration of this information into related financial forecasts and budgets.

Training programs are being deployed to existing staff that result in the development and improvement of technical skills in key areas. This assists in providing an adequate supply of qualified applicants to fill vacancies in the future. In addition, development is a priority for all existing staff through the annual completion of personal development plans. Leadership development is a priority.

Likelihood	Med
Consequence	Low
Tolerance	Low

CATEGORY: E. Human

TITLE: 4. Technology

RISK: The rapid change in technology and work requirements may present challenges to system reliability, safety or productivity.

DESCRIPTION:

The pace of change in the workforce has never been as rapid as it is today with new technologies being developed that require staff to study and assess these technological changes and their usefulness within the current business and energy systems. This situation is further compounded by maintaining systems that are older which require appropriate interfaces with these new technologies and having fewer capable resources to analyze their impacts on the corporation's present systems. The demographics of the workforce suggest that this risk will only increase in the future.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The Corporation's energy systems are both reliable and safe and its business systems are effective in meeting the Corporation's present day requirements. However, it is also important to adapt to technological advances that are required to meet changing conditions. It is conceivable that decisions or the lack of a decision in the future could reduce system reliability, safety or productivity.

RISK TREATMENT:

Manitoba Hydro has a research and development program that will help meet the needs of its business and operations, using both internal and external personnel and facilities. The primary thrust of this program will be the creation of new or significantly improved products and processes so as to obtain operational and economic benefits that will increase efficiency, reduce costs and improve the quality of service to the corporation's customers

The Corporation supports research and development projects carried out by students at Manitoba universities. The Corporation also supports research chairs, in collaboration with other industrial partners and with the Natural Sciences and Engineering Council (NSERC), or equivalent funding agencies at Manitoba universities, where the area of research is of direct and continuing interest to the Corporation.

New technologies are assessed to determine whether they will meet the further anticipated needs of the Corporation and detailed studies are performed when significant changes are planned so that negative outcomes are minimized. The current wind integration project which assesses the impacts of various levels of wind generation on system operations is an example of these types of studies.

All staff are encouraged to maintain their professional standards which includes keeping abreast of changes occurring within their discipline.

Likelihood	Low
Consequence	Low
Tolerance	Low

CATEGORY: F. Business Operational

TITLE: I. Supply Chain

RISK: Goods and services may not be available when required resulting in potential reliability issues, major delays, disruptions or complete loss of service to customers.

DESCRIPTION:

Managing the Supply Chain ensures the supply of goods and services are obtained in order to maintain and upgrade the current infrastructure and capital project work. The supply chain is critical in maintaining service to customers. Manitoba Hydro is dependent upon a variety of suppliers. Market trends impact the economical and financial aspects of our business and the ability of suppliers to provide required goods and services on a timely basis.

The risk to Manitoba Hydro includes:

- Increased costs and lead-times due to supplier capacity and the global demand for raw materials and finished products,
- A limited diversity of supply due to company mergers, acquisitions or insolvency and a shortage of skilled labour in some trades,
- Single source product and services.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

A disruption in the supply chain impacts the majority of Corporation's strategic goals and objectives. All divisions within the corporation are effected. Customer Service and Distribution, Transmission and Power Supply (including Power Projects and New Generation) all require a variety of critical goods and services to meet the Corporations obligations and commitments. An effective supply chain contributes to the Corporation's financial strength through cost minimization, planned upgrades and maintenance and the reduction in the downtime of our major assets.

Although the market has improved, the demand for construction services, particularly skilled labour, in some trades, is still a concern. In addition, recent tenders for construction have resulted in higher levels of participation however in some cases tenders results have exceeded our budget estimates.

RISK TREATMENT:

The supply chain will continue to be managed in the following manner:

- monitoring all market trends,
- identify critical products and services,
- sourcing Strategic Alliances Partners,
- reduce single sources of supply,
- maintain optimum inventories,
- identify alternate sources of supply in case of emergency.

Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: F. Business Operational

TITLE: 2. Operational Controls

RISK: Unexpected operational outcomes adversely impact the Corporation's performance.

DESCRIPTION:

The Corporation has defined a vision, mission, operating principles and ten goals that are supported by measures, targets and strategies to direct corporate efforts toward common strategic achievements. The only manner in which the corporation can be certain that its efforts are intended to result in a preferred outcome is to ensure that adequate controls are built into its processes. All efforts to direct, promote, restrain, govern and check progress can be described as a control. Where an operation is subject to adequate control, the odds of a positive outcome are enhanced. Where inadequate control is practiced, the result is less certain to be as intended. Where operational controls are ineffective the chance of the Corporation achieving its vision, or a subcomponent thereof, is reduced. Some of the types of operational risks that the Corporation faces include ineffective and inefficient operations, unreliable reporting systems and technology, non-compliance with applicable laws, regulations and internal policies, inability to attract and retain knowledgeable human resources and inadequate maintenance and replacement of infrastructure, to name a few.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES

The essential purpose of operational control is to encourage the accomplishment of the goals or objectives for which each employee or manager is responsible. Ineffective operational control increases the likelihood of an adverse outcome which could mean that a goal or objective is not met. The potential impacts of ineffective operational control are many and varied. They can range from infrastructure failure due to ineffective maintenance programs or systems to fraudulent activity to lawsuits and jail.

RISK TREATMENT

The governance process designed by the Corporation has objectives inclusive of promoting appropriate ethics and values; ensuring effective organizational performance management and accountability; effectively communicating risk and control information to appropriate responsibility areas; and effectively coordinating the activities of and communicating information among the Board, external and internal auditors, and management. This framework has been adopted with the intention of ensuring reliability and integrity of financial and operational information; effectiveness and efficiency of operations; adequate safeguarding of assets; and compliance with laws, regulations and contracts. The design of operational controls rests with line management. The effectiveness of control systems are subject to ongoing monitoring through the corporate governance process (inclusive of various committees, regulatory review, the Board, etc.) and are tested through an internal audit program and an annual external attestation audit. The Internal Audit Department Charter has been approved by the Audit Committee of the Board as is the annual audit program. Line management also engages consultants and experts as deemed appropriate to aid in the design of operational control systems and practices as well as to test the effectiveness of the implemented design. The Corporation also has an integrity program which complies with the requirements of the Provincial Whistleblowing legislation. The program provides a mechanism for anyone to report a situation in which operational controls are not functioning at any level.

Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: G. Reputation

TITLE: 1. Reputation

RISK: The occurrence of a negatively public perceived event which receives significant attention and affects the corporation's operations in a significant negative manner.

DESCRIPTION:

Reputation/image risk exposes Manitoba Hydro's ability to achieve its overall strategic and operational goals in an effective and efficient manner.

The impacts of reputation and corporate image cover a broad range of activities at Manitoba Hydro and include many significant initiatives, including:

- Obtaining approvals and constructing new generating stations, both hydraulic and other types;
- Renewing licenses (e.g. Brandon Generating station);
- Obtaining approvals and constructing new transmission lines and maintaining existing transmission lines;
- Maximizing electric export marketing opportunities;
- Maintaining market share in the domestic retail natural gas market;
- Receiving favorable regulatory (e.g. PUB) approvals; and
- Other activities.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The significance of the impact varies depending on the strategic or operational goal, however the impact can range from having insignificant costs to significant costs (e.g. the potential impact can result in the Corporation not achieving its strategic goals or achieving significant objectives such as constructing a new generating station or a major transmission line).

RISK TREATMENT:

Manitoba Hydro conducts its business activities with high corporate integrity and within established operating principles. In addition, Manitoba Hydro has adopted Corporate Goals directly related to maintaining its Corporate reputation and image, including:

- Provide Customers With Exceptional Value
- Be A Leader in Strengthening Working Relationships with Aboriginal Peoples
- Be Proactive in Protecting the Environment and be the leading utility in promoting sustainable energy supply and service
- Be an Outstanding Corporate Citizen
- Proactively support agencies responsible for business development in Manitoba
- Be a national leader in implementing cost-effective energy conservation and alternative energy programs

Likelihood	Low
Consequence	High
Tolerance	Low

CATEGORY: H. Governance / Regulatory / Legal

TITLE: 1. Regulation and Licensing

RISK: The Corporation could face regulatory and licensing issues that restrict its operation.

DESCRIPTION:

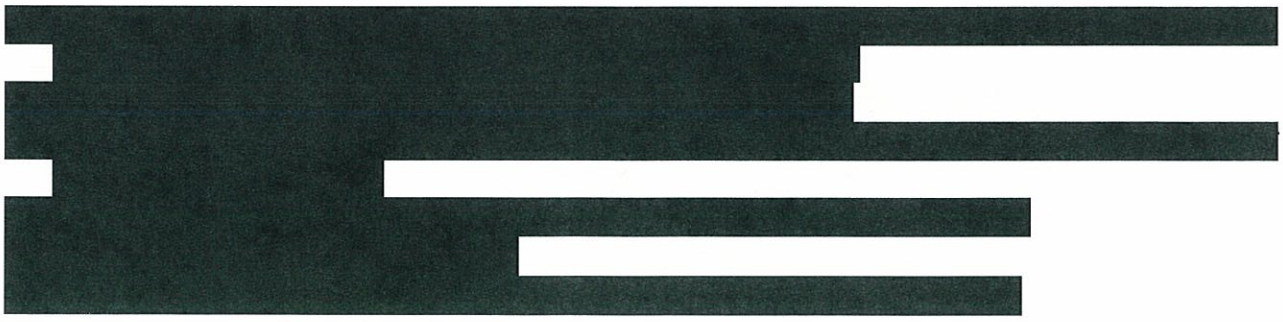
The Corporation requires a variety of regulatory approvals and licenses to carry out its activities. The principal risks include:

- Failure to obtain PUB approval of electricity or gas rates
- Changes in scope of regulation that impede electricity or gas operations or result in increased cost
- Failure to obtain PUB, NEB, water power or environmental approvals to build new generation or transmission facilities, or approval is on unfavourable terms
- Changes to existing approvals that impede operation of facilities

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

- Affects the revenues the Corporation will receive from its operations.
- Adverse impacts on the corporate reputation.
- Unduly high costs and diversion of management and professional resources to comply with the regulatory process

RISK TREATMENT:



Likelihood	Low
Consequence	High
Tolerance	Low

CATEGORY: H. Governance / Regulatory / Legal

TITLE: 2. Export Market Access

RISK: [redacted]

DESCRIPTION:

[redacted] Opportunities for the Corporation include (1) Opportunities to export power to new markets or further develop existing markets, and (2) Opportunity to define new roles for the Corporation in the delivery of gas services in Manitoba to better serve consumers.

[redacted]

[redacted]

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The above opportunities and risks may affect the amount of revenue from export sales [redacted]

RISK TREATMENT:

[redacted]

Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: H. Governance / Regulatory / Legal

TITLE: 3. Legal Compliance

RISK: The Corporation does not comply with legal requirements

DESCRIPTION:

The Corporation must comply with a broad variety of legislation, regulations, common law and other legal requirements.

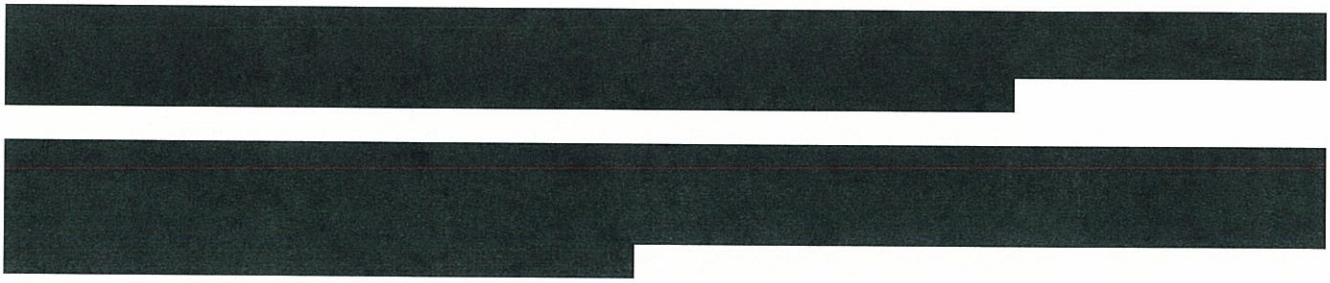
POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Depending on the type of legal requirement the consequences of non-compliance may include:

- Financial penalties for the Corporation
- Fines / imprisonment for individual directors, officers or employees
- Impact on corporate reputation
- Restrictions on corporate operations

RISK TREATMENT:

The corporation fosters a positive culture of compliance through measures such as a Corporate Code of Ethics, periodic messages from the President to all employees emphasizing the importance of compliance with the Law, and an Integrity Program to enable employees to report any violations of the Code of Ethics without fear of reprisal.



The generally accepted elements of a corporate compliance program are:

- Standards and procedures that are reasonably capable of reducing non-compliance
- Assign specific high-level personnel to oversee compliance
- Prevent delegation of discretion to individuals likely to engage in non-compliance
- Effectively communicate standards and procedures to relevant employees
- Implement monitoring, auditing and reporting systems
- Use disciplinary measures to enforce standards and procedures
- Respond to breaches that are detected including modification for systemic problems
- Continually evaluate the risk of non-compliance.

Likelihood	Low
Consequence	Med
Tolerance	Low

CATEGORY: H. Governance / Regulatory / Legal

TITLE: 4. Contracts & Ventures

RISK: Contracts are not fulfilled or business ventures expose the Corporation to undesirable events.

DESCRIPTION:

The Corporation engages in a variety of commercial activities. It purchases goods and services, sells its own goods and services, purchases and sells land and intellectual property and signs a variety of other contracts and agreements. The Corporation also purchases businesses such as Centra and Winnipeg Hydro, and sets up subsidiaries and joint-ventures to pursue particular opportunities. Some of the risks include:

- Failure to comply with contract obligations
- Acceptance of unfavourable contract risk, liability clauses or indemnity requirements
- Failure to obtain property rights and easements needed for corporate activities
- Failure to obtain software licenses or other intellectual property
- Failure to exercise appropriate governance over joint-ventures / subsidiaries

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Management of the above risks will impact the revenues or other advantages that the Corporation is seeking to achieve, and the potential lawsuits and financial liabilities that the Corporation may be exposed to.

RISK TREATMENT:

The Corporation has risk management programs in place for particular, high risk commercial activities such as the purchase of gas hedges and power trading.

Board approval is required for all contracts of first importance to the Corporation, fundamental change, purchases over $5 million and discretionary payments over $5 million. There are Board guidelines for the creation of subsidiaries and joint-ventures.

The majority of commercial risks are managed within the Business Units. Management is responsible to manage the opportunities, obligations and risks in all documents that are signed. Policy requires the approval of a Division Manager for any contract containing non-standard risk, liability or indemnity provisions. Contracts and ventures of first importance to the Corporation are coordinated at the executive level with Board reporting and approvals. Policy requires legal approval of all contracts of first importance to the Corporation and all consulting contracts.

Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: H. Governance / Regulatory / Legal

TITLE: 5. NERC/MRO Reliability Standards

RISK: The Corporation could face negative consequences if it does not comply with mandatory NERC/MRO reliability standards.

DESCRIPTION:

NERC/MRO Standards identify specific reliability requirements for the planning, design, operation, and maintenance of the North American bulk power system.

NERC reliability standards are binding on the corporation pursuant to a Manitoba Order in Council, with an interim agreement between Manitoba Hydro, NERC, and the MRO in place that details monitoring and enforcement processes. Legislation was passed and received Royal Assent on June 11, 2009. The legislation will become effective upon Proclamation by the Lieutenant Governor of Manitoba, at which time the existing interim agreement will be cancelled between the aforementioned parties. NERC has been recognized in a letter from the Manitoba government, and the National Energy Board, which regulates international power lines, has also recognized NERC and expects utilities with such lines to comply with NERC standards.

A finding of non-compliance to these standards could result in the following potential consequences:

- Financial penalties up to $1 million per day per violation
- Increased regulatory scrutiny by the PUB as a result of violations
- Public disclosure of non-compliances, which may result in a negative impact on the Corporation's reputation and its standing in the industry
- Immediate Remedial Action Directives imposed by NERC/MRO on the Corporation
- Negative impact to Manitoba Hydro's export capability

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The violation of mandatory standards could threaten the reliability of the bulk electric system. Manitoba Hydro recognizes reliability as an important priority; one which provides exceptional value to customers. Public disclosure of non-compliance on a single significant matter, or numerous times on points of lesser significance, could put negative pressure on the Corporation's image.

RISK TREATMENT:

The Corporation has developed a Corporate NERC Reliability Compliance Program [redacted]

Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: I. Aboriginal

TITLE: 1. Relationships

RISK: [redacted]

DESCRIPTION:

[redacted]

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

[redacted]

RISK TREATMENT:

[redacted]

Likelihood	Med
Consequence	M High
Tolerance	Low

CATEGORY: I. Aboriginal

TITLE: 2. Legal

RISK: [redacted]

DESCRIPTION:

[redacted]

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

[redacted]

RISK TREATMENT:

[redacted]

Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: J. Emerging Energy Technologies

TITLE: 1. Emerging Energy Technologies

RISK: New technology renders current facilities cost excessive.

DESCRIPTION:

A significant breakthrough in new emerging technologies (energy storage, bioenergy, solar, wind, etc.) could result in lower electricity production costs and subsequently downward pressure on the market price.

At the present time all indications are that the desire to reduce GHGs, improve air quality and for more environmentally acceptable "green" sustainable or renewable energy sources will have exactly the opposite effect and put upward pressure on the market price. Alternative generation technologies are typically more expensive than conventional generation. Generally, the more mature alternative technologies such as wind power are closer to commercial viability without subsidy, but are coming down in cost more slowly, while less mature technologies such as photovoltaics are coming down more quickly, but have long way to come down.

Also at the present time, a gradual breakthrough is continuing to occur in the automobile industry, which is actively developing electrified automobiles, in the forms of Plug-in Hybrid Electric Vehicles (PHEVs) and pure Battery Electric Vehicles (BEVs) that are likely to increase the electric loads, beginning between 2012 and 2014, both within Manitoba and in export markets; however the adoption, enabled by continuing developments in battery technology but ultimately governed by the rate of replacement of existing vehicles, is likely to occur gradually, over 20 to 40 years, and not exert sudden pressures on electric utilities.

Manitoba has significant biomass resources that may be used for bioenergy. Crop residues using straw from wheat, canola, oats, barley, flax, corn, sunflower and beans are also coming closer to being economic, although plant sizes are generally small compared to hydroelectricity (less than 50 MW).

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

The impact of this risk is reduced revenue from energy sales and could possibly result in assets becoming stranded. The business case for a new merchant plant would also be at risk. If this risk came to pass it would almost certainly not occur for many years, perhaps 20 years at the earliest. Development changes in emerging energy technologies have tended to be more evolutionary than sudden, which means that relative value thresholds between conventional and emerging generations are likely to be approached gradually, particularly against hydro, which is relatively immune to commodity fuel price swings.

RISK TREATMENT:

Manitoba Hydro retains expertise and keeps well informed of the direction occurring within the industry. An "*emerging energy technologies status report*" is provided to the Executive periodically. This report provides an update on emerging energy technologies (alternative energy) such as wind, bioenergy, solar, hydrogen, and energy storage including their advantages, disadvantages, price comparisons, commercialization status, and issues driving these technologies.

Likelihood	Low
Consequence	M High
Tolerance	Low

CATEGORY: K. Strategic

TITLE: 1. Strategic Direction and Implementation

RISK: Missed opportunities, unfavourable business decisions.

DESCRIPTION:

Strategic planning is the overarching methodology by which the Corporation sets direction, aligns resources, and integrates corporate management systems.

POTENTIAL IMPACT ON ACHIEVING CORPORATE OBJECTIVES:

Establishing, communicating and implementing strategic direction is essential in managing threats and opportunities on several fronts. Strategic decisions have the potential to significantly impact the corporate financial situation either positively or negatively pertaining to any of the identified risk categories. Examples include: large scale capital projects to advance capacity expansion for export sales and to improve reliability, attraction and retention of a high caliber workforce, the positive image as a socially responsible company, stakeholder relationships, market restructuring and market access,, internal financial processes, resource optimization, performance and process management and improvement.

RISK TREATMENT:

Senior management is charged with the duty to provide clear, focused, well communicated strategic direction and to ensure the implementation of the strategic direction throughout the Corporation. The process employed is the annual Corporate Strategic Plan (CSP) process which involves the Executive and Division Managers and includes the identification and assessment of external and internal challenges and opportunities.

Each business unit incorporates the CSP into their respective business plans based on an evaluation of their business area, then the divisions utilize their respective business unit plans as they develop their plans and so on. During this cascading process, goals, measures and strategies/actions are either adopted or derived from the level above, becoming increasingly oriented to planning of business operations as the process moves downward through the organization.

APPENDIX B - CORPORATE RISK MANAGEMENT FRAMEWORK

The Corporation has adopted the following six step Risk Management Process, Risk Rating Criteria and Risk Tolerance Rating Criteria to consistently identify, assess and manage risks:

Six Step Risk Management Process

1) **Mission / Mandate**

The process of identifying and managing risk is initiated at the Corporate, Business Unit, Division, Department, or project level by focusing on the underlying mission / mandate and specific strategic goals established for that particular area of the Corporation.

2) **Risk Identification**

Risks are identified based on the factors that influence the performance of the area of the Corporation being assessed.

3) **Potential Impact**

Risks are analyzed for potential impact and measured in terms of consequence and likelihood. Consequence is quantified in terms of system reliability, safety, finance, environmental impact and customer satisfaction. For each consequence identified, the likelihood (probability) is determined of the event occurring.

4) **Risk Treatment**

Actions are taken to reduce the likelihood of a negative event occurring or to reduce the negative consequences should a negative event occur. Risk treatment can include a reduction of the risk through modification of operational activities, a sharing of the risk through external insurance or acceptance of the risk as a normal consequence of the business and/or operations. The acceptance of risk is subject to that risk being within the approved tolerance levels of the Corporation.

5) **Residual Risk**

Certain levels of residual risk may remain even after actions have been taken to reduce their likelihood and consequences. An assessment is performed to confirm that the residual risk levels are within approved tolerances.

6) **Reporting and Monitoring**

Systems are implemented to monitor key risks, and information provided by these systems are used to facilitate management actions. Reporting systems ensure that senior management and other stakeholders are appropriately informed and risks are managed within the Corporation's approved risk tolerances.

Corporate Risk Rating Criteria

CORPORATE RISK PROFILE
RATING CRITERIA

	MEASURES	RATING		
		Low	Medium	Medium High
CONSEQUENCE				
Financial	Net income / capital investment	$0 - $50 million	$51 - $150 million	> $150 million
System Reliability	Domestic Customers	Outage affecting 50 customers for 4 hours Not life threatening	Outage affecting 500 customers for up to 24 hours. Have ability to serve critical loads. Not life threatening as critical loads served.	Do not have capacity to serve Manitoba load for extended period of time. Life threatening. Loss of public confidence.
	MW generation or interconnection capacity	NERC level 1 In compliance with industry reliability standards.	Loss of 2000 MW. NERC level 2 - load management procedures in effect. In compliance with industry reliability standards.	Loss of > 2000 MW. NERC level 3 - firm load interruption imminent or in progress; and / or non-compliance with industry reliability standards.
Safety - Employee and Public	High risk accidents, severity rate, frequency rate and public contacts.	Minor injuries. In compliance with laws and industry standards.	Disabling injuries. In compliance with laws and industry standards.	Severe injuries and fatalities; and / or non- compliance with legislation and industry standards resulting in imprisonment for MH mgmt, significant fines and loss public trust.
Environment	Environmental impact - air emissions, water mgmt, spills, land & habitat disturbances, etc.	Minor impact to environment. In compliance with stakeholder expectations and laws and regulations. Ability to obtain / renew environmental licensing and operating approvals.	Local and contained damage to environment. In compliance with stakeholder expectations and laws and regulations. Ability to obtain / renew environmental licensing operating approvals.	Severe widespread and uncontained damage to environment; and / or non-compliance with stakeholder expectations, laws, and regulations resulting in imprisonment for MH mgmt, significant fines, loss of public trust and long term operating restrictions
Customer Value	Customer perception service with regard to:			
	Retail electricity rates	No rate increase	Annual increase < 10%	Annual increase > 10%
	Reliability and quality service	Restoration service within 4 hours, no threat to public safety,. < 1.3 outages/customer/ year, provision energy related services.	Restoration service within 24 hours with no threat to public safety. 2 outages/customer/year,	Outage for extended period of time. Life threatening. Loss of public confidence.
	Reputation	Local media coverage with negligible impact on stakeholders.	A highly visible event attracting national media coverage or environmental concern; and /or a moderate negative impact on stakeholders.	A highly visible event attracting international media coverage or environmental concern; and / or a significant negative impact on stakeholders such as breach of privacy, contractual obligation or environmental stewardship.
LIKELIHOOD		Event is not likely to occur within 10 years.	Event is likely to occur within 5 - 10 years.	Event is likely to occur within 1 to 10 years.

Note: While risk impact ratings are outlined for low, medium and medium-high those considered more significant than others in the medium-high category are elevated to a high category to signify their potential higher impact on the Corporation.

Corporate Risk Tolerance Definition / Rating Criteria

Tolerance is defined as the allowable or permissible variation from a standard. For Manitoba Hydro's purposes, tolerance is further defined as the extent to which the amount of residual risk is deemed to be reasonably acceptable within the resources available to the Corporation. To the extent that tolerances fall beyond reasonably acceptable levels, actions have been taken (or are being taken) to mitigate that risk.

Typically, risks with high consequence have corresponding low tolerances. Safety / Health / Workplace Violence (E.1) and Reliability of Service (C.4) are examples where the Corporation has a low tolerance for risk due to the severe consequences of negative events.

Tolerance is rated as either, low, medium or high based on the following parameters:

- Low – Zero or limited variability is accepted. Low tolerance is usually associated with an area where the consequences of negative events are significant and the Corporation has the ability to control the risk.

- Medium - Some variability is accepted. Medium tolerance may also be associated with high risk but the ability of the Corporation to control the risk may be limited.

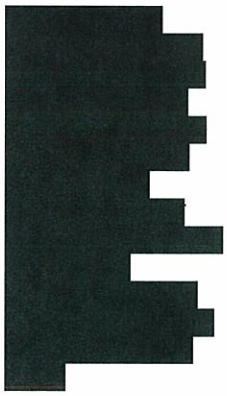
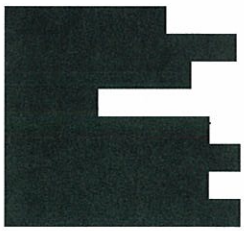
- High – Significant variability is accepted. Consequence is always low.

To ensure adequate control and monitoring of risk, management establishes rules, limits, targets and guidelines and continually monitors these indicators and responses accordingly. The Corporation has created three levels to illustrate this:

- Green: no additional action required at this time as the risk is under control and is not subject to significant change.

- Yellow: there are or appears to be some emerging issues that need to be closely monitored and addressed. Additional action is required to bring the risk back to the established tolerance. Management has time to respond in an orderly manner.

- Red: the risk has become critical to business operations and requires day to day senior management attention. If not resolved quickly, it could have catastrophic impacts on the organization.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
A. MARKET				
1. Domestic				
1. Competition	Medium	Natural gas market share, greater than or equal to 60% of commodity sales.	Commodity sales below 60% limit In 2009, Manitoba Hydro started offering consumers the choice of 1, 3 or 5 year fixed-price primary gas products with the price and offering varying during different marketing periods.	Manitoba Hydro intends to continue offering fixed-price primary gas products to consumers compatible with product demand.
2. Uneconomic Loads	Medium	Intensive loads do not materially exceed 25 MWs.	Intensive loads were being added at an average rate of 50 MW per year prior to 2009, but large domestic loads have fallen off since the beginning of the recession.	The PUB recently denied Manitoba Hydro's Application to apply higher rates to large load expansions; MH filed a new application in February, 2010, but continues to explore other alternatives.
2. Export				
1. Regulatory Environment	Low	Unfettered market access.		
2. Competition	Medium	Downward price pressure due to new technologies limited to $10 million per year.	Development in new technologies and coal enhancements are occurring.	Maintain market intelligence.
3. Transmission	Low	Maintain system interconnection capacity ratings	MH influences ratings through a cooperative process with MISO, tie line partners and MAPP. MH also participates in reserve sharing agreements to maximize transfer capability.	Maintain current efforts.

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
4. Special Interest Groups	Low	No negative image impact that decreases export revenues by $15 million per year.	[redacted]	[redacted]
5. Protectionism	Low	100% participation in export markets	[redacted]	Maintain Industry representation. Support lobbying efforts in US and Canada for energy policy and market rules.
6. Domestic Requirements	Medium	Responsive to domestic load demands limited to $5 million decrease in export sales per year.	Electric Load Forecast indicates a decrease in domestic demands due to economic conditions.	DSM programs, future intensive load ruling and generation planning criteria under review.
7. Commodity Availability	Medium	Changes in water supply expected to be gradual.	Good water conditions exist reducing pressure on water supply diversions.	Continue monitoring responsible entities.
8. Term Sheets with WPS and MP	Medium	No undue impact on long term revenues, system reliability, energy supply security and customer rates.	There is a risk that power sales envisaged in the term sheets with WPS and MP will not be finalized due to the affordability of a major new transmission line.	Continue to: (1) work closely with relevant utilities, regulatory bodies and others to promote projects, (2) assess and maintain back-up options. (3) dialogue with WPS and MP and other potential purchasers.
B. FINANCIAL				
1. Exchange	Medium	As defined in the Foreign Exchange Exposure Management Program.	Current exposure is less than USD $1.3 billion which falls within EMP limits.	Continue to monitor USD cash forecast and take appropriate actions to stay within the EMP program limit.
2. Interest Rates	High	As defined by floating rate borrowing limit of 30% of total debt outstanding.	Floating rate borrowing is under 30% limit.	Continue economic financial monitoring and target to keep floating rate borrowing within a 15% to 25% range.
3. Credit	Medium	As defined by counterparty credit rating, limits and arrears policy.	Within established guidelines and policies, however global credit crisis continues to cause tighter lending	Maintain existing controls and closely monitor global credit issues.

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
			standards.	
4. Inflation	Medium	Combination of Financial, Customer Rates and cost targets.	Inflation is under control and targets are being met. Persistent high levels of inflation will increase capital costs and reduce net income. Some offset potential through export rates.	Should high levels of inflation persist, larger general rate increases may be necessary.
5. Physical Gas Price Volatility	Medium	Sales rate increases due to unhedged gas costs within acceptable limits.	Gas cost increases mitigated by special supply arrangements, to the extent possible.	Continue to enter into special supply arrangements and complete analysis of the optimum suite of assets to serve the Manitoba load.
6. Gas Derivative Instruments	Medium	As defined by Gas Derivatives Hedging program.	Counterparties and limits are within program requirements. There is currently uncertainty with regards to hedging for the quarterly rate service due to the PUB Order to terminate the program.	Address PUB response to Review and Vary application when received.
7. Capital Structure	Medium	Debt/ Equity target	Equity ratio target of 25% attained, but future deterioration is possible with planned capital spending.	Maximize export revenues and cost control. Maintenance of financial targets prior to major capital expansion.
8. Energy / Fuel Price Volatility	Medium	Included in drought tolerance for power purchase requirements.	Good water conditions exist, however volatility in prices has increased since deregulation.	Drought Plan and effective use of the MISO day ahead market. Hedging is a possibility.
9. Power Financial Instruments	Low	As defined in the Management Control Plan.	Within established guidelines.	Establishment of an enhanced risk measurement capability in the Middle Office.
C. ENVIRONMENTAL				
1. Water Supply Drought	Medium	Operation Planning Criteria, adequate financial reserves. Potential 5 year drought impact	Good water conditions that could change within a year	Drought Plan, cost reduction efforts studied

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
		over $2.8 Billion (IFF).		
2. Climate Change / Water Resources	Medium	Climate change impacts expected to occur gradually	Climate change issues are being studied. Any required adaptation to operations and resource plans will be made as information becomes available.	Continue to monitor progress on determining climate change impacts and respond accordingly.
3. Operational Impact and infrastructure	Low	No unplanned environmental impacts, ISO 14001 compliant, CSP environmental targets met.	Several cases of uncertainty over how legislation may be applied retroactively; identification of several systemic gaps in how environmental risks are managed.	Actively communicate potential and actual impacts. Establish corporate compliance assessment system. Endeavour to articulate environmental performance.
1. Legal - Species at Risk Act	Medium	No undue restrictions on current operations and ability to build future projects.	The Corporation has taken significant action to minimize the need for and likelihood of listing Lake Sturgeon under SARA. However uncertainty remains regarding whether the Federal Government will decide to list Lake Sturgeon under SARA or not.	Engage DFO to develop a conservation agreement with the Corporation to maintain maximum control of recovery measures, avoid listing, or, if listing occurs, authorize MH activities otherwise impacted by SARA prohibitions.
4. Reliability of Supply	Low	No major obstruction to plans and operations to build necessary facilities.	Ongoing objections to proposed system improvements (Bipole III) and the added time needed to resolve these objections.	Be proactive in addressing concerns and ensure adequate lead times to resolve issues.
D. INFRASTRUCTURE				
1. Loss of Plant (all property, all perils)	Low	No major facility loss. CSP reliability targets and contingency standards. Max coverage is $5.7 billion.	[redacted]	Continue to assess exposures of loss and develop appropriate risk reduction alternatives and emergency plans.
1. Dam and Dyke Structures	Low	No Dam failures, in compliance with dam safety guidelines, maintain	Maintenance planning [redacted]	Maintain Dam safety program [redacted]

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
		appropriate emergency response plans.		
2. Insufficient supply (Drought Peril)	Low	Historical low flows determine firm supply and operating reservoir levels.	Current water conditions suggest that critical loads will be met.	Maintain current water resource management systems.
3. Prolonged Loss of System Supply	Low	No long term system outages, compliant with reliability standards, appropriate continuity plans in place.		
4. System Shutdown (Short Term)	Low	No major system outages, CSP targets for reliability of service, compliance to reliability standards emergency response plans in place.		Maintain reliability standards and ensure system reliability through planned maintenance and upgrades.
5. System Shutdown (Natural Gas - S.T.)	Low	Gas supply is available to meet the needs of the province.		
6. Technology	Low	Computer operations will not be compromised. Compliance with all security standards.		
7. Special Interest Groups	Low			

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
8. Emergency Management Program	Low	Ability to provide minimum acceptable energy services, protect human life and the environment. No undue financial consequences to the Corporation and Manitoba economy.	[redacted]	[redacted]
E. HUMAN				
1. Safety and Health	Low	Within CSP targets for high-risk accidents accident severity and frequency.	The frequency and severity of workplace injuries are still greater than Corporate targets.	Continue to build upon Task Force recommendations to address workplace risk and change safety culture.
1. Infectious Disease	Low	Effective response to disease outbreak.	An Influenza Pandemic Plan was reviewed and updated in September, 2009.	Continue to refine plan, holding additional simulation exercises and providing additional education to MH workforce.
2. Union / Employee Issues	Low	Continued positive relations and contract settlements.	The four collective agreements were renegotiated in 2009. [redacted]	[redacted]
3. Succession Planning	Low	Key vacant positions filled with qualified people. Continue strong relationships and enhance partnerships with post secondary institutions.	Significant retirements in the near future combined with a shrinking labour pool.	Completion and maintenance of detailed succession plans for all key strategic & critical positions.

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
4. Technology	Low	Technology issues fully understood and effectively incorporated into existing systems.	Several different technologies exist within MH's infrastructure and staff have been able to keep up to both older and newer technologies. This risk will increase with time.	Maintain an appropriate level of resources to manage this increasing risk.
F, BUSINESS OPERATIONAL				
1. Supply Chain	Low	Established 90 day supply for critical items. Emergency spares maintained. Materials available when needed.	Material and services delivered within policy however the demand for construction services in some trades is still a concern. In some cases have exceeded budget expectations. Experienced significant issue with single source service supplier.	Continue risk management protocol, including monitoring market trends, sourcing strategic alliance partners, reducing single source provider and stocking emergency spares of critical items.
2. Operational Controls	Low	Adherence to all established guidelines, procedures, policies and programs.	Adequate control structures in place and working. Exceptions reported and appropriate corrective action taken	Maintain effective control mechanisms.
G. REPUTATION	Low	No negative image impacts. Meet CSP customer service and public attitude index targets.	Negative impact to corporate reputation resulting from allegations by New York Consultant.	Continue taking all actions deemed necessary to manage issue.
H. GOVERNANCE / REGULATORY / LEGAL				
1. Regulation and Licensing	Low	Current restrictions and licenses maintained. New facilities receive favourable licensing.	[redacted]	[redacted]
2. Export market Access	Low	Current capacity to export continues (100%)	Rules are constantly changing in export markets.	Actively participate in ruling developments. Ongoing assessment.

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
3. Legal Compliance	Low	Compliant with all laws and regulations.	[redacted]	[redacted]
4. Contacts and Ventures	Low	Adherence to all terms and conditions High risk agreements appropriately reviewed and executed	Corporation ensures adherence through an effective contract and venture control system.	Maintain control systems.
5. NERC/MRO Reliability Standards	Low	100% compliance to all applicable NERC / MRO standards.	[redacted]	[redacted]
I. ABORIGINAL				
1. Relationships	Low	[redacted]	[redacted]	[redacted]
2. Legal	Low	[redacted]	[redacted]	[redacted]

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.

RISK	RATING	TOLERANCE	STATUS	MGMT ACTION
J. EMERGING ENERGY TECHNOLOGIES	Low	Attention required if there is an expectation that the Corporation's position related to retail electricity rates in North America is affected .negatively by emerging energy technologies.	Manitoba Hydro continues to provide energy services that are reliable, safe and cost competitive. This risk, if it were to materialize, would not be expected to occur in the next 20 years.	Maintain expertise and continue to issue emerging energy technologies report.
K. STRATEGIC	Low	Long term goals are pursued. No missed opportunities. No unfavourable business decisions.	Corporation continues to progress towards its stated vision. Export Sales Strategy and Northern Expansion plans are aggressive with large potential opportunity and risk	Annual review and updating process to continue with significant analysis, scrutiny and oversight of export sales and northern expansion.

Risk is being managed appropriately and is not expected to materially change.
Some emerging issues need to be monitored and additional action may be required.