

# BC HYDRO SERVICE PLAN 2009/10-2011/12





## LETTER FROM THE CHAIRMAN AND PRESIDENT AND CEO TO THE MINISTER



(L) Mossadiq S. Umedaly, Chairman(R) Bob G. Elton, President and Chief Executive Officer

The Honourable Blair Lekstrom Minister of Energy, Mines and Petroleum Resources

On behalf of the Board of Directors, management and employees of BC Hydro, we are pleased to submit BC Hydro's Service Plan for fiscal years 2009/10 – 2011/12. This plan was prepared under the Board's and management's direction in accordance with the *Budget Transparency and Accountability Act* and the B.C. Reporting Principles. It has been developed to be consistent with Government's strategic priorities and Fiscal Plan. The Board and management are accountable for the contents of the plan, including the selection of performance measures and targets.

We have considered all significant assumptions, policy decisions and identified risks, as of January 21, 2009, in preparing this plan. The performance measures presented are consistent with BC Hydro's mandate and goals, and focus on aspects critical to the organization's performance. We determined the performance targets in this plan based on an assessment of BC Hydro's operating environment, forecast conditions, risk assessment and past performance. Further, these measures have been prepared in light of very uncertain and challenging economic conditions around the globe. While BC Hydro and its customers are not immune to the effects of the current economic conditions facing the world, we plan and will adapt our business to meet near-term challenges and potential opportunities while managing in such a way as to preserve and enhance long-term value. This ensures we continue to fulfill our mandate of generating and distributing electricity to British Columbians in a socially and environmentally sustainable manner.

Our role, as it has been since BC Hydro was first established, is to be a leader in the development of clean electricity generation and to facilitate further economic development within the province. This leadership requires a combination of actions, including a continued emphasis on cost-effective operations, the safety of our employees, greener procurement practices and a renewed focus on the reliability and resiliency of our network.

This past year was an extremely active regulatory period for BC Hydro as we initiated a number of measures outlined in *The BC Energy Plan: A Vision for Clean Energy Leadership* while continuing to ensure that BC Hydro remains a world leader in the production and supply of low cost, clean and renewable electricity. The three-year period covered by this Service Plan will see the continued development and implementation of these initiatives in a prudent and cost-conscious manner.

Last February, BC Hydro filed a Revenue Requirements Application (RRA) for the next two fiscal years with the British Columbia Utilities Commission (BCUC). This application included a \$3.4 billion capital program to renew and upgrade BC Hydro's generation facilities, invest in key electricity infrastructure such as the transmission and distribution network, acquire new electricity sources and implement conservation and efficiency initiatives. While BC Hydro is committed to mitigating the impact on ratepayers, it is important to note that new revenues are required to ensure the reliability of our system for future generations. Government has asked BC Hydro to contribute to the cross government budget management exercise by increasing our net income to the Province. BC Hydro will meet this commitment while continuing to manage the business by reducing costs and mitigating customer impacts, and ensuring that our rates remain amongst the lowest in North America.

As reflected in our most recent update to our Long-Term Acquisition Plan—a 10-year action plan to meet the growing demand for electricity in British Columbia—BC Hydro continues to forecast a growing demand for electricity. To meet this challenge in a cost effective manner, this plan emphasizes the need to maximize conservation and energy-efficiency measures while meeting *The BC Energy Plan* goal of attaining electricity self-sufficency by 2016. In addition, BC Hydro is acquiring additional sources of electricity on behalf of British Columbians through imports, as necessary, under Powerex and Electricity Purchase Agreements signed with Independent Power Producers through our current acquisition processes: the Standing Offer Program, the Bioenergy Call and the Clean Power Call.

BC Hydro has implemented a two-tier conservation rate that provides residential customers with a financial incentive to conserve electricity, following review and approval by the BCUC. When all other options are considered, conservation remains the easiest, fastest and most cost-effective measure to balance our supply and demand for electricity. BC Hydro continues to build awareness of the need to use less electricity, and to use it more efficiently, through our Power Smart programs and new Demand-Side Management initiatives.

To that end, BC Hydro continues to move forward with the Smart Metering and Infrastructure Program. Smart meters will provide near real-time information about consumption and billing data, and will enable our customers to make choices about how and when they use electricity. Over time, BC Hydro will be making In Home Displays (IHDs) available to its customers. The IHD will show electricity consumption data in real-time providing customers with the information and tools they need to take action to reduce their consumption, save money and help us meet our conservation goals.

While energy efficiency and conservation, and purchases from Independent Power Producers will contribute significantly to meeting the growing demand for electricity in this province, they alone will not be enough if demand for electricity continues to grow. We must also consider new sources of clean energy. That is why the Province directed BC Hydro to move forward with a second stage review of the potential Site C project which involves extensive public consultations. While BC Hydro has yet to make a recommendation to the Province, we will continue to plan ahead to ensure that future generations of British Columbians enjoy the clean, reliable and cost-competitive electricity we have today.

Further, BC Hydro will continue to aggressively pursue projects that allow for the quick adoption of new solutions as they become available. For example, we are developing a multi-year Plug-In Vehicle Program to demonstrate and test vehicles that rely primarily on electricity rather than fossil fuels as an energy source. It is one of the ways that BC Hydro will become an integral part of a carbon-conscious future and ensure that we can support initiatives that take us toward the Province's goal of reducing greenhouse gas emissions by 33 per cent by 2020.

Whether it is through responsible use of provincial resources, our support for local governments as they build more sustainable communities, or working with our customers to foster conservation and development, BC Hydro will continue to be an environmental steward, a local partner and an economic driver in communities across the province to fulfill our primary purpose of providing reliable power, safely, and at competitive rates for generations.

Garrady & Ulmedaly

Mossadiq S. Umedaly, Chairman

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Bob G. Elton, President and Chief Executive Officer

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# ORGANIZATIONAL OVERVIEW

As a Crown corporation, we are accountable to the B.C. Government through the Minister of Energy, Mines and Petroleum Resources. In this Service Plan, we outline how we intend to discharge that accountability over the period covered by the Plan.

This accountability takes three primary forms.

First, there is an overriding need to act in the best interests of British Columbians for generations to come, recognising the long-term impacts of what we do, and that we must also meet the highest standards of ethical behaviour.

In 2004, BC Hydro adopted a new purpose—Reliable Power, at Low Cost, for Generations—as well as a number of Long-Term Goals. For this Service Plan, we have renamed these Long-Term Goals "Guiding Principles," recognising that they are aspirational in nature. The Purpose and Guiding Principles, together with our five Values, provide a framework that governs how we do what we do, and inspires us to raise our sights.

Second, there are policy statements which Government expresses through its Energy Plans, Legislation and Special Directions to the BCUC.

Many of these directions relate to the ways in which we will meet demand over the long term. In this Service Plan, we have summarised our overall strategy in this area and also outlined the major steps we are taking over the next three-year period to carry out these directions.

Third, BC Hydro sets targets for its operational effectiveness, using a balanced scorecard of measures that are approved by Government.

This Service Plan includes all of those measures and targets as well as BC Hydro's key plans to meet all of these accountabilities. We will also report against these accountabilities every quarter and in our Annual Report.

### MANDATE

BC Hydro is one of Canada's largest electric utilities. Our mandate is to generate, purchase, distribute and sell power and meet the need in B.C. in a cost effective and reliable manner.

As a provincial Crown corporation, we receive guidance from the Province—as the shareholder—through several policy instruments, including a Shareholder's Letter of Expectations and the 2002 and 2007 Energy Plans.

Established under the *Hydro and Power Authority Act*, BC Hydro is regulated by the BCUC. The BCUC, under the *Utilities Commission Act*, is responsible for ensuring that customers receive safe, reliable and non-discriminatory energy services at fair rates from the utilities it regulates; that the shareholders of these utilities are afforded a reasonable opportunity to earn a fair return on their invested capital; and that the competitive interests of B.C. business are not frustrated.

Value for the shareholder extends beyond the financial expectations outlined above to include such other attributes as reputation and delivering on *The BC Energy Plan*. Reputational value includes the ability to provide and maintain an acceptable standard of living for British Columbians, and integral to this is providing reliable energy at competitive rates. *The BC Energy Plan* (described in more detail below) provides further clarity on value as it seeks to make the Province energy self-sufficient while taking responsibility for our natural environment and climate. These attributes are balanced by the financial expectations which ensure that we focus on operating efficiently and effectively while delivering shareholder value.

### GOVERNMENT DIRECTION AND EXPECTATIONS

### **ENERGY PLAN**

On February 27, 2007, the B.C. Government released *The BC Energy Plan: A Vision for Clean Energy Leadership*. Building on the 2002 Energy Plan, *The BC Energy Plan* looks to all forms of clean alternative energy—as well as energy conservation and efficiency—in meeting the future energy needs of British Columbians.

The plan sets a goal for BC Hydro to acquire 50 per cent of incremental resource needs through energy conservation and efficiency by 2020, while at the same time requiring that:

- all new electricity projects developed in B.C. will have zero net greenhouse gas emissions
- existing thermal generation power plants will reach zero net greenhouse gas emissions by 2016
- there will be zero greenhouse gas emissions from coal-fired electricity generation
- clean or renewable electricity generation will continue to account for at least 90 per cent of total provincial generation, placing the province among the top jurisdictions in the world, and
- the province be electricity self-sufficient by 2016.

### SHAREHOLDER'S LETTER OF EXPECTATIONS

The Shareholder's Letter of Expectations describes the relationship between BC Hydro and the Province, and sets out objectives the shareholder wishes BC Hydro to achieve. The Province and BC Hydro review the letter annually and update it as required.

Directions outlined in the most recent letter, dated May 2008, focus on accountability, energy conservation, climate change, stakeholder consultation, private sector support, supply options, electricity trading and government relations. The current letter can be found at www.bchydro.com/about/company\_information/openness\_accountability.html.

### RECENT LEGISLATION

On November 29, 2007, the B.C. Government passed Bill 44, the *Greenhouse Gas Reduction Targets Act*. The act puts into law British Columbia's target of reducing greenhouse gas (GHG) emissions by at least 33 per cent below 2007 levels by 2020, and by at least 80 per cent below 2007 levels by 2050. The Government will set realistic, economically viable interim targets for 2012 and 2016 by the end of 2008.

The act requires provincial ministries and agencies, schools, colleges, universities, health authorities and Crown corporations (including BC Hydro) to become carbon neutral by 2010 and to make public a report every year detailing the actions (including changes to facilities, vehicle fleets and procurement, but excluding travel) they have taken towards carbon neutrality.

During 2008, the B.C. Government passed several new pieces of legislation to create the regulatory framework for further GHG reductions. New legislation relevant to BC Hydro includes the *Greenhouse Gas Reductions (Cap and Trade) Act*, which establishes a cap and trade regulatory system, and amendments to the *Environmental Management Act*, which set into law *The BC Energy Plan's* requirement for zero net GHG emissions from new and existing (in 2016) electricity projects.

In addition:

- On July 1, 2008, the *Carbon Tax Act* came into effect. The carbon tax applies to fossil fuels, including gasoline, diesel, natural gas, coal, propane and home heating fuel, and is intended to encourage individuals and businesses to make more environmentally responsible choices, reduce their use of fossil fuels and thus reduce GHG emissions.
- On May 1, 2008, the *Utilities Commission Amendment Act* received Royal Assent. The amendments align the *Utilities Commission Act* with *The BC Energy Plan's* objectives and require the BCUC to consider, among other objectives, the goals of:
  - > reducing GHG emissions
  - > pursuing energy conservation and efficiency
  - > producing and acquiring electricity from clean or renewable resources
  - > providing technology and information to customers to help them conserve,

and implement several other policy actions from The BC Energy Plan.

This Service Plan sets out the actions BC Hydro will undertake in response to these directions. Detailed information about our progress on the directions will be provided in BC Hydro's 2009 Annual Report.

### PURPOSE: "RELIABLE POWER, AT LOW COST, FOR GENERATIONS"

VALUES								
ACCOUNTABILITY	INTEGRITY	SAFETY	SERVICE	TEAMWORK				
CONS	ERVE	BU	ILD	BUY				
CLIMATE CHANGE AND ENVIRONMENTAL IMPACT To have no net incremental environmental impact by 2024 when compared with 2004.	ENERGY CONSERVATION AND EFFICIENCY Develop and foster an energy conservation and efficiency culture in B.C. that leads to customers choosing to make a dramatic and permanent	Provide be segment. ENERGY	LITY (CUSTOMER est-in-class reliabil SECURITY (SUPP lomestic needs.	lity by customer				
	reduction in the use of electricity.							

### SAFETY

**SHORT-TERM PRIORITIES** 

Provide the safest work environment compared with the best performers in any industry, where not one of our employees experience a serious work-related injury.

### **CUSTOMER SATISFACTION**

Lead by offering extraordinary value and service.

### FINANCIAL TARGETS

Maintain low costs for electricity customers in B.C. over the long-term, while consistently delivering 100 per cent of forecast net income.

### PEOPLE

To be a top employer for generations

Our Purpose, Values and Goals inspire us as an organization and help clarify how we can deliver value to our shareholder across multiple attributes.

### PURPOSE

BC Hydro's purpose is to provide "Reliable Power, at Low Cost, for Generations." This purpose provides the context for all of our business decisions.

### VALUES

BC Hydro has five core Values that are essential to our success: Accountability, Integrity, Safety, Service and Teamwork.

### GUIDING PRINCIPLES AND SHORT-TERM PRIORITIES

BC Hydro has 15 Guiding Principles developed and adopted by the Board in 2004. These Guiding Principles provide an enduring framework for how we manage our business. For the short term, several of these principles have been selected as priorities to focus on. *The BC Energy Plan's* objectives are largely captured within this subset. For our priorities, we assign specific targets and measures to assess progress. Work, however, is ongoing to ensure all of our Guiding Principles are met.

The following table indicates how these priorities relate to the Guiding Principles.

	GUIDING PRINCIPLE	SHORT-TERM PRIORITY	PERFORMANCE MEASURE(S)
RELIABLE POWER	Reliability (Customer)	Reliability (Customer) Provide best-in-class reliability by customer segment.	<ul> <li>Customer Average Interruption Duration Index (hours)</li> <li>System Average Interruption Frequency Index (frequency)</li> <li>Customers Experiencing Multiple Interruptions (%)</li> </ul>
IABLE	Energy Security (Supply)	Energy Security (Supply) Meet all domestic needs.	• Winter Generation Availability Factor (%)
REL	Remote Community Electrification		• N/A
	Financial Targets	Financial Targets	Net Income (after Regulatory Accounts) (\$)
	Innovation and Technology	Maintain low costs for electricity customers in B.C. over the long term,	<ul> <li>Return on Assets (%)</li> <li>Return on Regulatory Equity (%)</li> </ul>
LOW COST	Western Opportunities	while consistently delivering 100 per cent of forecast net income.	<ul> <li>Earnings Before Interest and Taxes Interest Coverage</li> <li>Debt to GAAP Equity (%)</li> <li>Operating Costs (non-fuel) per MWh Delivered (\$)</li> <li>Operating Costs (non-fuel) per Transmission and Distribution Line km (\$)</li> <li>Operating Costs (non-fuel) per Customer (\$)</li> <li>Operating Costs (non-fuel) per Customer (\$)</li> <li>Operating Cash Flow Post Dividend to Net Capital Expenditure (%)</li> <li>Transmission and Distribution Capital Expenditures per Transmission and Distribution Line km (\$)</li> </ul>
	Environmental Impact	Climate Change and Environmental Impact Have no net incremental environmental impact by 2024 when compared with 2004.	<ul> <li>Clean Energy (%)</li> <li>GHG Emissions (Mt CO<sub>2</sub>e)</li> <li>Carbon Neutral Program Emissions (kt CO<sub>2</sub>e)</li> </ul>
	Energy Conservation and Efficiency	Energy Conservation and Efficiency Develop and foster an energy conservation and efficiency culture in B.C. that leads to customers choosing to make a dramatic and permanent reduction in the use of electricity.	• Demand-Side Management (GWh per year, cumulative since F2008)
FOR GENERATIONS	Safety	Safety Provide the safest work environment compared with the best performers in any industry, where not one of our employees experience a serious work-related injury.	• Severity • All Injury Frequency
F0R	Teamwork	People	• Vacancy Rate (%)
	Workplace	Be a top employer for generations.	• Employee Engagement
	Customer Satisfaction	<b>Customer Satisfaction</b> Lead by offering extraordinary value and service.	<ul> <li>Customer Satisfaction Index (%)</li> <li>Billing Accuracy (%)</li> <li>First Call Resolution (%)</li> </ul>
	Suppliers	Enablers, principles and targets that are	• N/A
	Stakeholder Engagement	factored into the execution of the priorities above.	
	First Nations		

### LINKAGE OF GUIDING PRINCIPLES TO SHORT-TERM PRIORITIES

Detailed definitions and targets associated with the short-term priorities are found in the Performance Measures, Targets, and Benchmarks section found on page 18. The objectives of each Guiding Principle can be found in the Appendix.

### SYSTEM

BC Hydro is the largest electric utility in British Columbia, operating 31 hydroelectric facilities and three thermal generating plants. Most of BC Hydro's 11,300 megawatts (MW) of installed generating capacity is located away from the province's major population centers.

Our hydroelectric facilities provide 90 per cent of the total electricity we generate—between 43,000 and 54,000 gigawatt hours (GWh) of electricity per year—and are located throughout the Peace, Columbia and Coastal regions of B.C. Our three thermal generating plants provide the remaining 10 per cent of total electricity generation.

We deliver electricity to our customers through a network of over 18,000 kilometres of transmission lines and 56,000 kilometres of distribution lines. This network also includes 884,000 utility poles and 319,000 transformers.

BC Hydro also serves 17 communities that are not connected to our integrated system. These non-integrated areas are typically small, remote communities, served by local generating stations owned by BC Hydro, Independent Power Producers (IPPs) or the communities themselves.

To meet the growing demand for electricity, BC Hydro also contracts with IPPs and buys power externally in the wholesale electricity markets through Powerex, our energy marketing and trading subsidiary.

### CANADIAN ENTITLEMENT

# 500 KV TRANSMISSION SYSTEM AND MAJOR GENERATING STATIONS



BC Hydro has corporate centres in Vancouver and Burnaby, and has a presence in more than 50 communities across the province through regional offices.

The Columbia River Treaty between Canada and the United States was ratified in 1964. The Treaty resulted in the construction of three dams in British Columbia—the Duncan, Keenleyside and Mica dams—for flood control and to increase hydroelectric generating potential in both countries. The Treaty also gave the U.S. the right to build Libby Dam.

Canada's share (one-half) of the extra power produced in the U.S. as a result of the Canadian projects is called the Canadian Entitlement to downstream benefits and is owned by the Province of B.C. and administered by BC Hydro. The Canadian Entitlement varies from year to year, but is generally in the range of 4400 GWh per year and about 1250 MW of capacity. The earliest termination date for the Columbia River Treaty is September 2024, subject to either country giving a minimum 10 years notice of its intent to terminate.

### WHOLLY OWNED SUBSIDIARIES

### POWEREX

Powerex Corp., a wholly owned subsidiary of BC Hydro, is a leading marketer of wholesale energy products and services in Western Canada and the Western United States, and a growing niche player in other markets across North America. Established in 1988, its energy marketing and trade activities help optimize BC Hydro's electric system resources and provide significant economic benefits to the people of British Columbia.

### POWERTECH

Powertech Labs, as a wholly owned subsidiary of BC Hydro, has been providing energy-based consulting and testing services to electric utilities, gas companies, automotive manufacturers and others since 1989. Powertech combines unique testing capabilities with multidisciplinary, expert technical staff to help clients test, demonstrate and assess the performance of their energy-related technologies and systems. Embarking on a new strategic direction in 2008, Powertech is positioned to enhance its financial viability by focusing on clean energy, competing successfully in global markets in order to create value for BC Hydro and British Columbia.

### CUSTOMERS

BC Hydro serves 95 per cent of B.C.'s population, delivering electricity safely and reliably at competitive rates to approximately 1.8 million customers. Eighty-eight per cent of our customer accounts are residential, with the remainder either commercial or industrial. Each of these three groups consumes roughly one third of the total electricity we supply.

### RATES AND REGULATION

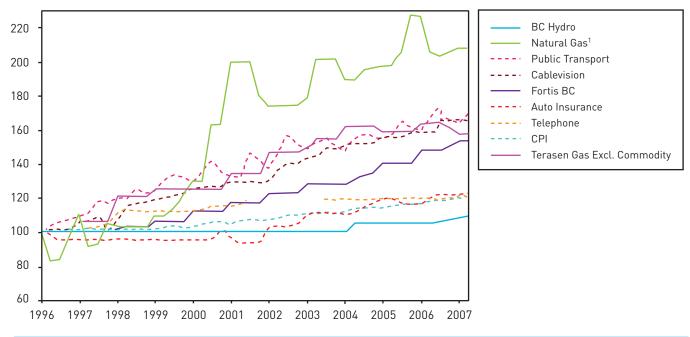
The BCUC must approve the rates BC Hydro charges for electricity.

The rates are set to allow us to recover costs incurred in serving our customers, including earning a return on equity. Both the definition of equity and the method to determine an appropriate return on this equity are defined by Special Directions from the B.C. Government. The Special Directions require annual dividend payments to the B.C. Government of 85 per cent of our net income, adjusted for capitalized finance charges and related amortization.

Since 1998, BC Hydro's rate increases have remained below the rate of inflation as recorded by the Consumer Price Index, and well below those of similar service providers.

### BC HYDRO'S RATE VERSUS VARIOUS CONSUMER PRICE INDEX COMPONENTS AND OTHER SERVICE RATES

CPI components are for BC services (unless indicated otherwise). January 1996 to June 2007



#### Quarter 1 1996 = 100

Sources: BC Hydro, FortisBC, Terasen Gas and Statistics Canada (326-0001): converted to quarterly data. <sup>1</sup>Natural Gas index is full service charge, including delivery charge and commodity cost. During the past year, BC Hydro has filed several applications with the BCUC:

• On February 20, 2008, we filed our Revenue Requirements Application (RRA) for the two years commencing April 1, 2008.

The RRA justifies the costs we expect to incur to serve our customers over a number of forecast years and, accordingly, the total revenue we require from customers to recover those costs. After a public review of the application, the BCUC determines the level of revenue that we are entitled to receive from our ratepayers.

The BCUC held an oral hearing to review this application in October 2008 and expects to issue its decision on this RRA in early 2009. Should the BCUC decision differ materially from our application, it could impact on our ability to deliver on the strategies and targets outlined in this document and result in changes to the scale and pace of planned capital and operating expenditures.

• On August 28, 2008, the BCUC approved a new, two-step Residential Inclining Block (Conservation) Rate.

The Conservation Rate, which took effect on October 1, 2008, is designed to encourage our residential customers to conserve electricity. While the two-step rate is revenue neutral to BC Hydro, 70 per cent of our residential customers will pay the same or less than they would otherwise have under the flat-rate structure—even if they take no action to conserve.

• We filed our 2008 Long-Term Acquisition Plan (LTAP) with the BCUC on June 12, 2008.

The LTAP outlines actions to be taken over the next 10 years to build on the work we have already started to meet *The BC Energy Plan*'s objectives and ensure we continue to provide reliable, cost-effective long-term service to our customers. The 2008 LTAP also provides an electricity demand and supply gap analysis, and proposes solutions for filling this gap, including a new Demand-Side Management Plan (for more on this, please see page 24).

The LTAP is constructed so that BC Hydro: a) is informed, to the extent it can be, by what is most likely to occur in the future, and b) develops a plan that addresses the most important vulnerabilities and risks to our customers. The plan must be flexible enough that we can adjust to unexpected events or changes—in terms of the supply and demand for electricity—while still addressing the vulnerabilities and risks already anticipated.

The BCUC will hold a full public hearing on the LTAP in early 2009. We expect a final decision in the spring or summer of 2009.

• We expect to file an application with the BCUC in 2009 to re-design the Large General Service rate for our medium and large commercial customers, and will design further rate structures over the next few years to help us meet our conservation targets.

### STRATEGIC PARTNERS

### BRITISH COLUMBIA TRANSMISSION CORPORATION

Created in 2003 to ensure fair and open access to the transmission system, the British Columbia Transmission Corporation (BCTC) is the provincial Crown corporation responsible for planning, operating and maintaining the province's publicly owned electrical transmission system. However, the ownership of the transmission assets (excluding control centres) remains with BC Hydro.

Upon receiving BCUC approval, the BCTC expands and upgrades the transmission infrastructure, with BC Hydro providing the capital funding. BC Hydro retains overall responsibility for First Nations and transmission property rights matters.

### INDEPENDENT POWER PRODUCERS

BC Hydro's electricity procurement will play a critical role in reaching *The BC Energy Plan*'s objective of achieving electricity selfsufficiency by 2016, as well as meeting the B.C. Government's objectives for maintaining competitive rates, clean or renewable electricity and the development of a vibrant and competitive IPP sector.

IPPs provide additional sources of electricity through the development of power projects located throughout British Columbia, using mainly renewable fuel sources.

Currently, BC Hydro has 80 Electricity Purchase Agreements (EPAs) with IPPs on the integrated system and four EPAs in non-integrated areas representing about 13,700 GWh/year of energy purchases. Of the 84 active agreements, 46 projects are in operation with most of the remaining projects expected to reach commercial operation by the end of F2011.

During F2008, IPPs provided 7,765 GWh of energy to the BC Hydro system, which accounted for about 13 per cent of total domestic electricity requirements. The following table illustrates the expected energy supply from IPP contracts over the next three years (based on the November 2008 Load Forecast):

	F2009	F2010	F2011	F2012
Energy Purchases (GWh)	8,548	8,857	10,137	10,391

Note: Table excludes Non-Integrated Area (NIA) projects and includes four Bioenergy Call Phase I RFP contracts. Energy amounts are attrition adjusted.

BC Hydro has developed three separate, competitive call processes to acquire additional clean or renewable electricity (as defined by the Province) from IPPs:

#### • CLEAN POWER CALL

For the Clean Power Call, BC Hydro is targeting to purchase approximately 3,000 GWh per year of clean or renewable energy from larger projects using proven technologies, such as hydro, wind, solar and geothermal energy. We designed the call terms and processes with enough flexibility to allow larger, more complex projects to bid and offer in-service dates ranging between 2010 and 2016. We released the final terms for the Clean Power Call RFP in June 2008 and received a large number of project submissions in November 2008. We plan to award the EPAs once we receive the BCUC decision regarding the 2008 LTAP. The process also allows for the flexibility to take more than 3,000 GWh per year depending on the price.

#### • STANDING OFFER PROGRAM

As directed by *The BC Energy Plan*, BC Hydro established a Standing Offer Program for clean, renewable or high-efficiency cogeneration electricity projects with a capacity of 10 MW or less. Approved by the BCUC in March 2008 and launched in April 2008, the program offers a standard contract with fixed prices and a streamlined administrative process to give smaller scale projects the opportunity to contribute to B.C.'s supply of clean electricity. To date, BC Hydro has received nine applications under the Standing Offer Program for a total of approximately 200 GWh per year of energy.

#### • BIOENERGY CALL

Guided by both *The BC Energy Plan* and the Province's Bioenergy Strategy, BC Hydro has launched a two-phase call for power to use wood infected by the mountain pine beetle as well as other biomass sources. Phase I of the Bioenergy Call was for projects that are immediately viable and do not require new forest tenure. We received proposals for 20 projects in June 2008 and awarded several contracts in November 2008. BC Hydro is continuing to work with the Ministry of Energy, Mines and Petroleum Resources as well as the Ministry of Forests and Range to develop plans for Phase II.

We will continue to work collaboratively with IPPs, customers, Government, BCTC and First Nations to further improve the procurement process for electricity and to design competitive call terms and conditions.

### ACCENTURE BUSINESS SERVICES FOR BRITISH COLUMBIA

BC Hydro outsources many of its customer care, information technology, human resources, financial systems and building and office services to Accenture Business Services for British Columbia (ABSBC). ABSBC provides BC Hydro with quality service, value and long-term cost reductions.

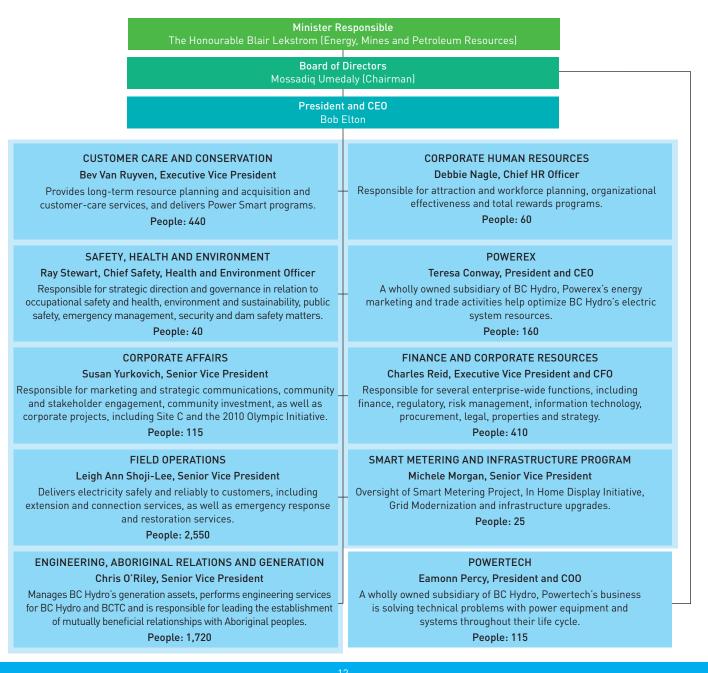
# CORPORATE GOVERNANCE

The BC Hydro Board of Directors oversees the conduct of business and supervises management, which in turn is responsible for the day-to-day operations of BC Hydro. Directors are appointed by the B.C. Government to bring special skills and experience to the Board's deliberations.

The Board's broad set of responsibilities includes:

- ensuring there is a strategic and business planning process, and then reviewing, validating and endorsing a strategy for the Corporation and monitoring its implementation
- ensuring effective controls and appropriate governance are in place as part of its oversight of management, and
- having a continuing understanding of the principal risks associated with the Corporation's business and ensuring that the appropriate processes and systems are in place to mitigate risk.

The Board acts in accordance with the Best Practices Guidelines Governance and Disclosure Guidelines for Governing Boards of BC Public Sector Organizations, which can be found at www.lcs.gov.bc.ca/brdo/governance/.



#### **BOARD OF DIRECTORS**

MANDATE: The Board is responsible for overseeing the conduct of business, supervising management and ensuring all major issues affecting the Corporation are given proper consideration. The Board, through the Chief Executive Officer, sets the standards of conduct for BC Hydro and ensures the safety of its operations.

#### CHAIRMAN: Mossadiq Umedaly

MEMBERS: Chief Kim Baird, James Brown, Peter Busby, Wanda Costuros, Jonathan Drance, Tracey McVicar, Nancy Olewiler, Peter Powell, Walter Saponja, Donald Triggs

EXECUTIVE COMMITTEE	<ul> <li>PURPOSE: The Executive Committee meets only in special circumstances. It has the full powers of the Board to act in situations when, for timing reasons, a Board meeting cannot be scheduled.</li> <li>CHAIRMAN: Mossadiq Umedaly</li> <li>MEMBERS: Wanda Costuros, Jonathan Drance</li> </ul>
AUDIT AND RISK MANAGEMENT	<ul> <li>PURPOSE: The Audit and Risk Management Committee assists the Board in fulfilling its obligations and oversight responsibilities relating to the audit process, financial reporting, the system of corporate controls, governance of the Corporation's pension plans, and various facets of risk management.</li> <li>CHAIR: Tracey McVicar</li> <li>MEMBERS: Wanda Costuros, Peter Powell, Walter Saponja, Mossadiq Umedaly*</li> </ul>
CAPITAL PROJECTS	<ul> <li>PURPOSE: The Capital Projects Committee assists the Board in fulfilling its obligations and oversight responsibilities relating to the Corporation's long-term capital plans, capital budgets and capital projects, including risk identification and management, dam safety, Aboriginal relations and negotiations, and transmission projects.</li> <li>CHAIR: Walter Saponja</li> <li>MEMBERS: Chief Kim Baird, Jonathan Drance, Peter Powell, Mossadiq Umedaly*</li> </ul>
CORPORATE GOVERNANCE	<ul> <li>PURPOSE: The Corporate Governance Committee assists the Board by ensuring that BC Hydro develops and implements an effective approach to corporate governance, which enables the business and affairs of the Corporation to be carried out, directed and managed with the objective of enhancing shareholder value.</li> <li>CHAIR: Jonathan Drance</li> <li>MEMBERS: Tracey McVicar, Donald Triggs, Mossadiq Umedaly*</li> </ul>
HUMAN RESOURCES	PURPOSE: The Human Resources Committee assists the Board in fulfilling its obligations relating to senior management human resource and compensation issues, and monitors safety performance. CHAIR: Nancy Olewiler MEMBERS: James Brown, Jonathan Drance, Donald Triggs, Mossadiq Umedaly*
CONSERVATION TASK GROUP	<ul> <li>PURPOSE: The Conservation ad hoc task group of the Board of Directors assists the Board by monitoring and supporting the implementation of an energy conservation strategy as described in <i>The BC Energy Plan</i>.</li> <li>CHAIR: Peter Busby</li> <li>MEMBERS: Chief Kim Baird, Nancy Olewiler, Mossadiq Umedaly*</li> </ul>

\*The Board Chairman is an ex-officio member of all Committees.

# STRATEGIC CONTEXT

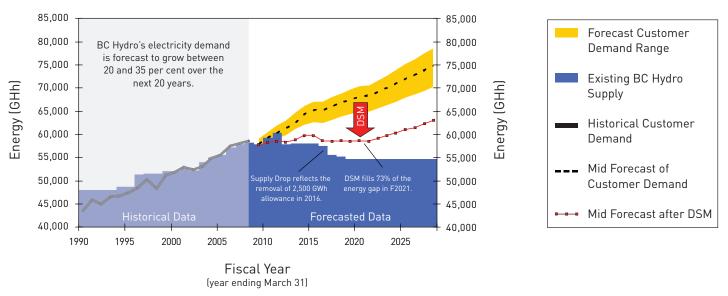
### **OPPORTUNITIES AND RISKS**

To develop a successful strategy to fill the gap between supply and demand, BC Hydro must take into consideration a number of economic and industry factors, including the current challenging economic conditions. This volatility has resulted in some near-term impacts to our business including a reduction in our load forecast, increased volatility associated with some of the key inputs into our forecasting and a decline in the value of assets in the pension plan. Beyond these realized impacts, we recognise that predictions of the path ahead are uncertain; however, the economic downturn may also impede our conservation targets, adversely affect our suppliers and partners and alleviate some of our recruitment challenges. We are managing each of these realized and potential impacts, and we continue to monitor the situation carefully—especially in areas that put our priorities at risk.

While near-term economic uncertainty continues to inform our decisions, we expect the province to continue its trajectory of long-term growth. Consequently, while adjusting to immediate events, our long-term strategy and role in providing leadership and being a strong presence in our province remains unchanged. Our latest forecasts of supply and demand for electricity predict that demand will grow by 20 to 35 per cent over the next 20 years if we do not implement energy conservation and efficiency measures.

At the same time, there is a physical limit on the amount we can import or export with our existing infrastructure; there are also increasing transmission constraints in the Pacific Northwest region of the United States that could affect our future ability to import and export electricity.

### BC HYDRO'S ELECTRICITY GAP



### BC Hydro's Supply and Demand Outlook

DSM: energy conservation and efficiency through Demand-Side Management.

### DEMAND FOR ELECTRICITY

Over the next 10 years, the population in BC Hydro's service territory of 4.4 million is expected to increase by approximately 530,000. This would increase our customer base by about 230,000 accounts.

Beyond population growth, long-term expansion of the B.C. economy will also influence demand. Shifts in consumption patterns and habits will impact the overall magnitude of the growth in demand. The concept of fuel switching, both in transportation and in residences, is one example of a potential shift in consumption habits. This might manifest itself in customers switching from natural gas to electricity to heat their homes or businesses in response to rising prices, GHG issues and policy, or switching to hybrid or electric vehicles. The continuing electrification of mass transportation systems, ports and airports may also increase demand over the next decade and beyond.

We consider the long-term trends and the emerging shifts in assessing the overall demand for electricity and how we should meet the demand.

### CLIMATE CHANGE—GHG REDUCTION

The B.C. Government has set aggressive targets for reducing GHG emissions. However, while it has also provided a regulatory framework from which to operate, significant uncertainty remains around national, continental and international climate change-related regulations.

These efforts to limit GHGs are expected to significantly affect the costs, market value and risks associated with the evaluation of electricity generation resource options by utilities. BC Hydro also faces the risks associated with climate change itself, such as the physical effects of climate change on water supply, infrastructure and emergency planning.

As you will see elsewhere in this Service Plan, we continue to implement a number of measures aimed at reducing GHG emissions, including an ongoing focus on energy conservation, a new carbon-neutral strategy to reduce emissions from our corporate operations, maintaining the health of our Heritage Assets, and purchases of clean power generation from IPPs.

### AGING INFRASTRUCTURE

Across the continent, generation, transmission and distribution infrastructure is requiring increased maintenance and/or is nearing the end of useful life. This is also the case for much of BC Hydro's infrastructure, including a number of BC Hydro's larger generation facilities built in the late 1960s, 1970s and early 1980s.

In addition to the overall age of a generating station, other factors such as changing operating demands and increased use (for thermal operations) have an impact on the health of the equipment.

To address our aging infrastructure, BC Hydro has developed a Strategic Asset Management Plan that includes individual facility Asset Plans. These plans detail the overall investment strategy for each facility, taking into account the facility's role, issues, performance targets, risks and growth opportunities. In addition, BC Hydro is taking actions to strengthen our distribution system to further improve reliability.

### AGING, RETIRING WORKFORCE AND LABOUR MARKET CONSTRAINTS

Like other businesses and utilities across North America, BC Hydro faces an aging workforce—approximately 30 per cent of BC Hydro's current workforce will be eligible to retire within the next five years—and a shrinking labour pool. Adding to this demographic challenge is the resulting increased competition for employees, combined with the high cost of living in some areas and the geographic remoteness of some of our facilities. In the short-term, we may experience an easing of these challenges as economic conditions increase the availability of qualified applicants.

While recognizing these inherent challenges, we still expect to increase our workforce to support our business objectives in the next several years. To do this, we remain focused on programs to attract, train, motivate and retain the best people, creating a positive and diverse workplace.

### STRATEGIES

BC Hydro must ensure that it meets the growing need for electricity in British Columbia. We plan to accomplish this—in alignment with *The BC Energy Plan*—through:

### SUPPLY AND DEMAND MANAGEMENT

We will work to manage supply and demand in three ways:

### **Conserve More**

BC Hydro's first and best choice for managing the future supply gap is through energy conversation and efficiency. By helping customers be more efficient, use their power wisely, and ultimately use less, we can reduce the need to build generation capability.

Our conservation efforts are focused on codes and standards, rate structures, and programs that promote behavioural change as well as energy efficiency.

We plan to:

- increase the existing portfolio of Power Smart programs, including behaviour programs, new segments and new technologies
- increase public awareness
- provide education and information on energy-efficient technologies and conservation strategies
- engage communities and municipal leaders to include energy efficiency in their plans, and
- invest in promoting innovative technologies to reduce our electricity consumption.

### **Build More**

We are reinvesting in our Heritage Assets to prolong their life and, where possible, adding additional energy and capacity. We are expanding the generation capabilities of our existing facilities and also examining the potential for new hydro generation facilities.

In addition, we are working with our transmission partner, BCTC, to expand our ability to deliver electricity where it is needed. All of these endeavours will require significant capital investments to keep up with the province's economic growth.

We are also examining large-scale resource options to meet demand in the 10 to 20-year planning horizon and to add capacity when needed to help bring renewable sources of electricity online.

### **Buy More**

BC Hydro will continue to purchase power from IPPs that use clean or renewable resources—such as hydro, wind, biomass, high-efficiency cogeneration, solar and geothermal projects—using competitive call processes (please see page 10 for more on Independent Power Producers).

However, IPPs do face some development challenges, including the long lead-time for developing generation assets, increased construction costs, interconnection and transmission constraints and permitting issues. We are actively addressing these as part of our IPP programs.

### INNOVATION

BC Hydro understands that in order to fill the electricity gap, we will need to take advantage of the efficiencies and opportunities offered through innovation.

In addition, we continue to explore and implement new and innovative approaches to key functions and decision-making, as well as new technologies, information systems and methods. Areas of focus include innovative methods for developing a skilled workforce and integrating safety in all that we do.

### PLUG-IN HYBRID ELECTRIC VEHICLES

Innovation will play a critical role in British Columbia's efforts to reduce carbon emissions.

Currently, BC Hydro is one of three Canadian electricity utilities actively working to speed up the commercialization of plug-in hybrid electric vehicles. We are also among 34 electrical utilities in North America that have entered into a groundbreaking collaborative agreement with General Motors through the Electric Power Research Institute. This collaboration will create a blueprint for an electric fuel infrastructure that will cross geographical boundaries and help enable plug-in vehicles to be seamlessly integrated into the North American electricity grid.

### FOCUS ON COST EFFECTIVENESS

BC Hydro's Purpose and Vision commit us to having a continued focus on cost effectiveness. The current economic conditions serve to reaffirm our need to maintain this focus. We continue to look for opportunities to manage our costs in a prudent way to get the greatest value. At the same time, we continue to support our customers' electricity conservation and efficiency efforts so that they may realize a competitive advantage through reduced energy costs.

Our focus on cost effectiveness can be broken into three categories:

- 1. Selecting the right energy portfolio—ensuring our asset mix is cost effective.
- 2. Operating efficiently by:
  - running our assets and operation in the most efficient manner possible (balancing risks)
  - maintaining and upgrading existing assets to enhance productivity, and
  - leveraging innovation to find new, safer, more efficient and effective ways to do things (including supporting processes—e.g., Procurement Enhancements).

3. Maintaining competitive rates.

### SHARED VISION

Clearly our efforts will be more successful if there is a shared vision in B.C. about the future of electricity. As BC Hydro continues to close the supply gap and deliver the highest value portfolio to British Columbia, our approach is to increase awareness of the system challenges and to build mutual respect by listening to others. We continue to engage with First Nations, partners, and stakeholders to ensure a common understanding and a shared vision. Some of the key topics for engagement include:

- What should the role of electricity be in the future of energy in British Columbia?
- What is the optimal portfolio for British Columbians given the value and risks of different power portfolio choices and operating strategies?
- What is the role of stakeholder engagement in securing a collective energy future?

BC Hydro continues to work closely with First Nations to establish relationships that appropriately reflect the interests of First Nations. For example:

- In 2008, BC Hydro was awarded a Silver rating with the Canadian Council of Aboriginal Businesses' Progressive Aboriginal Relations Program for its Aboriginal relationship building program. For more information, see www.ccab.com.
- On November 27, 2008, the Province and BC Hydro signed an agreement with the Kwadacha First Nation to address the impact of flooding caused from the creation and operation of the W.A.C. Bennett Dam and Williston Reservoir in Northern B.C. For more information, see www.bchydro.com/news/articles/press\_releases/2008/ agreement\_resolves\_historic\_injustice.html.
- BC Hydro's Aboriginal Education and Employment Strategy includes a 10-year commitment to double the number of Aboriginal employees. Last year, BC Hydro added 28 new Aboriginal employees or trainees to our workforce.
- In 2007, BC Hydro established the Aboriginal Key Account Management Sector to enhance our customer service and to work with First Nations to enhance energy-efficiency opportunities.

### DISTRIBUTED GENERATION

BC Hydro is also developing a Distributed Generation strategy to help integrate clean electricity into BC Hydro's grid at customer sites. This initiative will not only provide additional electricity from a variety of sources, but will also help create new jobs and encourage the early adoption of new technology. The initial strategy will be completed in the spring of 2009.

# PERFORMANCE MEASURES, TARGETS AND BENCHMARKS

BC Hydro uses a variety of measures to guide business performance and progress and to evaluate whether a particular short-term priority is on track. We review our reporting framework regularly to ensure we maintain a comprehensive overview of our performance. This year, we have made some changes to our reporting framework, including:

- adding a measure that quantifies the overall environmental impact of our operations
- establishing Energy Security (Supply), formerly Reliability (Supply), as a separate short-term priority
- distinguishing Climate Change and Environmental Impact as a separate short-term priority, distinct from Energy Conservation and Efficiency
- setting targets for our GHG emissions and clean energy measures, and
- discontinuing Total Factor Productivity (TFP).

After testing during F2009, we are discontinuing the use of TFP as a measure going forward. Factors that contributed to the discontinuation of TFP are that it was backward looking, not easily comparable with other utilities and, as a comprehensive measure, too high level to enable management to focus on specific activities to improve productivity. The remaining five productivity measures, outlined below in the Financial Targets section, are more appropriate for measuring our productivity.

To achieve the short term priorities set out in the following pages a variety of strategies have been developed. Progress is tracked through the measures and targets. These strategies and targets were included in the RRA application for F2009 and F2010 that was filed in February 2008. The BCUC held an oral hearing to review this application in October 2008 and expects to issue a decision in early 2009. Should the BCUC decision differ materially from our application, it could impact our ability to deliver the strategies and targets outlined in this Service Plan. It may result in changes to the scale and pace of planned operating and capital expenditures.

### 1. SAFETY

Provide the safest work environment compared with the best performers in any industry, where not one of our employees experience a serious work-related injury.

BC Hydro is committed to integrating safety into all aspects of our business, using a system of risk mitigation that includes quality design, construction, maintenance and education programs.

Delivering electricity safely involves keeping a well-maintained and safe electrical system and deterring an array of threats, such as vandalism and theft, while anticipating and responding to the impacts of natural disasters such as storms, floods and forest fires. BC Hydro's emergency preparations include developing and testing appropriate response plans in coordination with other authorities and organizations.

### NEAR-TERM STRATEGIES

Over the next three years, we aim to reduce the frequency of serious work-related injuries, such as electrical contacts and falls from height. We will continue to make significant progress through on-going programs that:

- ensure safety is factored into the design of any new construction or reconstruction of operating systems and facilities
- involve formalized hazard identification and documentation in all work planning activity
- systematically include hazard identification practice in development of work procedures
- promote rigorous job observation to ensure that appropriate hazard identification has occurred and that appropriate barriers are in place, and
- thoroughly review barriers and their effectiveness while investigating incidents that have occurred.

PERFORMANCE MEASURE	ACTUAL	TARGET	FORECAST	TARGET	TARGET	TARGET
	F2008	F2009	F2009	F2010	F2011	F2012
Severity	39	25	25	23	20	17
All Injury Frequency	2.8	2.4	2.4	2.3	2.2	2.0

### **DESCRIPTION OF PERFORMANCE MEASURES**

Severity is a standard Canadian Electricity Association (CEA) measure and is defined as the number of calendar days lost due to injury per 200,000 hours worked.

All Injury Frequency (AIF) is also a standard CEA measure and is defined as the total number of employee medical aid and lost-time injuries occurring in the last 12 months per 200,000 hours worked. Medical aid injuries are those where a medical practitioner has provided services beyond the level defined as first aid and the employee was not absent from work after the day of the injury. Lost-time injuries are those where the employee is absent beyond the day of injury.

These definitions align with the U.S. Occupational Safety and Health Administration standards for safety statistics.

### **RATIONALE/BENCHMARKING ACTIVITIES**

We have set these shorter-term safety performance targets to reflect our focus on the elimination of serious injury incidents. Ultimately, we will shift the focus back to less serious and minor injuries which have a greater influence on AIF. This will call for more aggressive targets to encourage injury frequency reduction in line with achievement of our long-term safety goal.

For comparison, in 2007 the CEA composite AIF was 3.0 while Severity was 16.

### 2. RELIABILITY (CUSTOMER)

### Provide best-in-class reliability by customer segment.

Customer reliability means the delivery of an uninterrupted supply of electricity to BC Hydro customers as measured at the point of delivery—usually a customer's meter.

Customers currently report a high level of satisfaction with overall system reliability.

BC Hydro uses two industry-standard measures—CAIDI (Customer Average Interruption Duration Index) and SAIFI (System Average Interruption Frequency Index)—to monitor the overall performance of the system. BC Hydro also uses the customer-focused CEMI-4 (Customers Experiencing four or more Interruptions) to measure actual interruptions as experienced by customers, not just system-wide averages, in order to focus efforts on customers experiencing lower levels of reliability.

### NEAR TERM STRATEGIES

BC Hydro's Customer-Based Reliability strategy focuses on meeting specific customer needs maintaining overall system reliability at historic and reasonable levels. As part of this strategy, some of the activities we will focus on over the next three years include:

- continuing to develop the System Resiliency Program (initiated in F2007) to strengthen those circuits that are most susceptible to storms—including those that have had outages lasting 12 or more hours each for the last three to five consecutive years— through such measures as stronger cables, circuit upgrades, vegetation clearing, relocating circuit/poles, and undergrounding.
- using life-cycle analysis to assess the condition and capability of assets (such as wires, poles and cables) and identify opportunities to deliver more reliable service, and
- through our Remote Community Electrification Program, providing appropriate electric service on an equitable basis to all remote communities within the province that are not currently served by BC Hydro.

PERFORMANCE MEASURE	ACTUAL	TARGET	FORECAST	TARGET	TARGET	TARGET
	F2008	F2009	F2009	F2010	F2011	F2012
CAIDI (hours)	2.24	2.15	2.37	2.15	2.15	2.15
SAIFI (frequency)	1.52	1.31	1.47	1.27	1.22	1.22
CEMI-4 (%)	8.56	9.00	9.80	8.50	8.00	8.00

Note: BC Hydro measures reliability under normal circumstances because major events are not predictable. The reliability measure is therefore based on data that excludes major events. We review performance during major events and take that performance into consideration in reliability improvement initiatives.

### **DESCRIPTION OF PERFORMANCE MEASURES**

**CAIDI** is the average interruption in hours per interrupted customer. CAIDI can be improved by reducing the length of interruptions or by increasing the number of short interruptions. A reduction in CAIDI by itself does not necessarily reflect an improvement in reliability; rather, a lower CAIDI indicates a shorter restoration time following an interruption.

SAIFI is a measure of how many sustained interruptions an average customer will experience over the course of a year. For a fixed number of customers, the only way to improve SAIFI is to reduce the number of sustained interruptions experienced by customers. Typically, customers average between one and two sustained interruptions per year. A lower SAIFI indicates better reliability.

**CEMI-4** is the percentage of customers experiencing four or more outages during a given time period.

### **RATIONALE/BENCHMARKING ACTIVITIES**

F2009 target for **CAIDI** and **SAIFI** is based on a five-year (F2004-08) average, excluding F2007, which was one of the most severe storm seasons faced by BC Hydro customers, with an unprecedented level of service disruptions. F2009 target for **CEMI-4** is based on a two-year (F2008) average, as CEMI-4 has only been reported since F2007.

BC Hydro participates in an annual Transmission and Distribution Benchmarking Study conducted by the First Quartile Consulting and the Electric Utilities Costing Group. In F2008, BC Hydro's SAIFI and CAIDI performance ranked in the third and fourth quartile respectively among a panel of leading Canadian and U.S. utilities participating in the study, including BC Hydro, Hydro One, Hydro Quebec from Canada and Exelon, Oncor Electric Delivery (formerly Texas Utilities) and We Energies from the U.S. It must be noted that BC Hydro's vast service territory and our predominantly overhead distribution system, as well as the province's terrain, weather and vegetation, significantly affect our ability to cost-effectively achieve higher overall levels of reliability and our comparability to other utilities. CEMI is not currently externally benchmarked because utilities are at varying stages in their development and reporting of such metrics, rendering their data inappropriate for benchmarking purposes.

### 3. ENERGY SECURITY (SUPPLY)

### Meet all domestic needs.

Energy Security (Supply) means ensuring that all the infrastructure components are available and ready to generate and deliver electricity for our customers. Generating facilities include BC Hydro's Heritage Assets, IPPs and other contracted generators.

### NEAR TERM STRATEGIES

Over the next three years, we will work towards:

- managing our peak load supply reliability by minimizing the amount of unit outages during the winter peak period
- implementing capital projects to refurbish, replace and upgrade our Heritage Assets (e.g., commissioning the fifth unit at the Revelstoke generating station)
- increasing maintenance and capital investments to enhance the reliability of Burrard Thermal at least through F2019
- securing firm market energy (electricity and natural gas) for domestic peak periods
- continuing our load curtailment programs with customers as contingencies for winter capacity supply
- advancing various power acquisition processes for future incremental supply, and
- meeting customer load and reliability requirements in the short term through a combination of Heritage and IPP generation, electricity market purchases, customer load curtailment contracts and imports backed by the Canadian Entitlement.

PERFORMANCE MEASURE	ACTUAL	TARGET	FORECAST	TARGET	TARGET	TARGET
	F2008	F2009	F2009	F2010	F2011	F2012
Winter Generation Availability Factor (%)	94.9	96.2	96.2	96.3	96.4	96.4

The F2009 Winter Generation Availability Factor forecast is currently at risk due to several forced outages and required urgent maintenance.

#### **DESCRIPTION OF PERFORMANCE MEASURE**

Winter Generation Availability Factor is a percentage of Heritage Asset units in the system, greater than 20 MW, available to generate electricity (total hours available for service/total hours) during the critical peak load period of November 15 to February 15.

#### **RATIONALE/BENCHMARKING ACTIVITIES**

The **Winter Generation Availability Factor** performance measure gauges the reliability of our hydro generation fleet over the critical winter peak-load period when demand is most likely to reach annual peaks. Units become unavailable during this time primarily due to unexpected forced outages or for urgent maintenance.

This measure drives the need for BC Hydro to complete all major maintenance in non-critical periods and to minimize outages during the critical peak period. BC Hydro is not currently aware of any external benchmarks that are suitable for comparison with the Winter Generation Availability Factor, and uses historical trend information to track performance.

BC Hydro also reviews its generation performance against available industry benchmarks such as annual system availability and the frequency of unexpected outages. While these measures provide a means of comparison against other utilities, they do not provide the best measure of reliability performance. For example, annual system availability varies significantly due to outages for planned maintenance and capital upgrades; however, such outages are scheduled so that BC Hydro's ability to generate sufficient electricity to meet customer demand is not adversely affected.

### 4. CLIMATE CHANGE AND ENVIRONMENTAL IMPACT

### To have no net incremental environmental impact by 2024 when compared with 2004.

BC Hydro aims to be an industry leader in environmental sustainability by addressing climate change and by reducing our overall environmental impact.

During 2008, the Province passed legislation that establishes the regulatory framework for meeting its target of a 33 per cent reduction in greenhouse gas emissions below 2007 levels by 2020. For BC Hydro, this includes meeting public sector carbon-neutral requirements by 2010, pursuing clean or renewable energy for new resources, meeting zero net emission requirements on existing fossil fuel-fired generation by 2016, and participating in the cap and trade system currently under development by the Province and its Western Climate Initiative partners for implementation in 2012.

Our climate change strategy will help us mitigate GHG emissions, manage regulatory risk and meet compliance requirements, as well as adapt to the potential effects of climate change. As is typical in the electricity sector, BC Hydro's GHG emissions fluctuate from year to year, based on available water levels, load and market conditions. During 2008, we developed strategies to meet new regulatory requirements and understand the financial and legal risks associated with our GHG emissions. In addition, we are assessing the potential broader effects of climate change upon our operations.

### NEAR TERM STRATEGIES

Over the next three years, we will:

- develop strategies to manage risks associated with regulation and legislation, including species and ecosystems at risk, fisheries and wildlife management objectives and GHG emissions targets
- develop and implement an action plan to identify, quantify and execute GHG reductions from our vehicle fleet and buildings, recognizing that outstanding emissions will need to be offset by purchasing high-quality B.C. GHG offsets from the Pacific Carbon Trust to meet B.C.'s carbon-neutral goal for the public sector
- forecast GHG emissions out to 2020 from all sources, including electricity generation, consistent with the resource mix identified in the 2008 Long Term Acquisition Plan, and identify emission reduction opportunities to ensure BC Hydro contributes to meeting the Province's climate action targets
- ensure BC Hydro has a plan in place to meet our compliance obligations under the *Greenhouse Gas Reductions (Cap and Trade) Act* and forthcoming regulations under the *Environmental Management Act*
- assess options to adapt our operations and activities to the potential physical impacts of climate change
- understand the ecosystem services that support our business, such as the natural cycles in climate and water, and how a credible internal offset system might be applied when environmental impacts cannot be avoided or reduced, and
- increase employee awareness and accountability for environmental objectives.

PERFORMANCE MEASURE	ACTUAL F2008	TARGET F2009	FORECAST F2009	TARGET F2010	TARGET F2011	TARGET F2012
Climate Change						
Clean Energy (%)	94	90	94	90	90	90
GHG Emissions (million tonnes CO <sub>2</sub> e)	1.50	1.60	1.60	1.55	1.50	1.45
Carbon Neutral Program Emissions (thousand tonnes CO2e)	24.2	25.7	25.7	25.5	25.0	24.1

#### **DESCRIPTION OF PERFORMANCE MEASURES**

We established the **Clean Energy** measure as a minimum threshold target in accordance with the B.C. Government's requirement that at least 90 per cent of electricity generation in the province should be clean or renewable electricity—i.e., from biogas, biomass, energy recovery generation, geothermal, hydrocarbon, hydro, hydrogen, municipal solid waste, solar, tidal, wave, wind or other potential clean or renewable electricity sources recognized by the B.C. Government. The 90 per cent minimum threshold ensures that we maintain and try to improve upon our current performance.

**GHG Emissions** includes natural gas combustion emissions from electricity generated from the generation sources we own, as well as:

- electricity purchased from B.C. IPPs
- diesel combustion emissions from electricity generation in nonintegrated areas
- vehicle fleet fuel combustion
- building heating and cooling, and
- fugitive SF<sub>6</sub> emissions.

Emissions from imported electricity are not included, subject to clarification of Western Climate Initiative (WCI) mandatory reporting protocols.

The GHG Emissions targets for the term of this Service Plan are for overall emissions (including generation sources) to remain approximately stable at 1.6 million tonnes. This takes into account the annual fluctuation in generation emissions that is primarily attributable to available water levels and contingency requirements to run the Burrard Generating Station. We have initiated a project to identify emission-reduction opportunities from all sources, including long-term capital assets and shorter-term assets such as vehicles. We will assess these reductions and develop a strategy over the next year to reduce emissions over time.

The **Carbon Neutral Program Emissions** metric includes carbon dioxide equivalent (CO<sub>2</sub>e) emissions from vehicle fleet fuel combustion, building heating and cooling, building electricity use, and paper consumption, in accordance with the Province's guidelines for Crown corporations.

#### **RATIONALE/BENCHMARKING ACTIVITIES**

The GHG Emissions measure represents the most significant environmental impact attributed to most utilities. During 2008, the Province passed legislation that establishes the regulatory framework for meeting its target of a 33 per cent reduction in greenhouse gas emissions below 2007 levels by 2020. The current GHG targets and carbon-neutral program emissions targets are based on historical and seasonal emissions, taking into consideration trends in BC Hydro activity, the impact of new and evolving regulations, and the success of existing programs to reduce emissions. As our GHG emissions forecast evolves and our understanding of the key drivers of emissions improves, we may refine the targets.

BC Hydro's long-term **environmental impact** goal is to have no net incremental environmental impact by 2024 when compared with 2004. This means BC Hydro will accommodate new customer demand for electricity without increasing our overall net environmental impact. During 2008, we developed metrics that enable us to measure environmental impacts and undertook pilots to establish our baseline performance. These metrics provide a snapshot of BC Hydro's progress in meeting our performance objectives for managing air, land, and water impacts. The values represent the percent improvement from the F2005 baseline values. Our initial data collection for F2008 reports performance from only a subset of BC Hydro's sites.

- Air 19 per cent improvement in air metric from the F2005 baseline value at eight sites
- Land 0 per cent improvement in land metric from the F2005 baseline value at 13 sites
- Water 8 per cent improvement in water metric from the F2005 baseline value at six sites

The **Air** metric includes emissions of GHG's and Nitrogen Oxides (NOx), and we plan to expand the metric to include fine particulates and dust. The forecasts for this metric will be calculated once we have incorporated data from the Burrard Thermal Generating Station into our modelling. The figures used here are based on eight other BC Hydro sites.

The Land metric currently includes land use and we plan to expand the metric to include hazardous waste, materials waste, spills and storm water. The figures used here based on 13 BC Hydro sites.

The **Water** metric measures flows, fish passage, fish entrainment, water quality and aquatic habitat and was based on six BC Hydro sites.

To our knowledge, our Environmental Impact goal is a first among electric utilities; therefore, the metrics cannot easily be benchmarked externally. Over the past few years, we have evaluated a number of environmental impact measurements. Through these analyses, BC Hydro determined that other metrics did not adequately quantify the ecological information that is relevant to our operations or to the unique and dynamic ecosystems of British Columbia. Ongoing baseline measurements will be required before establishing appropriate targets.

The Air, Land and Water metrics represent our most significant impacts within the scope of management control. They also capture environmental opportunities or benefits to allow for the development of a credible internal market for offsets an leverage existing programs and investments, such as water use planning.

### 5. ENERGY CONSERVATION AND EFFICIENCY

Develop and foster an energy conservation and efficiency culture in B.C. that leads to customers choosing to make a dramatic and permanent reduction in the use of electricity.

Demand-Side Management is a critical part of BC Hydro's strategy to address the electricity gap, reduce energy costs and increase energy efficiency.

By addressing electricity demand in part through Demand-Side Management, we will:

- decrease the need for new supply
- avoid additional adverse effects on the environment
- increase customer satisfaction
- lower electricity bills for consumers, and
- support more sustainable communities for the future of British Columbia.

### NEAR TERM STRATEGIES

Over the next three years, we will continue to implement our 20-year Demand-Side Management (DSM) Plan. Energy conservation and efficiency is an extremely low cost

resource option compared to alternative sources of supply. However, DSM, like other resource options, has deliverability risk. But unlike other resource options, DSM strategies can be adjusted during implementation and in doing so help to mitigate these risks. Specifically, our DSM plans include:

- developing and implementing new electricity rate structures that encourage conservation
- supporting the development and adoption of new regulations for energy efficient products and technologies
- engaging communities to be leaders in making energy efficiency a way of life and doing business
- increasing the existing portfolio of successful Power Smart programs, including behaviour modification programs, new segments and new technologies, and
- stimulating innovation through the advancement of new energy-efficiency technologies and practices.

PERFORMANCE MEASURE	ACTUAL	TARGET	FORECAST	TARGET	TARGET	TARGET
	F2008	F2009	F2009	F2010	F2011	F2012
<b>Demand-Side Management</b> (GWh/year, cumulative since F2008)	N/A	700	700	1700	2600	3800

### **DESCRIPTION OF PERFORMANCE MEASURE**

**Demand-Side Management** reflects the cumulative rate of annual electricity savings resulting from DSM activities including programs, codes and standards and rate structures. The new programs and reported savings began in F2008, following *The BC Energy Plan*, consequently full year F2008 figures for the new programs are not available.

### **RATIONALE/BENCHMARKING ACTIVITIES**

The annual cumulative **Demand-Side Management** targets align with *The BC Energy Plan*'s 50 per cent energy conservation and efficiency target and the *Utility Commission Act* amendments, which require BC Hydro to pursue adequate, cost effective demand-side measures. The targets provided here are based on the 2008 LTAP and may vary significantly based on the timing and form of new rate structures approved by the BCUC, customer response to price signals and the timing of adoption of codes and standards regulations. By F2012 approximately 35 per cent of the cumulative savings will relate to rate structure changes and 15 per cent to codes and standards.

### SMART METERING AND INFRASTRUCTURE PROGRAM

The Smart Metering and Infrastructure (SMI) Program will help better inform BC Hydro customers about their electricity use. Its overall goal is to make the right information and tools available for people to manage their own electricity consumption, and thus encourage them to use less electricity—which is better for everyone. SMI will also give BC Hydro more information about how our system is operating to help us plan better and use our assets more efficiently.

The program aims to provide smart metering technology to approximately 1.8 million customers by late 2012.

### 6. FINANCIAL TARGETS

Maintain low costs for electricity customers in B.C. over the long term, while consistently delivering 100 per cent of forecast net income.

It is our goal to deliver on our financial targets for both our shareholder and our customers. As the shareholder, the Province's interest is in achieving a stable and predictable return on its investment in BC Hydro. Our customers—as well as our shareholder—are interested in maintaining competitive electricity rates without compromising safety, reliability or environmental performance.

### NEAR TERM STRATEGIES

An Oral Hearing on the RRA was held in October 2008 and BC Hydro updated its revenue requirements forecasts to reflect lower shortterm interest rates and a lower load forecast based on more recent forecasts and year-to-date experiences. On November 21, 2008, BC Hydro filed its Final Argument, which proposed rate increases of 6.56 per cent for F2009 and 7.5 per cent for F2010 and a reduction in the rate rider in F2010 from 0.5 per cent to zero per cent. We expect a final decision from the BCUC on our proposed rate increases in early 2009. An outcome differing from that detailed in the application could affect our ability to deliver on the strategies and targets outlined in this document and result in changes to the scale and pace of planned capital and operating expenditures.

The Province has asked BC Hydro to contribute to the cross government budget management exercise by increasing its net income to the Province. As a result, BC Hydro's Return on Equity will be increased in the forecast period. BC Hydro will meet this commitment while continuing to manage the business by reducing costs and mitigating customer impacts, and ensuring that our rates remain amongst the lowest in North America.

Requested rate increases are to:

- acquire more clean and renewable electricity
- make market purchases at the lowest possible cost to meet demand load
- upgrade and expand our infrastructure to ensure the long-term security of our electricity supply
- meet our obligations for consulting with First Nations and implementing agreements, and
- continue to maintain and improve BC Hydro's personnel and infrastructure safety.

Also over the next three years, we will continue to:

- manage the short-term cost of energy by carefully deciding when to buy electricity from outside sources and when to generate it ourselves
- manage the long-term cost of energy by conducting competitive market calls for electricity from IPPs in order to get the best price for electricity
- keep a close watch on the economic conditions and their impact on our business and adjust our activity as necessary in response
- continue with productivity projects to manage costs including rationalizing IT systems, procurement and work management processes, and
- implement our 20-year Demand-Side Management plan (see page 24 for more on this).

Over the long-term, these strategies will help us:

- make good business decisions that enhance productivity
- deliver an effective capital investment program
- procure new supply at a competitive total cost, and
- optimize BC Hydro's balance sheet and cost of capital.

PERFORMANCE MEASURE	ACTUAL F2008	TARGET F2009	FORECAST F2009	TARGET F2010	TARGET F2011	TARGET F2012
Financial Efficiency						
Net Income (after	369	358	357	452	493	542
Regulatory Accounts)						
(\$ in millions)						
Return on Assets (%)	5.2	5.6	3.4	5.2	5.5	5.5
Return on Regulatory Equity (%)	11.70	11.78	11.54	13.05	13.05	13.05
EBIT Interest Coverage	1.49	1.41	0.96	1.56	1.57	1.52
Debt to GAAP Equity (%)	80	80	80	80	80	80
Operational Efficiency						
Operating Costs (non-fuel)/MWh						
Delivered (\$)	11.14	12.27	13.12	15.08	14.60	15.13
Operating Costs (non-fuel)/ Transmission and Distribution						
Line km (\$) <sup>1</sup>	8,057	8,973	9,237	10,610	10,261	10,526
Operating Costs (non-fuel)/	-,	-,	.,	,		,
Customer (\$) <sup>1</sup>	344	377	387	440	422	429
Operating Cash Flow Post Dividend						
to Net Capital Expenditure (%)	47	40	21	44	36	37
Transmission and Distribution						
Capital Expenditure/Transmission	0 505	40 844		40.400	40.005	
and Distribution Line km (\$)	8,597	13,711	12,717	12,192	12,825	11,712

<sup>1</sup> Excludes DSM, Site C and other regulatory expenditures, as these are not related to efficiency.

Notes to Financial Efficiency:

- Targets are based on forecast information available at the time of the Service Plan forecast and do not incorporate the BCUC's decision on BC Hydro's RRA, which is expected in early 2009. The targets are also based on current accounting standards (Canadian GAAP).
- The Return on Assets, and EBIT interest coverage targets are declining as a result of the increasing capital expenditures program needed to address our aging infrastructure and increasing demand from customers. The capital program is financed primarily through debt. As BC Hydro is a regulated utility, we recover our cost of service (amortization expenses, finance charges, etc.) through tariff rates. As the service lifetimes of our assets are long, we only recover a portion of the capital expenditures each year through our rates. As a result, our income increases by less than our capital assets.
- For Return on Regulatory Equity, under Orders in Council Nos. 027 and 028, approved on January 17, 2008, the Province amended the definition of equity for regulatory purposes. This is explained in the Financial Outlook Summary section.

### Note to Operational Efficiency:

The trend in the operational efficiency targets reflects the near-term impacts of both internal and external pressures on operating and maintenance costs. These expenditures represent the ongoing maintenance of and upgrades to our existing assets, as well as initiatives such as the System Resiliency Program, which is strengthening the reliability of those circuits most susceptible to storms. These expenditures help ensure that our system will continue to perform in a way that meets our customers' reliability expectations. Other pressures include the growing demand for electricity, responding to GHG emission reduction targets, and an aging workforce. We have not observed these pressures easing materially in response to recent economic conditions. Although these pressures will continue to influence operational and maintenance expenditures and performance, we continue to tightly manage the controllable general and administration expenditures. The following table illustrates the forecast operating cost components for the next three years.

OPERATING COSTS (\$ MILLIONS)	ACTUAL F2008	FORECAST F2009	FORECAST F2010	FORECAST F2011	FORECAST F2012
Operations	\$208	\$240	\$238	\$244	\$260
Maintenance	275	305	333	324	330
General and Administration <sup>1</sup>	120	146	226	207	210
DSM and Other Regulatory Costs <sup>2</sup>	338	219	184	216	226
Total <sup>3</sup>	\$941	\$910	\$982	\$990	\$1,026

<sup>1</sup> BC Hydro is committed to prudently managing costs. We will endeavour to hold General and Administration costs, net of non-current pension costs, constant over the coming years.

General and Administration	\$120	\$146	\$226	\$207	\$210
Non-Current Pension Income (Expense)	16	10	(67)	(65)	(65)
General and Administration Excluding					
Non-Current Pension	\$136	\$156	\$159	\$142	\$145

<sup>2</sup> DSM and other regulatory costs include provisions for potential costs of settlements.

<sup>3</sup> Table may not add due to minor rounding.

The major driver for increased general and administration costs from F2009 to F2010 is an increase in non-current pension costs. The return on pension fund assets has a significant impact on non-current employee future benefits costs. Based on the recent market volatility, market returns on the pension plan assets are expected to be significantly lower than originally forecast. The total impact on costs has not been finalized for F2010 and future years but is expected to be significant. The actual amount of the increase in costs will be known in early 2009 and is largely based on the December 31, 2008, market values of the pension plan assets. The investment loss on the pension plan assets will be amortized over 11 years (the estimated average remaining service life of active employees) starting in F2010, based on accounting rules. Based on estimated returns on our pension fund assets to mid-November 2008, the annual amortized loss on the pension fund assets is estimated at approximately \$70 million per year. The pension fund asset valuations are revised annually, and therefore the forecast charges to income would be expected to be reduced if the economy recovers as it has in the past. BC Hydro has in its RRA proposed that positive and negative variances from forecast flow into a regulatory deferral account. If approved, the variance from plan costs will be transferred into a regulatory account for future recovery from ratepayers.

While facing these pressures, BC Hydro plans to undertake a number of initiatives in the forecast period to address reliability issues resulting from an aging system, as well as the ramifications of an aging workforce and First Nations relationships.

DESCRIPTION OF PERFORMANCE MEASURES	RATIONALE/BENCHMARKING ACTIVITIES
<b>Net Income (after Regulatory Accounts)</b> is defined as total revenue less total expenses after regulatory account transfers, and represents the net impact of key economic and business factors that affect BC Hydro's performance. Regulatory account transfers include the financial impact of the factors beyond BC Hydro's control (such as water volatility, market prices, etc.) and can be recovered from ratepayers in future periods.	<b>Net Income</b> targets are based on the latest forecast and reflect expected rate increases required to enable BC Hydro to cover costs and earn allowed return on equity. Rate increases for F2009 to F2012 are still preliminary. BC Hydro regards this as a key measure because it represents the basis of performance monitoring, shareholder's return and staff incentive plans.
<b>Return on Assets (ROA)</b> is defined as earnings from continuing operations before interest and income taxes, divided by the average of beginning and end of total assets.	<b>ROA</b> measures the return relative to the size of the asset base used to generate this return and indicates how effectively the assets are being employed. ROA is frequently used in the utilities sector and is on a GAAP basis for comparability.
<b>Return On Regulatory Equity</b> is defined as net income divided by average of beginning and end of year regulatory equity. BC Hydro's regulatory equity is deemed at 30 per cent of the average of total debt and GAAP equity balance.	Commonly used in the utilities sector and to determine the profitability of many enterprises across the economy, <b>Return On Regulatory Equity</b> measures the return relative to the equity investment and indicates the financial profitability of the investment.
<b>EBIT (Earnings Before Interest and Taxes) Interest Coverage</b> is defined as earnings from continuing operations before interest and income taxes, divided by gross interest incurred before subtracting capitalized interest and imputed interest on deferred revenue.	<b>EBIT Interest Coverage</b> measures the company's ability to meet interest expense from operations. Long-term projections of this ratio provide an indication of the company's long-term financial viability. This is a measure of cash interest coverage and is used within the utilities sector and by financial analysts.
<b>Debt to GAAP Equity</b> appears in various forms including a debt divided by debt plus equity ratio.	Being of interest to sector analysts, rating agencies and finance providers, <b>Debt to GAAP Equity</b> is commonly used in the financial community. It measures the leverage in the company and is used in the regulation of electricity companies in some jurisdictions.

DESCRIPTION OF PERFORMANCE MEASURES	RATIONALE/BENCHMARKING ACTIVITIES
<b>Operating Costs (non fuel)/MWh Delivered</b> is defined as a measure of operating costs per unit of energy delivered to domestic customers.	<b>Operating Costs (non fuel)/MWh Delivered</b> is used in Australia and Canada to monitor the electricity sector for cost efficiency. This measure is benchmarked against comparable entities. Operating Costs include maintenance and general and administration costs to ensure comparability with publicly available data.
<b>Operating Costs (non fuel)/Transmission and Distribution Line km</b> is a sector-standard unit cost measure based on the total line kilometres for the network business.	<b>Operating Costs (non fuel)/Transmission and Distribution Line km</b> measures the operating costs per total transmission and distribution line kilometres to account for density of customers being served. It is benchmarked against comparable entities. Operating Costs include maintenance and general and administration costs to ensure comparability with publicly available data.
<b>Operating Costs (non fuel)/Customer</b> is a unit cost measure based on the total number of customers served.	<b>Operating Costs (non fuel)/Customer</b> is another of the key drivers of cost in the electricity sector. Combined with Operating Costs (non fuel)/MWh Delivered and Operating Costs (non-fuel) Transmission and Distribution Line km, it is possible to view BC Hydro's performance across the range of metrics and check against anomalous companies (for example, against companies with very low customer density). It is benchmarked against comparable entities. Operating Costs include maintenance and general and administration costs to ensure comparability with publicly available data.
<b>Operating Cashflow Post Dividend to Net Capital Expenditure</b> is a measure of a utility's ability to fund its capital expenditure requirements out of operating cash flows, post dividends.	Operating Cashflow Post Dividend to Net Capital Expenditure measures the retained operating activities cash flows (after working capital changes and dividends paid) against the capital expenditures net of customer contributions in aid of construction.
Transmission and Distribution Capital Expenditure/Transmission and Distribution Line km is a measure of the level of investment in the transmission and distribution network.	Transmission and Distribution Capital Expenditure/Transmission and Distribution Line km is included to measure the extent to which BC Hydro is maintaining and enhancing network assets. It is used in Australia and the UK, and is benchmarked against comparable entities. To ensure comparability and data availability for benchmarking, the Transmission and Distribution Capital Expenditures are gross capital expenditures including both growth and sustaining capital expenditures.

### 7. CUSTOMER SATISFACTION

### Lead by offering extraordinary value and service.

BC Hydro is committed to offering extraordinary value and service. Customer Satisfaction level is a key indicator of how well our customers feel we are performing. Since customers' needs and expectations change over time, we continually focus on improvement while maintaining core service levels during times of change to ensure that customer satisfaction remains strong.

BC Hydro is operating in a changing business environment and faces ongoing pressures created by aging infrastructure, rate changes, technology changes and a persistent gap between supply and demand. To maintain customer satisfaction, BC Hydro is focusing on strategies addressing key areas of customer importance. These include commitment to service, communications, reliability, pricing and public interest.

### NEAR TERM STRATEGIES

The near term strategies to ensure we consistently deliver excellent performance will include:

- continuing to increase consistency and quality of BC Hydro's customer experience in high customer contact areas by improving outage communications, contact centre interactions, BC Hydro website content and functionality and bill design
- strengthening our understanding of customers' needs and expectations through research, targeted segmentation, analysis of feedback through all customer touch points, best practice reviews and benchmarking, and
- ensuring employees understand customers' experience with BC Hydro, what customers' needs and expectations are and how each employee contributes to delivering a positive customer experience.

PERFORMANCE MEASURE	ACTUAL	TARGET	FORECAST	TARGET	TARGET	TARGET
	F2008	F2009	F2009	F2010	F2011	F2012
CSAT Index (%)	90	80	80	80	80	80
Billing Accuracy (%)	98.5	98.2	98.2	98.2	98.2	98.2
First Call Resolution (%)	71	66	66	66	66	66

Note: The First Call Resolution targets are preliminary.

#### **DESCRIPTION OF PERFORMANCE MEASURES**

**Customer Satisfaction (CSAT)** is the percentage of customers residential, small and medium-sized businesses and key accounts who are satisfied or very satisfied with BC Hydro (as measured on a four-point verbal scale) in five equally weighted areas:

- providing reliable electricity
- value for money
- commitment to customer service
- acting in the best interests of British Columbians, and
- efforts to communicate with customers and communities.

**Billing Accuracy** is the percentage of invoices that are accurately calculated based on the customer's consumption and do not require adjustment or rebilling.

First Call Resolution is the percentage of customer calls that are resolved during the first contact with a call centre agent, without the need for additional investigation or follow-up.

#### **RATIONALE/BENCHMARKING ACTIVITIES**

BC Hydro maintains a minimum threshold target of 80 per cent for **CSAT** to ensure we have strong customer support. Although current customer satisfaction levels remain strong, we anticipate that it will take focused effort to ensure this continues in a changing and challenging business environment. We have started to see individual drivers trending down and within the margin of error of our 80 per cent target. We continue to measure our performance against well-recognized B.C. service providers as well as against other utilities across Canada and North America on a bi-annual basis.

Since F2007, results remain stable and consistent. BC Hydro ranks between the first and second quartile compared to B.C. service providers and Canadian and North American utilities across all areas of customer importance, including reliability, service, communications, value for money and public interest.

**Billing Accuracy** is a core expectation of customers. We have therefore set our targets to deliver consistently high performance.

First Call Resolution is a measure that assesses customer service operations as a whole in terms of accurate and timely information flow, agent capability and quality, and a satisfying customer experience at a transaction level.

### 8. PEOPLE

#### To be a top employer for generations.

We must adapt our workforce to current economic conditions while ensuring that we have the people we need to deliver on our Guiding Principles.

As we approach optimal staffing levels, we will continue to enhance how we train, motivate and retain the best people, as well as how we provide them with the skills and knowledge they need to guide the operations of our company in the future. We will also continue a number of intensive strategies intended to help us respond to changing retirement patterns. This approach will ensure that we can adjust our tactics in response to economic and other events as warranted.

### NEAR TERM STRATEGIES

Over the next three years, we will continue to:

- focus our outreach activities to attract a more diverse pool of qualified applicants (this will include strengthening our partnerships with educational institutions, regulatory bodies and agencies that support under-represented groups)
- ensure our workforce has an appropriate complement of regular and temporary employees, while at the same time leveraging our contracted and outsourced service providers in the safest, most efficient and cost-effective manner
- continue to provide an appropriate balance of competitive compensation, benefits and employee wellness programs to attract and retain our employees
- enhance our leadership, apprentice and trainee and staff development programs so that they foster an environment that reflects our values and encourages continuous learning and personal growth, and
- engage employees so that they are motivated to achieve great things on multiple levels—for themselves, for our company, for our province and for future generations.

PERFORMANCE MEASURE	ACTUAL F2008	TARGET F2009	FORECAST F2009	TARGET F2010	TARGET F2011	TARGET F2012
Vacancy Rate (%)	8.7	9.9	8.2	8.0	8.0	7.6
Employee Engagement (mean score out of five on	3.36	3.55	3.55	3.60	3.65	3.65

the Employee Engagement Survey]

### **DESCRIPTION OF PERFORMANCE MEASURES**

Vacancy Rate is calculated as a percentage of the number of vacancies in progress (replacement or additional positions actively being recruited for both internally and externally, excluding seasonal roles) to the sum of BC Hydro's headcount plus the number of vacancies in progress. The year-end result is calculated by averaging the monthend rates at the end of each quarter. These targets have been adjusted to reflect the establishment of more efficient recruitment processes as well as anticipated lower volumes of recruitment activity as our vacancy levels continue to drop.

**Employee Engagement** is the mean score index calculated from specific questions in a survey designed to measure employee engagement. The measure covers how well employees know what their role is, their line of sight to the organization's goals, their needs regarding any resource, information or training and their overall connection to the company.

#### **RATIONALE/BENCHMARKING ACTIVITIES**

Vacancy Rate indicates an organization's people management, which includes its reputation as an employer, employee morale and turnover, competitiveness and the effectiveness of recruitment processes. The actual vacancy rate is subject to considerable variation based on factors such as organizational growth, internal personnel movement, employee demographics and external market conditions.

The level of **Employee Engagement** indicates both employee satisfaction and productivity across the company and is measured by means of an employee survey. BC Hydro compares the employee engagement scores to those published by Work Canada. For comparison, the 2007 Work Canada Employee Engagement score was 3.46 overall, while the Energy and Utility segment was 3.41.

# SUMMARY FINANCIAL OUTLOOK

This section includes high-level financial forecasts for BC Hydro's revenues and expenses, the key assumptions and risks considered in setting these projections, and the major capital expenditures that support the business.

Financial performance focuses on the financial return to BC Hydro's shareholder (the Province of British Columbia) and the electricity rates paid by customers.

In F2008, BC Hydro provided \$757 million in transfers to the Province. This amount includes water rental fees (royalties paid for the use of provincial water resources), provincial and municipal property taxes and grants-in-lieu of taxes, and BC Hydro's annual dividend to the B.C. Government. BC Hydro's retained earnings increased by \$82 million in F2008.

### COST DRIVERS

BC Hydro's two most significant costs for supplying domestic needs are:

- the variable cost of energy, and
- capital investment costs related to maintaining and expanding our assets.

Our single largest cost is the cost of buying energy to meet the growth in customer demand: customer demand is growing and new supplies of energy are significantly more expensive than electricity generated from our Heritage Assets. This cost driver includes the cost of net market electricity purchases, natural gas costs, IPP purchases, water rental fees and transmission costs. On average, the cost of energy makes up between 40 and 45 per cent of BC Hydro's overall domestic costs.

BC Hydro's amortization costs and finance charges, derived from the capital investment needed to ensure the ongoing reliability of our assets and building new assets to meet growing demand, account for around one-third of all domestic costs. The main pressures on this cost driver are BC Hydro's aging assets, system expansion due to increasing customer demand, increasing debt levels and market interest rates.

### GROWTH

BC Hydro expects that, if B.C.'s economy and population continue to grow in the long-term, as forecast, this growth will result in:

- further increases in energy demand
- increased cost of new electricity to meet the demand compared with the cost of electricity from existing Heritage Assets
- increased capital expenditures and operating costs for Heritage Assets in order to maintain and expand the capacity of the transmission, distribution and generation systems, and
- increased spending on Demand-Side Management programs to increase the efficient use of electricity and achieve our target of meeting 50 per cent of our incremental resource needs through energy conservation and efficiency.

### RELIABILITY

BC Hydro's assets are aging and many components of the system are nearing the end of their useful lives. We are therefore exposed to increased risk of equipment failure and reduced service reliability to our customers. To maintain existing assets and keep them operating effectively as and when required, BC Hydro expects to:

- increase capital expenditures to refurbish aging assets, resulting in higher amortization and finance charges
- increase maintenance expenditures to minimize equipment outages
- invest in system hardening expenditures to cope with storm events, and
- increase our vegetation management costs in response to the risk posed by storm events and the mountain pine beetle within the distribution system.

### ECONOMIC FACTORS

The current economic conditions and liquidity issues in the market may affect BC Hydro in a number of ways. For example:

- The impact of the current economic conditions on the B.C. economy in general and the forecast slowdown in the construction sector may reduce some of the high construction cost pressures BC Hydro has been facing over the last several years. However, the magnitude of the potential savings is difficult to determine at this time.
- Given global investors' desire for very safe investments, BC Hydro is able to borrow at very low rates given the Province's strong credit rating. We have been taking advantage of the low rates for long-term debt to increase our proportion of long-term fixed rate debt and lock in the savings. In our latest Evidentiary Update to our RRA, dated October 17, 2008, we proposed that positive and negative variances resulting from interest rate changes flow into a regulatory deferral account. If approved, this will mean ratepayers will have the benefit/risk of interest rate changes.
- The return on pension fund assets has a significant impact on non-current employee future benefits costs. Based on the recent market volatility, market returns on the pension plan assets are expected to be significantly lower than originally forecast. The actual amount of the increase in costs will be known in early 2009 and is largely based on the December 31, 2008, market values of the pension plan assets. The investment loss on the pension plan assets will be amortized over 11 years (the estimated average remaining service life of active employees) starting in F2010, based on accounting rules. Based on estimated returns on our pension fund assets to mid-November 2008, the estimated annual amortized loss on the pension fund assets is estimated at approximately \$70 million per year for F2010 and future years. The pension fund asset valuations are revised annually, and therefore the forecast charges to income would be expected to be reduced if the economy recovers as it has in the past. BC Hydro has, in its RRA, proposed that positive and negative variances from forecast non-current pension costs flow into a regulatory deferral account for future recovery from ratepayers.

### FINANCIAL PERFORMANCE AND KEY ASSUMPTIONS

BC Hydro's operations are subject to a range of risks and uncertainties. As a result, actual financial results may differ materially from those described in this Service Plan.

It is also important to consider the following when assessing BC Hydro's financial performance:

### RATE STRATEGY

BC Hydro is awaiting the BCUC's decision on our latest RRA. The BCUC held a public oral hearing on the RRA in October 2008. On November 21, 2008, BC Hydro filed its Final Argument, which proposed the following rate increases:

	F2009	F2010
Rate (%) Rate Rider (%)	<b>6.56</b> 0.50	<b>7.50</b>
Rate Rider (%)	0.50	0.00

We expect a final decision from the BCUC on our proposed rate increases in early 2009. Should the BCUC decision differ materially from our application, it could impact on our ability to deliver on the strategies and targets outlined in this document and result in changes to the scale and pace of planned capital and operating expenditures.

Please see the Financial Targets section (page 25) for more on our rationale for these rate increases.

### CAPITAL STRUCTURE

Orders-in-Council Nos. 027 and 028, approved on January 17, 2008, deem BC Hydro's equity for rate setting purposes to be 30 per cent of the total of average debt and average equity balances for the year.

Under Special Direction HC1, the payment to the Province (dividend) is equal to 85 per cent of BC Hydro's distributable surplus (i.e., net income less interest during construction). This payment is reduced if the payment causes BC Hydro's debt to equity ratio to exceed 80:20.

Special Direction HC2 states that in regulating and setting rates for BC Hydro, the BCUC must ensure that those rates allow BC Hydro to collect sufficient revenue in each fiscal year to enable it to:

- provide reliable electricity service
- meet all of its financial obligations
- comply with government policy directives, and
- achieve an allowed annual rate of return.

### DEFERRAL AND OTHER REGULATORY ACCOUNTS

BC Hydro has four main regulatory deferral accounts:

- Heritage Payment Obligation Deferral Account
- Non-Heritage Deferral Account
- Trade Income Deferral Account, and
- BCTC Deferral Account.

We use these accounts—similar to those used by most regulated utilities—to capture specific differences between forecast costs and actual costs and to smooth the overall effect on ratepayers of cost volatility out of BC Hydro's control. BC Hydro is subject to periodic reporting of changes in the regulatory deferral accounts. Our ability to utilize any accumulated balances in future rate applications is subject to determination and approval by the BCUC.

BC Hydro also has other regulatory accounts, such as Demand-Side Management expenditures, First Nations settlement costs and Site C project definition and consultation expenditures. The purpose of these regulatory accounts is to defer for potential future recovery through rates those amounts that, under Generally Accepted Accounting Principles (GAAP), would otherwise be recorded as expenses in the current accounting period. This allows, for regulatory purposes, a better matching of costs and benefits for different generations of customers and a smoothing out of the rate impact of large non-recurring costs. The recovery of these expenditures, through our rates, is determined by the BCUC.

### FINANCING STRATEGY

BC Hydro forecasts the overall borrowing requirement to be approximately \$980 million in F2009, \$94 million of which will be used to refinance retired debt for a net requirement of \$886 million. BC Hydro expects to borrow \$352 million of the \$980 million through long-term debt, and the remainder through available revolving borrowing capacity. During F2008, BC Hydro borrowed \$830 million of new long-term debt.

As a provincial Crown corporation, BC Hydro borrows all funds through the Province of British Columbia, and all of BC Hydro's debt is either held or guaranteed by the Province, resulting in a credit rating on our long-term debt similar to the Province's own rating of Aaa by Moody's and AAA by Standard and Poors.

We forecast debt net of sinking funds, as of March 31, 2009, to be \$9.0 billion, increasing to \$9.7 billion at the end of F2010. We forecast finance charges to be approximately \$445 million in F2009, compared with actual finance charges of \$463 million for F2008. The reduction in finance charges is largely due to the lowering of market interest rates.

### REVENUES AND EXPENSES—FINANCIAL PROJECTIONS

BC Hydro calculated the following financial projections for revenues and expenses through F2012 based on the forecast approved by the Board and submitted to the Ministry of Finance in January 2009. The projected financial statements are prepared under existing Canadian GAAP. The financial statements will change once International Financial Reporting Standards (IFRS) are adopted in F2012. We are in the process of identifying the changes in reporting that will occur once we move to IFRS.

CONSOLIDATED STATEMENT OF OPERATIONS <sup>1</sup> (\$ MILLIONS)	ACTUAL F2008	FORECAST F2009	FORECAST F2010	FORECAST F2011	FORECAST F2012
REVENUES					
Domestic	2,944	3,008	3,224	3,526	3,712
Trade	1,911	2,508	2,507	2,829	2,954
	4,855	5,516	5,730	6,355	6,666
EXPENSES					
Energy costs	2,702	3,594	3,385	3,843	3,975
Domestic	948	1,291	1,112	1,267	1,289
Trade	1,754	2,303	2,273	2,576	2,687
Operating costs	941	910	982	990	1,026
Operation	208	240	238	244	260
Maintenance	275	305	333	324	330
General and Administration <sup>2</sup>	120	146	226	207	210
DSM and other regulatory costs	338	219	184	216	226
Taxes	153	167	177	192	203
Amortization	368	397	429	450	494
	4,165	5,068	4,972	5,475	5,698
INCOME BEFORE FINANCE CHARGES AND REGULATORY ACCOUNT TRANSFERS	690	448	758	879	968
Finance charges	463	445	444	499	570
NET INCOME BEFORE REGULATORY ACCOUNT TRANSFERS	227	3	314	381	398
Regulatory Account Transfers	142	354	137	113	144
NET INCOME (AFTER REGULATORY ACCOUNTS)	369	357	452	493	542
Net Debt <sup>3</sup>	7,519	9,008	9,734	11,046	12,107
GAAP Equity	1,921	2,234	2,381	2,660	2,878
Capital Spending	1,072	1,596	1,752	1,920	1,902
Full Time Equivalents	5,612	6,300	6,400	6,400	6,400

Notes:

<sup>1</sup> Table may not add due to minor rounding.

<sup>2</sup> The increase in G&A costs in F2010 and beyond is largely due to the lower than expected returns on pension fund assets as a result of the current world economic crisis. Please see the Economic Factors section (page 32) for more information.

<sup>3</sup> Debt figures are net of sinking funds and cash and cash equivalents.

### **KEY ASSUMPTIONS**

We used the following key assumptions in preparing BC Hydro's financial projections:

KEY ASSUMPTIONS	ACTUAL	FORECAST	FORECAST	FORECAST	FORECAST
	F2008	F2009	F2010	F2011	F2012
GROWTH AND LOAD:					
B.C. Real Gross Domestic Product Growth (%) <sup>1</sup>	1.2	1.8	3.3	2.8	2.7
Domestic Sales Load Growth (%) <sup>2</sup>	0.74	(1.25)	0.42	0.44	(0.51)
Residential Sales Load Growth [%] <sup>2</sup>	5.42	(1.15)	(0.48)	(0.51)	(1.41)
Light Industrial and Commercial Sales Load Growth (%) <sup>2</sup>	0.75	0.37	0.24	0.71	0.37
Large Industrial Sales Load Growth (%) <sup>2</sup>	(3.81)	(2.80)	0.89	0.84	(0.97)
Domestic Load (GWh)					
Domestic Sales Volume (GWh)	53,300	52,633	52,855	53,088	52,819
Surplus Sales Volume (GWh)	811	196	154	107	179
Line Loss and System Use (GWh)	5,676	5,116	5,366	5,405	5,351
Total Domestic Load (GWh)	59,787	57,945	58,375	58,600	58,349
ENERGY GENERATION:					
Total System Water Inflows (%) <sup>3</sup>	109	97	100	100	100
Sources of Supply to Meet Domestic Load:					
Net Hydro Generation (GWh)4	49,226	44,402	48,358	47,326	47,183
Market Electricity Purchases (GWh)	2,258	4,554	721	603	188
Independent Power Producers and Long-term Purchases (GWh)	7,765	8,548	8,857	10,137	10,391
Thermal Generation (GWh)	538	441	439	535	587
Total Sources of Supply for Domestic Load (GWh)	59,787	57,945	58,375	58,600	58,349
Electricity Trade Sales Volumes (GWh)	37,450	36,707	37,781	39,992	41,336
Average Mid-C Price (\$U.S./MWh)	56.99	55.62	55.71	60.50	60.99
Average Natural Gas Price at Sumas (U.S.\$/MMBTU)	6.92	7.94	7.64	8.09	8.19
FINANCIAL:					
Canadian Short-term Interest Rates (%)⁵	4.49	2.14	2.30	3.48	4.48
Canadian Long-term Interest Rates (%) <sup>5</sup>	4.73	5.05	5.33	5.89	6.78
Foreign Exchange Rate (U.S.\$:Cdn\$) (%) <sup>5</sup>	0.9769	0.9280	0.9103	0.9246	0.9280
Rate Increases (%) <sup>6</sup>	0.10	6.56	7.50	6.56	6.75
Rate Rider (%) <sup>7</sup>	2.00	0.50	0.00	2.00	1.00

<sup>1</sup> Economic assumptions from Conference Board of Canada, October 2008.

<sup>2</sup> Includes the impact of Power Smart programs.

<sup>3</sup> Water inflows for F2009 reflect the lower water inflows experienced during the year. We assume future year inflows will be at average levels. The sensitivity analysis that follows shows the impact of change in water flows.

<sup>4</sup> Includes Exchange Net.

<sup>5</sup> Financial assumptions from Ministry of Finance, October 2008.

<sup>6</sup> We have applied to the BCUC for rate increases for F2009 to F2010; we expect a decision on these rates in early 2009. Rates for future years are estimates only and are based on the increases needed to cover BC Hydro's costs and earn our allowed return on equity. These rate increases could change significantly depending on economic and operating conditions, such as water inflows and reservoir levels that may be present at the time.

<sup>7</sup> The rate rider is used to recover a portion of the current balances in the energy deferral accounts. The rate rider per cent is based on the proposal included in BC Hydro's RRA and is subject to the approval of the BCUC.

Various legal and regulatory matters are pending (see our annual and quarterly reports at **www.bchydro.com**). Owing to the size, complexity and nature of BC Hydro's operations, we cannot predict the outcome of these matters at this time.

### SENSITIVITY ANALYSIS

The following table illustrates the impact that key drivers—such as water inflows and gas prices—can have on BC Hydro's earnings, separated between ratepayer and shareholder risk. The combined effect of these drivers, which are largely beyond BC Hydro's control, results in range of values of income before regulatory transfers of as much as \$200 to \$900 million in each year.

The volatility between BC Hydro's plan and actual results will be partly mitigated through the use of BCUC-approved regulatory deferral accounts.

(\$millions)	F2009 <sup>7</sup> Low High	F2010 Low High	F2011 Low High	F2012 Low High
Range of income subject to deferral account transfers				
Inflows/Gas Prices <sup>1</sup>	(110) 80	(230) 280	(210) 285	(390) 430
Foreign Exchange <sup>2</sup>	(5) 5	(10) 10	(10) 10	(15) 15
TOTAL RANGE OF RATEPAYER RISK	(115) 85	(240) 290	(220) 295	(405) 445

(\$millions)	F20 Low	009 <sup>7</sup> High	F20 Low	)10 High	F20 Low	011 High		)12 High
Net income sensitive variables								
Weather <sup>3</sup>	(5)	5	(5)	5	(10)	10	(10)	10
Customer Load <sup>4</sup>	(5)	5	(5)	5	(5)	5	(5)	5
Pension Costs⁵	-	-	-	-	(15)	5	(35)	10
Interest Rates <sup>6</sup>	(5)	5	(10)	10	(20)	20	(20)	20
TOTAL RANGE OF SHAREHOLDER RISK	(15)	15	(20)	20	(50)	40	(70)	45

<sup>1</sup> High and low ranges are based on being within an 80 per cent probability band. The ranges fluctuate from year to year due to the impact inflow levels and market prices have on optimization decisions, including reservoir levels.

<sup>2</sup> High and low are based on being within the 80 per cent probability band, which translates to +/- 5 cents Canadian from expected. The impact of a change in the dollar exchange rate largely includes the impact on Powerex net cash flows. Because BC Hydro's U.S. dollar exposure is in a net cash inflow position, a stronger Canadian dollar vis-à-vis the U.S. dollar decreases income.

<sup>3</sup> This variable assumes weather will be five per cent warmer or colder than normal approximately 80 per cent of the time. Colder weather is assumed to increase residential sales volume and income. BC Hydro has proposed, in our February 2008 RRA, that the positive and negative load variance, which includes weather impact, flow into the regulatory deferral accounts. If approved by the BCUC, this item would be considered a ratepayer risk.

- <sup>4</sup> The customer load high and low ranges are based on being within an 80 per cent probability band. The range is smaller for F2009, reflecting the uncertainty for the remainder of the year only. This variable assumes change in customer load is met by market purchases at current forecast average purchase prices. Because the average price of market purchases is higher than the average tariff rate, decreases in customer load increase net income. BC Hydro proposed, in our February 2008 RRA, that the positive and negative load variance flow into the regulatory deferral accounts. If approved by the BCUC, this item would be considered a ratepayer risk.
- <sup>5</sup> The forecast assumes return on pension plan assets is seven per cent; low forecast assumes return of zero per cent and high forecast assumes rate of 10 per cent. There is no high/low range for F2009, as the main driver of BC Hydro's pension costs is based on the previous year's actual returns as of December 31, 2007. We have estimated impacts on changes to the actuarial valuation for F2010 based on returns to mid-November 2008. The returns to the end of December 31, 2008 could change significantly, and the range of possibilities can be large. BC Hydro has proposed, in our October 17, 2008 update to the February 2008 RRA, that positive and negative variances from forecast non-current pension income/expense flow into a regulatory deferral account. If approved by the BCUC, this item would be considered a ratepayer risk.
- <sup>6</sup> A change of one percentage point in short-term interest rates changes finance charges by approximately \$30 million. High and low are based on being within the 80 per cent probability band (which translates to +/- 60 basis points from expected). Higher interest rates would decrease income. BC Hydro proposed, in our October 17 update to the February 2008 RRA, that positive and negative variances from forecast finance charges flow into a regulatory deferral account. If approved by the BCUC, this item would be considered a ratepayer risk.

<sup>7</sup> The sensitivity analysis for F2009 reflects the impact for only the last quarter of the fiscal year.

BC Hydro reports on actual performance in our quarterly and annual reports, and provides updated forecasts each year in our Service Plan.

### CAPITAL EXPENDITURES AND CAPITAL EXPENDITURE PROCESS

BC Hydro classifies capital expenditures as either sustaining capital or growth capital:

- Sustaining capital is required to meet targeted levels of customer and supply reliability. It includes expenditures to ensure the continued availability and reliability of our generation and distribution facilities. It also includes expenditures to support the business, such as vehicles and information technology.
- Growth capital is required to meet customer load growth and other business investments. It includes expenditures related to the expansion of existing generation assets as well as expansion and reinforcement of our distribution system. The scope and timing of growth projects are uncertain as it is dependent on economic activity and customer demand.

BC Hydro, as the owner of the transmission system operated by the British Columbia Transmission Corporation (BCTC), funds the capital expenditures incurred by the BCTC and includes these costs in our capital expenditures. Transmission capital projects are discussed in the BCTC's Service Plan.

The table below shows actual and forecast capital expenditures for the sustaining and growth classifications. BC Hydro's capital plan (excluding Transmission) is unchanged from last year's Service Plan.

CAPITAL EXPENDITURES (\$ MILLIONS)	ACTUAL F2008	FORECAST F2009	FORECAST F2010	FORECAST F2011	FORECAST F2012
BCH Excluding Transmission: Sustaining	\$471	\$663	\$845	\$904	\$968
Growth	378	471	470	550	483
BCH Total Excluding Transmission:	\$849	\$1,134	\$1,315	\$1,454	\$1,451
Transmission:					
Sustaining	\$82	\$111	\$119	\$125	\$131
Growth	141	351	318	341	320
Total Transmission	\$223	\$462	\$437	\$466	\$451
Total BCH	\$1,072	\$1,596	\$1,752	\$1,920	\$1,902

BC Hydro's Guiding Principles and short-term priorities provide the basis to ensure that specific projects are aligned with our overall strategic direction. We then evaluate projects based on their ability to mitigate risk and/or enhance value to BC Hydro's operations. The risk factors considered for this purpose are:

- financial
- environmental
- technological
- timing
- reliability
- safety, and
- supply.

BC Hydro follows both a top-down and a bottom-up approach in our capital planning. This ensures that individual capital plans do not exceed the overall BC Hydro capacity for capital expenditures, and that all the necessary capital expenditures are undertaken to meet performance targets.

BC Hydro uses a phased decision-making process to define all large capital projects.

In the Project Identification Phase, we review the alternatives, evaluate feasibility, and develop a preliminary business case to determine whether or not to proceed to the Definition Phase. In the Definition Phase, we fully investigate the selected alternative, complete any regulatory requirements and update the business case. If the business case is approved, we move on to the Implementation Phase where we complete the detailed design, procure equipment, construct and commission the project.

Throughout these phases, as more and more information becomes available, the project scope and costs may change significantly. Costs may also change to reflect any changes in inflation rates, the labour market, and construction costs. This cost uncertainty will remain in place until the project is complete, but diminishes as scope is defined and contracts are let. Occasionally, additional information may cause us to defer a project.

### APPROVED PROJECTS OVER \$50 MILLION

BC Hydro has planned for the following projects, each with capital costs expected to exceed \$50 million. These projects have been approved by our Board of Directors, and costs reflect the Board-approved costs.

### Aberfeldie Redevelopment

BC Hydro completed installation of the first generating unit in December 2008. We will complete the two remaining generating units in early 2009, as planned. The new 24 MW generating plant replaces the original facility built in 1922.

Scheduled completion: F2009 Approved cost: \$95 million

### **Coquitlam Dam Seismic Improvement Project**

BC Hydro completed construction of the new dam in July 2008. It meets current seismic standards and reduces risk to people living downstream in the event of an earthquake.

Completed: F2009 Approved cost: \$65.6 million

### Gordon M. Shrum Units 1 to 4 Stator Replacements

BC Hydro is replacing four stators at the Gordon M. Shrum (GMS) facility that are at risk of failure and where rewinding the stators is not technically feasible due to the condition of the cores. We began installing the new stators in 2007, and have completed two units as planned; work on the third unit remains on schedule. In May 2008, the BC Hydro Board of Directors approved plans to proceed with replacement of a fourth unit stator.

Scheduled completion: F2011 Approved cost for four units (Units 1-4): \$97 million

### **Revelstoke Unit 5 Project**

BC Hydro is currently installing a fifth generating unit in the plant to provide approximately 500 MW of additional, reliable capacity to the BC Hydro system. The new generating unit will also provide additional energy, operating flexibility and reserves. The Revelstoke Generating Station was designed as a six-unit generation station. However, when the facility was constructed, only four units were installed, leaving two unit bays empty. Construction began in November 2007.

Schedule completion: F2011 – F2012 Approved cost depending on in-service date: \$280 – \$350 million

### Mica Generator Stator Replacement (Units 1-4)

BC Hydro is replacing the stator and rotor poles on each of the four units at the Mica Generating Station to reduce the risk of forced outages due to core bolt failure. We began the work in 2006. We have completed three units as planned; the fourth unit remains on schedule for completion in F2010.

Scheduled completion: F2010 Approved cost for four units: \$97 million

### Peace Canyon Generator Stator Replacement and Rotor Modification

BC Hydro is installing four new stators and modifying existing rotors at the Peace Canyon Generating Station to address design deficiencies, reduce the risk of forced outages and make the plant safer for employees. We have completed three units as planned, and rehabilitation of the fourth unit remains on schedule for completion in F2010.

Scheduled completion: F2010 Approved cost for four units: \$86 million

### Peace Canyon G1 – G4 Turbine Overhaul

In 2006, BC Hydro overhauled Peace Canyon Unit 4 turbine at the same time as the Unit 4 stator was replaced. This overhaul showed that components of the turbine were worn and damaged. As a result, we are overhauling the other three units to prevent further wear that would eventually have affected the reliability of these units. We have completed three units as planned, and rehabilitation of the fourth unit remains on schedule for completion in F2010.

Scheduled completion: F2010 Approved cost for four units: \$55 million

### Cheakamus Spillway Gate Reliability Upgrade

BC Hydro is upgrading the spillway gates at the Cheakamus dam in order to reduce public and employee safety risk and to ensure Flood Discharge Reliability requirements are met. Spillway gates control the amount of water that can be discharged from the reservoir. They are generally used in times of flood to pass high inflows.

Scheduled completion: F2012 Approved cost: \$73 million

### CONTEMPLATED PROJECTS OVER \$50 MILLION

BC Hydro is contemplating the following projects over \$50 million. These projects are in the early Identification or Definition Phases and final costs are as yet uncertain. We will update interim project cost estimates as we further refine the scope of each project.

These projects have not yet been approved by our Board of Directors or Management.

### Gordon M. Shrum Units 1 to 5 Turbine Rehabilitation

The runners and head covers for Units 1 to 5 have experienced cracking problems since the units went into service in the late 1960s, and one unit—Unit 3—failed catastrophically in the spring of 2008.

We are planning to replace the runners to reduce the risk of runner failure, decrease maintenance costs and improve operating efficiency, and have released project tender documents to the market.

Targeted completion: F2017 Interim project cost estimate: \$243 - \$386 million

#### Upper Columbia Capacity Additions at Mica and Revelstoke

We have commenced project definition and have filed Project Descriptions for the construction of Mica Units 5 and 6 with the BC Environmental Assessment Office and the Canadian Environmental Assessment Agency. Each additional unit would provide approximately 500 MW of capacity. No further work is being undertaken on Revelstoke Unit 6 at this time. (Both the Revelstoke and Mica Generating Stations were designed as six-unit generation stations. However, when the facilities were constructed, only four units were installed and two bays were left empty at each station.)

Targeted completion: Mica 5 & 6 - F2014 - F2016 Interim project cost estimate: Mica 5 & 6 - \$840 - \$1,260 million

### Mica Gas Insulated Switchgear Replacement

BC Hydro is planning to replace the switchgear system at the Mica Generating Station. The system uses two 500-kilovolt circuits to conduct the energy from the Mica underground powerhouse to the surface, where it transitions to transmission lines. This switchgear is aging and becoming less reliable and is prone to  $SF_6$  (a greenhouse gas) leakage. We released the Gas Insulated Switchgear tender in December 2008, and intend to submit an application for regulatory approval in June 2009.

### Targeted completion: F2014

Interim project cost estimate: \$120 - \$300 million

### Fort Nelson Generating Station Upgrade

Adequacy of supply is a concern in the Fort Nelson area, and BC Hydro is planning to increase the generating capacity at the Fort Nelson Generating Station. Depending on the upgrade configuration selected, net capacity at the Fort Nelson facility would be increased by either 8.5 MW or 24.5 MW. We are expediting this project for a completion date as early as November 2011.

Targeted completion: F2012 Interim project cost estimate: \$80 – \$189 million

### Hugh Keenleyside and Stave Falls Spillway Gate Reliability Upgrades

BC Hydro is upgrading the spillway gates at the Hugh Keenleyside and Stave Falls dams in order to reduce public and employee safety risk and to ensure Flood Discharge Reliability requirements are met. Spillway gates control the amount of water that can be discharged from the reservoir. They are generally used in times of flood to pass high inflows.

Hugh Keenleyside Spillway Gate Reliability Upgrade: Targeted completion: F2014 Interim Project Cost Estimate: \$50 – \$90 million

Stave Falls Spillway Gate Reliability Upgrade: Targeted completion: F2013 Interim Project Cost Estimate: \$44 – \$74 million

### **Smart Metering and Infrastructure Program**

Like other utilities around the world, BC Hydro is planning to automate, modernize and upgrade its electricity grid system through a Smart Metering and Infrastructure Program. This program includes a series of projects and initiatives that will improve reliability, provide additional service options for customers and help to facilitate energy conservation and efficiency.

In aggregate, the projects will have a positive net present value and will improve service and deliver significant benefits to customers, while helping to keep BC Hydro's rates amongst the lowest in North America.

The program is consistent with last year's Service Plan and has been updated to include additional detail on each of the projects. These projects will be submitted to the BC Utilities Commission for review and approval.

#### **Smart Metering Project**

Through the Smart Metering Project, BC Hydro will be installing new digital meters that support 2-way communications capability to approximately 1.8 million BC Hydro customers throughout the province. The project also includes the installation of associated information and telecommunications systems that, together with the meters, form the foundation for the In Home Display Project and the Theft Detection Project that follow.

These "smart meters" will provide BC Hydro with new ways to measure and manage electricity supply and demand. They will also allow customers to remotely monitor their energy usage, take advantage of new innovative conservation rate structures and benefit from enhanced service options including more timely and accurate billing, remote service connection and improved outage detection.

Targeted completion: F2013 (Late calendar 2012) Interim project cost estimate: \$480 – 530 million

#### In Home Display Project

To help achieve the BC Energy Plan target of meeting 50% of incremental load growth through conservation, and in keeping with government's leadership position and commitment to creating a conservation culture in British Columbia, BC Hydro will be making In Home Displays (IHDs) available to its customers. The IHD will communicate with Smart Meters via wireless technology and display energy consumption and costs directly to customers. With this timely information, customers can manage their own consumption and take advantage of the wide variety of Power Smart programs, helping them to save both energy and money.

Targeted completion: F2013 (Late calendar 2012) Interim project cost estimate: \$70 -100 million

#### Theft Detection Project

This project involves the installation of specialized devices that accurately measure the electricity delivered to an area and reconcile that data with actual customer consumption. This will allow BC Hydro to identify and eliminate theft where it is occurring and mitigate the subsequent impact on ratepayers.

Targeted completion: TBD Interim project cost estimate: \$100 – 170 million

### Grid Modernization and Infrastructure Upgrades

This series of initiatives includes upgrades to telecommunications and information systems that improve operational efficiencies such as voltage optimization and provide support for automated system restoration, improved reliability and more consistent "digital quality" power. These infrastructure upgrades also build the foundation for the Smart Grid of the future that can support the acceptance and integration of large volumes of clean distributed generation. The Smart Grid will enable customers to choose from a broader range of clean supply options like solar, small wind and geo-thermal. Customers will also have the option to supply their clean surplus energy back into the Smart Grid contributing to the Provincial goal of energy self sufficiency.

Targeted completion: TBD Interim project cost estimate: \$80 – 130 million

### **Field and Facility Improvements**

We need to provide safe, efficient workplaces that meet operational work requirements and energy efficiency standards as required by *The BC Energy Plan*. This initiative will upgrade and enhance workplaces across our buildings to meet these objectives, to create more collaborative space and to reduce the need for additional lease space through densification.

Targeted Completion: F2013 Total Cost: \$340 – \$430 million

### **Transmission Projects**

Transmission projects over \$50 million—which, if approved by the BCUC, will be financed by BC Hydro—are disclosed in the BCTC's Service Plan.

### CONTEMPLATED PROJECTS OVER \$50 MILLION - SCOPE BEING DETERMINED

BC Hydro is contemplating the following additional projects over \$50 million. The recommended solution and scope for these projects remain to be determined, and therefore we are not in a position to provide a target completion date or a cost estimate for these projects. We will update interim project cost estimates as we further refine the scope of each project.

These projects have not yet been approved by our Board of Directors or Management.

### **Campbell River Improvements**

#### John Hart Replacement

The aging John Hart facility, in operation since 1947, needs significant capital investment in the powerhouse and penstocks to ensure reliable long-term generation and to mitigate earthquake risk and environmental risk to fish and fish habitat. We are analyzing options to replace or rehabilitate the existing six unit, 126 MW generating station, including an integrated emergency bypass capability to minimize river flow disruption impacts to fish and fish habitat.

#### Strathcona Seismic and Seepage Issues

Strathcona is the upstream dam on the Campbell River and its reservoir provides the primary storage for the Campbell River system. The Strathcona intake tower, power conduit, spillway piers and the earth fill dam do not meet current seismic standards. BC Hydro is contemplating upgrades to the facility to improve public safety, system reliability and minimize environmental impacts.

### **Ruskin Dam Seismic and Powerhouse Rehabilitation Projects**

#### Ruskin Dam Safety Improvement

The upper portion of the Ruskin Dam, built in 1930, does not meet current seismic standards. As an interim measure, we lowered the Hayward Lake Reservoir, behind the Ruskin Dam, by approximately two metres and anchored the most critical section of the upper dam. BC Hydro intends to upgrade the right abutment in 2009 to mitigate the public safety risk. BC Hydro will continue to further define the required dam rehabilitation work.

#### **Ruskin Powerhouse Improvements**

The existing 1930 Ruskin Generating Station is at the end of its service life and requires significant capital expenditures to continue to operate safely and reliably. BC Hydro is analyzing options to rehabilitate the powerhouse to meet current seismic standards for earthquakes and replace major generating equipment, which is in poor or unsatisfactory condition.

### Lajoie Dam Seismic Upgrade

The Lajoie Dam is a rock fill structure completed in 1955. In recent years, annual repairs to the shotcrete surface have been required to control increased leakage as the dam settles. Because the dam does not meet current seismic standards, we are assessing seismic upgrade options to ensure dam and public safety and maintain reliability of supply.

### **Alouette Generating Station Redevelopment**

The 9 MW Alouette Generating Station has been in operation since 1928. Because of its age and the condition of the facility, including the fact that it does not meet current seismic standards, BC Hydro is contemplating rehabilitating or replacing both the powerhouse and the generating equipment.

### Bridge River Units 5 & 6 Generator Upgrades

BC Hydro is considering upgrading two units at Bridge River, including the replacement or refurbishment of the generators and ancillary equipment, to address the condition and known deficiencies of major components. These generators were commissioned almost 50 years ago and have not undergone a major refurbishment since being placed in service.

#### **Cheakamus Generator Upgrades**

BC Hydro is considering upgrading the two units at Cheakamus generating station, including the replacement or refurbishment of the generators and ancillary equipment, to address the condition and known deficiencies of major components. These generators were commissioned over 50 years ago.

#### Fort Nelson Generating Station Expansion

In order to meet growing customer demand in the region, BC Hydro is evaluating options for the expansion of the Fort Nelson Generating facility to further increase generating capacity in the region.

# SUBSIDIARIES

### POWEREX

Powerex Corp., a wholly owned subsidiary of BC Hydro, is a leading marketer of wholesale energy products and services in Western Canada and the Western United States, and a growing niche player in other markets across North America.

Its energy marketing and trade activities help optimize BC Hydro's electric system resources and provide significant economic benefits to the people of British Columbia. The Chief Executive Officer reports to the Board of Directors of Powerex Corp., and has a reporting relationship to BC Hydro's Chief Executive Officer. BC Hydro's Chief Executive Officer ensures the Board of BC Hydro is informed of Powerex's key strategies and business activities.

In recent years, Powerex has increasingly purchased electricity from outside the BC Hydro system to support BC Hydro's domestic needs and to meet its own trade commitments. Powerex also markets, on behalf of the Province, the Canadian Entitlement to the Downstream Benefits of the Columbia River Treaty.

The U.S. to Canadian dollar exchange rate and the energy markets in which Powerex trades vary, and therefore income can vary significantly from year to year. Powerex's net income over the last five years has ranged from \$83 to \$259 million. In F2009, its income is forecast to be \$200 million and to average approximately \$180 million per year over the F2010 to F2012 period, on average revenues of almost \$3 billion.

### POWERTECH LABS

Powertech Labs, as a wholly owned subsidiary of BC Hydro, has been providing energy-based consulting and testing services to electric utilities, gas companies, automotive manufacturers and others since 1989.

Operating as a separate commercial entity on a profitable basis for most of its 20-year history, Powertech has combined unique testing capabilities with multidisciplinary, expert technical staff to help clients test, demonstrate and assess the performance of their energy-related technologies and systems.

In addition to providing technical services to BC Hydro, Powertech serves a large number of clients in energy-related sectors across North America, Asia, Europe and beyond. Powertech Labs is located on an 11 acre, 21-lab campus in Surrey and has approximately 115 employees.

In 2008, a new Board of Directors was appointed which includes Mossadiq Umedaly (Executive Chairman), Brenda Eaton and Dr. Nancy Olewiler. The Board directed Powertech's management team to develop a new strategic direction for Powertech that will capitalize on its core capabilities, strong industry client base and emerging market opportunities. The new strategic plan calls for Powertech to create a growing, financially viable company focused on clean energy, competing successfully in global markets in order to create value for BC Hydro and British Columbia.

Powertech's net income was \$0.5 million in F2008. Its net income is forecast to be break-even in F2009 and F2010, on revenues of approximately \$25 million. Powertech's net income is expected to increase in F2011 and beyond.

### OTHER SUBSIDIARIES

BC Hydro has created a number of other subsidiaries to help us manage risk in developing projects and/or contracting with third parties. The Boards and management of these subsidiaries are made up of BC Hydro employees, who perform these duties without additional remuneration.

# APPENDIX

GUIDING PRINCIPLE	OBJECTIVE
Reliability (Customer)	To have the best-in-class reliability by customer segment.
Energy Security (Supply)	To provide electricity self-sufficiency (energy and capacity).
Remote Community Electification	To provide appropriate electric service to all remote communities on an equitable basis.
Financial Targets	To maintain existing position of having costs among the lowest in North America and to deliver 100 per cent forecast net income on an annual basis.
Innovation and Technology	To be an industry leader in innovation use of technology, directly supporting and advancing BC Hydro's long-term goals.
Western Opportunities	To profitably increase Western market share based on access to assets in B.C. and the Western system and increased trading activity.
Environmental Impact	To have no net incremental environmental impact by 2024 when compared with 2004.
Energy Conservation and Efficiency	To develop and foster a conservation culture in B.C. that leads to customers to choose a dramatic and permanent reduction in electricity intensity.
Safety	To provide the safest work environment compared with the best performers in any industry, with none of our employees experiencing a serious safety injury.
Teamwork	To use exceptional teamwork to engage all employees in the achievement of BC Hydro's purpose and long-term goals.
Workplace	To be the top employer for generations.
Customer Satisfaction	To lead other companies in offering extraordinary value and service.
Suppliers	To ensure 100 per cent of suppliers have demonstrated values congruent with those of BC Hydro.
Stakeholder Engagement	To be the most respected company in B.C.
First Nations	To improve relationships built on mutual respect and that appropriately reflect the interests of First Nations.

HOW TO CONTACT BC HYDRO:

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