British Columbia Transmission Corporation

Service Plan 2004-2007

Letter from Board Chair to Minister Responsible

On behalf of the Board of Directors and employees of the British Columbia Transmission Corporation (BCTC), I am pleased to present the Corporation's first service plan covering the fiscal years 2004-2007. This plan includes: strategic business directions, risk management approaches, capital planning, performance measures and financial outlook.

Established under the *Transmission Corporation Act*, BCTC was officially launched on August 1, 2003. BCTC is an independent government-owned Crown Corporation, regulated by the BC Utilities Commission (BCUC). BCTC is fully responsible for operating, maintaining, and planning for the growth of our province's electric transmission system. Public ownership of the transmission assets remains with BC Hydro and British Columbia's sovereignty is protected through BCUC regulation.

In the fall of 2002, the provincial government released *Energy for our Future: A Plan for BC*. The government's vision for the energy sector's contributions to our province are set-out in the plan's four key objectives:

- Low electricity rates and public ownership of BC Hydro
- More private sector opportunities
- Secure and reliable supply
- Environmentally responsible operation and development and no nuclear generation in B.C.

The creation of BCTC directly supports the objectives of the Energy Plan. BCTC provides open, non-discriminatory access to the transmission grid for all power producers and larger industrial users in B C. This is the foundation of a strong electricity sector that will benefit our province by keeping electric transmission rates low, encouraging private investment in new electricity supplies, facilitating the purchase of electricity by major customers from a variety of suppliers and ensuring the continued access to export markets and revenues. As we meet our objectives, the public's ownership of the transmission assets and BCTC is maintained.

To ensure British Columbia has continued access to export opportunities, BCTC will continue to work with other jurisdictions to make sure British Columbia has access to trade markets in the West. As more independent power producers and other market participants throughout our province become active in export markets, revenues are expected to increase for fiscal 2005 through to fiscal 2007.

In order to fully achieve the Energy Plan's objectives, BCTC will require its own Wholesale Transmission Service (WTS) tariff. Last November we began a consultation process that is providing market participants the opportunity to provide input into the design of BCTC's new tariff. In June 2004 following these consultations, BCTC will file an application for its own WTS tariff with the BCUC. By fiscal 2006, BCTC will be a fully independent regulated utility with the authority to bill its customers directly for its services.

As much of BC Hydro's transmission infrastructure is over 40 years old and nearing the end of its life, additional capital and maintenance expenditures will be needed to ensure system reliability. BCTC's planning processes will ensure that plans are in place to both sustain and grow B.C.'s transmission system to meet the province's requirements and to allow for increased benefits for the electricity industry.

A number of key performance measures have been included in this plan. Recognizing that the new company is in its infancy, others are still under development. BCTC's performance measures will be monitored closely and refined to ensure that we maintain our momentum in achieving our objectives.

Our success is dependent upon the hard work and commitment of our employees, and I would like to personally recognize and thank them for achieving the remarkable progress observed over the last year. While a great deal has been accomplished, much work remains as we continue the creation of a distinct, financially independent regulated transmission utility that will serve as a North American model.

R.T.F. (Bob) Reid
Chair of the Board
British Columbia Transmission Corporation

Accountability Statement

The 2004-2007 Service Plan for the British Columbia Transmission Corporation (BCTC) was prepared under my direction and in accordance with the *Budget Transparency and Accountability Act*. I am accountable for the contents of the plan, including the selection of performance measures and targets. The plan is consistent with government's strategic priorities and overall service plan. All significant assumptions, policy decisions, and identified risks, as of January 31, 2004, have been considered in preparing the plan. I am accountable for ensuring British Columbia Transmission Corporation achieves its specific objectives identified in the plan and for measuring and reporting actual performance.

R.T.F. (Bob) Reid
Chair of the Board
British Columbia Transmission Corporation

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Organization Overview and Mandate

In May 2003, the British Columbia Transmission Corporation (BCTC) was incorporated as a Crown agency under the *Company Act,* and is guided by the new *Transmission Corporation Act.* BCTC is, with its own Board of Directors, a separate entity from BC Hydro and all other electricity market participants. BCTC's relationship with BC Hydro will be governed by a series of agreements that were designated by the Province in November 2003 (Designated Agreements).

BCTC manages, maintains and operates BC Hydro's transmission assets. BCTC is the transmission services scheduling agent, the control area operator, the bulk system operator and the real time generation dispatcher for the integrated transmission system. Electricity is delivered through an interconnected system of over 18,000 kilometres of 60kV to 500kV transmission lines, under-ground cables, poles and structures, submarine cables and related stations. A significant portion of the electricity required to serve the province's demand is generated at facilities on the Peace and Columbia Rivers hundreds of miles from the main load centres in the Lower Mainland and on Vancouver Island.

BCTC's mandate includes providing reliable transmission services and ensuring open and non-discriminatory access to the BC transmission system for all electricity market participants. BCTC's business model, as reflected in the Designated Agreements, includes an ability to compel BC Hydro to finance transmission investment once BCTC has received the necessary authorizations from the British Columbia Utilities Commission (BCUC or Commission). The Commission will continue to regulate the terms, conditions and rates for transmission services provided by BCTC.

BCTC commenced business operations on August 1, 2003 and the organization will evolve as follows:

PHASE 1: TRANSITION PERIOD

Phase 1 commenced on August 1, 2003 and is expected to end on March 31, 2005. During this phase, BCTC is required to provide transmission system operations and asset management services to BC Hydro for a service fee. As BC Hydro bears the economic risks of BCTC's operations during this phase, BCTC's accounts will be consolidated with BC Hydro's financial accounts. Hence, BCTC's F2004 and F2005 financial plans are also reflected in BC Hydro's financial plans during Phase 1.

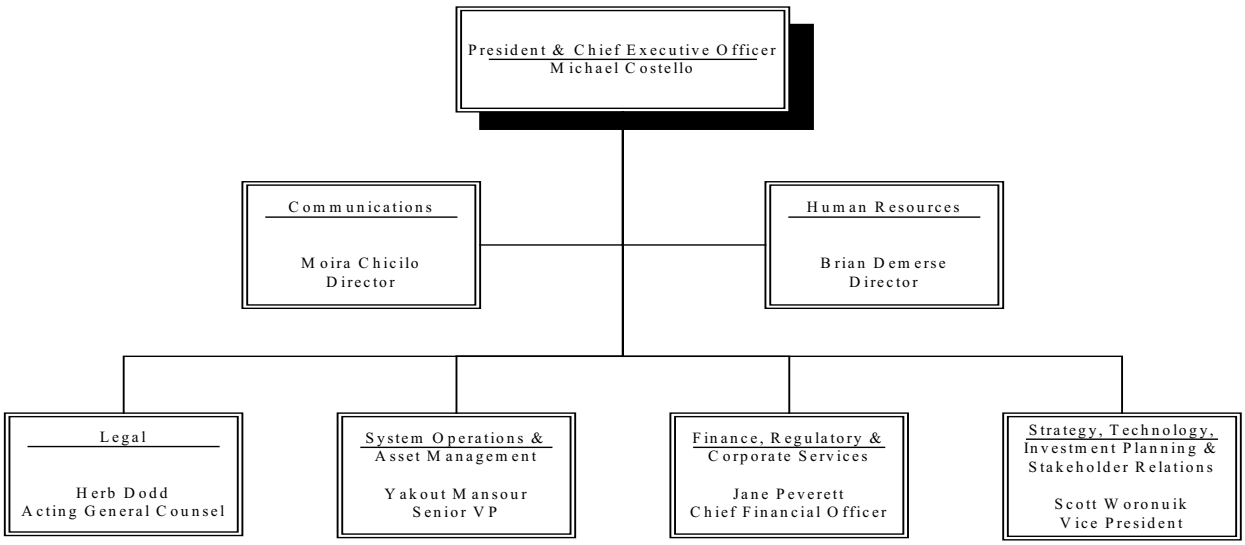
PHASE 2: REGULATED UTILITY

BCTC will file an application for its own Wholesale Transmission Services (WTS) Tariff with the BCUC in June 2004 and will implement the new Tariff as directed by the BCUC. Implementation of the Tariff is expected to commence on April 1, 2005 and will establish BCTC as a separate regulated utility under the *Utilities Commission Act*. After this date, BCTC's accounts will no longer be consolidated with BC Hydro's, nor will they be reflected in BC Hydro's budgets and forecasts.

Governance

BCTC is governed by an eleven member Board of Directors, who are appointed by Order-in-Council. The Board Structure includes three committees: the Governance, Audit and Human Resources Committees. A significant focus for the BCTC Board has been, and will continue to be, to ensure effective overall governance of BCTC.

The Corporate structure of BCTC is shown in the following diagram.



Alignment with Government's Strategic Plan

GOAL 1: A STRONG AND VIBRANT PROVINCIAL ECONOMY

The Government of British Columbia's Energy for Our Future: A Plan for BC (the Energy Plan) has the goal to harness the enormous potential of BC's resources to generate renewed economic growth in an environmentally responsible way. The Energy Plan is based on four cornerstones to maximize benefits for British Columbians well into the future. The formation of BCTC, its role as defined in legislation and the actions described in this service plan contribute to the achievement of the Energy Plan's four cornerstones. This linkage is shown below.

The Energy Plan Cornerstones	BCTC Contribution
1. Low electricity rates and public ownership of BC Hydro	▪ Encouraging new generation investment, and large user access to new supply, through independent and non-discriminatory access to transmission service ▪ Maintaining BC sovereignty – BCTC is a Crown owned company that maintains the Transmission Assets of BC Hydro and is regulated by the BCUC
2. Secure and reliable supply	▪ Encouraging new generation investment through independent and non-discriminatory access to transmission service ▪ Ensuring sustained asset health, reliability and security of the transmission system ▪ Ensuring fair access for all generators and the provision of

The Energy Plan Cornerstones	BCTC Contribution
	independent transmission service to maintain and increase BC's benefits from trading activity with US wholesale power markets ▪ Create the "model" transmission company: technically superior, commercially viable, and environmentally responsible
3. More private sector opportunities	▪ Encouraging new generation investment through independent and non-discriminatory access to transmission service ▪ Supporting competitiveness of BC industries by facilitating the direct purchase of electricity by large users ▪ Ensuring fair access for all generators and the provision of independent transmission service to maintain and increase BC's benefits from trading activity with US wholesale power markets
4. Environmental responsibility and no nuclear power sources	▪ Ensuring sustained asset health, reliability and security of the transmission system ▪ Create the "model" transmission company: technically superior, commercially viable, and environmentally responsible

GOAL 2: A SUPPORTIVE SOCIAL INFRASTRUCTURE

A secure and reliable supply of electricity enables British Columbia's schools and hospitals to provide needed education and health care services. Execution of BCTC's mandate will also assist the Province to maintain its income from the electricity sector.

GOAL 3: SAFE, HEALTHY COMMUNITIES AND A SUSTAINABLE ENVIRONMENT

BCTC operations and transmission facility asset management and maintenance activities are conducted with an intense focus on public, employee, and environmental safety.

Planning Context and Key Strategic Issues

The Board of BCTC is in the process of developing a long term strategy with Vision, Mission and Values Statements to be in place by mid 2004. In 2004, BCTC will "Build the Foundation" by developing capability and capacity to perform mandated functions. This interim focus has five strategic thrusts and a focus on Customers will permeate BCTC's culture:

- Business – developing an independent business structure
- Market Development – enabling the new electricity market place
- Team – workforce expertise and competency
- Energy Highway – meeting the energy transfer needs of our customers
- Value Creation – focusing on defining, measuring, and delivering value

STRATEGIC THRUST: BUSINESS

BCTC will be applying for its own tariff in June 2004, which will result in authority to bill for services and collect revenues. This ability is one of the key elements of independence from BC Hydro. BCTC commenced consultations on its new tariff with its customers and other stakeholders in November 2003 which will culminate in the June 2004 filing with the BCUC.

BC Hydro lines of business and service organizations are major customers of, and suppliers to**,** BCTC. BCTC is developing strong and positive business relationships with BC Hydro and Accenture Business Services (ABS) and are formalizing our relationships through the Designated Agreements.

STRATEGIC THRUST: MARKET DEVELOPMENT

BCTC is connected to the western electricity market and is strategically situated between California, a large energy consumer, and Alberta, which is in the process of developing new energy sources. The demand for transmission through British Columbia is expected to remain high in the long term.

BCTC currently operates through transmission tariffs approved by the BCUC. These tariffs are consistent with FERC requirements which is important to ensure continued access to US markets for British Columbia electric supply and trade.

BCTC, under the direction of a steering committee chaired by Ministry of Energy and Mines staff, continues to work on the development of market efficiencies across the Western North America interconnected grid. BCTC's objectives include achieving transmission operation and market efficiencies in the Western region while ensuring BC sovereignty over British Columbia transmission assets.

STRATEGIC THRUST: TEAM

BCTC is critically dependent on specialized skills in order to plan and manage the system. BCTC has been acquiring or developing the specialized skill sets required by an independent, market focused organization throughout F2004 and will continue to do so during F2005.

BCTC is sensitive to the marketplace dynamics in terms of skilled personnel and is developing succession plans to ensure requisite skills are available when they are needed.

STRATEGIC THRUST: ENERGY HIGHWAY

The transmission infrastructure in British Columbia was, for the most part, constructed before 1985 and certain facilities are nearing the end of their useful lives. Increased marketing and trading activity within British Columbia and in neighbouring jurisdictions has increased utilization of the transmission system. BCTC is actively participating in the investigations of the August 14, 2003 blackout in the eastern part of North America. BCTC believes strongly in applying relevant learnings from other jurisdictions and will implement improvements as necessary to continue to secure the reliability of our transmission system.

Implementation of the Province's Energy Plan will introduce more activity on the transmission system in response to the needs of customers, most notably from Independent Power Producers. These factors will contribute to incremental capital and maintenance investment on the transmission system.

STRATEGIC THRUST: VALUE CREATION

The Energy Plan requires that the different energy sectors make a contribution to the prosperity of the Province by actively encouraging initiatives and projects to develop energy resources and opportunities.

BCTC's public planning process will include a forum for customers and other interested stakeholders to present ideas on their transmission needs from BCTC and encourage value creation in the electricity sector.

BCTC will develop measures to evaluate BCTC's contribution to value creation during calendar 2004.

Risk Management

BCTC's enterprise risk management strategy is directed by a Manager, Enterprise Risk and overseen by a Risk Management Committee reporting to BCTC's executive and the Audit Committee of its Board of Directors. The Corporation is developing an integrated risk management and internal audit framework to ensure the ongoing identification, assessment, mitigation, monitoring and assurance of risks within the organization. This framework, and the associated methodologies, tools and templates is targeted to be implemented by June 2004.

This Service Plan is based on certain assumptions and conditions. The primary assumptions and conditions include: successful consultations on BCTC's new tariff with customers and stakeholders; success in developing strong customer relationships; BCTC's ability to finalize all separation agreements with BC Hydro; ensuring BCTC's organizational design is sound; ensuring vacancies are filled and succession plans developed; developing a productive relationship with the Commission; acknowledgement of vintaging issues around the transmission infrastructure and anticipating generation growth among Independent Power Producers. Key risks associated with these assumptions include:

- Reconciliation/finalization of separation arrangements with BC Hydro
- Organization and business needs still being defined
- Regulatory decisions
- Significant unanticipated equipment failure
- Catastrophic event

BCTC employs a number of strategies to mitigate the impact of these key risks. These strategies include:

- BCTC/BC Hydro close coordination and management of separation
- Focus on regulatory relationships and risk coverage in regulatory determinations
- Reasonable contingency allowances for unanticipated repairs; procedures agreed to with stakeholders and the regulator for significant unanticipated items
- Programs to reduce risks rising from equipment failure, critical infrastructure threats, catastrophic events and employee departures
- Development of integrated enterprise risk management and internal audit framework
- Insurance coverages
- Internal control framework

Goals, Objectives, Performance Measures and Targets

As a new Crown Corporation, this is BCTC's first Service Plan. The strategic thrusts, initiatives and performance measures and targets set out below are preliminary pending finalization of BCTC's performance management system. These strategies, measures and targets will be refined over the coming year as BCTC develops its own wholesale transmission tariff and consults with stakeholders on capital plans.

STRATEGIC THRUST: BUSINESS

GOALS AND OBJECTIVES
Develop an independent business structure by: ▪ Building a BCTC identity separate and distinct from BC Hydro ▪ Building BCTC's presence externally and begin developing a positive reputation externally ▪ Commercial viability, financial stability and stakeholder focus over the long term ▪ Integrating stakeholder goals in BCTC planning process
INTERIM STRATEGIC INITIATIVES
▪ Finalize Service Level Agreements (SLAs) with BC Hydro ▪ Business processes, systems, and commercial contracts ▪ BCTC Open Access Transmission Tariff filed by June 2004; implementation April 2005 ▪ Develop Transmission unit cost measures comparable to industry benchmark measures

Measures	Forecast F2004	F2005	F2006	F2007
Net Income Attributable to BCTC	$0.9 Million (8 months ending March 31, 2004)	$3.3 Million (Subject to rate determination)	$3.9 Million (Subject to equity and rate determination)	$4.5 Million (Subject to equity and rate determination)
Stakeholder Awareness & Satisfaction	Baseline under development	Improvement over Baseline (% to be developed)	Improvement over 2005 (% to be developed)	Improvement over 2006 (% to be developed)

STRATEGIC THRUST: MARKET DEVELOPMENT

GOALS AND OBJECTIVES
Enable the new electricity marketplace by: ▪ Providing open access transmission services for British Columbia energy market participants ▪ Open, visible, collaborative planning ▪ Participation in regional market developments (RTO West)
INTERIM STRATEGIC INITIATIVES
▪ Open, visible, and collaborate planning process for transmission access ▪ Business and operational tools and processes ▪ Coordination with transmission operation developments in other jurisdictions (RTO West and bilateral discussions)

Measures	Forecast F2004	F2005	F2006	F2007
Adequate Transmission Capacity	Develop base-line measure for congestion (that can be relieved economically)	Reduction on F2004 (% reduction to be established)	Reduction on F2005 (%reduction to be established)	Reduction on F2006 (%reduction to be established)
Transmission Access	Initiate customer awareness of existing processes (OASIS) and transmission capacity Initiate stakeholder consultations on new Tariff	Stakeholder consultation followed by Filing and approval of WTS Tariff Finalize initial Customer satisfaction survey to develop baseline measures	10 direct connect customers improvement from F2005 satisfaction from Customers	15 direct connect customers improvement from F2006 satisfaction from Customers

STRATEGIC THRUST: TEAM

GOALS AND OBJECTIVES
Workforce expertise and competency through: ▪ Excellence in leadership and business knowledge ▪ Public and worker safety ▪ Effective succession plans
INTERIM STRATEGIC INITIATIVES
▪ A dynamic workforce plan which will guide all people decisions in BCTC including succession planning, development and recruitment ▪ Programs to address competency gaps and align attraction, retention, and development ▪ Implement BCTC safety and occupational health management system

Measures	Forecast F2004	F2005	F2006	F2007
Preventable Injury Incidents	0	0	0	0
Employee Survey Results	Employee commitment index improvement from 3.42 to 3.75 out of 5.00	Improvement on baseline results	Improvement on F2005 results	Improvement on F2006 results
Succession Planning/Training & Development	Baseline measures under development	Improvement on baseline results	Improvement on F2005 results	Improvement on F2006 results

STRATEGIC THRUST: ENERGY HIGHWAY

GOALS AND OBJECTIVES
Meet the energy transfer needs of our customers by: ▪ Sustaining transmission asset health and performance ▪ System reliability ▪ Value realization from transmission investment ▪ Skills, tools and processes dedicated to effective transmission asset management ▪ Environmental responsibility
INTERIM STRATEGIC INITIATIVES
▪ Baseline audit of condition of transmission assets ▪ Integrated transmission asset management information systems and processes, with linkages to strategy, performance measurement, and work management ▪ Comprehensive review of industry data to establish meaningful benchmarks ▪ Implement BCTC Environmental Management System ▪ Implement cyber and physical security plans ▪ Develop and utilize SAIDI benchmark for Energy Highway performance

Measures	Forecast 2004	F2005	F2006	F2007
System Average Interruption Duration Index (SAIDI), measured at transmission delivery points	2.0 hrs	2.0 hrs	2.0 hrs	1.95 hrs
Number of preventable Environmental Incidents	3	2	2	2

STRATEGIC THRUST: VALUE CREATION

GOALS AND OBJECTIVES
Focus on defining, measuring, and delivering value by: ▪ Creating a culture with a focus on performance and creating value every day ▪ Defining all activities within BCTC as "creating value", focusing on value, measuring value and delivering value ▪ Managing cost structures and obtaining BCUC approval for Transmission Revenue Requirements ▪ Achieving reliability targets to enhance value to the British Columbia economy ▪ Developing firm efficiency measures to enhance value creation ▪ Establishing and developing external relationships with market participants, investment banks and governments to ensure BCTC is fully aware of external threats and opportunities to our business ▪ Explore the viability of marketing the technical 'know how' within BCTC ▪ Encourage innovation across BCTC
INTERIM STRATEGIC INITIATIVES
▪ Create and perpetuate a value focused BCTC culture ▪ Continue relationship development with market participants to discuss threats and opportunities ▪ Examine different forms of Performance Based Ratemaking to determine potential suitability for BCTC over the longer term ▪ Finalize all measurement criterion for BCTC for F2005 by June 30, 2004 ▪ Develop clearly articulated business cases for all capital projects to ensure value creation is a focal point ▪ Develop appropriate benchmarks ▪ During F2005, determine the viability of marketing technical knowledge
MEASURES
Value Creation measures are under development.

Summary BCTC Financial Outlook

This section contains the financial outlook for BCTC. There are two phases in financial reporting of costs between F2004 and F2007. Phase 1 is the transition period where BCTC administers the WTS tariff on behalf of BC Hydro. In Phase 2 BCTC operates as a fully regulated independent utility with it's own tariff. The costs for maintaining the transmission assets remain with BC Hydro in Phase I.

BCTC 2003/04 - 2006/07 Income Statement

	Phase 1				Phase 2		
$ millions	**F2004**		**F2005**		**F2006**		**F2007**
	Service Plan[1]	**Current Forecast**	**Service Plan [2]**	**Current Forecast**	**Service Plan [3]**	**Current Forecast**	**Forecast**
Revenues	**78.0**	**60.4**	**170.3**	**109.8**	**172.7**	**199.0**	**195.1**
Expenses							
Operating	(58.1)	(48.5)	(159.4)	(84.8)	(161.4)	(175.7)	(178.4)
Transition Costs	(12.0)	(3.6)	0.0	(1.0)	0.0	0.0	0.0
Total OMA	**(70.1)**	**(52.1)**	**(159.4)**	**(85.8)**	**(161.4)**	**(175.7)**	**(178.4)**
Asset related costs	(6.2)	(7.4)	(8.3)	(20.7)	(8.3)	(19.4)	(12.2)
Net Income	**1.7**	**0.9**	**2.6**	**3.3**	**3.0**	**3.9**	**4.5**
Capital Budget	**8.1**	**12.4**	**35.0**	**47.3**	**41.0**	**43.2**	**46.2**
Debt	**N/A**	**27.0**	**N/A**	**57.0**	**N/A**	**85.0**	**122.0**

BCTC began operating August 1st, 2003. Revenues and costs shown in the above table for F2004 are those costs forecasted for this 8-month period. These costs include BCTC labour, services contracted from outside organizations, ABS costs and BC Hydro service provider costs where work has been performed on BCTC assets.

The forecast changes in BCTC revenues and costs between F2005 and F2006 are associated with the transition of BCTC from a service provider of transmission services to BC Hydro, to a regulated utility.

Assumptions

Revenues – In F2005, BCTC will be in the transition phase (Phase 1) and will earn service fee revenues from BC Hydro for the provision of system operations and asset management services. Transmission revenues (WTS) will remain with BC Hydro during this transition phase. Commencing F2006 (Phase 2), BCTC will earn transmission revenues under its own tariff, which is expected to be filed with the BCUC in June 2004.

Operating Costs – In F2005, BCTC's operating costs include labour costs, outside services, ABS charges and other operating costs directly associated with its own operation. In determining F2005 budget, BCTC factored in a 2% reduction in non-maintenance operating expenditures, which is consistent with government direction. BC Hydro will continue to capture the costs of the work BC Hydro internal service

[1] BCTC related elements were included in BC Hydro Transmission Line of Business's F2004 Service Plan
[2] BCTC related elements were included in BC Hydro Transmission Line of Business's F2005 Service Plan
[3] BCTC related elements were included in BC Hydro Transmission Line of Business's F2006 Service Plan

providers perform on transmission system maintenance during Phase 1. During Phase 2, all maintenance costs will be incurred by BCTC and recovered through the BCTC Transmission Tariff.

Commencing F2006, BCTC expects to be an independent regulated utility, with its own tariff. All transmission operating costs will be incurred by BCTC directly except for transmission asset owner-related costs. These costs include Aboriginal and Properties Services, Asset Retirement Obligations, an allocation of BC Hydro's Corporate Costs, finance charges, depreciation, allowed returns on equity, and taxes. These costs will remain with BC Hydro Transmission Line of Business.

In F2006 and F2007, BCTC operating costs reflect the inclusion of ancillary services as BCTC assumes wholesale transmission service tariff responsibility and a net 1% increase in other operating costs, based on 2% for inflation and a 1% efficiency cost reduction.

Asset Related Costs – BCTC's asset related costs are primarily depreciation and finance charges associated with its own system control assets.

Net Income – For planning purposes, BCTC planned net income is determined based on earning an allowed return, equivalent to BC Hydro's, on its $20 million equity.

Capital Budget – BCTC's capital budget for this period includes $105 million for the System Control Modernization Project and various operating and business systems.

Debt – BCTC is responsible for financing its capital expenditures and working capital requirement.

Forecast Sensitivities and Risk Factors

Forecasts for F2005 – F2007 may change subject to finalizing the Service Level Agreements with BC Hydro.

Key risks[4] for financial performance include:

- Energy markets and general business environments in BC, Alberta or the Western US
- New organization, business needs, and regulatory framework still being defined
- Collective agreement uncertainties
- Dependence on certain suppliers and skills
- Operational and hazard risks rising from transmission operation and management

Capital Plan

BCTC is accountable for managing and directing investments in the transmission system assets. BC Hydro owns the transmission system assets and funds investments in them. BCTC owns and funds capital assets required to manage and operate the system for all users of the transmission system. Investments in both the BC Hydro owned assets and the BCTC owned assets are presented in the Transmission System Capital Plan. These investments are subject to review and approval by the BCUC. Where individual capital projects exceed $50 million, BCTC will prepare major capital project plans for public disclosure pursuant to the *Budget Transparency and Accountability Act*.

[4] Please refer to Appendix A for a summary of Risks and Mitigation Actions.

There are two main drivers for investment in the transmission system:

- **Sustainment:** The first is to sustain the current performance capability of the existing transmission system. This type of investment extends the useful life of an asset or replaces an asset prior to it reaching the end of its useful life. Sustaining Capital includes asset repairs, refurbishments and replacements.
- **Growth:** The second driver is to meet general load growth and specific customer requests through reinforcement and expansion of the existing transmission system. Growth Capital consists of additions or upgrades to the system, driven by customer requirements for access to transmission. Currently, transmission support for domestic load growth is the major component in growth.

Transmission Ten Year Capital Forecast
($Millions)

	F2004	F2005	F2006	F2007	F2008	F2009	F2010	F2011	F2012	F2013	F2014
BCTC Capital Expenditures	12	47	43	46	29	10	10	10	10	10	10
Transmission System Capital Expenditures – Note 1											
Sustainment Capital	128	110	103	94	111	130	130	130	130	130	130
Growth Capital	53	89	162	232	169	220	127	160	100	100	100
Contributions in Aid of Construction	(8)	(8)	(9)	(14)							
Total Transmission System Capital Expenditure	173	191	256	312	280	350	257	290	230	230	230

Note 1: Transmission system capital expenditures are managed and directed by BCTC and financed by BC Hydro

BCTC Capital Expenditures

BCTC's primary assets are the IT systems used to operate and manage the transmission system. Capital expenditures for fiscal 2005 are categorized below.

BCTC Capital F2005
($Millions)

Control Centres	30.1
Business Support Systems	14.6
Building, Tools and Equipment	2.6
Total	**47.3**

BCTC's most significant capital project is the **System Control Modernization Project** (F2005 $25M, Total $105M): BCTC requires information, communication systems and automated operation systems to operate the integrated transmission system and to facilitate electricity market access to Alberta and the US. The current Energy Management System (EMS) and the System Control and Data Acquisition Systems (SCADA) are based on 1960's operating models and are at the end of their useful life. The existing systems are inefficient and do not have the features and functionality required in an open access and evolving regulatory and business environment. BCTC will confirm the business case for the System Control Modernization Project and make any necessary applications to the BC Utilities Commission, and public disclosures pursuant to the *Budget Transparency and Accountability Act*, in 2004.

Transmission System Capital Expenditures

Transmission system capital expenditures are managed and directed by BCTC and financed by BC Hydro**.**

Sustainment Capital

Sustainment Capital includes capital repairs, refurbishments, and replacements to BC Hydro Transmission assets in service. Capital expenditures for F2005 are categorised below.

F2005 Sustaining Capital Plan

($Millions)

Metro Supply	8.3
Telecommunications	15.7
Protection and Control	20.6
Transmission Circuits	20.6
Power Protection and Switching	14.0
Managed Risk Programs	9.3
Station Programs	8.0
Other Asset Investments	13.5
Total Sustaining Capital	**110.0**

Performance deterioration, end of life replacements and risk reduction programs will drive investments over the next 10 to 15 years. In the short term, we have increased our target replacement capital ratio from 1.19% to 1.27% of the replacement value of the transmission assets. BCTC is evaluating the target replacement capital ratio against the age and health of the transmission assets. New initiatives in assessing asset health are currently underway which will provide information that will be used to maximize the asset lifecycle performance through a variety of strategies. The impact of these strategies is expected to assist in avoiding asset investment shock caused by multiple asset failures in any one or two year period by levelling asset reinvestments and maintenance actions over a period of several years.

BCTC's planning process includes a formal sustainment capital replacement strategy to address the large number of transmission assets approaching the end of their useful lives and to address performance deterioration of some asset groups. The process identifies asset replacement investment priorities over a period of several years and manages them by their value contribution to system performance and reliability. Current investment priorities are:

- **Supply to Metro Vancouver (F2005 $8M, Total $145M):** Downtown Vancouver is supplied by a number of 230kV underground cable circuits. The older cable circuits are starting to experience end-of-life issues resulting in loss of critical redundancy.

- **Telecommunication Assets (F2005 $16M, Total $75M):** These are the main communications backbone for operating and protecting the transmission system. The present microwave system is unreliable and the equipment manufacturers no longer support the equipment. Parts, servicing and bandwidth are becoming more difficult to obtain. The new microwave system will use digital communication technology that has greater functionality.

- **Protection and Control (F2005 $23M, Total $250M):** These systems are used to protect major equipment and transmission lines. Many of these protection schemes consist of aging electromechanical or outdated solid-state relays introduced 25 to 35 years ago and are in need of replacement to maintain reliable supply. These relays are no longer supported by the manufacturer and are increasingly prone to failure. A multi-year replacement program is underway to replace these relays.

- **Transmission Supply to Vancouver Island (F2005 $2M, Total $24M):** Until on-Island generation is in service, continued investment in the aging High Voltage Direct Current (HVDC) system will be required. This investment includes repair to the HVDC cable system.

- **Managed Risk Programs (F2004 $9M, Total $143M):** Managed Risk programs address specific catastrophic events or system wide risks, including seismic risks, oil spill containment, ice storm hazards, fire risks and terrorist threats. The managed risk programs establish multi-year capital improvement projects.

- **Transmission Circuits (F2005 $20M, Total $220M)**: Transmission circuit programs address repairs, refurbishment or replacement of transmission structures and cables.

- **Station Programs (F2005 $8M, Total $112M):** Station programs are directed at repairs, refurbishment or replacement of station structures and ancillary equipment. Individual large station components such as transformers, circuit breakers and reactors are replaced under separate programs.

Growth Capital

Growth capital is requested and paid for by transmission services customers as they connect to the transmission system or as their demand for transmission services grows. BC Hydro's required growth capital is forecast to increase significantly the next few years as a result of IPP interconnections and BC Hydro resource additions. Where these investments are made pursuant to WTS requests for service, the process for determining investments and the sharing of costs is described by the WTS tariff.

Specific opportunities for growth capital include:

- **Load Growth**: Load growth is driven by the need for transmission services from distribution and generation customers in BC. BC Hydro is the largest distribution customer. BC Hydro prepares annually a Network Integrated Transmission System requirement which identifies Distribution's needs for transmission services.

- **Transmission Supply to Lower Mainland**: Transmission supply to the Lower Mainland and Vancouver Island is via a 500kV system from the Kelly Lake and Nicola stations in the south interior of BC. These circuits have reached their capacity and load in the Lower Mainland continues to grow. Energy from new generation in the interior cannot be transferred on these circuits. Local generation in the Lower Mainland area will alleviate some of the growth but will not satisfy all of it. If new generation is developed in the interior to serve the Lower Mainland load then a new 500 kV transmission line is required.

- **Inter Utility Connections with Alberta and US:** The existing transmission system is constrained in transfer capacity and could impede electricity trade growth. Additional supply to the Lower Mainland and /or new 500kV interconnections with Alberta and the US will provide additional electricity trade opportunities.

- **Independent Power Producers:** BC Hydro's Customer Based Generation program has identified more than 15 feasible projects with 10 contracted to start in F2004.

Staffing

Staff increases, to establish the skills and capabilities necessary for a successful independent Transmission organization, will take place through to the early part of Fiscal 2005. BCTC will have approximately 325 active employees when it is fully formed.

Appendix A – Risks and Mitigation Actions

Risk	Mitigation Action
Strategic	
▪ Regulatory or legal direction could adversely affect our ability to carry through on Transmission Independence or RTO West participation.	▪ Focus on regulatory relationships and risk coverage in regulatory determinations.
▪ New organization and business needs still being defined. Operating costs may be over/under stated.	▪ Finalize the new organization and business needs by March 31, 2004, the expected Revenue Requirement hearing date.
▪ Key Agreements and Service Level Agreements will have budget impact. Operating costs may be over/understated.	▪ Seek recovery of any additional costs from rate-payers through the regulatory process and reopening of F2006 Revenue Requirement.
Operational	
▪ A significant unanticipated equipment failure, or inability of certain critical suppliers to deliver, could challenge our ability to deliver on our interim strategies; costs could be understated.	▪ Reasonable contingency allowances for unanticipated repairs; procedures agreed with stakeholders for significant unanticipated items ▪ Development of integrated enterprise risk management will include a supplier risk evaluation and strategies.
▪ BCUC approval of requested Deferral Accounts not certain. Revenue and Net Income may be over/under stated.	▪ Ensure submission is comprehensive and defensible.
▪ Premature departure of employees with critical skills could challenge our ability to deliver on our interim strategies; costs could be understated.	▪ Development of succession plans, incorporating conscious efforts to balance demographics. ▪ Detailed impact analysis and transition planning for the Control Centre Modernization project.
Hazard	
▪ A catastrophic event, such as an ice storm, could challenge the operational and financial viability of our business. ▪ A successful physical or cyber infiltration of critical infrastructure could challenge the operational and financial viability of our business.	▪ Programs to reduce risks rising from equipment failure, critical infrastructure threats and catastrophic events. ▪ Working with regulator to defer costs of catastrophic damage to transmission system.
Financial	
▪ The existing market structure exposes the business to market price variability for some services, resulting in a potential for unrecovered costs.	▪ Seek recovery of additional costs from rate-payers through the regulatory process.
▪ Phase 2 Equity amount not finalized. Financing charges and net income may be over/under stated.	▪ Seek recovery of additional equity cost from rate payers and reopening of F2006 Revenue Requirement.