2008 Long Term Acquisition Plan

BC hydro

APPENDIX R

Glossary and Abbreviations

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1.1 Glossary

Words are defined as used in BC Hydro's 2008 LTAP and in other BC Hydro documents. They may have other definitions in other contexts.

Words italicized in definitions are cross-references to other definitions in this Glossary.

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2002 Energy Plan	A statement of Provincial Government policy related to provincial energy matters issued by the Minister of Energy and Mines in November 2002. See also *2007 Energy Plan*.
2007 Energy Plan	A policy statement released by the B.C. Government on February 27, 2007 containing 55 energy-related *Policy Actions*. See also *2002 Energy Plan.*
2008 *UCA* Amendments	Amendments made to the *Utilities Commission Act* brought into force by Royal Assent on May 1, 2008. See also *Utilities Commission Act.*

A

Achievable Potential	See *Conservation Potential Review*.
Alberta Electric System Operator (AESO)	As an independent system operator, the AESO leads the operation and planning of Alberta's interconnected power system. AESO also facilitates Alberta's competitive wholesale electricity market.
All Ratepayers Test	Previously referred to as the *Total Resource Cost Test*. Indicates the cost-effectiveness of a DSM program or portfolio from the perspective of all utility customers.
Alternating Current (AC)	Electric current that reverses at regular intervals and has alternately positive and negative voltage. It normally has a standard *frequency* of 50 or 60 *hertz (Hz)* or cycles per second. Most of the power *transmission* in North America is AC transmission at 60 hertz.
Ampere (A)	Basic unit of measurement for the strength of an electric current.
Ancillary Services	Services required to support the safe, reliable and stable operation of the interconnected system, including the *transmission* of electricity from *resources* to *loads* and to maintain *reliability.*

Apparent Power — *Voltage* multiplied by *current*, normally measured as megavolt amperes *(MVA)*.

Attribute — A characteristic that describes a resource option or *portfolio,* used to assess its performance in meeting the planning objectives. Examples of attributes include:

Adequate Dependable Capacity

Adequate Firm Energy

Clean Resource Mix: The per cent of new BC Clean Electricity in each portfolio.

Employment: Tracked separately, total full-time equivalent construction jobs and total full-time equivalent permanent jobs.

Greenhouse Gas (GHG) Emissions: Total tonnes of carbon dioxide equivalent (CO2e) emissions.

Green Resource Mix: The per cent of new Green Energy in each portfolio.

Impacted Aquatic Area: Hectares of total impacted aquatic area.

Impacted Land Area: Hectares of total impacted land.

Local Air Emissions: Tracked separately, total tonnes of nitrous oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter 10 microns or less, particulate matter 2.5 microns or less and mercury (Hg).

Ownership: Tracked separately, the per cent of energy owned by the public sector and the per cent of energy owned by the private sector.

Present Value (PV): Discounted cash flow of total cost.

Rate Impact: 20-year change in rates relative to the first year (net of inflation).

Regional Equity: The distribution of energy production across eight *transmission regions* (measured in per cent).

Technological Diversity: The number of distinct production technologies (including DSM) in each portfolio.

B

Base Load — The minimum amount of electricity required over a period of time at a steady rate.

Base Resource Plan (BRP) — BC Hydro's proposed action plan, in the context of the 2008 LTAP, for meeting its current and future customers' electricity needs on a reliable and low cost basis.
See also *Contingency Resource Plan.*

BC Hydro Service Area	The parts of B.C. that receive retail electricity service from BC Hydro. Approximately 75-80% of B.C.'s electricity demand is in the BC Hydro service area. It excludes the area served by FortisBC (previously known as Aquila Networks Canada, West Kootenay Power and Utilicorp Networks Canada).
BC Transmission Corporation (BCTC)	The Crown corporation created by the Government of B.C. in 2003 to plan, operate and maintain BC Hydro's high-voltage transmission system.
Biogas	Primarily a mixture of methane (50 – 80 per cent) and carbon dioxide, biogas is produced by the anaerobic decomposition of organic materials in landfills (also called landfill gas (LFG))
Biomass	Organic material derived from plants used as a fuel source for *thermal generation. Biogas* and *municipal solid waste* are types of biomass.
Bonneville Power Administration (BPA)	Headquartered in Portland, Oregon, BPA is a federal agency under the U.S. Department of Energy. It serves the Pacific Northwest through operating an extensive electricity transmission system and marketing wholesale electrical power from federal and non-federal generation facilities.
British Columbia Utilities Commission (BCUC)	An independent regulatory agency of the provincial government operating under and administering the Utilities Commission Act. Its responsibility is the regulation of the energy utilities under its jurisdiction to ensure that the *rates* charged to utility customers for energy are fair, just and reasonable. The BCUC is responsible for ensuring customers receive safe, reliable and non-discriminatory rates and shareholders receive a fair return.
British Thermal Unit (BTU)	Imperial unit for heat energy (1 BTU = 1,055 J or 2.928 x 10^{-4} kWh).
Bulk Transmission	The transfer of electricity on the major high-voltage *transmission system,* which carries the majority of the power from the *generators* to the lower-voltage *distribution systems*. It is connected to the U.S. and Alberta through *interties.*
Burrard Thermal Generating Station (BGS)	A natural gas-fired generating station located in Port Moody, at the western edge of the Fraser Valley, that consists of six 150 MW units, the first of which were installed in the early 1960's.

C

California Energy Commission (CEC)	The State of California's primary energy policy and planning agency responsible for forecasting future energy needs, promoting energy efficiency through appliance and building standards, and supporting renewable energy technologies.

Call for Tenders (CFT)	Specified processes and procedures to award energy purchase contracts to bidders.
Canadian Council of Ministers of the Environment (CCME)	Comprised of environment ministers from the federal, provincial and territorial governments. These 14 ministers meet to discuss national environmental priorities and determine work to be carried out.
Canadian Entitlement (CE)	The Canadian portion of the *Columbia River Treaty* downstream *energy* and *capacity* benefits (DSBs) resulting from increased electricity *generation* on the Columbia River in the U.S. due to the construction of Duncan, Keenleyside and Mica storage dams in Canada. Under this treaty and the associated delivery agreement, Canada is entitled to the return of one-half of the *downstream benefits* commencing April 1, 1998, and ending September 15, 2024, to be delivered over existing *interties* with the U.S.
Canadian Environmental Protection Act (CEPA), 1999	CEPA is intended to protect the environment and human health from the risks posed by harmful pollutants and to prevent new ones from entering the Canadian environment. The former Liberal Federal Government intended that GHG emissions would be regulated under CEPA.
Cap and Trade	A form of regulation used to reduce the cost of pollution control by providing economic incentives for achieving emissions reductions. In a cap-and-trade system, the regulator sets limits or "caps" on emissions. Groups that intend to exceed the limits may buy emissions credits from entities that are able to stay below their designated limits. This transfer is normally referred to as a trade.
Capability	The quality of being able to do a given task or to achieve a given target. In relation to the *integrated system,* it refers to facilities that can be used under specified conditions for a given purpose. *Energy capability* is the amount of energy that can be generated under specified conditions by a generating unit or by the electric system *o*ver a period of time, typically expressed in *GWh/year.*

Capacity	1. The instantaneous *power* output of a generator at any given time, normally measured in *kilowatts* (kW) or *megawatts* (MW), of a power plant. 2. The instantaneous *electricity* demand at any given time, normally measured in *kilowatts* (kW) or *megawatts* (MW). 3. A *transmission* facility's ability to transmit electricity, at any instant. Several related terms are commonly used: **Maximum Capacity:** The highest *generating plant* output or *transmission* loading that can actually be achieved in situ. **Installed Capacity:** (Also referred to as Nameplate Rating). The maximum rating of a *generator* or *transmission* station equipment identified by the manufacturer under specified conditions. **Dependable Capacity:** The amount of megawatts a plant can reliably produce when required, assuming all units are in service. Factors external to the plant affect its dependable capacity. For example, streamflow conditions can restrict the dependable capacity of hydro plants and fuel supply constraints can impact thermal plant dependable capacity. Planned and forced outage rates are not included. Also, for the purpose of Resource Option estimates: The *capacity* a plant can reliably deliver for the duration of time in which it is required. The dependable capacity used in the annual resource balance is the maximum capacity that a plant/unit can reliably provide for 3 hours in the peak load period of weekday during the continuous two weeks of cold weather. See also *Demand*.
Capacity Credit	A monetary credit applied to supply resources based on consideration of dependable generating capacity and proximity to load centres.
Capacity Factor	The ratio of the average annual power output to the rated power output of generating plants.
Carbon Monoxide (CO)	A colorless, odourless and tasteless gas, which results from incomplete oxidation of carbon in combustion.
Carbon Sequestration	Capture and long term storage of carbon in forests/soils/ocean.
Carbon Tax Act	The *Carbon Tax Act* comes into force on July 1, 2008 and imposes the revenue neutral carbon tax announced on February 19, 2008 as part of the Government of B.C.'s budget.
Certificate of Public Convenience and Necessity (CPCN)	A certificate issued to a public utility by a regulatory body such as the *B.C. Utilities Commission*, for the construction or operation of a generating plant.

Cheekye	BC Hydro's 500 kV *transmission* station near Squamish; the effective Mainland terminal for the 500 kV *AC* interconnection to Vancouver Island.
Circuit	An arrangement of connected components forming the complete path followed by an electric current. In an electric power system, it refers to specific three-phase AC *transmission* lines, submarine or underground cables, or a combination of them, operating as one element.
Clean Development Mechanism (CDM)	The Clean Development Mechanism (CDM) is an arrangement under the *Kyoto Protocol* allowing industrialized countries with a *greenhouse gas* reduction commitment to invest in emission reducing projects in developing countries as an alternative to what is generally considered more costly emission reductions in their own countries.
Clean Electricity	Defined pursuant to the B.C. Government's *Clean or Renewable Electricity Guidelines*
Clean Resource Mix	See *Attribute.*
CO_2e	Carbon dioxide-equivalent. A unit that measures the climate change potential of each of the six *greenhouse gases* identified in the *Kyoto Protocol*.
Cogeneration	The simultaneous production of electrical or mechanical *energy* and useful heat energy from a single fuel source. For example, forest sector mills can burn wood waste in a boiler to generate electricity and use low-temperature steam from the *generator* in pulping processes.
Columbia River Treaty	A treaty signed in 1961 between Canada and the U.S. that enabled storage reservoirs to be built and operated in British Columbia to regulate Columbia River flows to the U.S. for power production and flood control. See also *Canadian Entitlement*.
Combined Cycle Gas Turbine (CCGT)	The combination of combustion and steam *turbines* to generate electricity from two thermodynamic cycles. Exhaust gases from a combustion *turbine* flow to a *heat recovery steam generator* (HRSG) that produces steam to power a steam turbine, resulting in higher thermal efficiency than achievable by operating the combustion or steam turbines individually.
Commercial Operation Date (COD)	The date on which a power producer begins to generate electricity for sale.
Committed Resources	Resources that have received *BCUC* and Environmental Assessment Office approval, if required, but are not yet in-service.

Conservation	A reduction in *energy* usage through a reduction in the level of energy service, such as turning off unnecessary lights. See also *Demand Side Management.*
Conservation Potential Review (CPR)	An assessment of the potential for electricity savings in BC Hydro's service area under certain defined conditions compared with the expected level of electricity consumption in the absence of any new *demand side management* initiatives. The 2007 CPR estimated potential electricity savings over the 2006-2026 period through changes in technology, behaviour, lifestyle, fuel switching and customer-supplied renewable energy. **Economic potential.** An estimate of the reduction in electricity consumption, relative to the reference case, that would occur if all electricity-saving measures costing less than a threshold value were undertaken. **Achievable potential.** The portion of the savings identified in the *economic potential* that study participants estimated could be achieved within the study period through *demand side management*.
Contingency Resource Plan (CRP)	A plan that identifies alternative sources of supply and transmission components that could be required should the *Base Resource Plan* not materialize as expected.
Critical Period	In a hydroelectric system, a period of record low *streamflows* used to establish the *capability* of a hydroelectric system to meet the *load forecast* under adverse hydrology conditions. During a critical period, hydroelectric reservoirs would be drawn down to minimum levels in order to maintain service. See also *Secondary Energy, Firm Energy.*
Critical Water Conditions	As defined in *Special Direction No. 10*, "the most adverse sequence of stream flows occurring within the historical record".
Current	Flow of electricity passing through a conductor, measured in *amperes* (A). Current can be *alternating* (AC) or *direct* (unidirectional) (DC).
Curtailment	A temporary reduction in customer *demand* as a result of *demand side management*. See also *Load Displacement, Load Shifting.*

D

Definition Phase	The project development phase when preliminary design occurs, project scope is defined and licensing/regulatory approvals are received.
Demand	The rate at which *electric power* is delivered to or by a system: it is generally expressed in *kilowatts* (kW) or *megawatts* (MW) when it refers to a given instant and in kilowatt-hours (kWh), megawatt-hours (MWh) or gigawatt-hours (GWh) when

	accumulated over any designated time interval. Several related terms are commonly used: **Average Demand:** The electric energy delivered over any interval; when expressed in kilowatts or megawatts, it is determined by dividing the total energy by the units of time in the interval. **Instantaneous Demand:** Rate of energy delivered at a given instant. **Coincident Demand:** The sum of two or more demands that occur in the same demand interval. **Demand Interval:** The time period during which electric energy is measured, usually in 15-, 30- or 60-minute increments. **Peak Demand:** The maximum instantaneous demand on a power system. Normally the maximum hourly demand. See also *Capacity, Load and Conservation Potential Review.*
Demand Side Management (DSM)	Actions that modify customer demand for electricity, helping to defer the need for new *energy* and *capacity* supply additions. See also *Power Smart, Conservation Potential Review.*
Direct Current (DC)	A steady electric *current* that flows in one direction. A non-pulsating current, as from a battery. DC *transmission*, frequently referred to as *high-voltage direct current* (HVDC), is used in specialized applications. See also *Alternating Current*.
Discount Rate	A rate used to determine the *present value* of expenses and revenues that will occur over a period of time, reflecting the cost of capital.
Discounted Cash Flow	A financial evaluation method that uses future free cash flow projections and discounts them to arrive at a present value.
Dispatchable	A supply- or demand side resource whose output can be controlled to respond to short-term variations in *load* or *resource* balance due to weather changes, unit outages, market price changes and non-power considerations.
Distribution	Delivery of *electricity* to retail customers, generally at *voltages* lower than 69 kV.
Distribution System	Electrical lines, cables, *transformers* and switches used to distribute electricity over short distances from *substations* to the customer, generally at *voltages* lower than 69 kV.
Diversity	In an electricity system, a relative measure of the likelihood that a series of connected *loads* will reach *peak demand* at the same time. A high diversity implies that the individual connected loads will reach their peak demand at different times while a low diversity implies that they will reach peak demand at the same time. See also *Demand*.
Downstream	See *Canadian Entitlement.*

Benefits (DSBs)

E

Economic Potential	See *Conservation Potential Review.*
Effective Load Carrying Capacity (ELCC)	The maximum peak load that a generating unit or system of units can reliably supply such that the *Loss of Load Expectation* will be no greater than one day in ten years.
Efficiency	The effective rate of conversion of a natural resource (e.g., natural gas) to usable *energy* and *capacity*; the effective rate of conversion of electricity to an end use (e.g., heating).
Electric Capacity	The maximum *electric power* that a device or system is capable of producing or transferring, measured in *watts, kilowatts, megawatts,* etc.
Electric Energy	The cumulative amount of electricity produced or consumed over a period of time, measured in *kilowatt hours, gigawatt hours, etc.*
Electric Power	The instantaneous rate that *electrical energy* is produced, transmitted or consumed, measured in *watts, kilowatts, megawatts,* etc.
Electricity Demand	See *Demand*.
Electricity Purchase Agreement (EPA)	The contract that defines the price, terms and conditions under which BC Hydro purchases electric energy from *independent power producers*.
Emissions	Any direct or indirect discharge of solid, liquid or gaseous pollutants into the air.
End use	An amenity or service produced by *energy* and other components or equipment such as buildings, motors or lights. e.g., lighting is an end use produced by electricity and lighting equipment. End use is often used interchangeably with *energy service.*
Energy	In the context of the 2008 LTAP, the amount of electricity produced or used over a period of time, usually measured in *kWh, MWh* or *GWh*. **Average Energy:** The estimate of energy that could be generated by a project over a long period of time (expressed conventionally in GWh/year). **Firm Energy:** The energy that is available (i.e., equalled or exceeded) 100 per cent of the time, either for a given period such as 25 years, or for an analysis period such as a period covered by flow records.

- Hydroelectric system – the energy capability of the system under the most adverse sequence of stream flows or critical water period
- Thermal resources – the energy capability based on conservative estimates of plant availability factors
- Electricity Purchase Agreements – the energy that is anticipated to be reliably available under contract

See also *Critical Period.*

Energy Capability — The amount of *energy* that a generating plant can produce in a given time period (usually one year).

Energy Efficiency (EE) — A reduction in energy usage to provide the same level of energy service, such as lighting, cooling or motor torque.

Energy Efficiency Programs — A subset of *demand side management* programs, which excludes *Load Displacement*.

Energy Service — An amenity or service produced jointly by *energy* and other components or equipment such as buildings, motors and lights. Examples of energy services include residential space heating, commercial refrigeration, aluminium smelting and public transit. The same energy service can frequently be supplied with different mixes of equipment and sources of energy.

Environmental Attributes — All attributes associated with the generation of electricity having decreased environmental impacts (including the reduction, displacement or offset of emissions) including any credit, allowance, green tag, ticket, certificate, reduction right, off-set or any other unit or right, whether or not tradable.

F

F2006 Call for Tenders (CFT) — An all-source call for tenders (CFT) targeting approximately 2,500 GWh per year of firm energy. A proportion of non-firm energy will also be purchased.

Federal Energy Regulatory Commission (FERC) — A U.S. agency that regulates the interstate transmission of natural gas, oil, and electricity.

Firm Energy — See *Energy*
See also *Critical Period*.

Firm Energy Load Carrying Capability — The maximum amount of annual energy that a hydroelectric system can produce under *critical water conditions*.

Firm Gas — The assured supply of natural gas as fuel for thermal generating stations.

Firm Gas Contract	A contract to supply or purchase a specified volume of gas at a fixed price.
Firm Transmission	*Transmission* service that is reserved and/or scheduled with a priority that will not be interrupted for economic reasons. See also *Non-Firm Transmission Service.*
First Nation	An aboriginal governing body, organized and established by an aboriginal community, or the aboriginal community itself.
First Nations Engagement	The process by which BC Hydro is engaging (providing information to and requesting information from) *First Nations* participants in the 2008 LTAP.
Fiscal Year (F)	BC Hydro's fiscal year ending March 31. Dates marked with an F refer to the year ending March 31 in the year given.
Fixed Cost Resource	Supply- or demand side resources, in which unit energy costs are considered constant regardless of whether the plant is actually dispatched. Examples of fixed cost resources include IPP contracts subject to a *take or pay* clause and resources that can not be dispatched to follow the load.
Fort Nelson Generating Station Upgrade	A proposed upgrade to BC Hydro's Fort Nelson Generating Station resulting in the plant being converted from a SCGT to a CCGT.
Frequency	The number of cycles per second *(hertz or Hz)* at which an *alternating current* oscillates. The standard frequency of AC *transmission* systems in North America is 60 cycles per second, or 60 hertz.
Fuel Substitution	The ability to use a different fuel to produce the same *energy service*. For example, natural gas can be used for space heating instead of electricity.

G

Gap	See *Load Resource Gap*.
Gas Transportation Cost	The amount paid for gas delivery service.
Generation	The production of electricity.
Generator	A machine that converts mechanical *energy* into electric energy.
Geothermal Energy	Energy that is generated by converting hot water or steam from geothermal reservoirs in the earth's crust into electricity.
GHG Emissions Intensity	Refers to GHG emissions per unit of electrical production, measured in units of tonnes of CO_2e/GWh.

GHG Offset	Reducing total emissions of *greenhouse gases* by decreasing emissions from sources other than a given source. For example, reducing methane emissions from landfill sites can be an offset for a *thermal generation* plant.
Gigajoule (GJ)	One billion *joules* of energy.
Gigawatt Hour (GWh)	One billion watt hours; one million *kilowatt hours* (an amount of electric energy that will serve about 100 residential customers for one year).
Gordon M. Shrum (GMS) Generating Station	Located on the Peace River 23 km upstream from Peace Canyon Dam. Together with W.A.C. Bennett Dam it comprises the Portage Mountain Project. The first three units were in service in 1968 and all 10 units in service by 1980. The plant capacity is 2,730 MW and the historical annual average generation is 13,225 GWh.
Greenfield Site	Land on which no development has previously taken place
Greenhouse Gases (GHG)	Gases that are thought to contribute to global climate change, or the "greenhouse effect," including carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). See also *Attribute.*
Greenhouse Gas Reduction (Cap and Trade) Act (GHG Cap and Trade Act)	The *Greenhouse Gas Reduction (Cap and Trade) Act* comes into force by regulation. The purpose of this Act is to enable the reductions of GHG emissions through a cap-and-trade system. See also *Cap and Trade.*
Greenhouse Gas Reduction (Emission Standards) Statutes Amendment Act, 2008 (Emission Standards Act)	The *Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act*, *2008* amends the B.C. Environmental Management Act to require all new electricity generating facilities and expansion to existing facilities using fossil fuels other than coal to have net zero GHG emissions as soon as the Act comes into force.
Greenhouse Gas Reduction Targets Act (GGRTA)	The *Greenhouse Gas Reduction Targets Act* was brought into force on January 1, 2008 and sets into law British Columbia's greenhouse gas emissions target of at least 33 per cent below 2007 levels by 2020, and at least 80 per cent below 2007 levels by 2050.
Grid	A network of *transmission* lines.
Gross Domestic Product (GDP)	All economic activity (i.e., the monetary value of all goods and services produced) taking place in the geographical region of B.C. Provincial GDP is one of the key drivers in the BC Hydro Electric Load Forecast.

H

Head	The vertical distance between the water levels immediately upstream and downstream of a turbine or discharge structure, representing the potential *energy* of the water that can generate electricity as the water falls to the lower elevation.
Heat Content	A measure of the *energy* released when a fuel is burned, and the basis for calculating the energy *efficiency* of a thermal process. **Higher heating value** (HHV) includes the heat released when water produced by combustion of the fuel's hydrogen condenses. **Lower heating value** (LHV) excludes the heat released by condensing water, assuming it stays in vapour form. For natural gas, LHV is about 90% of HHV.
Heat Rate	A measure of generating station *thermal efficiency*, computed by dividing the *heat content* of the fuel used for generating electricity by the resulting net *electric energy* generated. Typically expressed in GJ/GWh or kJ/kWh.
Heat Recovery Steam Generator (HRSG)	An *electricity generator* that takes heat from high-temperature exhaust gases and uses it to power a steam *turbine,* often as part of a *combined cycle gas turbine.*
Heavy Load Hours (HLH)	The time of day in which *peak demand* occurs. On BC Hydro's system, Heavy Load Hours are from 6 am to 10 pm, Monday to Friday. For electricity trading activity, most contracts define Heavy Load Hours according to U.S. standards defined by the *North American Electric Reliability Council*, from 6 am to 10 pm, Monday to Saturday, excluding U.S. holidays.
Henry Hub	One of the major pipeline hubs of the North American natural gas market, located in Louisiana. Used as a reference point for quoting the market price of gas.
Heritage Assets / Resources	Has the same meaning as in *Heritage Contract.*
Heritage Contract	A ten-year, 49,000 gigawatt hour per year contract between BC Hydro's Generation and Distribution Lines of Business to ensure BC Hydro customers benefit from the existing low-cost *hydroelectric* and thermal resources in the BC Hydro system.
Hertz (Hz)	Cycles per second. Unit for measuring the *frequency* of an *AC* system.
High-Voltage Direct Current (HVDC)	*Direct* (non-alternating) *current* for *transmission* at high *voltage*. See also *Direct Current*.
Higher Heating Value (HHV)	See *Heat Content*.
Hub	A location where many pipelines interconnect (see also *Sumas Hub* and *Henry Hub*).

Hydro and Power Authority Act [RSBC 1996]	Provides the legislative requirements within which BC Hydro acts.
Hydroelectric Generation	Production of electricity by using turbines propelled by falling water and connected to a *generator*.
HYSIM (Hydro Simulation Model)	A deterministic monthly timestep *dispatch* model for simulating the year-to-year variability in streamflow conditions and energy storage capability of the system. It is used to determine the expected annual energy generation of resources in the portfolios, along with expected imports and exports.

I

Identification Phase	The phase when a project is conceptualized and feasibility is determined.
Implementation Phase	The phase in which detailed design is performed, equipment is procured, and the project is constructed and commissioned.
Independent Power Producer (IPP)	A privately owned electricity generating facility that produces electricity for sale to utilities or other customers.
Inflow	Water that flows into a reservoir.
Ingledow Substation	500 kV substation situated in Surrey, B.C.
Integrated Coal Gasification Combined Cycle (IGCC)	Coal gasification is the process of converting coal to a gaseous fuel through partial oxidation. The coal is fed into a high-temperature pressurized container along with steam and a limited amount of oxygen to produce a gas. IGCC systems combine a coal gasification unit with a gas fired combined cycle power generation unit, which increases thermal efficiency.
Integrated Electricity Plan (IEP)	The documented plan resulting from the *Integrated Electricity Planning* process.
Integrated Electricity Planning	The process of long-term planning of electricity *generation, transmission* facilities, and demand side resources to reliably meet forecast requirements.
Integrated System	An interconnected network of *transmission* lines, distribution lines and *substations* linking generating stations to one another and to customers throughout a utility's service area, but excluding isolated customers who are connected to free-standing generating plants.

Interior-to-Lower Mainland Upgrade Project (5L83)	The current option identified by BCTC to construct a new 500 kV transmission line from Nicola substation near Merritt to Meridian substation near Coquitlam is currently under *BCUC* review.
Intermittent Resource	An electric generator that is not *dispatchable* and cannot store its fuel source.
Interruptible Energy	A supply of electricity that is subject to short- or long-term discontinuation with or without notice. See also *Firm Energy, Curtailment.*
Intertie	The transmission connections between BC Hydro and external electric systems (e.g. BC Hydro – U.S. and BC Hydro – Alberta).
Intervenor	For the purposes of the 2008 LTAP, an individual or organisation who registers with BCUC to be involved in the regulatory review of the 2008 LTAP.

J

Joule (J)	Metric unit of measurement for heat energy (1 J = 9.4821 x 10^{-4} BTU).

K

Kelly Lake	Location of one of BC Hydro's main transmission substations near Merritt (between Lillooet and Clinton) which is also close to a major gas pipeline. It is used to represent the interconnection point for new generic thermal generation located in the interior of B.C.
Kilovolt (kV)	One thousand *volts*.
Kilovolt Ampere (kVA)	One thousand volt amperes; the unit of measure of *apparent power.*
Kilovolt Ampere Reactive (kVAr)	One thousand VAr. The unit of measure of *reactive power.*
Kilowatt (kW)	One thousand *watts*; the commercial unit of measurement of *electric power*. A kilowatt is the flow of electricity required to light ten 100-watt light bulbs.
Kilowatt Hour (kWh)	One thousand *watts* used for a period of one hour; the basic unit of measurement of *electric energy*. On average, residential customers in B.C. use about 10,000 kWh per year.

Kyoto Protocol	An International agreement with the objective of industrialized countries reducing their collective emissions of *greenhouse gases* by 5.2% compared to the year 1990. The goal is to lower overall emissions from six greenhouses gases – carbon dioxide (CO_2), methane (CH_4), nitrous oxide, sulphur hexafluoride, HFCs and PFCs – calculated as an average over the five-year period of 2008-2012.

L

Levelized Cost, Levelized Price	Levelizing is a method of converting a non-uniform stream of energy costs (or prices) into a present value equivalent uniform cost (or price) series.
Line Losses	Reduction in *capacity* and *energy* transferred as resistance converts electricity to heat in electrical equipment and along *transmission* lines.
Light Load Hours (LLH)	The time of day in which off-peak *demand* occurs. On BC Hydro's system, Light Load Hours are from 10 pm to 6 am, Monday to Friday. See also *Heavy Load Hours.*
Liquefaction	The process by which natural gas is converted to liquid through refrigeration. Liquefaction facilities are important infrastructure in the LNG production and transportation process. Liquefaction reduces the volume by approximately 600 times, making it more economical to transport between continents in specially designed ships.
Liquefied Natural Gas (LNG)	Natural gas in a liquid form. When natural gas is cooled to minus 259 degrees Fahrenheit (minus 161 degrees Celsius) through *liquefaction*, it becomes a clear, colorless, odourless liquid.
Load	The amount of electricity required by a customer or group of customers.
Load Centre	An area with a significant number of electricity customers, which makes it an important point for power delivery.
Load Displacement	A reduction in *electricity* sales due to customer *self-generation*. See also *Curtailment, Load Shifting.*
Load Factor	The ratio of the average *demand* supplied during a given period to the peak demand occurring during the same period.
Load Forecast	The expected *load* requirements that an *electricity system* will have to meet in future years.
Load Forecasting	Determining an estimate of *load* requirements for some future time.
Load Resource	For the purposes of the 2008 LTAP, the difference between BC

Gap	Hydro's Load Forecast and existing and *committed resources* available to meet the load.
Load Shape	The variation in electrical *load* over time, usually hour-by-hour. A load shape can be for the *electricity system*, a customer or an *end-use* over a set period of time such as a day or a year.
Load Shifting	A utility *demand side management* program to move *energy* consumption from one period of time to another, usually from periods of high consumption to periods of low consumption (i.e., from on-peak to off-peak).
Long-term Acquisition Plan (LTAP)	BC Hydro's plan of resource development actions over the next 10 years that, when added to the existing base of resources, will meet its customers' electricity needs through the LTAP period.
Loss of Load Expectation (LOLE)	The sum, over a year, of the probability of not meeting the peak loads on all days.
Lower Heating Value (LHV)	See *Heat Content*.

M

Market Heat Rate	A measure of the relationship between electricity and gas markets, obtained by dividing the market electricity price (in $/GWh) by the market cost of gas (in $/GJ).
Megajoule	One million *joules*.
Megawatt (MW)	One million *watts*; one thousand *kilowatts*. A unit commonly used to measure both the *capacity* of generating stations and the rate at which *energy* can be delivered.
Mica (Units 5/6)	Earthfill dam and four-unit 1,792 MW underground powerhouse located 135 kilometres north of Revelstoke. There is provision for two additional generation units.
Mid-Columbia (Mid-C)	Wholesale electricity trading hub located in the U.S. Pacific Northwest.

Monte Carlo Simulation

A Monte Carlo simulation is a looped modelling application used to characterize the impacts of uncertain parameter input values on the output value of a model.

A simple, single variable Monte Carlo application could be described through 5 basic steps:

1. Specify the model with fixed and uncertain parameter values;
2. Specify a probability distribution describing possible values for the uncertain parameter(s);
3. Run the model through a loop, each time drawing a random sample from the probability distribution and assigning that value for the fixed parameter(s);
4. Collect the outputs from all of the model runs into a distribution of possible model values;
5. Characterize the distribution through either figures (e.g. a cumulative distribution function) and/or statistics (e.g. mean, 10% ile etc).

Multi-Attribute Portfolio Analysis (MAPA)

A spreadsheet-based model used to evaluate the *attributes* of the portfolios including the *net present value* of their costs, (investment, operating, social and environmental costs) and *rate impact*. This is done by consolidating the *characteristics* of all the resources and the *dispatch* results from *HYSIM*.

Municipal Solid Waste (MSW)

Solid waste from municipal collections, of which some can be burned as a fuel.

N

Near Commercial Technologies

Leading-edge and emerging technologies that are not yet being utilized at a utility scale or do not yet have operational project experience. Examples in the context of the IEP include: Ocean wave, tidal, fuel cells and *IGCC*.

Net Present Value (NPV)

The difference between the *present value* of benefits and the present value of costs (including capital, operating, maintenance and administration costs) for a given *discount rate*.

Network Integration Transmission Service (NITS)

A type of *transmission* service that allows transmission customers to transmit *electricity* across the network to their customers using existing, planned and purchased resources.

Nominal Growth/ Nominal Price

Growth or price measured in current dollars at the time the goods are produced; change including the amount of inflation.
See also *Real Growth/Real Price.*

Non-Firm Energy	In the case of hydroelectric projects, *energy* that is available when *streamflow* exceeds the flow in the *critical period*. In the case of thermal resources, incremental energy that is available when plant availability exceeds estimates. In the case of *Energy Purchase Agreements*, energy that is available in addition to the amount under contract that is considered reliable. See *Energy*.
Non-Firm/Market Allowance	The amount of energy from non-firm sources, external to BC, that BC Hydro previously determined that it could rely on with a high degree of confidence during periods of low water conditions on the BC Hydro system. As a consequence of *Special Direction No. 10* this energy has been removed from the 2008 LTAP energy load/resource balances after 2015.
Non-Firm Transmission Service	Point-to-point *transmission* service that is scheduled and paid for on an as-available basis and is subject to interruption for economic reasons.
Non-Integrated Areas	Utility service areas that are not connected to the *integrated system*. These areas are supplied by local diesel *generation* or hydroelectric generation.
Non-Participant Test	Previously referred to as the *Ratepayer Impact Measure*. Indicates the cost-effectiveness of a *demand side management* program or portfolio from the perspective of BC Hydro customers who do not participate in that program or portfolio.
Non-Power	Those features of electric system operations that are not related to the production of electricity, such as marketing and billing.
North American Electric Reliability Council (NERC)	NERC's mission is to ensure that the bulk electric system in North America is reliable, adequate and secure. Amongst other things, NERC sets standards for the reliable operation and planning of the bulk electric system and monitors and enforces compliance with reliability standards.

O

Off-Peak	See *Light Load Hours.*
Outage	A planned or unplanned interruption of one or more element of an integrated system.

P

Particulate Matter (PM)	A complex mixture of extremely small particles and liquid droplets. It is made up of a number of components, including acids, organic chemicals, metals, and soil or dust particles.

Peak Capacity	The maximum amount of *electrical power* that generating stations can produce in any instant.
Peak Demand / Load	The maximum instantaneous *demand* on a power system. Normally the maximum hourly demand.
Peaking	Meeting *peak* system loads
Peaking Capability	The highest *peak demands* that part or all of the integrated system can generate and transmit.
Photovoltaic (PV)	Direct conversion of light into electricity by semi-conductor diodes called photovoltaic cells, especially using sunlight.
Planned Resource	For the purposes of the 2008 LTAP, a planned resource is one that BC Hydro is planning to pursue and is taking actions to acquire or develop. Planned resources have not necessarily received regulatory or Board of Director approval.
Planning Period/Planning Horizon	Period over which the evolution and the operation of the various elements of the power system are modelled. For example, the 2008 LTAP has a planning period of 17 years, from F2012 to F2028 (planning horizon).
Policy Action	References specific B.C Government energy-related goals from the *2007 Energy Plan.*
Portfolio	A sequence of new and existing resources scheduled over the planning period to meet the energy and capacity needs of BC Hydro's customers.
Portfolio Analysis	A process of developing and evaluating resource portfolios, each consisting of a combination of supply side and demand side resources, which meet customers' electricity needs.
Portfolio Attribute	See *Attribute*.
Power	The instantaneous rate at which *electrical energy* is produced, transmitted or consumed, typically measured in *watts* (W), *kilowatts* (kW), or *megawatts* (MW). See also *Capacity*.
Power Factor	The power factor is the ratio of usable power (kW) to *reactive power* (kVAr) in a circuit. It varies between 0 and 1, and is normally given as a percentage (0 to 100%). BC Hydro applies a power factor surcharge to customers whose power factor drops below 90%.
Power Smart	The brand name of BC Hydro's *demand side management* initiative to encourage energy efficiency by its customers. Originally launched in 1989, Power Smart has included a full range of DSM programs and supporting initiatives aimed at BC Hydro's residential, commercial and industrial customers.

Power Transfer Capability	The ability of a given section of a *transmission* system to safely and reliably transfer *power*, typically measured in *watts* (W), *kilowatts* (kW), or *megawatts* (MW).
Present Value (PV)	Today's discounted value of future receipts or expenditures. See also *Discount Rate* and *Net Present Value.*
Procedural Conference	Under Section 12 of the *Administrative Tribunals Act*, the BCUC may arrange a procedural conference for more complex or detailed applications and give notice to parties to attend.
Pumped Storage	The use of electricity generated during off-peak hours to pump water from a lower elevation reservoir to a higher reservoir. The stored water is then released during *peak demand* periods and used to propel a reversible pump/*turbine generator* before returning to the lower reservoir.
Purchases	The acquisition of electricity from other utilities or *independent power producers*.

R

Rate	Generic term for a utility's *rate structure*.
Rate Impact	See *Attribute.*
Rate Structure	Represents the prices paid by the classes of customers for use of electricity. For example, BC Hydro's present rate structure for residential customers consists of a flat monthly charge plus a charge for the amount of *electric energy* used (in cents per *kWh*). Other rate structures can include a charge for energy at a rate per *kilowatt hour* that depends on the level of consumption and a charge for demand (in $ per kW) for their peak demand for electricity that occurs over a certain time period, such as a month.
Ratepayer Impact Measure (RIM)	See *Non-Participant Test.*
Reactive Compensation	Provides additional *reactive power* to support *voltage* and increase the power transfer capability of the *transmission* system.
Reactive Power	Power that supplies the electromagnetic fields necessary to maintain the flow of electrical energy. The energy associated with reactive power is zero and it produces no useful work. The unit of reactive power is the VAr or kilovar (kVAr). Most *load* types require some reactive power along with the active power that produces useful work. When the reactive power supply in a *transmission* system is insufficient, *voltages* decline to unacceptable levels. See also *Reactive Compensation, Power Factor.*

Real Growth/ Real Price	Growth or price measured in constant dollars; change discounted by the amount of inflation. See also *Nominal Growth/Nominal Price.*
Regasification	Regasification is the process of converting LNG back to gas. LNG is converted back to gas by passing the liquid through vaporizers that warm it.
Reinforcement	Improvements in the *transmission system* to maintain or increase *reliability* and security of supply.
Reliability	A measure of the adequacy and security of electric service. Adequacy refers to the existence of sufficient facilities in the system to satisfy the load demand and system operational constraints. Security refers to the system's ability to respond to transient disturbances in the system.
Reliability-Must Run (RMR) Generation	Generation resources that can be run dependably whenever required for operational safety reasons, including maintaining the stability and reliability of the system. In B.C., reliability-must run generation resources are essentially located in the coastal generation region, which includes the Vancouver Island, Lower Mainland, and Bridge River areas.
Renewable Portfolio Standards (RPS)	Standards established in 25 U.S. states requiring electricity supply portfolios of utility providers to have an increased proportion of renewable resources.
Repowering	Rebuilding and replacing major components of a power plant instead of building a new one.
Reserve	System generating *capacity* beyond that required to meet *peak demand,* ensuring sufficient generation is available if some generating units are not available; necessary to meet *reliability* criteria for planning and operation.
Residential Inclining Block (RIB) Application	A two-step inclining block rate application BC Hydro filed with the *BCUC* on February 26, 2008 designed to encourage energy conservation.
Resource	A source of electricity that is available to help meet or reduce *electricity demand,* including *generation,* purchases, *demand side management* and *transmission* facilities.
Resource Option	Facilities, programs or purchases to meet or reduce electricity needs by providing new supply or changing the demand for electricity.
Resource Options Report (ROR)	Identifies a broad range of resources and technologies that could potentially be used to meet future electricity demand. The 2005 ROR was filed with the *BCUC* in June 2005
Resource Planning Guidelines	The *BC Utilities Commission's* mandate includes the evaluation of the resource plans of energy utilities to facilitate the cost-effective delivery of secure and reliable energy services. Issued

	in December 2003, the Resource Planning Guidelines outline a comprehensive process to assist the development of such plans.
Resource Smart	BC Hydro's program of improvements to existing power *generation* facilities to increase supply side efficiency through physical and/or operational modifications.
Revelstoke (Units 5/6)	Concrete gravity dam with a four-unit powerhouse capable of a total of 1,980 MW. There is provision for two additional generating units. Completed in 1984, the dam and generating station are on the Columbia River just outside the town of Revelstoke.
Revenue Requirements Application (RRA)	Hearing before the *B.C. Utilities Commission* expected to determine the revenues BC Hydro will need for its operations, to ensure a safe and reliable supply of electricity to its customers.
Right-Of-Way (ROW)	Rights to make use of land owned by another to allow the construction and operation of electrical *transmission* or distribution facilities.
Risk Framework	The general approach by which BC Hydro incorporated uncertainty into the LTAP analysis.
Run-Of-River	A hydroelectric facility that operates with no significant storage facilities.

S

Scenario Analysis	A planning step using a set of assumptions to test the long-term performance of a *portfolio*.
Secondary Energy	Energy available when water conditions are greater than critical stream flows. See also *Energy*.
Sector	A group of customers having a common type of economic activity. BC Hydro divides its customers into three principal sectors: residential, commercial and industrial. See also *Sub-sector*.
Self-Generation	*Generation* of electricity by an industry or commercial enterprise whose principal product is not electricity. Self-generation can reduce the amount of electricity purchased from the utility, or surplus electricity may be sold to the utility as a *supply side resource.*
Sequence	The order in which *resources* should be scheduled or acquired to meet the *demand* growth.

Simple-Cycle Gas Turbine (SCGT)	A stand-alone generating plant that uses combustion gases to propel a turbine similar to a jet engine connected to an electrical *generator*.
Site C	A proposed 900 MW, hydroelectric generating station downstream from the existing Williston Reservoir and two existing generating facilities in the Peace River region.
Social License to Operate	The notion is derived from the fact that every company needs tacit or explicit permission from governments, communities, and other stakeholders to do business.
South Meager Geothermal Project	A potential geothermal project located near Meager Creek, B.C.
Special Direction No. 10 (SD 10)	A regulation under the *Utilities Commission Act* put into force on June 25, 2007 that directs the *BC Utilities Commission*, in regulating BC Hydro, that BC Hydro is to achieve electricity self-sufficiency by 2016 and each year thereafter, and is to exceed self-sufficiency by at least 3,000 GWh/year as soon as practicable but no later than 2026.
Spot Market	1. Real-time and day-ahead purchases and sales of electricity or other commodities. 2. Any market purchases or sales outside of long-term contracts.
Stakeholder	Individuals, groups or representatives of groups who have a stake in the 2008 LTAP process.
Stakeholder Engagement	The process by which BC Hydro is engaging (providing information to and requesting input from) *stakeholders* in the 2008 LTAP.
Steam Turbine Generator (STG)	A *generating plant* that uses a fuel or other source of heat to boil water and produce steam to drive a *turbine* connected to a *generator.* See also *Combustion Turbine Generator.*
Storage	The volume available in a reservoir to hold water for power *generation* or flood control.
Streamflow	The rate at which flowing water passes a given point, measured in cubic metres per second (m^3/s).
Sub-sector	A classification of customers within a *sector* by common features. • Residential sub-sectors are generally by type of home (single family, duplex, apartment, etc.). • Commercial sub-sectors are generally by type of commercial service (office, retail, warehouse, etc.). • Industrial sub-sectors are generally by product type (pulp and paper, solid wood products, chemicals, etc.).

Substation	An electrical switching station to terminate *transmission* lines and/or a station at which transmission *voltage* is reduced to a level suitable for sub-transmission or *distribution systems.*
Sumas Hub	One of the major pipeline hubs of the North American natural gas market, located in Sumas, Washington, just south of the Canada-U.S. border. Used as a reference point for quoting the market price of gas.
Supply Curve	Shows the relationship between each possible price of the good (i.e., energy supplied) and the quantity that would be supplied for market sale at that price.
Supply Side Resources	Refers to BC Hydro generation or electricity purchased from *IPPs.*
Sustaining Capital Expenditures	Investments required to maintain the electric system so as to ensure that it will sustain its safe and reliable performance in the long term.
Synchronous Condenser	An electric machine that can function as a motor or as a *VAr* generator. It is used to change the power factor by generating and absorbing *VAr*s on the power system. It is basically a synchronous motor with no mechanical load or a synchronous generator with no prime mover. It has a control circuit that provides voltage control by controlling the field excitation.

T

Take or Pay	A contract clause that requires a purchaser to pay for a product, such as electricity, whenever the seller makes the product available regardless of whether the buyer is capable of receiving the product or not.
Tariff	A statement that explicitly defines the *rate* and the terms and conditions of sale for *electric power* and *energy* between a utility and its customer, including the type of service, delivery point(s), limitations of obligations to serve, minimum charges and any other terms.
Thermal Generation	*Generation* of electricity by converting heat energy into electric energy through the controlled combustion of fossil fuels or *biomass*.
Total Resource Cost (TRC)	The total economic cost of acquiring energy *resources*. For *demand side management* programs, this includes net costs incurred by the utility (program administration and marketing) and participating customers.
Total Resource Cost Test	See *All Ratepayers Test.*

Transfer Capability	**Total Transfer Capability (TTC):** The amount of *electric power* that can be transferred over the interconnected *transmission* network in a *reliable* manner while meeting all of a set of defined system conditions. **Available Transfer Capability (ATC):** The transfer capability of a specific portion of the interconnected transmission network that remains available for general service after taking into account specific limitations created by other users.
Transformer	An electrical device for changing electricity from one *voltage* to another.
Transmission	The transportation or conveyance of electricity in bulk, usually at *voltages* over 69 kV.
Transmission Constraint	The physical limitation of a certain transmission facility or combination of facilities, such as transmission lines and/or transformers, to carry additional load without endangering the reliability of the network
Transmission Regions	Subdivisions of the *BC Hydro Service Area* for the purposes of planning transmission. Transmission regions are: Peace River (PR), North Coast (NC), Central Interior (CI), Kelly/Nicola (KN), Lower Mainland (LM), Vancouver Island (VI), Selkirk Area (SE) and East Kootenays (EK). The PR, NC, and CI regions comprise BC Hydro's Northern Service Area, while the KN, SE, EK regions comprise BC Hydro's Southern Interior Service Area.
Transmission System	Electrical facilities used to transmit electricity over long distances, usually at *voltages* greater than 69 kV.

U

Unit Capacity Cost (UCC)	Present value of the total annual cost of a capacity resource divided by the resource's dependable capacity. It is measured in dollars per kilowatt per year.
Unit Energy Cost (UEC)	Present value of the total annual cost of an energy resource divided by the present value of its annual average energy benefit. It is calculated using either a discounted cash flow method or annualized cost method, and is measured in dollars per MWh.
Upgrade	An improvement to an existing facility, which generally results in an increased performance of the integrated system.
***Utilities Commission Act* (*UCA*)**	B.C. legislation creating and empowering the B.C. Utilities Commission, which regulates BC Hydro and other utilities. See also *2008 UCA Amendments*
Utility Test	Indicates the cost-effectiveness of a DSM program or portfolio from BC Hydro's perspective.

V

Vancouver Island Transmission Reinforcement (VITR) project	Consists of replacing one of the existing 138 kV transmission lines between the Mainland and VI with a new 67 km 230 kV AC transmission line.
Volatile Organic Compound (VOC)	Are emitted as gases from certain solids or liquids.
Volt (V)	The basic unit of measurement of electromotive force, the force required to change the random motion of electrons into an electric current. See also *Voltage.*
Voltage	The strength of electromotive force. See also *Volt.*
Voltage Support	An ancillary service which is required to maintain the voltage on the grid within acceptable limits.

W

Waneta Expansion Project (WAX)	Columbia Power Corporation's proposed hydroelectric expansion project at Waneta on the Pend D'Oreille River.
Water License	The authority granted by the Comptroller of Water Rights of the Province of British Columbia to use, store and divert water.
Water Use Plan (WUP)	A plan, authorized under the B.C. Water Act, describing operating rules and boundaries for facilities on public waterways. BC Hydro's water use plans are developed from a multi-stakeholder review process designed to address the varied interests for water use (e.g., fish, recreation and habitat management) associated with existing and new electricity *generation* and *storage* facilities.
Watt (W)	The basic unit of measurement of *electric power,* indicating the rate at which *electric energy* is generated or consumed. (1 watt = 1 joule per second.)
Western Electricity Coordinating Council (WECC)	The body that sets *electricity system* operating performance and *reliability* standards for members in Western Canada and the Western United States (formerly Western Systems Coordinating Council).

Wheeling	The *transmission* of *electric power* from one system to another through a third party, usually the owner or operator of the transmission facilities. **Retail wheeling** – the wheeling of power from electricity suppliers to customers. **Wholesale wheeling** – the wheeling of power from electricity suppliers to utilities.
Wind Integration Costs	Costs that will be incurred by BC Hydro in managing and operating its system to regulate the intermittent variability of generation from wind resources..
Williston Reservoir	Is the largest body of freshwater in B.C. It was created in north-central B.C. by the construction in 1968 of the W.A.C. Bennett Dam across the Peace River.
Woodwaste	The wood remaining after processing logs and having no marketable use as a lumber or pulp product. About half of B.C.'s woodwaste is already used in *cogeneration* or stand-alone power plants, but large quantities are incinerated without energy recovery, with the biggest surpluses in the Central and Southern Interior regions.

1.2 Abbreviations

2006 IEP/LTAP Decision	*In the Matter of British Columbia Hydro and Power Authority's 2006 Integrated Electricity Plan and 2006 Long-Term Acquisition Plan, Decision, May 11, 2007.*
2007 Energy Plan	*"The BC Energy Plan: A Vision for Clean Energy Leadership"*
2008 FN RP/LTAP	2008 Fort Nelson Resource Plan and LTAP
2008 LTAP	2008 Long Term Acquisition Plan
2008 UCA Amendments	*Utilities Commission Amendment Act, 2008*
5L83	The Interior-to-Lower Mainland Upgrade Project
AC	Alternating Current
AEO	Annual Energy Outlook
AESO	Alberta Electric System Operator
Alcan	Alcan Inc.
AMEC	AMEC Americas Limited
ATC	Available Transfer Capability
BBO	Billion barrels of oil
B.C.	British Columbia
BC Hydro	British Columbia Hydro and Power Authority
BCEAA	British Columbia *Environmental Assessment Act*
BCIT	British Columbia Institute of Technology
BCTC	British Columbia Transmission Corporation
BCUC	British Columbia Utilities Commission
BGS	Burrard Thermal Generating Station (same as Burrard)
BIPV	Building integrated photovoltaics
BPA	Bonneville Power Administration
BRP	Base Resource Plan
BUP	Burrard Upgrade Project
Burrard	Burrard Thermal Generating Station (same as BGS)
CBG	Customer-Based Generation

CBM	Coal-Bed Methane
CBT	Columbia Basin Trust
CCE	Cost of Conserved Energy
CCGT	Combined Cycle Gas Turbine
CCME	Canadian Council of Ministers of Environment
CCS	Carbon Capture and Sequestration
CDM	The Kyoto Protocol's Clean Development Mechanism
CE	Canadian Entitlement
CEAA	*Canadian Environmental Assessment Act*
CEC	California Energy Commission
CEPA	*Canadian Environmental Protection Act*
CF DSM	Capacity-Focused DSM
CFL	Compact Fluorescent Lamp
CFT	Call For Tenders
CH_4	Methane (natural gas)
CHP	Combined Heat and Power (cogeneration)
CIFT	Cost of Incremental Firm Transmission
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide equivalent
COD	Commercial Operation Date
CPC	Columbia Power Corporation
CPCN	Certificate of Public Convenience and Necessity
CPI	Consumer Price Index
CPP	Critical-Peak-Pricing
CPR	Conservation Potential Review
CPUC	California Public Utilities Commission
CRPs	Contingency Resource Plans
CST	Condensing Steam Turbine
CTG	Combustion Turbine Generator
CWS	Canada Wide Standard
DC	Direct Current

DCF	Discounted Cash Flow
DG	Distributed Generation
DLC	Demolition and Land Clearing Waste
DSB	Downstream Benefits (under the Columbia River Treaty)
DSM	Demand Side Management
DSM Option A	The smaller of the two DSM options for consideration in the 2008 LTAP.
DSM Option B	The larger of the two DSM options for consideration in the 2008 LTAP.
E3	Energy and Environmental Economics, Inc.
EAC	Environmental Assessment Certificate
EAO	British Columbia Environmental Assessment Office
EC&E Committee	BC Hydro's Electricity Conservation & Efficiency Advisory Committee
EE	Energy Efficiency
EIA	U.S. Energy Information Administration
ELCC	Effective Load Carrying Capability
EMA	B.C. *Environmental Management Act*
Emissions Standards Act	*The Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act, 2008*
ENGO	Environmental Non-Governmental Organization
EPAs	Electricity Purchase Agreements
EPVs	Electric Plug-in Vehicles
F	Fiscal Year
F05/F06 RRA	F2005/F2006 Revenue Requirements Application
F07/F08 RRA	F2007/F2008 Revenue Requirements Application
F09/F10 RRA	F2009/F2010 Revenue Requirements Application
FACOS	Fully Allocated Cost Of Service
FELCC	Firm Energy Load Carrying Capability
FERC	Federal Energy Regulatory Commission (U.S.)
FNG	Fort Nelson Generating Station
FNGU	FNG Upgrade
GDP	Gross Domestic Product

GGRTA	*Greenhouse Gas Reduction Targets Act*
GH	Garrad Hassan Canada Inc.
GHG	Greenhouse Gas
GHG Cap and Trade Act	*Greenhouse Gas Reduction (Cap and Trade) Act*
GJ/h	Gigajoule per hour (1.055 GJ/h = 1 million BTU/h)
Global Energy	Global Energy Decisions, Inc.
GMS	G.M. Shrum
GPG	Green Power Generation
GS	Generating Station
GVRD	Greater Vancouver Regional District
HHV	Higher Heating Value
HLH	Heavy Load Hours
HRSG	Heat Recovery Steam Generation
HSD#1	Special Directive No. HC1 to BC Hydro
HSD#2	Special Direction No. HC2 to the BCUC
HV	High Voltage
HVDC	High-Voltage Direct Current
HYSIM	Hydrological System Simulation Model
ICP	Island Cogeneration Plant
IEP	Integrated Electricity Plan
IEPR	Integrated Energy Policy Report
IGCC	Integrated Gasification Combined Cycle
ILM	Interior to Lower Mainland
IPPs	Independent Power Producers
IRs	Information Requests
IRP	Integrated Resource Plan
ISD	In-Service Date
ISO	Independent System Operator
IUPs	Investigative Use Permits
Kerr Wood	Kerr Wood Leidal Associates Ltd.
LD	Load Displacement

LFG	Landfill Gas
LFV	Lower Fraser Valley
LHV	Lower Heating Value
LLH	Light load hours
LM	Lower Mainland
LM/VI	Lower Mainland/Vancouver Island
LNG	Liquefied Natural Gas
LOLE	Loss of Load Expectation
LRMC	Long-Run Marginal Cost
LTAP	Long-Term Acquisition Plan
LV	Low Voltage
Maintain Burrard	Maintaining Burrard as currently configured
MAPA	Multi-Attribute Portfolio Analysis
MCFC	Molten Carbonate Fuel Cell
MCR	Marginal Cost Recovery
Mica Units	Mica Unit 5 and Mica Unit 6
Mid-C	Mid-Columbia
MMK	MMK Consulting Inc.
MoF	British Columbia Ministry of Finance
MoFR	British Columbia Ministry of Forests and Range
MSW	Municipal Solid Waste
N_2	Nitrogen
N_2O	Nitrous Oxide
Natsource	Natsource LLP
NCEP	NorskeCanada Energy Project
NERC	North American Electric Reliability Council
NGO	Non-Governmental Organization
NIAs	Non-Integrated Areas
NITS	Network Integrated Transmission Service
NOx	Oxides of Nitrogen
NPV	Net Present Value
NSA	Negotiated Settlement Agreement

NSP	Negotiated Settlement Process
NYMEX	New York Mercantile Exchange
O & M	Operating and Maintenance
OMA	Operation, Maintenance and Administration
PM2.5	Particulate Matter 2.5 microns or less in diameter
PM10	Particulate Matter 10 microns or less in diameter
Powerex	Powerex Corp.
Powertech	Powertech Labs Inc.
PV	1. Present Value 2. Photovoltaic
RECs	Renewable Energy Credits
REEPS	Residential End-Use Energy Planning System
REZ	Renewable Energy Zone
RFEOI	Request For Expression of Interest
RFP	Request For Proposals
RIB	Residential Inclining Block
RIM	Ratepayer Impact Measure (now referred to as the non-participant test)
RMR	Reliability-Must Run
RODAT	Resource Options Database
ROR	Resource Options Report
ROU	Resource Options Update
ROW	Right-Of-Way
RPCP	Regional Planning Contingency Plan
RPS	Renewable Portfolio Standards
RRA	Revenue Requirements Application
RWDI	RWDI Air Inc.
S. 280	Senator McCain's and Senator Lieberman's *Climate Stewardship and Innovation Act*
S. 1766	Senator Bingaman's and Senator Spector's *Low Carbon Economy Act*
S. 2191	Senator Lieberman's and Senator Warner's *America's Climate Security Act*
SB	Senate Bill

SCGT	Simple-Cycle Gas Turbine (also referred to as Single-Cycle Gas Turbine)
SCGTA	SCGT "F" class machines
SCGTB	SCGT aero-derivative machines
SCR	Selective Catalytic Reduction
SD 10	B.C. Government's Special Direction No. 10
SMD	Standard market design
SMI	Smart Metering Initiative
SO	System Optimizer
SO_2	Sulphur dioxide
SOP	BC Hydro's Standing Offer Program
SOx	Oxides of Sulphur
ST or STG	Steam Turbine Generator
Staged Process	The five stage process for the evaluation and development of Site C
TCPs	Transmission Contingency Plans
TMR	Transmission Must Run
TOU	Time-Of-Use
TRC	Total Resource Cost
TRM	Transmission Reliability Margin
TTC	Total Transfer Capability
U.S.	United States
UCA	*Utilities Commission Act*
UCC	Unit Capacity Cost
UEC	Unit Energy Cost
VI	Vancouver Island
VICFT	Vancouver Island Call For Tenders
VITR	Vancouver Island Transmission Reinforcement project
VOC	Volatile Organic Compound
VPS	Vanport Sterilizers Inc.
VVO	Voltage and Var Optimization
WACC	Weighted Average Cost of Capital
WAX	Waneta Expansion Project

WBS	Work Breakdown Structure
WCI	Western Climate Initiative
WECC	Western Electricity Co-ordinating Council
WREGIS	Western Renewable Energy Generation Information System
WREZ	Western Renewable Energy Zone
WSPP	Western Systems Power Pool
WUP	Water Use Plan

1.3 Table of Units

A	Ampere
BDt	Bone-dry tonnes
BTU	British thermal unit
GJ	Gigajoule
GWh	Gigawatt hour
GWh/year	Gigawatt hours per year
Ha	Hectare
Hz	Hertz
J	Joule
kV	Kilovolt
kVA	Kilovolt Ampere
kVAr	Kilovolt Ampere Reactive
kW	Kilowatt
kWh	Kilowatt hour
M	Million
MJ	Megajoule
MMBTU	One Million British Thermal Units
MVAr	Megavolt Ampere Reactive
MW	Megawatt
MWh	Megawatt hour
V	Volt
VAr	Volt-Ampere Reactive
W	Watt