

SOLUTIONS

A legislated heritage contract will help to preserve B.C.'s low electricity rates

In response to these challenges and opportunities, British Columbia needs to make some changes to the energy sector to encourage new investment and increased trade, while ensuring continued low power rates and environmentally responsible energy development. A series of policy actions will be implemented, or are already underway, to achieve these objectives.

LOW ELECTRICITY RATES AND PUBLIC OWNERSHIP OF BC HYDRO

Low rates for B.C. consumers will be entrenched by assuring the benefits from existing generation and trade, preserving publicly owned power assets, outsourcing services where economical, and re-regulating BC Hydro rates so that they recover the costs of production.

THE BENEFITS FROM LOW-COST GENERATION AND TRADE

Policy Action #1 (new): A legislated heritage contract will preserve the benefits of BC Hydro's existing generation.

The heritage contract will essentially lock in the value of existing low-cost generation assets for an extended period. It will be implemented through legislation that specifies the term and amount of energy involved. The contract's term will initially be 10 years, with provisions for renewal thereafter, and the quantity of energy will be the production from BC Hydro's system under average water conditions. The BC Utilities Commission will review and recommend the terms and conditions for the heritage energy based on a return consistent with private utilities. The heritage contract is similar to arrangements that have been adopted in Quebec (see box).

Policy Action #2 (ongoing): BC Hydro ratepayers will continue to benefit from electricity trade.

Electricity trading markets are highly volatile and uncertain. They depend on a convergence of factors, including natural stream flows, fuel prices, seasonal and daily differences in

demand, transmission congestion, competitive supply costs, and market developments in the United States. An appropriate level of trading benefits will continue to be assigned for rate-setting purposes to help maintain low and stable rates for B.C. consumers. A separate entity, the BC Hydro Transmission Corporation, will operate BC Hydro's publicly owned transmission system. This will ensure fair access for all generators and the provision of independent transmission service to maintain and increase B.C.'s trading activity with US wholesale power markets.

PUBLIC OWNERSHIP AND EFFICIENCY

Policy Action #3 (ongoing): Public ownership of BC Hydro's generation, transmission and distribution assets will continue.

A generation of British Columbians before us invested heavily in the hydroelectric network on the Peace and Columbia

Quebec and Low-Cost Hydroelectric Power

In the 1960s, Quebec established a Social Compact requiring province-wide electrification, uniform cost-based power rates, and the use of its hydroelectric resource endowment for the benefit of provincial citizens. This mandate was reinforced in a new energy policy in 1996, and the Quebec government clarified the roles of existing low-cost generation and future competitive electricity supply in legislation passed four years later.

Bill 116 created a "heritage pool" that assures provincial customers up to 165 TWh of annual Hydro-Quebec generation at the fixed rate of 2.79 cents per kWh. This rate, which can be reduced but not increased, is currently the lowest in North America for such a large quantity of power. Beyond the pool limit, the utility's generation arm (Hydro-Quebec Production) can sell at market prices, while its distribution arm (Hydro-Quebec Distribution) must acquire new supply from an open bidding process that includes private power producers and other alternative suppliers.



rivers. Three decades later, that investment is yielding substantial returns. B.C. consumers have electricity that is low-cost, reliable, clean, and renewable. Provincial taxpayers, as ultimate owners of the assets, receive a fair return on the invested capital, with BC Hydro's annual dividend averaging about \$350 million over the past five years.

Public ownership is consistent with more competition in electricity markets. Even where markets have been significantly reformed, publicly owned generation coexists with private power. For example, since its electricity reforms in the early 1990s, Norway has increased the share of private generation, but its hydro-based system remains largely in public hands. Organizations such as Hydro-Quebec and the US Bonneville Power Administration continue to recognize the unique value of hydroelectric power in advancing social and environmental goals.

Policy Action #4 (new): BC Hydro will outsource the delivery of services where costs can be reduced for electricity consumers while maintaining quality of service.

Recently, BC Hydro has been working to outsource services such as customer billing, information technology, human resources, and financial and procurement services. This is part of a series of internal changes designed to make its operations more flexible and cost-effective. As part of the re-regulation of BC Hydro rates (see below), the BC Utilities Commission will be reviewing the Corporation's costs to determine that they are in ratepayers' interests. To help keep rates low, BC Hydro will explore further opportunities to outsource services where cost savings can be achieved and the quality of customer service will be maintained or improved.

RE-REGULATION OF BC HYDRO RATES

Policy Action #5 (new): The BC Utilities Commission will once again regulate BC Hydro rates.

The current rate freeze will end on March 31, 2003 and will not be extended. Rates will again be regulated to cover the projected

costs of electricity to consumers. With re-regulation, there will be immediate pressures for rates to rise to cover maintenance expenditures and investment in new generation and transmission. However, any rate changes will be mitigated in several ways. First, the value of low-cost generation will be locked in for ratepayers under the heritage contract and BC Hydro ratepayers will continue to benefit from trade. Second, investment in new power supplies will come from cost-competitive private power development. Third, once new rates have been determined, subsequent rate changes will be set through performance-based regulation, which encourages the sharing of cost savings with ratepayers. In any case, properly regulated rates that reflect actual electricity costs will provide a better signal for new investment, conservation, and energy efficiency over time.

A number of actions in this plan, such as the heritage contract, will require further development before a BC Hydro rate hearing can proceed. The BC Utilities Commission will conduct an inquiry to develop and refine these policy areas prior to the rate hearing. The terms of reference for this policy inquiry will be released in January 2003, and will include a timetable for completion. Following the policy phase, BC Hydro will make a revenue requirements filing with the Commission before the end of 2003/04.

The Province is taking the political interference out of rate-setting

Actions under other strategic objectives that also support low power rates:

#6	The Vancouver Island Generation Project will be reviewed by the BC Utilities Commission to determine if it is the most cost-effective means to reliably meet Island power needs.
#9	Electricity distributors will acquire new supply on a least-cost basis, with regulatory oversight by the BC Utilities Commission.
#13	The private sector will develop new electricity generation, with BC Hydro restricted to improvements at existing plants.
#15	The BC Hydro Transmission Corporation will improve access to the transmission system and enable IPP participation in US wholesale markets.
#21	New rate structures will provide better price signals to large electricity consumers for conservation and energy efficiency.
#22	The Province will update and expand its Energy Efficiency Act, and will work with the building industry, governments and others to improve energy efficiency in new and existing buildings.
#23	The Utilities Commission Act will be amended to remove a disincentive for energy distributors to invest in conservation and energy efficiency.



ENERGY FACT

Vancouver Island businesses and residents use one-fifth of BC Hydro's electricity.

SECURE, RELIABLE SUPPLY

Secure, reliable energy for B.C. consumers will be ensured through new power for Vancouver Island, ongoing reliability efforts, the least-cost acquisition of new power, exploration and development of new oil and gas resources, and more efficient regulation by the BC Utilities Commission.

RELIABLE ELECTRICITY AND NATURAL GAS

Policy Action #6 (new): The Vancouver Island Generation Project will be reviewed by the BC Utilities Commission to determine if it is the most cost-effective means to reliably meet Island power needs.

BC Hydro examined two primary options for increasing power capacity to Vancouver Island: additional gas-fired generation on the Island and a new natural gas pipeline, or new submarine transmission from the Mainland. BC Hydro found the second option to be more expensive, requiring transmission upgrades and new generating capacity elsewhere in the province. In June 2002, BC Hydro applied for environmental approval of a 265 MW natural gas-fired plant to be sited at Duke Point in Nanaimo. This project may be developed by either BC Hydro or an IPP. Should BC Hydro undertake this project, a Certificate of Public Convenience and Necessity (CPCN) from the BC Utilities Commission must be obtained.

Policy Action #7 (ongoing): High reliability and energy security will be maintained through well-functioning natural gas markets and coordinated electricity planning.

There are two active natural gas trading hubs, one at Station 2, a delivery point south of Fort St. John on Duke Energy Gas Transmission's system, and the second on the BC/Washington State border, at Sumas. The Sumas trading hub tends to have more volatile prices. A price spike in December 2000 was particularly difficult for large consumers who had opted for spot price contracts. Nonetheless, the government is confident that natural gas markets are functioning properly, and that they will provide the necessary response to any deficiency in

supply. Indeed, several proposals are currently under review to increase pipeline capacity, for example, the Duke Energy Mainline expansion, Inland Pacific Connector, and Georgia Straight Crossing projects. Market participants, including neighbouring suppliers in Washington State, are also pursuing north-south strategies to improve the reliability of natural gas supply and reduce price volatility.

In electricity, the Western Electricity Coordinating Council is responsible for comprehensive reliability management in the western grid. Regional transmission organizations, such as RTO West, will facilitate and coordinate planning to remove transmission bottlenecks and increase trade. BC's participation in RTO West, together with our high reliability standards and publicly owned transmission assets, will ensure that provincial consumers have continuing access to reliable electricity.

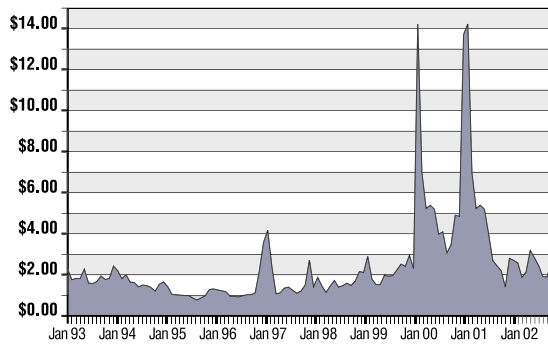
Policy Action #8 (new): BC Hydro distribution will operate as a separate line of business from generation.

The obligation to serve electricity customers will be vested in BC Hydro's distribution line of business. Distribution will acquire energy under the heritage contract from BC Hydro's generation line of business at the price determined by the BC Utilities Commission.

Policy Action #9 (new): Electricity distributors will acquire new supply on a least-cost basis, with regulatory oversight by the BC Utilities Commission.

When deciding how to meet a projected power need, BC Hydro's distribution business will compare the costs of all potential resources, including IPP purchases, customer-owned generation, BC Hydro plant efficiency improvements (Resource Smart), conservation and energy efficiency, and firm imports. The distribution arms of other B.C. electric utilities are encouraged to adopt a similar resource acquisition process, if they have not already done so. The BC Utilities Commission will oversee the acquisition process to ensure that least-cost options are chosen consistent with a new clean energy goal (see Environmental Responsibility and No Nuclear Power Sources).

NATURAL GAS PRICES (US\$/MMBtu)



Source: Inside Federal Energy Regulatory Commission Index

NEW OIL AND GAS RESOURCES

Policy Action #10 (ongoing): Development of coalbed methane and other unconventional resources will be encouraged to provide a new source of energy supply and opportunities for regional economic growth.

The development of BC's large untapped coalbed methane (CBM) resources can benefit both BC consumers and investors (see box). The Ministry of Energy and Mines is implementing a strategy to develop CBM as a clean, environmentally safe energy source that can serve local, domestic and export markets. After a year-long collaboration between government and industry, a new royalty regime was introduced in March 2002 to address CBM's unique development and production challenges. The Oil and Gas Commission is preparing guidelines that will clarify the regulatory requirements for projects. The Ministry has also been working with industry, First Nations, and other stakeholders to provide information on the potential resources, environmental impacts, and economic benefits associated with this new resource opportunity. In addition to CBM, B.C. has other unconventional resources including shale and tight gas as well as the recently reported deposits of methane hydrates off the west coast of Vancouver Island.

Policy Action #11 (new): The Ministry of Energy and Mines will establish a dedicated provincial offshore oil and gas team to develop a provincial position, work with the federal government and move effectively toward development of offshore resources.

Moratoria from both the federal and provincial governments currently prohibit exploration and development of offshore hydrocarbons. The Minister of Energy and Mines appointed a scientific panel headed by Dr. David Strong, which found no scientific basis for a blanket moratorium on the entire BC coast. The panel made a number of recommendations that are now being pursued in partnership with the University of Northern British Columbia.

Before offshore development can proceed, further issues need to be resolved. The provincial and federal governments will have to agree on an overall management regime, including regulatory, royalty, and environmental requirements. The Province will also need to work with coastal communities and First Nations to ensure that benefits accrue to the areas where activity occurs.

STRENGTHENING THE BC UTILITIES COMMISSION

Policy Action #12 (new): The structure of the BC Utilities Commission, and its mandate in regulating BC Hydro and other distributors, will be strengthened.

With the return to BC Hydro rate regulation, a strong and competent regulator is needed. The BC Utilities Commission has been a Canadian leader in the approval of wholesale and retail access for electricity and gas, the efficient determination

Coalbed Methane: A New Opportunity

CBM is the natural gas found in most coal deposits. It is created through a process by which plant material is converted into coal over millions of years. Under most circumstances, CBM consists of pure methane gas. Commercially produced CBM can be distributed by the existing natural gas pipeline system and used as a heating fuel and alternative transportation fuel.

In the 1980s, tax incentives led to the rapid growth of CBM production in the United States. Today, it accounts for more than 7 percent of total annual US natural gas produced. An unprecedented number of CBM projects in BC and Alberta are evaluating gas production characteristics. Nine experimental projects are underway here – 7 in the Northeast and one in the Southeast – and one well has been drilled on Vancouver Island. Commercial production could begin within a few years.

Because coalbed methane is a pure or "sweet" gas, it usually requires little processing before entering the pipeline. Compared to conventional natural gas, CBM development commonly results in large amounts of water being produced prior to and during gas extraction. The production and disposal of water is regulated to minimize impacts on the environment and nearby communities.



ENERGY FACT

In 2001, oil and gas exploration companies drilled three times the number of wells they drilled in 1990

Development of coalbed methane and other unconventional resources will be encouraged to provide a new source of energy supply and opportunities for regional economic growth.



of utility rates of return, and the adoption of performance-based regulation and alternative dispute resolution. To fulfill its mandate, the Commission will be strengthened by appointing two full-time Commissioners. The Utilities Commission Act will be amended to focus more on performance-based and results-based regulation, including negotiated settlements, and to define effective consumer participation.

MORE PRIVATE SECTOR OPPORTUNITIES

To increase the role of the private sector in energy supply, private power production will be encouraged, access to the transmission system will be improved, oil and gas investment will be supported, and some customers will be able to choose their suppliers.

INVESTMENT IN PRIVATE POWER

Policy Action #13 (new): The private sector will develop new electricity generation, with BC Hydro restricted to improvements at existing plants.

The private sector is well positioned for power development, given its ability to find entrepreneurial capital, efficiently build and operate facilities, and take on the associated risk.

Actions under other strategic objectives that also support secure, reliable supply:

#1	A legislated heritage contract will preserve the benefits of BC Hydro's existing generation.
#13	The private sector will develop new electricity generation, with BC Hydro restricted to improvements at existing plants.
#15	The BC Hydro Transmission Corporation will improve access to the transmission system and enable IPP participation in US wholesale markets.
#18	Pre-tenure and land use planning, as well as northern road improvements, are improving access to oil and gas resources.
#19	Natural gas marketers will be allowed to sell directly to small volume customers, and will be licensed to provide consumer protection.
#21	New rate structures will provide better price signals to large electricity consumers for conservation and energy efficiency.
#22	The Province will update and expand its Energy Efficiency Act, and will work with the building industry, governments and others to improve energy efficiency in new and existing buildings.
#23	The Utilities Commission Act will be amended to remove a disincentive for energy distributors to invest in conservation and energy efficiency.

B.C.'s independent power producers (IPPs) have already demonstrated that they can come forward with cost-effective projects. With BC Hydro's participation limited to efficiency improvements and capacity upgrades at existing facilities, IPPs will be able to serve new domestic needs and explore opportunities in the export market. The intent will be to encourage the private sector to find a variety of innovative and economical ways to satisfy the growing demand for power.

BC Hydro's relative strengths lie in the operation of large-scale hydroelectric generation. While BC Hydro does not plan to invest in the construction of new hydroelectric facilities at the present time, any proposed new BC Hydro hydroelectric facility, such as Peace Site C, must be brought to Cabinet for approval before being considered by the Utilities Commission as a source of supply. Cabinet will then decide whether the project should be developed by BC Hydro or the private sector.

Policy Action #14 (new): Under new rate structures, large electricity consumers will be able to choose a supplier other than the local distributor.

New stepped pricing (see Conservation and Efficiency) will provide an incentive for large industrial or transmission rate customers to purchase from IPPs, or to self-generate, when they can do so less expensively than the utility's cost of new supply. These larger customers will be able to meet all or a portion of their consumption from private generation. This policy change introduces retail competition for large BC Hydro customers. Aquila Networks Canada already offers retail access to its industrial customers.

Policy Action #15 (new): The BC Hydro Transmission Corporation will improve access to the transmission system and enable IPP participation in US wholesale markets.

A new publicly owned entity, BC Hydro Transmission Corporation, will be responsible for planning, operating, and managing BC Hydro's transmission system. The transmission assets will continue to be owned by BC Hydro. The corporation will have a separate board of directors and will be regulated by

the BC Utilities Commission. It will ensure that there is adequate transmission capacity available to reliably serve domestic and export needs, and that all electricity suppliers and buyers have non-discriminatory access to this capacity. The corporation will assess the need for new transmission and will be authorized to direct expansions of the transmission system where required.

Establishing the BC Hydro Transmission Corporation, implemented through legislation as a separate entity, will improve the ability of independent power producers and BC Hydro to participate in regional wholesale markets. Access to these markets is important if we are to attract the new investment required for power development and generate export revenues which help to keep provincial electricity rates low.

Policy Action #16 (new): The BC Utilities Commission will determine the terms and rates for this new transmission entity.

The BC Utilities Commission will review and approve wholesale transmission rates. In an initial rate hearing, the commission will consider issues such as the allocation of costs between generation and transmission, and exit and entry fees for large customers who leave the BC Hydro system (under the new rate structure). Once the initial rates have been determined, future rate changes will also be reviewed and approved by the commission.

SUPPORT FOR OIL AND GAS DEVELOPMENT

Policy Action #17 (ongoing): The Ministry of Energy and Mines will provide support for continued industry investment in natural gas production over the next 10 years.

The ministry provides ongoing industry support in the form of information on natural gas resources and the promotion of B.C. investment opportunities outside the province. It regularly reviews resource royalty and tax regimes to maintain our competitive position for attracting energy investment. New royalty regimes were introduced for natural gas in 1998 and coalbed methane in March 2002. Reduced royalties may be

considered for other emerging resource opportunities (e.g., shallow and deep gas) and unconventional resources (e.g., shale and tight gas).

The Oil and Gas Commission is further streamlining its one-window approval process for oil and gas development. Under a new general development permit, companies can now apply for a review of their overall plans for the development of an area, rather than having to make separate applications for a number of activities (e.g., roads, wells, pipelines) at different times. Other improvements include a streamlined permitting process for petroleum roads and reduced review times for geophysical, well, and pipeline applications where supported by a professional forester.

Policy Action #18 (ongoing): Pre-tenure and land use planning, as well as northern road improvements, are improving access to oil and gas resources.

Two pre-tenure plans have been completed for the Muskwa-Kechika Management Area, with oil and gas tenures issued and a successful natural gas well drilled in one of the planning areas. The Ministry of Sustainable Resource Management is expediting the process to deliver the six remaining pre-tenure plans by December 2003. The Ministry of Energy and Mines will increase its involvement in land use planning to ensure that the value of undiscovered oil and natural gas resources is properly recognized, and that access to these resources is not unduly compromised. This will be accomplished by providing better information on oil and gas potential and having a ministry representative on land use planning committees.

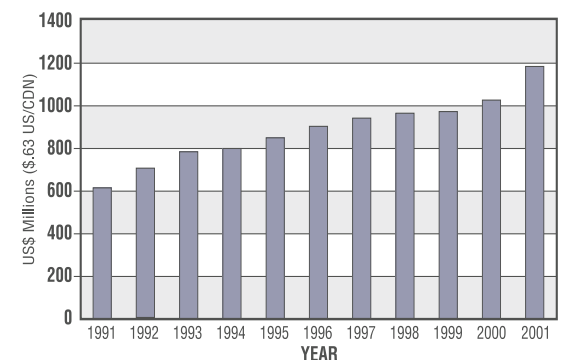
In November 1999, \$103 million was committed over six years to upgrade existing public roads used by the oil and gas industry in northeastern B.C. Investment to date has already resulted in increased land sales and royalties, summer drilling programs, and private road building off the improved public roads. With legislation passed in spring 2002m the Ministry of Energy and Mines can pursue innovative public-private partnerships (see box) that support the development of a strong and efficient road network for increased oil and natural gas activity.

Public Private Partnerships: The Sierra-Yoyo-Desan Road Project

In December 1998, government and industry formed a five-year partnership to upgrade and maintain the Sierra-Yoyo-Desan road northeast of Fort Nelson. This road is part of a network providing access to more than 27,000 square kilometres of oil and gas rich territory that produced about \$232 million in royalties and taxes, and \$126 million in land sales in 2001. Under the \$12.6 million partnership, the costs of improvements are recovered in fees paid by petroleum, seismic, construction and timber companies, while the government contributes to road maintenance costs. The general public has free access to the road.

As a result of the road improvements, drilling activity increased 252% overall, and 400% in the months outside of the traditional winter drilling season (December to April). Funding is needed beyond the partnership term (ending November 2003) to maintain the road and further upgrade it to allow for additional increases in activity levels.

NATURAL GAS SUPPLY for 1991 - 2001



NATURAL GAS SUPPLIER CHOICE FOR SMALL VOLUME CONSUMERS

Policy Action #19 (new): Natural gas marketers will be allowed to sell directly to small volume customers, and will be licensed to provide consumer protection.

For three years, natural gas suppliers, ratepayer groups and the BC Utilities Commission have been working to extend direct sales to residential and small commercial customers. New tracking software will allow customer bills to identify from whom natural gas was purchased and what it cost. Although gas brokers and marketers have successfully shown that they can provide a customized array of low-cost services, some jurisdictions (e.g., Ontario and Alberta) have required licensing and bonding to protect consumers from misleading marketing practices.

The Utilities Commission Act will be amended in spring 2003 to allow direct natural gas sales to low-volume customers, and to require the licensing of marketers who serve those customers. The commission will establish the rules, including posting of a security deposit, to obtain a gas marketing licence.

In addition, the requirement for large natural gas customers to file their supply contracts with the commission will be removed, since the high-volume direct sales market is now mature and a high level of regulatory oversight is no longer needed.

ENVIRONMENTAL RESPONSIBILITY AND NO NUCLEAR POWER SOURCES

Environmentally responsible development and use of energy will be ensured through the promotion of cleaner energy sources, measures to increase conservation and energy efficiency, strategies for controlling air emissions and clearer, more efficient environmental regulation.

ALTERNATIVE ENERGY DEVELOPMENT

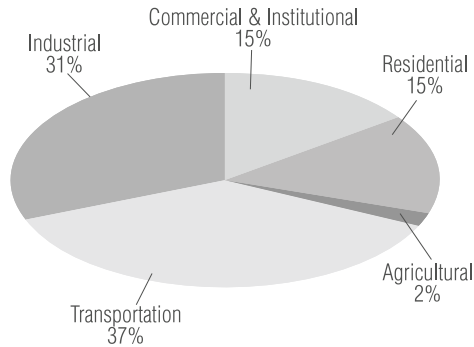
Policy Action #20 (new): Electricity distributors will pursue a voluntary goal to acquire 50 percent of new supply from *BC Clean Electricity* over the next 10 years.

BC Clean electricity refers to alternative energy technologies that result in a net environmental improvement relative to existing energy production. Examples may include small/micro hydro, wind, solar, photovoltaic, geothermal, tidal, wave and biomass energy, as well as cogeneration of heat and power, energy from landfill gas and municipal solid waste, fuel cells, and efficiency improvements at existing facilities. This broad definition will allow for the development of a diverse range of cost-effective and environmentally responsible resources across the province.

BC Hydro has already surpassed its voluntary target to meet 10 percent of new energy requirements from clean energy. A goal of 50 percent of new supply between 2002 and 2012 is achievable, given the broader definition of BC Clean electricity. The 50 percent level is expected to push the market for new energy sources. It may raise electricity rates by 0.1 to 0.2 percent per year over the next decade.

The goal will be voluntary so that distributors have the flexibility to acquire electricity at competitive prices. At the

ENERGY CONSUMPTION BY SECTOR



Actions under other strategic objectives that also support more private sector opportunities:

#9	Electricity distributors will acquire new supply on a least-cost basis, with regulatory oversight by the BC Utilities Commission.
#10	Development of coalbed methane and other unconventional resources will be encouraged to provide a new source of energy supply and opportunities for regional economic growth.
#11	The Ministry of Energy and Mines will establish a dedicated provincial offshore oil and gas team to develop a provincial position, work with the federal government and move effectively toward development of offshore resources.
#12	The structure of the BC Utilities Commission, and its mandate in regulating BC Hydro and other energy distributors, will be strengthened.
#25	Provincial processes for environmental assessment, water licensing and waste permitting are being streamlined.
#26	To allow for a fair evaluation of coal-fired electricity projects, final emission standards will be adopted for coal-fired power plants.

same time, the BC Utilities Commission will take the goal into account when overseeing the acquisition process for new resources (see Secure, Reliable Supply). The goal will apply equally to the distribution businesses of BC Hydro, Aquila Networks Canada and other investor-owned utilities. They will develop policies (e.g., net metering and interconnection standards) to achieve the goal.

CONSERVATION AND ENERGY EFFICIENCY

Policy Action #21 (new): New rate structures will provide better price signals to large electricity consumers for conservation and energy efficiency.

The BC Utilities Commission will conduct a hearing to develop new stepped and time-of-use pricing for BC Hydro's industrial and large commercial customers. As a principle, for stepped rates, the last block of energy consumed should reflect the cost of new supply. This will encourage these customers to meet part of their electricity needs through conservation and energy efficiency, or from other sources (self-generation or IPP purchases), where they can do so cost-effectively. To keep rates low overall, the stepped rate structure will be revenue-neutral (see box). Time-of-use rates will encourage customers who can manage the timing of their electricity use to shift consumption to low-priced off-peak periods. Both rate structures will benefit British Columbians by deferring the environmental impacts of new power development.

The BC Utilities Commission has approved time-of-use pricing and stepped fixed charges for Aquila Networks Canada customers, and time-of-use pilots for large BC Hydro customers. Given the administrative costs of rate design and the metering investment required for time-of-use rates, these alternative rate structures tend to be less feasible for small customers. Stepped rates will be initially applied to large rate customers. They may be applied, at a later date, to other customer classes.

Policy Action #22 (new): The Province will update and expand its Energy Efficiency Act, and will work with the

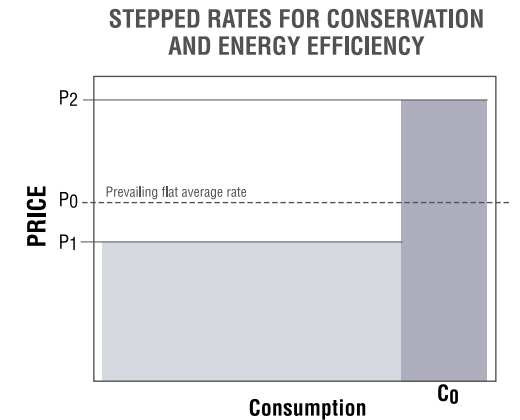
building industry, governments and others to improve energy efficiency in new and existing buildings.

In 1991, B.C. passed an Energy Efficiency Act to set energy performance standards for new appliances and equipment. Minimum performance standards now cover a variety of appliances and equipment, including refrigerators, water heaters, heat pumps, woodstoves, electric motors, and street lighting. There are opportunities to expand the existing regulations to include products such as residential and commercial lighting, natural gas fireplaces, and water-using equipment. Minimum performance levels already established for equipment (e.g., natural gas furnaces) can be upgraded and further harmonized with national and international standards. The Ministry of Energy and Mines will pursue these opportunities with the federal government, electricity and natural gas distributors, standards associations and the equipment industry.

A number of activities are underway to improve building energy efficiency in the province. For example, the BC Buildings Corporation delivers a high performance buildings initiative that provides tools and information for energy efficiency improvements in public buildings (e.g., schools and hospitals). The Greater Vancouver Regional District (GVRD) is developing a Better Buildings Partnership that includes a revolving fund for commercial and institutional energy retrofits. The government will work with Natural Resources Canada, GVRD, energy distributors, builders, developers, and others to strengthen and supplement these efforts.

Policy Action #23 (new): The Utilities Commission Act will be amended to remove a disincentive for energy distributors to invest in conservation and energy efficiency.

There is a bias in the application of the Utilities Commission Act against conservation and energy efficiency investments, relative to investments in new energy supply. Electricity and natural gas distributors do not earn a return on energy-saving expenditures as they do on new generation and transmission spending. The Province will amend the Act to remove this



Stepped Rates for Conservation and Energy Efficiency

A revenue-neutral two-step electricity rate charges less for the first block of electricity consumed (P_1), and more for the second block (P_2), relative to the prevailing flat average rate (P_0). At the higher price P_2 , the consumer has a greater incentive to cut back on electricity use, or to invest in cost-effective energy efficiency for that portion of consumption. At the existing consumption level C_0 , the total cost to the consumer and the total revenue to the distribution company offering the rate are unchanged.



ENERGY FACT

In February 2002, the BC Progress Board ranked B.C. first in Canada in terms of environmental quality.

disincentive, with the goal of encouraging further utility investment in conservation and energy efficiency.

CONTROLLING AIR EMISSIONS

Policy Action #24 (new/ongoing): The government is developing strategies to manage B.C.'s greenhouse gas emissions and air quality in threatened airsheds.

The Ministry of Water, Land and Air Protection and the Ministry of Energy and Mines (MEM) are leading the development of a comprehensive climate change plan. MEM already promotes the reinjection of acid gas into existing natural gas wells, to reduce harmful air emissions. Work is underway with other western provinces and the federal government to test new reinjection and cleaner coal technologies, and to define requirements for the capture and storage of carbon dioxide in depleted oil and gas reservoirs and coal seams. Future plans include sponsoring related research at B.C. universities, designing pilot activities for mineral sequestration of CO₂, and examining opportunities for linking coalbed methane development and CO₂ disposal.

It is recognized that the siting of new energy supply operations is a particularly pressing issue for vulnerable airsheds. Certain kinds of supply can result in a net reduction in local air emissions. As part of the commitment to protect threatened airsheds, airshed management plans will be developed in partnership with industry, the federal and local governments, and others to define the steps required to improve air quality.

IMPROVING REGULATION

Policy Action #25 (new/ongoing): Provincial processes for environmental assessment, water licensing and waste permitting are being streamlined.

The provincial environmental assessment process has recently been reformed to make it more flexible, streamlined, cost-effective, and tailored to the needs of individual projects. This will include reducing duplication and overlap with federal environmental reviews. Under the reformed provincial process, some projects may be subject to a simpler process, or may be reviewed through other mechanisms. Decisions on how to handle project reviews will be made on a case-by-case basis depending on the project's profile and unique circumstances. In addition, concurrent permitting will allow for the more timely development of energy projects.

Actions under other strategic objectives that also support environmental responsibility:

#13	The private sector will develop new electricity generation, with BC Hydro restricted to improvements at existing plants.
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The Oil and Gas Commission issues water licences and land tenure applications for the oil and gas sector, including federally regulated facilities. In February 2002, the adjudication of applications for crown land and water for other sectors was merged into an integrated review process administered by Land and Water British Columbia Inc (LWBC). LWBC has prepared guidelines for applicants to clarify the process, and is working to eliminate the backlog in small hydro applications.

The Ministry of Water, Land and Air Protection has begun consultations to revise the Waste Management Act and Regulations governing air emissions and water discharges from facilities. It is anticipated that this 18-month review will result in significant amendments to the legislation and regulations, as well as new and innovative environmental management tools.

Policy Action #26 (new): To allow for a fair evaluation of coal-fired electricity projects, final emission standards will be adopted for coal-fired power plants.

Coal-fired electricity generation is currently an important source of electricity in other provinces, but not in B.C., despite large resources of cleaner thermal coal. For some industrial consumers, coal became an economically attractive energy source when natural gas prices rose sharply in 2000 and 2001. Further volatility in natural gas prices could lead to increased pressure to use coal as a replacement fuel. The province needs well-defined environmental standards and an efficient regulatory process for evaluating potential coal-fired electricity developments.

Since 1995, B.C. has had interim guidelines in place for emissions of nitrous oxides, sulphur dioxide, metals, and particulates from coal-fired power boilers. These guidelines, which are based on best available control technology, are meant to assist project proponents and help Ministry staff with the environmental assessment and waste permit application processes.

Alberta has established technology-based emission requirements for coal-fired plants. Permit limits are no less

stringent than the technology-based limits in the guidelines. However, permit limits may be more stringent if a site specific dispersion model prediction determines that this is required at the particular location to ensure that ambient air quality objectives in the receiving airshed will be met.

On January 1, 2003, the Ministry of Water, Land and Air Protection will adopt emission guidelines for coal-fired power plants that will allow B.C. to compete for investment with neighbouring jurisdictions. Specific dispersion model predictions will determine whether more stringent stack limits are required at any proposed location. To determine if more stringent stack limits are required, proponents will undertake specific dispersion model predictions.

Designing an Effective Portfolio Standard

B.C.'s clean energy goal is a variation on renewable portfolio standards (RPS) that have been adopted in jurisdictions such as Australia, Denmark, the Netherlands, Italy, the United Kingdom, Massachusetts, Nevada, and Texas. These standards require a minimum amount of electricity (usually a percentage of total sales) to be purchased from particular energy types or technologies. Key issues for the design of an RPS are the coverage of clean energy resources and the level of the standard.

Most portfolio standards limit their coverage to small-scale renewable energy sources, although in some cases large hydropower, cogeneration, and energy efficiency measures (e.g., heat pumps) are also included. Maine, for example, allows existing domestic hydroelectricity to be counted towards its current 30% standard. By excluding large hydro but allowing other energy sources such as municipal solid waste and cogeneration, the B.C. goal offers greater regional flexibility in developing environmentally responsible generation.

How big a portfolio standard should be depends essentially on how much more customers are willing to pay for clean energy. Compared to other jurisdictions, the province's lower electricity rates make alternative energy generation less attractive. The fact that many alternative electricity resources are located further away from customer loads, and provide intermittent or seasonal energy, adds to the costs of delivery and reliability relative to conventional generation (e.g., a gas turbine). The level of the clean energy goal must be set so as not to unduly raise electricity rates over time.

CONCLUSIONS



This plan has described a series of actions to ensure low electricity rates and public ownership of BC Hydro; secure and reliable energy supply; increased opportunities for the private sector in energy production; and environmentally responsible energy development and no nuclear power sources. These actions will be implemented over the next two years.

The B.C. energy sector is vital to the prosperity of British Columbians.

Demands for energy in B.C. and export markets have supported the development of a diverse, reliable, and economical energy supply system. Our extensive hydroelectric power and natural gas systems benefit British Columbians and export customers alike. New energy supplies are essential if we are to meet the needs of a growing population and economy over the coming years. B.C.'s energy resources, together with our homegrown technology and talent, can continue to ensure energy development and use that are both economical and environmentally responsible. They will help sustain our traditional resource industries and attract and grow an expanding technology sector. Energy has an important role to play not only in revitalizing and developing the provincial economy, but also in supporting the lifestyle and clean environment that makes B.C. a coveted place to live.

This energy plan provides recommendations to build on B.C.'s strengths with opportunities for the continued enrichment of all British Columbians.

The B.C. energy sector is already highly developed. We have abundant energy resources, including natural gas, oil, coal, coalbed methane, hydroelectricity, and alternative energy. We can also do more to reduce energy use through conservation and energy efficiency. New B.C. technologies and expertise, in areas ranging from hydroelectricity to fuel cells, can be harnessed for energy development and export. The actions in this plan statement will build on our existing strength to provide opportunities for increased investment, trade and economic development across the province.

Each of the key players in the energy sector will benefit from the policy.

The 26 policy actions and their benefits for energy consumers, the private sector and the province are summarized in Table 1. In this table, economic opportunities encompass a lower production cost for B.C. industry, jobs and regional economic development. These actions will affect key participants in the energy sector as follows:

Energy consumers. Electricity consumers will be assured low electricity rates through the heritage contract for existing low-cost generation, continued access to trading benefits, efficient private electricity development, and effective regulation to keep rate increases down. New rate structures will allow large power users to save on their energy bills and meet a portion of consumption requirements through energy saving activity, private power purchases or self-generation. Small natural gas consumers will be free to buy directly from natural gas suppliers other than the local distribution company.

Energy distributors. To ensure low electricity rates, BC Hydro and Aquila Networks Canada will acquire new resources on a least-cost basis, with regulatory oversight by the BC Utilities Commission. They will offer new rate structures to large customers, and will pursue a clean energy goal of 50 percent of new power supply over 10 years. Natural gas companies will face competition to supply small as well as large customers. All energy distributors will have their rate increases determined by the BC Utilities Commission using performance-based regulation. A regulatory change will remove the disincentive to conservation and energy efficiency investment.

BC Hydro. BC Hydro will retain ownership of its power assets. To make operations more efficient and transparent, it will continue to reorganize into separate business units for generation, transmission and distribution, and will outsource services where cost savings can be achieved. The mandate of the generation business will be to manage the heritage assets, make efficiency improvements at existing facilities and provide energy and capacity to the domestic market while maximizing trade revenue potential and investment return to the Province. A new separate entity, the BC Hydro Transmission Corporation, will plan, operate and manage the BC Hydro system, with the

transmission assets remaining publicly owned. This change will enable power marketers to continue to benefit from selling into US wholesale markets. The distribution business will have an obligation to serve customers, and will procure power at least cost while maintaining the BC Clean goal. The current rate freeze will be lifted and BC Hydro rates will again be regulated by the BC Utilities Commission.

Independent power producers. IPPs will be responsible for developing new generation in the province. The new BC Hydro Transmission Corporation will provide nondiscriminatory access to the BC Hydro transmission system at rates to be determined by the Utilities Commission. IPPs will be able to sell directly into regional wholesale markets. They will also be able to compete with distributors to serve all or a portion of large consumers' requirements.

Oil, natural gas and coal producers. Land use and pre-tenure plans and northern road upgrades will improve access to resources for oil and gas producers. Royalty restructuring will support new and emerging resource opportunities, such as coalbed methane and unconventional natural gas. The Ministry of Energy and Mines will establish a dedicated provincial offshore oil and gas team to develop a provincial position, work with the federal government and move effectively toward development of the offshore resources. Clear emission standards for coal-fired power plants will provide greater regulatory certainty for electricity development using B.C.'s abundant thermal coal resources. Regulatory streamlining will allow more efficient resource development.

BC Utilities Commission. The BC Utilities Commission will be strengthened and will fulfill its mandate to protect the public interest by reviewing and approving energy rates, reliability standards and other conditions of service. The Utilities Commission Act will be updated to reflect the move to negotiated settlements and performance-based regulation. New rates will be determined for BC Hydro and the BC Hydro Transmission Corporation, as well as new rate structures for large electricity consumers. The commission will also provide regulatory oversight of the least-cost resource acquisition processes of BC Hydro, Aquila Networks Canada and other investor-owned utilities while maintaining the BC Clean goal.

B.C. taxpayers. Taxpayers will continue to receive the benefits from public investment in BC Hydro. New power development by the private sector will protect them from the financial risks of building new generation. Private power production and the development of new energy supplies (e.g., alternative power, coal-fired electricity, coalbed methane, offshore oil and gas) offers additional government revenues to help fund health care and other services.

B.C. communities. Communities will benefit from the increased economic activity from developing new energy supplies and investing in energy efficiency. Local investment will generate jobs and economic spin-offs throughout the province. The clean energy goal, measures to encourage energy saving, and strategies for reducing greenhouse gas and local air emissions will all contribute to environmental improvement in energy-producing communities.

B.C. will be better positioned for further evolution in energy markets. North American energy markets are evolving at a rapid pace. B.C. must be able to respond to these changes if we are to continue realizing the economic benefits they offer. This energy plan will encourage the development of new resources to strengthen and diversify energy supply. The result will be a flexible and robust energy sector that can respond to further market challenges and opportunities as they arise.

Energy for Our Future: A Plan for BC. Some of the actions described in this plan are already underway. Others will require time for careful planning and implementation. A public hearing on BC Hydro rates will be held by the end of 2003/04. The plan will be rolled out over the coming months, with full implementation by December 2004.

Low electricity rates and public ownership of BC Hydro

Secure, reliable supply

More private sector opportunities

Environmental responsibility and no nuclear power sources

TABLE 1: Summary of Policy Actions and Benefits

POLICY ACTIONS			BENEFITS					
#	ACTION	STATUS	B. C. ENERGY CONSUMERS		PRIVATE SECTOR	THE PROVINCE		
			Low Electricity Rates	Secure, Reliable Supply	Investment Opportunities	Taxpayer Benefits	Economic Opportunities	Environmental Responsibility
GENERAL								
7	Maintain high standards of reliability and energy security	Ongoing		✓				
12	Strengthen structure and mandate of the BC Utilities Commission	New	✓	✓				
ELECTRICITY								
1	Preserve low-cost generation in heritage contract	New	✓	✓			✓	
2	BC Hydro ratepayers continue to benefit from trade	Ongoing	✓				✓	
3	Maintain public ownership of BC Hydro power assets	Ongoing	✓	✓		✓		
4	Contract out BC Hydro services that save costs for customers	New	✓		✓		✓	
5	BC Utilities Commission again regulates BC Hydro rates	New	✓	✓				
6	BCUC review of Vancouver Island Generation Project	New	✓	✓				
8	BC Hydro distribution operates as a separate business from generation	New	✓	✓	✓		✓	
9	Distributors acquire least-cost resources with BCUC oversight	New	✓	✓	✓		✓	
13	Private sector develops new power, with a limited role for BC Hydro	New	✓	✓	✓	✓	✓	✓
14	Large consumers can choose supplier under new rate structure	New		✓	✓		✓	
15	BC Hydro Transmission Corp. improves access to BC Hydro transmission	New	✓	✓	✓	✓	✓	
16	BCUC determines terms and rates for BC Hydro Transmission Corporation	New	✓	✓				

POLICY ACTIONS

BENEFITS

POLICY ACTIONS			BENEFITS					
#	ACTION	STATUS	B.C. ENERGY CONSUMERS		PRIVATE SECTOR	THE PROVINCE		
			Low Electricity Rates	Secure, Reliable Supply	Investment Opportunities	Taxpayer Benefits	Economic Opportunities	Environmental Responsibility
FOSSIL FUELS								
10	Policies to encourage coalbed methane development	Ongoing/ New		✓	✓	✓	✓	
11	New offshore oil and gas team	New		✓	✓	✓	✓	
17	Ministry of Energy and Mines supports natural gas investment	Ongoing		✓	✓	✓	✓	
18	Policies to improve access to oil and gas resources	Ongoing		✓	✓	✓	✓	
19	Natural gas marketers can make direct sales to small customers	New		✓	✓			
26	Final emission standards for coal-fired power plants in B.C.	New		✓	✓	✓	✓	
BC CLEAN ENERGY								
20	Voluntary goal for 50% of new electricity from clean resources	New		✓	✓		✓	✓
21	New rate structures to encourage conservation and energy efficiency	New	✓	✓	✓		✓	✓
22	Update Energy Efficiency Act and improve efficiency in buildings	New		✓	✓		✓	✓
23	Remove regulatory disincentive to utility investment in energy efficiency	New	✓	✓			✓	✓
24	Strategies to manage air emissions	Ongoing/ New						✓
25	Streamlining of provincial regulatory processes	Ongoing/ New	✓	✓	✓		✓	✓