

B.C. can showcase new electricity economy

BY ROBERT L. EVANS, SPECIAL TO TIMES COLONIST DECEMBER 9, 2009

Premier Gordon Campbell's call for a review of B.C. energy policy, and the prospect of new leadership at B.C. Hydro, can provide a jump-start in the province's transition to a "green" economy.

Electricity is increasingly seen as the energy carrier of choice to replace fossil fuels, and this province has an opportunity to show real leadership in making this transition a reality.

The transportation sector, which accounts for some 40 per cent of all greenhouse gas emissions in B.C., is rapidly adopting electrification as a fundamental strategy to combat climate change. Nearly every car manufacturer has announced plans for a new generation of plug-in hybrid vehicles, which will rely on utility-generated electricity for nearly 80 per cent of their energy needs.

Some have also released plans for small battery-only electric vehicles ideal for commuters. Together with an expansion of electrically powered rapid transit, such as the trolley buses and SkyTrain in Vancouver, these new vehicles will enable electricity to provide a much greater share of our energy needs.

Some observers have questioned if a move from gasoline and diesel fuel to electricity will be widely accepted by drivers. In part, such acceptance will depend on the relative cost of electricity and fossil fuels.

With a residential electricity rate of just over six cents per kilowatt hour, B.C. electricity equates to an energy cost of about 60 cents per litre of gasoline. An all-electric drivetrain has an efficiency at least three times that of a gasoline-powered vehicle. The effective cost of "filling up" with electricity will then be the equivalent of about 20

cents per litre of gasoline.

Even with the eventual addition of road taxes, electrical energy will still be significantly cheaper than the fossil fuel alternatives. Once this fact is fully understood by the car-driving public, there will no doubt be widespread and rapid adoption of the new generation of clean and quiet electric vehicles.

The use of electrically driven heat pumps provides yet another opportunity to use electricity with very high efficiency to replace fossil fuels in many space heating applications.

Of course, for electrification to make a large impact on reducing greenhouse gas emissions, the electricity will have to be generated sustainably, using renewable energy and nuclear power rather than coal or natural gas. Since nearly all of our electricity is generated from renewable hydroelectric power, B.C. can set an example for the world in showing how to move away from fossil fuels and towards a new sustainable "electricity economy."

This will inevitably require a significant expansion of our generation and transmission facilities, and the province needs to act quickly to ensure that these new facilities are as sustainable and cost-effective as possible.

While it is not widely known, large-scale energy storage is probably the most important asset on the B.C. Hydro system.

Lake Williston, the man-made and largest lake in the province, is essentially the world's third biggest "battery," after Lake Volta in Ghana and the Manicouagan reservoir in Quebec. This very large energy storage capacity has enabled B.C. Hydro to store energy when prices are low, and to then sell at peak prices at a later time.

In the past, this electricity arbitrage has allowed

the province to reap significant profits, but in the future could be used to reduce the cost of adding more intermittent electricity sources from wind-power and small-scale hydro facilities.

The large energy storage behind the W.A.C. Bennett Dam also means that a significant new source of renewable hydroelectric power is available to the province without the need for the widespread environmental damage that is often associated with building large new reservoirs.

The Site C project, just downstream of the other two major powerhouses on the Peace river, could provide some 4,600 GWh of electricity per year with only limited flooding of the river valley. As with most large-scale power generation projects, both the cost of electricity and environmental impact is likely to be smaller per unit of electricity generated than for smaller intermittent generation projects.

With large energy storage facilities, and the ability to incorporate both large-scale and small-scale intermittent generation sources, B.C. has a unique opportunity to showcase a truly sustainable electricity supply. The planning must start now, however, and needs to include work on both the electricity demand and supply sides.

This is why the announcement of a complete review of the province's energy strategy is so timely, and why we must start now to build the infrastructure needed for the new electricity economy.

Robert L. Evans was the founding Director of the Clean Energy Research Centre at the University of British Columbia. His recent book, *Fueling Our Future: an Introduction to Sustainable Energy*, was short-listed for the 2008 Donner Prize.

Green power worries activists Environmental groups push for B.C. slowdown

BY SCOTT SIMPSON, CANWEST NEWS SERVICE DECEMBER 18, 2009

British Columbia needs to take a closer look at the effect new renewable electricity development will have on communities, business and the environment before it commits to increasing the size of the sector, environmental groups said yesterday.

A report prepared for 25 environmental groups says B.C. needs to restore public confidence as well as demonstrate that plans to develop power for export will work to the benefit of the province.

"Many British Columbians - including those deeply concerned about climate change - harbour concerns about how renewable electricity is currently planned, promoted and developed in B.C.," says a six-page report, which was released yesterday.

"They want to see renewable electricity projects, but they want to be confident that those projects are planned and developed in a way that limits impacts and maximizes benefits for British Columbians."

The report was co-written by the David Suzuki Foundation, Pembina Institute, the Watershed Watch Salmon Society and West Coast Environmental Law.

The report is aimed at both the government and members of a Green Energy Advisory Task Force announced last month by Premier Gordon Campbell to recommend new policies for green power development, and opportunities to export renewable power to the United States.

Blair Lekstrom, minister of energy, mines and petroleum resources, said he welcomed the report and encouraged the authors to submit it to the committee, which is due to report back to government in January.

The report says B.C. Hydro should no longer be barred from competing with private-sector power developers to build new renewable energy projects.

Recommendations include the designation of ecologically sensitive areas as off-limits to green power development, support for community and First Nations power projects, and halting plans for power exports until the environmental benefits can be proven.

Nothing green about Site C dam

BY SANDRA HOFFMANN, TIMES COLONIST DECEMBER 18, 2009 Re: "B.C. can showcase new electricity economy," Dec. 9.

Robert Evans wrote "the electricity will have to be generated sustainably, using renewable energy." Although technically renewable, large hydro is not sustainable and definitely not green. It results in very significant environmental damage.

He suggests the environmental damage of Site C would be minimal, which is false. Flooding the Peace River Valley will result in the loss of more than 7,000 acres of Class 1 and 2 soils, important wildlife habitat and lands traditionally used by First Nations. Considering climate change and growing concerns over food security, it does not make sense to destroy some of

B.C.'s best agricultural land. Rather, low-impact renewable sources such as geothermal and wind should be developed.

The Bear Mountain wind farm near Dawson Creek cost \$200 million and produces 102 MW, while the proposed Site C could produce 900 MW at \$6.6 billion to \$10 billion. Site C would give nine times the power but likely cost 50 times more per megawatt and would have far more devastating environmental impacts.

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