

# B.C. Citizens for Green Energy

[www.greenenergybc.ca](http://www.greenenergybc.ca)

## Presentation to the Select Standing Committee on Finance and Government Services

Thursday, September 16, 2010

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Thank you for this opportunity to address the Select Standing Committee on Finance and Government Services.

My name is David Field and I'm speaking on behalf of B.C. Citizens for Green Energy. We are a citizen advocacy group representing a cross-section of British Columbians who encourage a legacy of clean, sustainable electricity, now and for future generations.

Although the *Budget 2011 Consultation Paper* was presented to the public just yesterday and we have not yet had time to review it fully, we're nevertheless eager to make our contribution to the consultation process and help shape the province's fiscal priorities and the priorities for the next provincial budget.

In particular, we would like to speak to the revenue side of the provincial budget and draw attention to the revenue generating and debt reduction potential that our province's unparalleled abundance of renewable green energy resources could have for the citizens of B.C.

Last March, our group released a research report entitled "**A Triple Legacy for Future Generations: British Columbia's Potential as a Renewable Green Energy Powerhouse**" which outlined B.C.'s immense untapped potential for generating renewable green energy and the substantial revenue that could potentially be generated for the people of B.C. through an effective export policy.

In our report, we looked at several widely available estimates of B.C.'s potential for generating renewable green electricity, and based on these we found that B.C.'s green energy generating potential could easily be equal to the current clean, renewable generating capacity available from BC Hydro's heritage hydroelectric dams, and potentially two to three times this amount if not more.

When the potential public revenue from all of the various licenses, taxes and fees that independent green energy producers pay to the province, along with the net revenue from BC Hydro and Powerex as the shaping and exporting entity for B.C.'s renewable green energy, as well as the carbon credits, offsets and other green attributes inherent in renewable energy sources are brought together, it is conceivable that revenues in the range of \$4.3 Billion per year could potentially be realized by the people of B.C.

We were quite amazed by what our research into this subject revealed about the public revenue generating potential of our province's untapped renewable energy resources. But the numbers we arrived at were based on several widely available estimates of B.C.'s potential for generating renewable green energy and reasonable assumptions about the revenue generating potential these estimates represent.

From a provincial budget perspective, it is our group's sincere belief that public revenue generated by green energy exports could play major role in wiping out the province's debt and perhaps eventually even replacing the revenue being raised through the province's share of the Harmonized Sales Tax.

The goal of eliminating B.C.'s debt is not at all far-fetched: Alberta accomplished exactly this goal using its non-renewable energy resources, and in the process they showed very powerfully that eliminating provincial debt and dispensing with a provincial sales tax is achievable—the only difference is that Alberta will one day run out of oil whereas B.C.'s renewable green energy resources are limitless as long as the wind blows, the sun shines, the tides change, the earth's core remains hot, and the rain and the snow keep falling and filling our rivers and streams.

I should point out that Alberta's debt stood at \$22.7 billion only a decade before the province officially became a debt-free province on March 31, 2005. I should also point out that Alberta's debt-free status—and the fiscal reserves they were able to set aside—left Alberta in a strong position when the global economic downturn occurred which helped Alberta weather the downturn.

Being debt free has also allowed the Alberta government to save around \$1.5 billion annually in debt servicing costs; dollars that Alberta has been able to redirect to important priorities like healthcare, education, tax cuts, savings and infrastructure.

Just to expand, for a moment, on the research our group carried out in relation to B.C.'s immense untapped potential for generating renewable green energy—we looked at publicly available information from the Electricity and Alternative Energy Division (EAED) of the Ministry of Energy, Mines and Petroleum Resources which showed that B.C. has the potential to generate 36,088 megawatts of renewable electricity which is more than three times the current generating capacity of BC Hydro and the province's independent green energy producers combined.

And just to put that potential generating capacity into perspective; the Electricity and Alternative Energy Division estimates it could generate 143,900,000 megawatt/hours of renewable green electricity—enough to power 12.8 million households or 360 large industrial users.

We also looked at potential green energy estimates contained in the June 2009 ***Western Renewable Energy Zones – Phase 1 Report*** released by the Western Renewable Energy Zones Initiative (WREZ)—a joint initiative of the Western Governors' Association and the U.S. Department of Energy.

Although the data in the WREZ report somewhat underestimates British Columbia's renewable energy potential due to its emphasis on identifying areas in western North America that feature “the potential for large scale development of renewable resources” at a “utility scale” (defined as being between 500 megawatts and 1,500 megawatts of total capacity), the WREZ Phase 1 Study estimates that B.C. has the potential to generate a total of 21,315 megawatts of clean, renewable electricity—nearly double B.C.'s current total generating capacity and enough clean, renewable electricity to power nearly 7.5 million households.<sup>1</sup>

We also looked Pacific Gas and Electric's (PG&E) BC Renewable Study Phase 1 from June 20, 2008. And although PG&E's estimate is limited to the renewable green energy generating capacity that could potentially be in place in B.C. by 2016 rather

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<sup>1</sup> At the time that our BCCGE Triple Legacy report was released, B.C.'s total generating capacity stood at 11,345 megawatts which included hydroelectric and thermal generating sources—10,259 and 1,040.5 megawatts respectively—and 46 megawatts of diesel generation.

than an estimate B.C.'s full potential for generating renewable electricity, we found it to be a useful source for gauging B.C.'s green energy potential.

All combined, the PG&E study estimates that B.C. could have between 8,300 and 17,250 megawatts of clean, renewable electricity generating capacity available by 2016 from run-of-river, wind, biomass, and geothermal sources—potentially doubling and nearly tripling British Columbia's current generating capacity—an estimate that is consistent with the other sources we consulted.

It should be noted, however, that in addition to the renewable wind, run-of-river, biomass and geothermal energy resources we have in abundance here in B.C., we also have significant potential to generate clean, renewable electricity from wave and tidal energy. B.C.'s wave energy potential is estimated to be in the range of 20,000 megawatts and tidal energy is estimated to be in the range of 4,000 megawatts.

I would also like to briefly make note of the excellent study done by PricewaterhouseCoopers LLP which pointed to the great opportunity that renewable energy legislation in neighbouring jurisdictions like California and Washington State represents for renewable energy exports from British Columbia.

But rather than dwelling on this kind of technical information right now I would like to make the committee members aware that all of the information I've noted regarding B.C.'s untapped potential for generating renewable green energy is fully discussed in our Triple Legacy report which is available on our B.C. Citizens for Green Energy website at [www.greenenergybc.ca](http://www.greenenergybc.ca). And if any of the committee members are interested in receiving a copy of our report we would be more than happy to email a PDF copy to you.

At this point, I would like to speak to the public revenue potential that the immense renewable green energy generating capacity I've noted above could provide for the people of B.C.

According to information on the Independent Power Producers Association of British Columbia (IPPBC) website, approximately 25 per cent of the revenues from independent green energy producers are paid back as taxes, fees and levies to local, provincial, and federal authorities.<sup>2</sup>

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<sup>2</sup> A typical 7 MW run-of-the-river project with a penstock that produces 35 GWh/yr will pay \$67,000 in water rentals and \$120,000 in property/school taxes (or \$200,000 if located in a municipality rather than a Regional District), plus First Nations/Community Benefits payments, plus Provincial and Federal Income Taxes. [http://www.ippbc.com/EN/quick\\_facts\\_list/](http://www.ippbc.com/EN/quick_facts_list/)

Of that 25 percent, 10 to 20 per cent returns directly to the B.C. public in the form of water taxes, property taxes, land leases and other fees and levies. The remaining 80 to 90 per cent represents corporate income taxes (both federal and provincial) with 37 per cent accruing to the provincial government and 63 per cent to the federal government—and that is based on an effective provincial corporate tax rate of 11 per cent and an effective federal corporate tax rate of 19 per cent which was that case at the time our report was written.

This means that B.C.'s green energy resources could potentially generate \$790 million in direct new public revenue each year for the people of this province.

But fees and taxes are not the only source of public revenue that would flow from the development of a green energy export industry. Another source of revenue from our immense green energy resources that would benefit the people of British Columbia is the net revenue that BC Hydro and Powerex would generate as the entity through which the province's renewable electricity will be marketed and delivered to various export markets as outlined in the new Clean Energy Act.

As a rough guide for estimating the potential revenue that British Columbia's green energy could generate through Powerex and BC Hydro we used the average 8.7 per cent net income that BC Hydro achieved during the two fiscal years previous to the drafting of our Triple Legacy report. And I should also point out that the amount of renewable clean electricity used in our calculations was the average value, in megawatt-hours, from the various estimates we consulted.

I should also point out—in relation to the revenue that could potentially be generated through Powerex and BC Hydro—that the net revenue from renewable green energy exports could be much higher than the 8.7 per cent noted above considering the fact that green energy has a premium value and, for example, that in the cases of Québec and Manitoba (both of which are active clean energy exporters) renewable electricity exports yield a much higher rate of return compared to the lower margin seen in domestic electricity sales in those provinces.

Nevertheless, using a net income rate of 8.7 per cent as a conservative benchmark, export sales of British Columbia's renewable clean electricity could potentially yield \$560 million yearly for the people of B.C. through BC Hydro/Powerex.

Again, I would like to point out to the committee members that all of this information is discussed in much greater detail in our Triple Legacy report which is available on our B.C. Citizens for Green Energy website at [www.greenenergybc.ca](http://www.greenenergybc.ca).

The third source of revenue that green energy generated in B.C. could potentially provide for the people of this province—and one that could become increasingly important and monetarily valuable in a low-carbon economy—is the carbon offsetting value inherent in renewable green energy sources. As the committee members may be aware, in the recently concluded BC Hydro Clean Power Call, BC Hydro stipulated that “ownership of all environmental attributes” such as carbon credits is to vest with BC Hydro as one of the terms for energy purchase agreements.<sup>3</sup>

From our research, it became apparent that these “environmental” or green attributes could easily end up being worth \$30 to \$40 per megawatt-hour in any monetary based carbon reduction scheme. On this basis then, British Columbia’s immense renewable green energy resources could conceivably generate as much as \$2.9 billion per year.

In fact, it is entirely possible that, as we head into a global low-carbon economy over the coming years, the environmental attributes of B.C.’s green energy could become the most robust source of revenue for the people of this province.

I think it’s important to point out in this respect that carbon offsetting energy credits, typically in the form of Renewable Energy Certificates, are already being bought and sold on a voluntary basis by many U.S. companies, organizations and individuals. According to a recent article in Scientific American magazine, which listed the top 25 U.S. companies and organizations that voluntarily buy substantial green energy credits, Intel, in the number one spot, bought 1.3 million megawatt-hours of green energy credits last year representing 46 percent of the total power they used (enough green energy to power 122,091 U.S. households).

I should point out that there is also a growing market for Renewable Energy Certificates among British Columbia companies, organizations and individuals who want to offset their carbon footprint. Companies like Bullfrog Power buy these green energy credits and sell them to businesses and organizations such as Urban Barn, Fraser Health, the David Suzuki Foundation, the Ethical Bean Coffee Company and TD Bank Financial Group.<sup>4</sup> Bullfrog’s customers reportedly pay 2 cents per kilowatt-hour on top of their regular energy rates—a rate equivalent to \$20 per megawatt-hour.

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<sup>3</sup> BC Hydro Clean Power Call – Electricity Purchase Agreement Term Sheet (June 11, 2008). [http://www.bchydro.com/etc/medialib/internet/documents/info/pdf/clean\\_power\\_call\\_schedule\\_7\\_epa\\_term\\_sheet.Par.0001.File.clean\\_power\\_call\\_schedule\\_7\\_epa\\_term\\_sheet.pdf](http://www.bchydro.com/etc/medialib/internet/documents/info/pdf/clean_power_call_schedule_7_epa_term_sheet.Par.0001.File.clean_power_call_schedule_7_epa_term_sheet.pdf)

<sup>4</sup> “Energy certificate market grows in B.C.,” by Curt Cherewayko. Business in Vancouver: February 16, 2010.

However, as the committee members are likely aware, many environmentalists and energy economists, such as Simon Fraser Mark Jaccard, consider the current price placed on carbon to be too low.<sup>5</sup> In an excellent report on carbon pricing prepared for the David Suzuki Foundation by Dr. Jaccard and his associates it was even suggested that a market price for carbon of \$75 to \$100 or even more per tonne could be possible by 2020 to achieve the kind of carbon reductions needed to arrest global climate change.<sup>6</sup>

So, when you take all of the potential sources of public revenue from our province's green energy resources and put them together, they represent a potential yearly revenue stream of \$4.3 billion for the people of B.C. A substantial sum to be sure but not an unrealistic one when you consider all of the potential public revenue streams.

As a side note, I think I should also point out something that is fairly obvious to all of us, namely, the fact that tapping into B.C.'s enormous renewable green energy potential would also represent a significant contribution on the part of B.C. to the continent-wide efforts to reduce greenhouse emissions. By exporting the clean energy we can generate in abundance from a wide variety of sources we would be helping our neighbouring provinces and states reduce their dependence on burning coal and gas to generate electricity.

As the committee will probably have noted, I've spoken several times about our group's Triple Legacy report and I think I should perhaps expand for a minute on what that triple legacy entails. For us, B.C.'s immense, but largely untapped, renewable green energy resources offer a triple legacy we can leave to future generations: namely, a secure supply of clean, renewable electricity; a substantial reduction in the devastating impacts of global climate change through considerable reductions in greenhouse gas emissions across western North America; and the potential to eliminate our provincial debt, leaving a debt-free province to our children and grandchildren and perhaps eventually even eliminating the need for a provincial sales tax of any sort.

Looking at B.C.'s debt for a moment, we see that in the budget estimates presented on March 2, 2010 (which we used in our Triple Legacy report) the provincial debt for 2010/11 was forecast to rise to nearly \$48 billion—with the taxpayer-supported

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<sup>5</sup> As an interesting aside to the price of carbon, Dr. Mark Jaccard points out that most Canadians pay about \$90 a tonne to dump waste at their local municipal landfill.  
[http://www.davidsuzuki.org/files/reports/Pricing\\_Carbon\\_saving\\_green\\_eng.pdf](http://www.davidsuzuki.org/files/reports/Pricing_Carbon_saving_green_eng.pdf)

<sup>6</sup> [http://www.davidsuzuki.org/files/reports/Pricing\\_Carbon\\_saving\\_green\\_eng.pdf](http://www.davidsuzuki.org/files/reports/Pricing_Carbon_saving_green_eng.pdf)

portion estimated to increase to nearly \$34 billion.<sup>7</sup> By 2012/13, the taxpayer-supported portion of B.C.'s total debt alone is forecast to increase to over \$38 billion. So we really have to ask ourselves whether this kind of debt is the legacy we want to leave to future generations or whether we want to take steps to reduce or even eliminate the debt burden being carried by the province and taxpayers.

Servicing B.C.'s debt costs taxpayers more than \$2.2 billion per year according to the Ministry of Finance estimates in the September Budget Update 2009.<sup>8</sup> If B.C. was debt-free like Alberta, that \$2.2 billion we currently spend to service our provincial debt could be spent instead on vital services like health care and education and our group therefore see debt reduction as a very worthy goal that our immense renewable green energy resources can help us achieve.

Clearly, the potential our province has to become a global leader in clean energy and a major exporter of renewable green energy is as incredible as it is obvious. And given the debt-elimination example of Alberta and the amazing triple legacy that B.C.'s vast green energy resources could provide to future generations, we have to ask why would we not pursue the export opportunities available to us and why would the people of British Columbia not support doing so?

Everyone in B.C. stands to benefit greatly from the development of our province's enormous green energy potential, and the benefits are ones that will be there for our children, for our grandchildren, and for generations to come.

I thank the committee for your time and consideration and I hope you will look seriously at our province's debt load and the opportunity we have to eliminate that debt by tapping into our province's immense green energy resources.

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<sup>7</sup> [http://www.bcbudget.gov.bc.ca/2010/bfp/2010\\_Budget\\_Fiscal\\_Plan.pdf](http://www.bcbudget.gov.bc.ca/2010/bfp/2010_Budget_Fiscal_Plan.pdf) p. 170

<sup>8</sup> [http://www.bcbudget.gov.bc.ca/2009\\_Sept\\_Update/estimates/Estimates\\_Sept\\_2009.pdf](http://www.bcbudget.gov.bc.ca/2009_Sept_Update/estimates/Estimates_Sept_2009.pdf) p. 5.