

## Peace Could Create Plenty of Green Energy Without Site C<sup>1</sup>

Max Fawcett©

It's bad enough that the provincial government and BC Hydro are seriously considering the construction of a dam that would destroy the Peace River Valley and with it the north's capacity to feed the people who live there. What's worse is that there are viable alternatives to another dam on the Peace River. Thirty-five years ago, when the idea of a third dam on the Peace River first arose, large-scale hydroelectricity may well have been the only viable way to create the energy that was needed to meet the province's growing demands. But 35 years later, the range of alternatives available to the government for the production of energy, from large-scale geothermal and wind power to micro-level initiatives that would encourage the production of electricity by consumers, makes the proposed Site C Dam just one option among many.

The most promising and practical alternative among these is the development of a wind power industry in northern British Columbia. While the Peace River is a resource for the development of hydroelectric power, the potential wind energy locked into the barren lands on the eastern foothills of the Northern Rocky Mountains that run from Tumbler Ridge in the South to Fort Nelson in the north dwarfs it by a factor of more than a thousand. More importantly, its exploitation wouldn't require the flooding of any valleys, the destruction of thousands of hectares of fertile agricultural land, or the removal of any residents from homes they've maintained for generations.

"There's as much power in wind in northeastern British Columbia as BC Hydro's entire generating capacity," says Juergen Puetter, the CEO of Sydney, B.C. based Aeolis Wind Corporation, the company behind the proposed Thunder Mountain wind project near Tumbler Ridge. "Enormous amounts. There are more than ten Site C's up there." Puetter notes that the quality of the wind resource in the Peace Region is unparalleled in North America. "We've looked all over North America, all over B.C., and there's nothing else that compares with the Peace." What's extraordinary about the Peace, Puetter says, is the quality of its wind, which is some of the best for wind farming in North America.

The secret to a successful wind project isn't simply having strong winds but the right kind, and because of the geographical formations in the Peace the winds that blow so hard and so often here meet all of the important criteria. It is unidirectional, it has a low turbulence rating, and it exhibits relatively insignificant seasonal variations. For example, while winds on the coast vary wildly from summer to winter, in the Peace those variations are estimated to be no larger than 20 per cent. The quality of the wind resource in the Peace allows projects like Bear Mountain and the proposed Thunder Mountain development to operate at efficiencies that other wind farms across Canada could only dream about. For example, while the average hydroelectric dam operates at approximately 50 per cent capacity factor, the proposed Thunder Mountain Project is forecast to approach 40 per cent, a remarkable figure for a wind farm and a figure far in excess of the 25 per cent that farms in other parts of the country average.

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## Use the Dam You Have

Rather than pouring billions of dollars into a new hydroelectric dam, Puetter believes that the better strategy for BC Hydro and its shareholders would be to expand the capacity of the existing Bennett Dam. In doing so, he says, BC Hydro could take advantage of the massive stores of wind energy in the Peace that are just waiting to be tapped. "My personal view is that a much better investment for BC Hydro and for the province than building Site C is to put additional generating capacity on the Bennett Dam," he said. "If you look at the Bennett Dam you have the generating station on the east side, but on the west side is a big cliff, and you could build another powerhouse there and put another ten turbines there and double the generating capacity."

By expanding the capacity of the Bennett Dam, BC Hydro would be able to create a synergy between the intermittent power created by wind farms and the more reliable equivalent generated by the Bennett Dam. When the wind blows, the grid can draw that energy, and when it doesn't, they can let water through the dam to produce it there. In essence, the Bennett Dam would act as a giant battery, storing energy only for when it is needed. "Hydro is extraordinary unlikely to ever build a project like Williston again," Puetter observed, citing the massive flooding and ecological damage associated with the creation of the Williston Reservoir, "but it's there now, and in my view it's not optimally used."

Months after I talked to Puetter, BC Hydro announced the winning bidders for its "clean power" call, private firms competing for the right to supply renewable energy to BC Hydro's guaranteed market. While Aeolis was not on the list, another wind-farming company was. Finavera has drawn some *scrutiny* for its light cash reserves and lack of a track record in wind energy, but it proposes to build four wind projects in the Peace region producing 293.4 megawatts, enough to power 75,000 homes. If the projects come to fruition, they could signal the start of a serious wind energy sector in B.C. -- one that BC Hydro should invest far more heavily in order to diversify its portfolio of energy sources, said Puetter. "There's a fuel risk in British Columbia," he explained, "because we're 90 per cent hydro. If there's a drought, we're all out of luck, and in the forties they had a four-year drought. If that happened today, in two years the lights would be out. In this day and age, you have to diversify. We have no coal, we have no nuclear, all we have is hydro, either run of river or storage, a tiny bit of thermal, and a little tiny bit of wind, less than one per cent. We should have twenty to thirty per cent of capacity from wind alone."

Puetter believes that the best way to develop British Columbia's wind energy industry is by implementing a standing offer for wind energy like the one in place in Ontario. "Germany has become the powerhouse of wind because they have a standing offer, and they've had it for ten years," he said. "They have 350,000 jobs in Germany just from the wind industry. In B.C. we have, what, eighty now? Germany fits into B.C. two and a half times, and we have ten times better wind. It should be the other way around." As it currently stands, B.C. Hydro's standing offer program is limited to projects of 10 megawatts or less. The average large-scale wind farm has an installed capacity of at least 100 megawatts.

Instead, the bulk of the wind energy that BC Hydro will acquire will come from the long-term contracts that it signs with producers in conjunction with its clean energy calls. Whether BC Hydro's approach produces the kind of wind energy boom that Germany has enjoyed remains to be seen. B.C.'s route to wind power has been criticized as not only inefficient but a rip-off for taxpayers with the potential for corruption. John Calvert of Simon Fraser University, author of *Liquid Gold: Energy Privatization in British Columbia*, points out that B.C.'s Liberal government, having decided that only private firms will develop the province's wind power

potential, subsidizes those projects in various ways and provides government-secured, long-term energy contracts worth millions of dollars -- awarding those potential windfalls of profit through a secret process. He adds it all up and *sees* "an enormous giveaway of literally billions of dollars in wind farm assets and future public revenues to private power developers."

### **A Vision of Diversified Employment**

BC Hydro's acquisition policy aside, the payoffs in and for the Peace Region associated with a more substantial investment in wind energy are considerable, Puetter believes. In addition to the jobs associated with the construction and operation of the wind farms, he is confident that a well-supported wind industry would bring other high-quality manufacturing jobs to the northeast. "We would expect that companies like Enercon," he said, "who are our turbine supplier, would build factories in the Peace to make these turbines, thereby further reducing costs." With enough wind power, there's even the possibility of an entirely new industry in alternative fuel generation.

At last year's Coal Forum, held in Tumbler Ridge on October 8, 2009, Puetter delivered a presentation on the possibilities of an alternative fuel that he likes to call "liquid electricity." Blue Fuel, a chemical compound called dimethyl ether, takes excess carbon dioxide from natural gas plants, combines it with water, energy, and the appropriate conductive material and produces a clean-burning fuel that has a wide range of industrial and commercial applications. There's already more than enough excess carbon dioxide being spit into the atmosphere by the Peace Region's burgeoning natural gas industry and the production plants that refine its harvest. If the wind energy in the Peace were liberated, Puetter believes, the two could be combined to produce this miracle fuel.

"Here in B.C. we have what I call a convergence of energy sources," he said. "We have hydro power, we have natural gas, we have coal, we have wind, we have timber -- we have everything, and we have it all together. There are very few places to my knowledge on this planet that have all of these components together." Why hasn't the provincial government, one that has professed on numerous occasions its interest in greening the provincial economy and generating more value-added jobs, jumped all over this idea? "The problem," Puetter said, "is that it's big and bold, and it requires a vision much like there used to be in B.C. that's beyond six months from now. The question is, where do we want to be in twenty years? Do we want to be a have-not province that relies on imports from Alberta and the United States, or do we want to be a powerhouse that exports and reaps the benefits from that. If you don't plan for it now, it's not going to suddenly happen by itself."

### **Geothermal, Another Missed Opportunity**

BC Hydro's aversion to bold ideas like the large-scale exploitation of wind power has also stifled the development of a geothermal industry in the Peace, a source of energy that journalist and climate change guru Gwynne Dyer describes as "the closest thing to magic we have." Geothermal shares many of the benefits associated with wind power, from its status as a low-impact source of green energy to the potential of spin-off jobs and employment associated with its development. Like wind power, the Peace Region is full of untapped geothermal resources, many of which are substantial enough to rival or even replace the power that would be generated by the proposed Site C Dam. But as with wind, BC Hydro also remains unwilling to seriously explore geothermal as a possible alternative to hydroelectricity.

I can't get an answer to this question," Ken Forest, director of the Peace Valley Environmental Association said, "but they will not explore geothermal. If you took the seven to ten billion dollars that are going to a potential Site C and put that into geothermal, you get the same energy back without flooding a river valley. There's almost no impact, and you've got a base source." Forest noted that there is even a geothermal hot spot near Moberly Lake, right in the proposed Site C dam's own back yard, one whose development would make use of the skills of the local population and create a long-term economic legacy that would easily eclipse the 25 jobs left behind after Site C's completion.

"As the oil and gas sector around here starts to disappear, they can continue to work in geothermal by using exactly the same technology and manpower and infrastructure that they've got," Forest said, "sending pipelines down three or four thousand feet, put water down one side and pump it back up the other side in the form of steam and generate electricity without any impact on anything. This government can't seem to think outside of hydro. They want to dam everything and exploit every river valley, and I can't for the life of me understand it."