

# Watt's Happening?

by Don Pettit

for Peace Energy Cooperative

www.peaceenergy.ca ph 250-782-3882



## Site C Alternatives

I have been asked by several readers to discuss alternatives to the Site C dam proposed for the Peace River. I want to be very clear that I am expressing my personal opinion – I speak for no one but myself in this or any other issue of Watt's Happening.

My opinion: Site C in an unnecessary waste of a highly valuable riparian area – a big loss and big expense for what amounts to a small amount of electricity that industry will quickly gobble up, then ask for more. Next there is Site D, and Site E, and . . .

Site C is neither carbon neutral nor non-polluting during operation. Big flooded dams release two nasty pollutants from flooded vegetation: the powerful greenhouse gas methane and the highly toxic heavy metal mercury that bio-accumulates in the regional ecosystem. Every time you add another dam, everything in the reservoir and downstream becomes more poisonous. Great.

Every energy source has at least two costs – financial and environmental. Our challenge over the next few decades is to find energy sources that minimize these costs. Nothing is perfect, but what is the BEST we can do?

Following are some simplified, "back of the envelope" calculations that shed light on two important factors for comparison:

how much does it cost to set up the generating facility and what is the resulting physical footprint?

### WIND POWER

Power facilities use a "Power Capacity Factor" to estimate how much power they REALLY put out, averaged over time. The PCF for Site C is 60% (a BC Hydro figure). This number allows for maintenance down time, hold back of water and power during low seasons, etc. So the roughly 1000 megawatts (MW) of Site C translate into 600 MW of "real" power.

Most of the world would die for our Peace Country high quality wind resource, estimated to be at least 10,000 MW. Wind power in the Peace Country foothills has a PCF of about 30%, so the 100 MW of Bear Mountain Wind Park near Dawson Creek, for instance, turns into 30 MW of "real" power. (That's still enough for every home, farm and ranch in the South Peace.)

Bear Mountain Wind Park cost private investors (not taxpayers) about \$200 million, or about \$7 million per real MW, all in, including environmental assessment, roads, turbines, substation, etc.

If we generously assume that there will be no cost over-runs for Site C (ha!), then at about \$8 billion for 600 megawatts we get



*British Columbia is rich in renewable energy, including wind and solar. These options should be considered more carefully before building Site C.*

a cost of just over \$13 million per megawatt, almost twice that of wind. That's expensive power. This cost will be born by taxpayers, because the project, unlike wind,

is too costly and too financially questionable for any corporation to consider.

### **FOOTPRINT**

The 8-kilometre string of turbines along Bear Mountain, including roads, pads and substation, has a physical footprint of about one square kilometre. For 30 MW of real power, that's roughly 33,000 square metres per MW.

Site C will flood some 9,000 hectares, or 90 million square metres. For 600 MW, that's 150,000 square metres per MW, about four times that needed for wind power. Clearly, large dams are a very land-intensive energy source compared to wind.

### **LESS BOOM AND BUST, MORE JOBS**

Wind power could be phased in over time with many smaller projects, creating less boom and less bust,

with more permanent, local jobs (experience around the world has proven that developing renewables like wind and solar creates MORE jobs per dollar invested than conventional energy, both during and after construction). You don't have to destroy the planet to make a buck!

Scattering the wind projects across the vast Peace Region and coordinating their output with existing hydropower would create a robust, diversified and steady base-load power supply for the province. Add in a few thousand MW of solar (next Watt's issue!), a SERIOUS energy conservation and efficiency program to reduce demand, and voila! you have a true 21st century power system.

Other long-term benefits to wind power include local cooperative ownership opportunities and farming income potential that wind power offers and Site C does not.

Next, how about solar? Hint: it's even better than wind.

## **Quick Facts:**

### **EFFICIENCY PAYS:**

The International Energy Agency reports that the global efficiency market is now worth USD \$310 billion a year. The total energy consumption of 18 countries dropped by five percent between 2001 and 2011, thanks to efficiency investments.

### **ALBERTA WANTS MORE RENEWABLES:**

Almost 80 percent of Albertans feel their provincial government has not done enough to develop wind power and other renewables, says a recent Nanos Research poll.

### **FORTUNE 500 GOES SOLAR:**

Walmart is currently leading the Fortune 500 pack with 105 MW of installed solar. In total, the companies have installed 569 MW of solar capacity.