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Commentary by Patrick Brown & Christa Grace-Warrick

The conundrum of Site-C

In its recent Throne Speech, BC's provincial government confirmed that it is once again working on plans to build a hydroelectric dam at Site-C on the Peace River. The dam would be downstream from the WAC Bennett and Peace Canyon dams. Its reservoir would cover 5,300 hectares, much of it currently farmland. Its generators would produce a maximum of 900Megawatts of firm, controllable power.

BC Dam Advantage

Water held behind the existing hydroelectric dams, built in the '50s, has been BC's clever way of 'storing' power. It's power on demand. This is because a hydroelectric dam's penstocks can be opened, allowing water flow to drive generators, at any hour that power is required and shut off again when demand drops. The water behind the dams acts as a kind of gigantic 'battery' where no battery can do the job.

BC's legacy hydroelectric power provides a unique 'clean' power advantage which BC citizen's paid for and enjoy.

Avoiding the Cost of Site-C

A few years ago, contracting out to private power producers (called IPPs) to build run-of-river, wind, and other 'green' power generation was presented as the government's solution to avoid the \$8 billion (current estimate) cost of adding Site-C to BC Hydro's portfolio of dams.

But there is a fault in the scheme; although useful and 'green', each and every alternative power addition to the province's generation capacity must be backed up by a percentage of firm power.

Most of the new power is generated only intermittently or seasonally—it can only be produced at certain times and must be used at those times. For example, many observers have commented that run-of-river power potential is at its height during the spring freshet period, and that is out of phase with BC's demand peaks (for winter heating and lighting) or export demand (for summer air-conditioning) in warmer climates.

No matter how 'green' BC's private power may be, it must be consumed when it is produced and won't be produceable at other times. It has no shelf life—not only is it more expensive, it precludes the usage of cheap dam power which must be held back for when power is in short supply.

Avoiding Dirty Firm Power

Since the introduction of the provincial government policy of allowing new generation sites to be developed only by private power producers, BC Hydro has concentrated on increasing the capacity of existing hydro dams, and purchasing existing dams from industry.

This avoids buying 'dirty' coal or gas-generated firm electricity from Alberta—not as versatile as dam power and with undesirable GHG by-products. (Nuclear power is another firm power alternative so far not contemplated in BC.) Avoiding dirty power has trading advantages in purely environmental one, see 'Premium Power Like Veggies, Firm & Green,' below.

The Site-C Paradox

With the potential capacity of the Toba and Bute run-of-river schemes, the province is now facing the fact that, in order to cope with all this alternative power it has sought, it now needs greater 'storage' capacity to firm up those inevitable low production periods.

To keep the power 'green' this can only be done with another hydroelectric dam, which will now be on the taxpayers' ticket.

So the power production ramp-up will now be a double one, including the boost in public dam-power necessary to manage the already contracted, and the currently proposed, private power.

Once again this begs the question: what is this huge capacity for and who will reap the benefits?

Premium Power Like Veggies, Firm & Green

In export markets, 'green' power fetches a premium price over 'non-green' power, (which may not be even be marketable at all, given US state regulations on power imports). So BC has a definite export advantage.

However, contracts with Independent Power Producers' usually have two prices: a higher price for 'firm' power, quantities that can be reliably produced year round; a lower price for the intermittent power. Remember, the intermittent power may be 'green' but it is not all constant or even reliable as

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it depends on snow-melt or wind, and it must be augmented by public firm power.

Logically, power that is both 'firm' and 'green' will fetch the highest price of all. As an exporter, if BC Hydro is to receive a high enough price for its expensive 'green' private power, it must have the ability to make it both firm and green.

Site-C Power

While firm green power from Site-C will cost more than power from BC's 'heritage' dams, hopefully it would cost less than some of the private contracted power. And Site-C might give BC Hydro the potential to recoup the costs of building the dam by exporting more firm green power. (However for another peculiar wrinkle, look at the box Managing New Power: Who Pays and Who Takes the Profit?)

Cheap Power for BC

BC's extra power clearly is earmarked for export revenue but, given the twists and turns that have been playing out so far, are BCers going to get what BC Hydro is mandated to deliver—provincial cheap power? And would reserving our power attract new business to BC?

Many people are concerned about the environmental degradation caused by both huge run-of-river projects and new dam building. Are the true costs of new power being factored in? Does BC need to be a power exporter or simply focus on sustainable power for BC consumption? These questions have not yet been debated. ✍

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