From: B.C. Citizens for Green Energy [mailto:info@greenenergybc.ca]
Sent: March-24-10 10:38 AM
To: B.C. Citizens for Green Energy
Subject: TO ALL BRITISH COLUMBIA MLAS re: FIRM ENERGY FROM RUN-OF-RIVER PROJECTS

To all British Columbia MLAs:

Last week, an MLA asked us why we (B.C. Citizens for Green Energy) had referred to run-of-river power as "firm energy" in our March 12th Media Release re: BC Hydro's awarding of Electricity Purchase Agreements under the Clean Power Call.

Although the myth that run-of-river projects are not capable of generating "firm energy" is one of the most persistent myths we have encountered, the MLA's question is nevertheless a good one and we feel our answer should be shared with all of B.C.'s MLAs; because contrary to what the public have been led to believe, run-of-river and wind energy are both capable of supplying "firm energy."

In general terms, run-of-river and other renewable energy projects are typically designed and built around the annual firm energy they can generate rather than the maximum intermittent peak energy they could produce (for example, during the spring freshet period of peak water flow).

If you take a look at the BC Hydro list of 19 Electricity Purchase Agreements (EPAs) that were awarded to clean energy projects you will see that BC Hydro explicitly states the annual amount of "firm energy" in gigawatt-hours per year that each clean energy project is being contracted to supply.

Here is the link to that EPA list on BC Hydro's website (the column at the right side of the table shows how much firm energy each project will deliver yearly):
http://www.bchydro.com/planning_regulatory/acquiring_power/clean_power_call/selected_proposals.html

The false claim that run-of-river projects generate all or most of their electricity during the spring freshet period, or on an unpredictable basis, is based on the inaccurate assumption that run-of-river projects are built to absorb the full freshet water flow and can therefore only generate large amounts of electricity in a short span of time.

However, it should be readily apparent that a run-of-river electricity generating strategy based solely on capturing the freshet water flow in the spring (as claimed by green energy opponents) would make no economic sense whatsoever, and that's why the companies design and build based on the typical or average water flow available through the year.

Engineers spend many years studying potential run-of-river sites (as do engineers studying potential wind sites) to determine how much water flow is available through the course of the year, consistent with all environmental considerations and regulations. If a site proves to be viable for generating electricity (and the overwhelming majority of

sites are not) the engineers involved size their generator for the typical or average water flow available on a reliable basis through the year. In other words, they are designing and building around "firm energy" criteria not around the peak water conditions seen during the spring freshet.

Installing a generator massive enough to capture the freshet water flow would not make economic sense because you would have a large, expensive generator that could only be run at full capacity for a short period of time each year. Clearly that would not make any sense and that's why run-of-river projects are not built for peak water flow conditions.

The best point of reference in this discussion of "firm energy" is the BC HYDRO CLEAN POWER CALL ELECTRICITY PURCHASE AGREEMENT TERM SHEET from June 11, 2008.

Here is the link to this BC Hydro document:
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

As you can see on page two of BC Hydro's EPA Term Sheet, the "product" that BC Hydro is entering into a contractual agreement for with independent green energy producers is "firm energy" on a seasonal or hourly basis. You will also note that BC Hydro restricts the total amount of "firm energy" that an independent producer can supply during the freshet period, which BC Hydro states "may not exceed one-quarter of the total annual firm energy proposed" (i.e., three-quarters of the "firm energy" that an independent green energy producer is obligated to supply must be supplied outside of the freshet period).

Clearly, BC Hydro is not contracting to buy electricity that it cannot use as some people have claimed. What BC Hydro is buying from independent green energy producers is "firm" electricity generated on a reliable and reasonably predictable basis to match the predictable, and growing, demand for electricity in B.C.

You will also note on page 4 of BC Hydro's EPA Term Sheet that the price paid for the "firm energy" delivered to BC Hydro during the spring freshet months is discounted on a sliding scale that reflects the greater supply of electricity available during the freshet period (i.e., the simple law of supply and demand).

And because many run-of-river projects are capable of generating more electricity during the freshet period than BC Hydro has contracted to purchase, BC Hydro has the option to also purchase this so called "non-firm energy" at a greatly reduced "spot" price even though, strictly speaking, this extra electricity is "firm energy" too. This allows BC Hydro to power the province while it refills its winter-depleted reservoirs.

Thank you for this opportunity to address the myth that run-of-river projects are not

capable of supplying “firm energy.” We hope this information is helpful to you as MLAs and that it will help your constituents and colleagues better understand this important, but highly misunderstood, issue.

B.C. Citizens for Green Energy feels strongly that there is a role for the public and the private sectors in developing B.C.’s wealth of renewable energy resources. Each sector has much to offer. And as citizens of this province we benefit from the strengths that each brings to the table.

B.C. Citizens for Green Energy
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