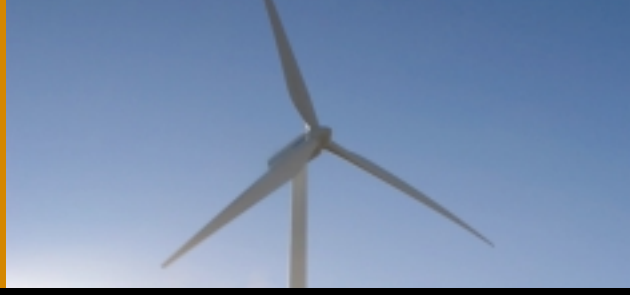
FACT SHEET

Resource Development in the North



BENEFITS & CHALLENGES OF RENEWABLE & ALTERNATIVE ENERGY OPTIONS

Renewable and Alternative Energy Options for British Columbia

Energy projects can, and do, unfold in ways that respect the land and respect communities.

Opportunities to harness renewable resources such as wind, run-of river hydro and biomass are being developed to meet our energy needs with low environmental impacts and real economic benefits. These projects can be economic ventures to produce revenue, or they can be energy ventures to provide the energy to sustain a community.

The Opportunities

British Columbia has some of the best low impact renewable energy opportunities in the world. These include the following:

Wind: Wind projects rely on wind to turn large turbines (up to 100 metres tall) that generate electricity when they spin. In sites with strong and consistent winds, they can be important components of electricity supply. BC Hydro estimates that wind projects on the North Coast could generate over 8,000 gigawatt hours (GWh) per year, and an additional 5,000 GWh per year could be generated by projects in the Peace. These amounts could generate enough power to supply 1,300,000 homes – or the number of homes in Greater Vancouver and Vancouver Island.

Run-of-river Hydro: Run-of-river hydro projects divert water from a river through a generator to produce electricity. They do not require a dam or reservoir, and the amount of water diverted does not compromise the river. Consequently, they do not provide power on demand in the way a large hydro project would because generation is limited to the times when water flows are high. BC Hydro estimates that there are over 9,000 GWh per year of additional small hydro potential in British Columbia, of which approximately 5% is located in northern British Columbia. And again, if this potential were tapped, it could produce enough energy to power almost 900,000 homes.

Biomass: Burning wood waste from forestry operations is the most abundant source of biomass energy in the province. British Columbia now has over 750 MW of production in place, primarily at sawmills throughout the province. BC Hydro estimates there are over 1.6 million tonnes of wood residues that could potentially be used in biomass generation projects, resulting in up to 5,000 GWh per year, or enough energy to power almost 500,000 homes.

Other viable options include using biomass for heating or fuel production, solar energy and geothermal energy.

"It was too easy just to say no.

This project let us say no to natural-gas-fired generation, while also putting forward what we saw as being a better solution to Vancouver Island's power needs."

CHIEF JUDITH SAYERS REGARDING THE HUPACASATH'S CHINA CREEK SMALL HYDRO PROJECT

▲ *Run-of-river hydro projects like this one spearheaded by the Hucapasath First Nation in BC could provide clean, renewable power for almost 900,000 homes.*

CREDIT: HUCAPASATH FIRST NATION

The Benefits

Low-impact renewable energy projects can:

- Create new employment opportunities through construction and operation.
- Generate revenues from BC Hydro for electricity sales, through royalty agreements with independent power producers or through the sale of greenhouse gas or renewable energy credits.

The Squamish-Lillooet Regional District

for example, requires all power projects to share benefits locally in an amount approximately equivalent to 2% to 4% of revenues.

- Protect local air quality because there are no emissions of toxic contaminants, as is the case with conventional energy. Note that biomass projects do have the potential for local air emissions, so location and pollution control technologies will be important considerations.

Potential Jobs from Renewable Energy

Renewable Electricity Type	Development & Construction (Jobs/100 MW)*	Operation & Maintenance (Job/100 MW)
Wind	98	10
Run-of-river hydro	108	22
Biomass	200	95

The Challenges

Some challenges that will arise from green energy projects are the following:

Lack of access to the transmission grid – Many of the best renewable energy sites (windy areas for example) are not close to the existing transmission grid, and the costs of making that connection can be significant. Four small hydro projects under development in the Douglas First Nation's territory north of Harrison Lake show how clustering projects can help overcome this potential barrier by spreading the costs across multiple facilities.

▲ *There is enough wind power potential in BC to power all homes in Greater Vancouver and Vancouver Island.* CREDIT: DAVID DODGE, THE PEMBINA INSTITUTE

High capital costs – The cost of developing a green energy project is typically dominated by capital costs. However, despite the high start-up costs, markets are growing for green energy projects. For example, BC Hydro recently signed agreements to purchase power from 36 new hydro, biomass and wind projects that will provide upwards of 1,200 MW of capacity when completed.

The more interest communities begin to show in alternative energy, the sooner it will become mainstream. Increased energy security, a cleaner local environment and more local power options are just some of the benefits. Many communities that are pursuing green power can share their lessons with others who may be interested.

REFERENCES

- *BC Hydro Resource Options Report, 2005.*
- *Clean Air Renewable Electricity Coalition and Pembina Institute, 2004. Employment Opportunity Data.*
- *Squamish Lillooet Regional District Policy – Independent Power Project Development in the LRD, July 2003.*

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