FIRST NATIONS TAKING STEPS ON PATH TO ENERGY EFFICIENCY
By Sarah Locke
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In Atlin, the icy cold water of Atlin Lake will heat a new health centre for the Taku River Tlingit.

In Mayo, a new "Government House" for the Na Cho Nyak Dun will be anywhere from 50 to 75 percent more efficient than an average commercial building.

Through energy efficient design and the use of renewable energy, both buildings will spew a minimum of greenhouse gases into the atmosphere. And that makes them just the sorts of projects that Sean MacKinnon hopes to see more of in the North.

An energy "pathfinder" with the Aboriginal and Northern Community Action Program (ANCAP), MacKinnon takes no credit for the Atlin and Mayo projects, which have been in the works for some time.

But he says they are perfect examples of ANCAP-style projects. The federal program, a partnership between the Department of Indian and Northern Affairs Canada and Natural Resources Canada, aims to help First Nations take action on climate change by reducing their greenhouse gas emissions.

One of a team of pathfinders working across Canada, MacKinnon is employed by the Dakh-Ka Tlingit Nation and works for all 17 First Nations in the Yukon and northern British Columbia. He says his job is "to help First Nations find the path to being more energy efficient."

ANCAP has a substantial pool of money for energy projects, and ten communities in the Yukon and northern British Columbia have already benefited from energy baseline studies, which examine the energy supply and demand in a community and detail both the environmental and economic costs of energy use.

"The objective is to spread awareness of the impacts of energy use and assist in finding solutions," he says. His job includes increasing awareness about climate change and finding ways that individuals can decrease their greenhouse gas emissions.

As the construction of new buildings present one of the best opportunities for energy conservation, MacKinnon is delighted with the Na Cho Nyak Dun's commitment to a high standard of energy efficiency in its new centre, which will have office space and a community hall.

"Mayo boasts some of the hottest and coldest temperatures in the Yukon, so the completion of this building will be a great achievement," he says. "It is so much easier and financially plausible to construct a building to a high standard at the outset, rather than trying to make it more energy efficient later," he says.

Construction is slated to begin next spring on the passive solar building, which was designed by Broadway Architects of Vancouver, a firm well known for its commitment to energy efficiency. In addition to super-insulated walls and ceilings, it may also be heated by geothermal energy as Mayo sits atop a reservoir of warm groundwater.

The Taku River Tlingit First Nation has two major renewable energy projects in the works. Next spring it will begin building a new energy-efficient health centre, designed by Kobayashi and Zedda Architects of Whitehorse, which will be heated by a water source heat pump.

Working on the same principles as a refrigerator, heat pumps use relatively small amounts of electrical energy to move heat between cool locations and warmer ones. Some systems rely on heat from the ground, while others tap heat from the air. In this case, a system of liquid-filled pipes and a heat exchanger will transfer heat from the frigid waters of Atlin Lake to the health centre.

The First Nation is also leading a microhydro project which will wean Atlin off of its dependency on diesel fuel; in another two years, the waters of Pine Creek will supply all of the community's energy needs. Expected to cost at least eight million dollars, the project will pay for itself eventually as BC Hydro will buy the energy and distribute it.

"These projects are extremely expensive and very committing," says MacKinnon. "But the great advantage with microhydro is that the water always runs; with solar the sun goes up and the sun goes down, and with wind, the wind does not always blow."

The Selkirk First Nation is also dependent on diesel fuel, an expensive—and dirty—form of energy. But it too would like to go green, and is testing the microhydro potential of a local creek. With the help of a wind monitoring system on loan from ANCAP, the First Nation soon will begin assessing the viability of wind energy as well.

If a hybrid system drawing on hydro and wind power is feasible, yet another northern community could turn off its diesel power plant, emitting fewer greenhouse gases as a result.

MacKinnon says the Kluane First Nation is in a particularly good location for renewable energy options. As well as steep mountain creeks suitable for microhydro, it also has "commercial speed" wind energy, meaning locations where the wind is strong and constant enough to produce reliable power.

"They may have enough renewable energy to offset their entire diesel plant, which would be a beautiful thing," he says.

Old Crow also has investigated ways to break the diesel habit, which is particularly expensive in this remote community. A monitoring program confirmed that Crow Mountain gets enough wind to keep the blades of a wind turbine humming, but severe problems with rime ice could regularly shut the turbine down.

MacKinnon hopes that as the field of renewable energy matures, such technical difficulties will be solved. "Even though solar, wind and hydro power have all been increasing by about 30 percent per year for a number of years, they are still relatively small industries. But they are advancing quickly."

MacKinnon hopes that ANCAP will focus more attention on the important role that energy plays in the North. "My feeling is that energy is the basis of our economy and our standard of living, and because of that, energy has a lot to do with issues of autonomy as well," he says.

For more information on ANCAP, contact Sean MacKinnon at 668.2470 or at pathfinder@northwestel.net. For information on ways that you can reduce your own greenhouse gas emissions, check the website for the One-Tonne Challenge at www.climatechange.gc.ca/onetonne. This federal program encourages all Canadians to reduce their yearly GHG emissions by one tonne.