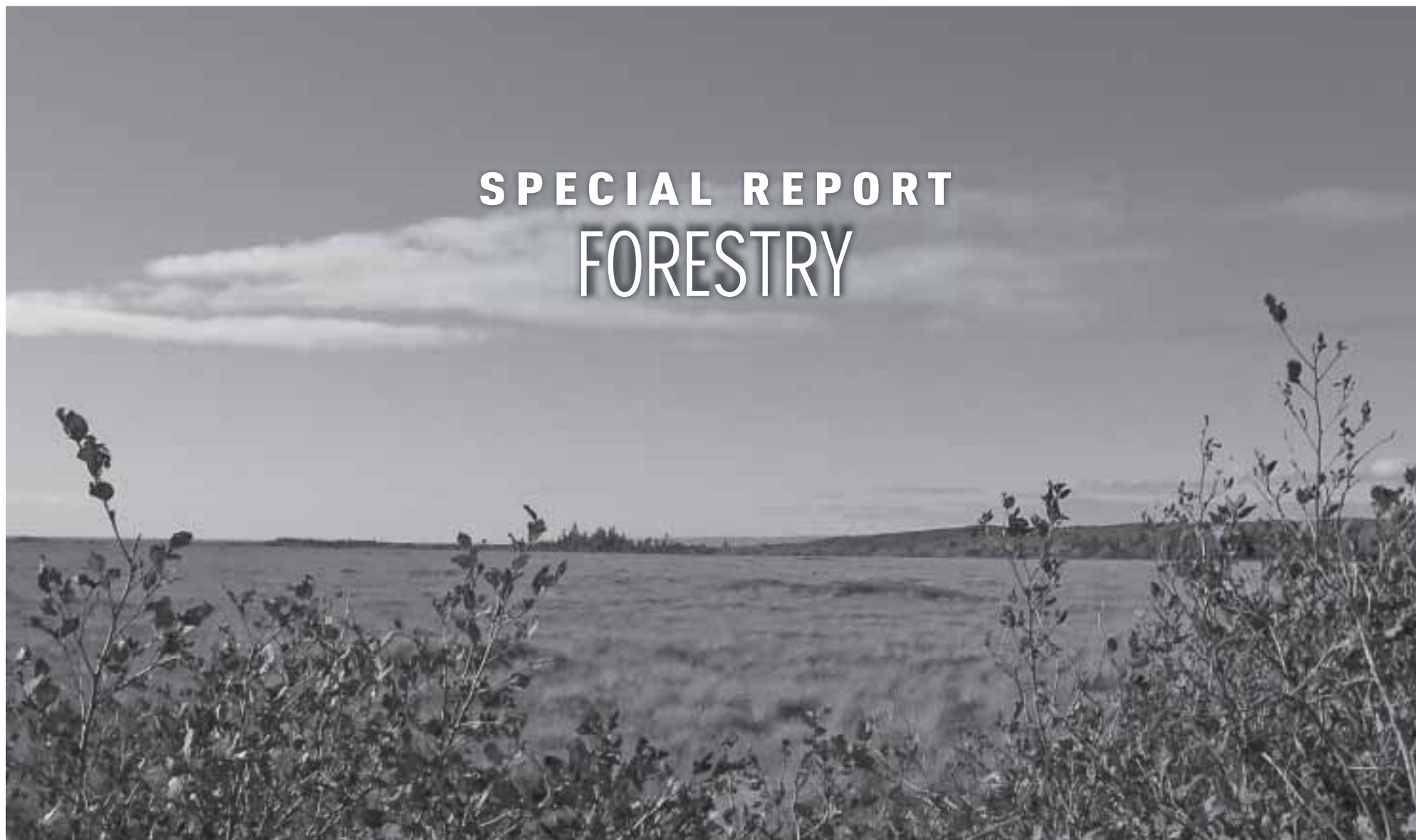


## SPECIAL REPORT FORESTRY



Similar to this open peatland in the Stephenville-St. George's region of western Newfoundland, Peat Resources Ltd. plans to harvest and process northwestern Ontario peat into fuel pellets.

PHOTO SUPPLIED

# A new kind of harvest

*Provincial off-coal promise speeds prospects for northwestern Ontario peat fuel development*

By IAN ROSS  
Northern Ontario Business

A test burn of peat pellets this spring at an Atikokan generating station could build a case for a new type of forestry in northwestern Ontario. Peat Resources Ltd. is working with Ontario Power Generation (OPG) and university researchers to determine if peat can be a viable renewable fuel to help the province get off using coal for electricity generation by 2014.

The Toronto's company's once-stalled peat harvesting project in Upsala is back on track through a collaboration with the Ontario Centres of Excellence, Lakehead University, Ottawa's CANMET Energy Technology Centre and OPG.

They are involved in a large combustion trial at the Atikokan Generating Station combining 500 tons of peat pellets with wood pellets and coal. OPG was granted a Certificate of Approval by Ministry of the Environment this year to do a limited test burn.

Peat Resources president and CEO Peter Telford knows all about this swampy organic matter.

While working at the Ontario Geological Survey, he headed up their peat division back in the post-Arab oil embargo days of the early 1980s when governments were eager to investigate new forms of fuel.

The company he took over from founder Leon La Prairie holds 30,000 hectares of bog near Upsala, 130 km northwest of Thunder Bay. Their properties stretching along the Trans-Canada Highway contains 200-million tons of fuel grade peat, enough to convert into 22-million tons of pellets.

But in 2007, for reasons still unexplained to Telford, extracting peat from northwestern Ontario bogs didn't pass muster with the provincial Ministry of the Environment. An environmental assessment was scuttled before it even got started.

Telford suspects it involved political and inter-ministerial policy issues at Queen's Park leading into the last election and the government's failed off-coal promise along with their pledge to protect the Boreal forest.

Telford shelved Upsala and headed east where the Newfoundland government of Premier Danny Williams welcomed him with open arms. The company produced 100-tons of pellets at a pilot plant next to a bog in Stephenville. Some batches are headed for trials with Nova Scotia Power and Cornerbrook Pulp and Paper.

Now his Upsala project has new life with the Ontario Power Authority directed to look at renewable fuels including replacing coal with biomass to provide power. Tests of wood and switchgrass pellets are coming up at coal-burning plants in Nanticoke, Lambton and Thunder Bay.

Telford's plan for Upsala is to excavate only small strips each year. A 100-hectare strip can produce 200,000 tons of pellets annually.

"We're aiming for operations that will produce a million tons a year."

The two-stage project at Atikokan and Upsala includes both the combustion trial plus some field work with Lakehead and

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# OPG wood-peat pellet test-burn scheduled for the spring

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McMaster Universities to study the environmental impacts of Telford's way of wet harvesting.

Telford promises his method is less damaging compared to the way it's done in eastern Canada and Europe where surface vegetation is stripped away and entire bogs are drained and destroyed.

His method involves trimming off the top half-metre of growing and decomposed material and setting it aside.

Below that, two to three metres of fuel grade peat is excavated by dredging. The clay and silt bog bottom at Upsala requires specially-designed harvesting equipment atop floating wooden mats.

Since peat is 90 per cent water, it can be piped to a nearby processing plant where it's squeezed and dried to reduce the moisture content to 30 per cent before it's pelletized.

The residual water is pumped back into the bog and the removed top layer is returned to grow back.

Telford said if a contract with OPG were signed, Upsala has enough peat to supply Atikokan for 40 years, requiring a half million tons annually. He said a ton of peat produces "slightly better energy values" than the lignite coal burned at Atikokan and minimal emissions.

That would be great news for the town of Atikokan which holds great hope of burning biomass to extend the plant's life beyond the 2014 closure deadline. The 200-megawatt plant employs 90 people.

Telford said in countries like Ireland and Finland, 10 to 15 per cent of electricity comes from large peat-burning plants and district heating systems in small cities.

"They're quite efficient and impressive. In

Europe, it's an accepted alternative fuel."

Though Telford is pitching peat as a coal substitute, the province is making no promises.

Some government skeptics have concerns about using peat as fuel for energy. It's perceived, not as biofuel like forest or farming biomass waste, but as closer to coal because of its potential harmful environmental impacts.

"There are no plans to replace coal with peat," said Jane Todd, Ontario Power Generation's program manager in Thunder Bay who handles the biomass file.

"There doesn't appear to be a great appetite for burning peat in this province," said Todd. But if the government intends to be coal-free by 2014, "it will have to be something."

Todd said peat possibilities are "interesting" and this first-ever test burn serves to help the MOE make an informative decision.

OPG has already had "tremendous success" using wood pellets at Atikokan from a one-day July burn. Retrofitting a coal-burning plant to use pellets could come in under \$100 million.

The market costs for wood pellets will come into play and there are questions of whether there is enough forest biomass in Ontario to supply OPG plants.

Charles Xu, a Lakehead University chemical engineering professor, is testing fuel blends of peat and wood pellets with coal in a small burner at Ottawa's CANMET lab.

"We've tried different ratios including 100 per cent peat, and 80 to 20 per cent, test peat with coal, and the three fuels together."

Besides measuring energy performance and emissions of sulphur, nitrogen and particles, a special focus will be to study behaviour of the fly ash produced, especially around large boilers like Atikokan's.



Peat fuel pellets from Newfoundland will be test-burned at Atikokan Generating Station. PHOTO SUPPLIED

"The combustion side is not a big challenge. Wood and peat can burn almost the same as coal if you can control the conditions. But the most trouble comes from the ash," said Xu. "Alkaline ash from biomass may deposit on a steam pipe which would reduce the thermal efficiency and cause a corrosion problem for long-term operation."

A group in Xu's project team are also studying uses of the ash as a possible additive for concrete or fertilizer, and for mine tailings management.

Xu, who's familiar with coal technologies,

acknowledged there is debate in Ontario about whether peat qualifies as biofuel, "but it's still better than lignite and bituminous coal."

What's troubling to some is the method of harvesting peat and whether it's damaging to forest ecosystems, he said. "If we can do the harvesting without generating such issues, peat can be a good fuel." ㊟

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