

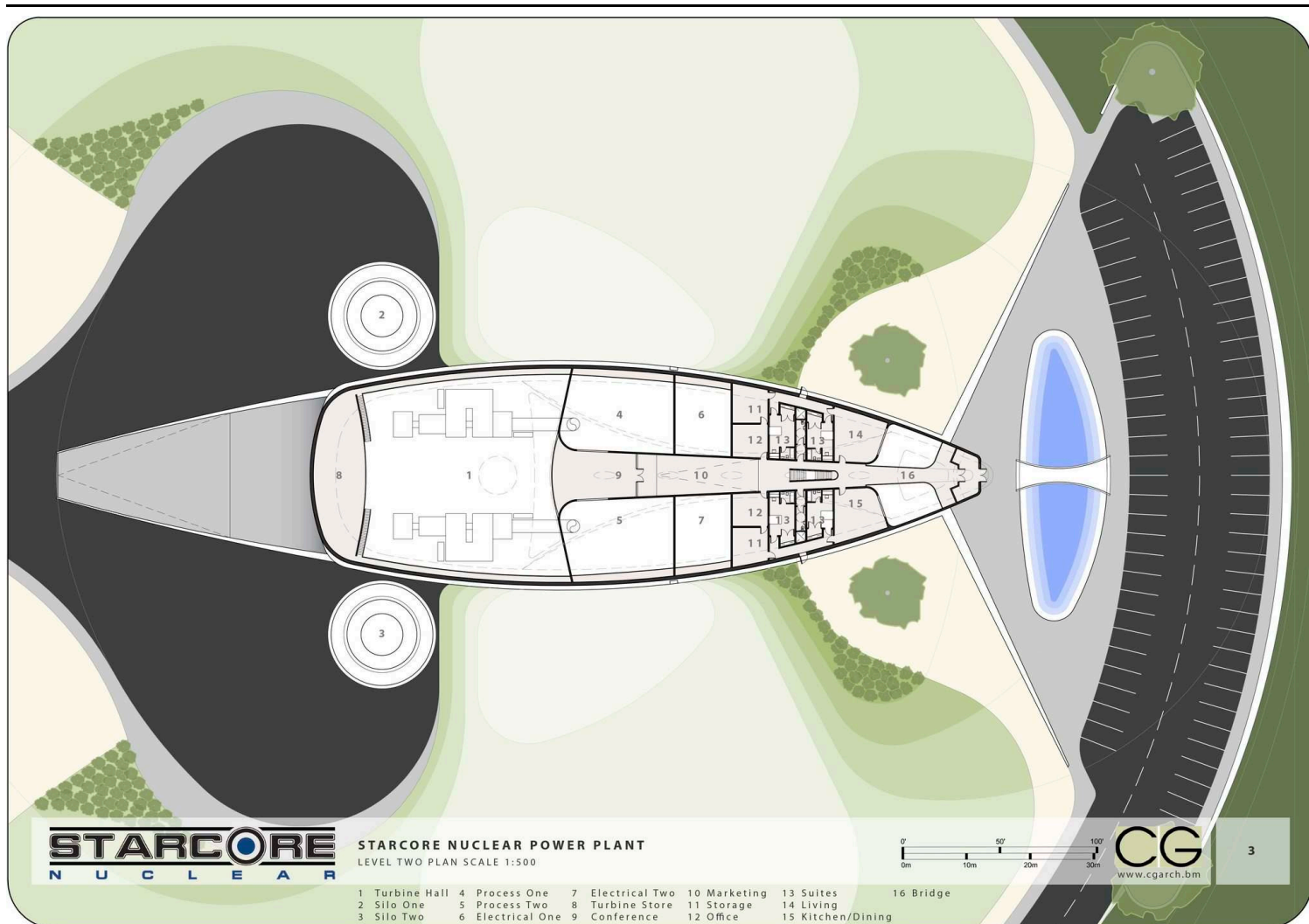
Winnipeg Free Press

Pinawa eyes nuclear-powered future

TOWN IN TALKS WITH SMALL MODULAR REACTOR INDUSTRY TO BECOME DEMONSTRATION SITE

By: Bill Redekop

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Starcore nuclear

StarCore Nuclear Ltd., of Annapolis, Md., visited the Atomic Energy of Canada Ltd. nuclear research site, near Pinawa, where the demonstration small modular reactor (SMR) would be located.

The Town of Pinawa is moving closer to becoming the world's first community powered by a small modular reactor.

Pinawa is looking to offset future job losses from the disposal of nearby Whiteshell Reactor #1, and to capitalize on the town's experience and expertise in nuclear research, by becoming the first demonstration site for the new technology.

Pinawa has been in talks with the small modular reactor (SMR) industry for several years, but those talks have intensified in the last four months, said Pinawa Mayor Blair Skinner.

"It's most definitely doable," said Skinner, a former scientist at the former Atomic Energy of Canada Ltd. (AECL) nuclear research site near Pinawa. "Two vendors indicated to us we're their first choice for a demonstration reactor and we're pursuing them vigorously."

One company toured Manitoba this week. StarCore Nuclear Ltd., out of Annapolis, Md., visited the AECL site where the demonstration SMR would be located. Company officials also met with Sustainable Development Minister Rochelle Squires, Trade Minister Blaine Pedersen, Crown Services Minister Cliff Cullen, and area MLA Wayne Ewasko (Lac du Bonnet).

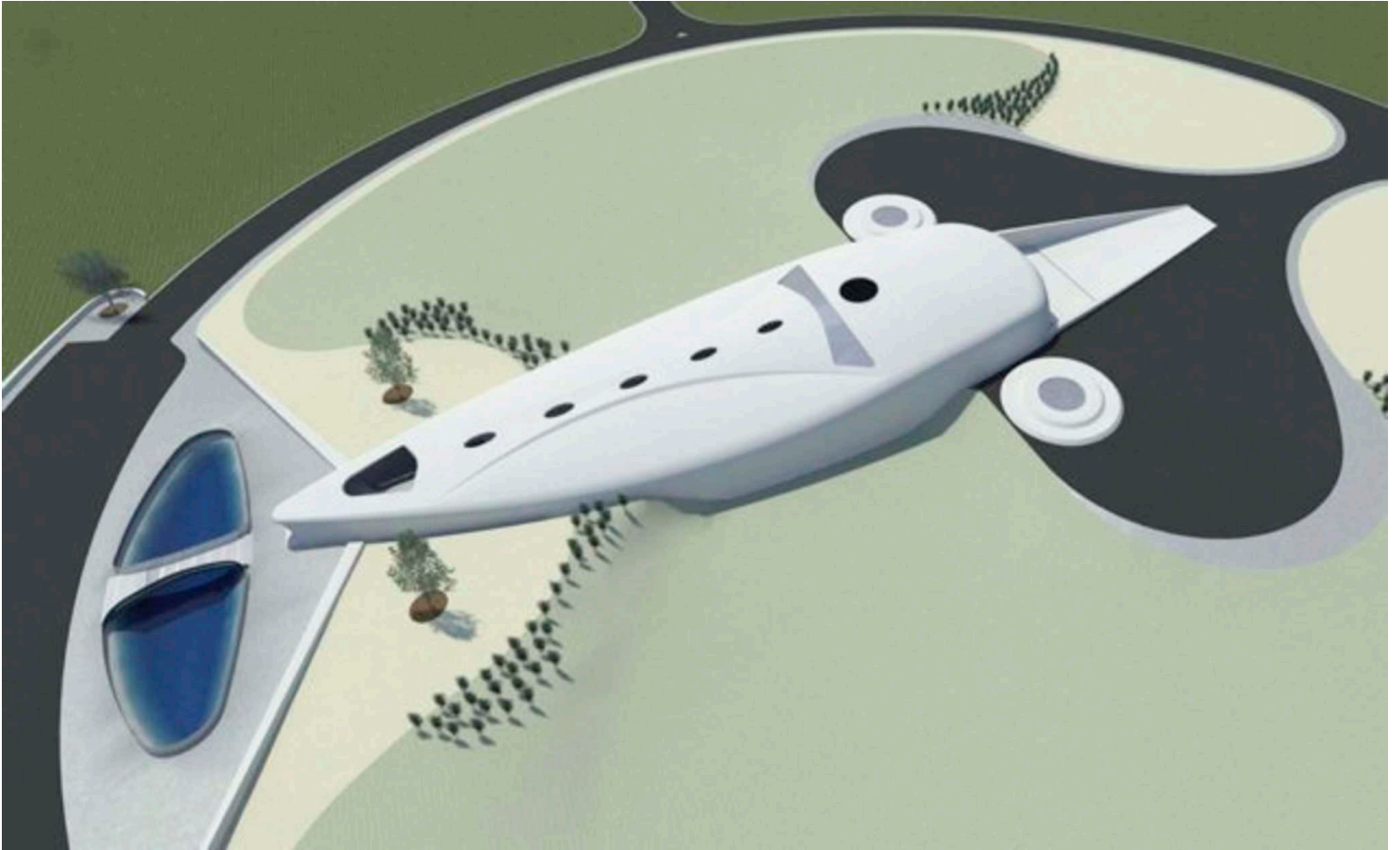
"It's actually an international movement (to develop SMRs). There's a need for a more efficient distribution of power," StarCore CEO David Dabney said.

The race to develop SMRs includes about 50 companies worldwide in countries including Canada, Norway, China, United Kingdom and the United States, he said. When Canadian Nuclear Laboratories (CNL) recently asked for an expression of interest to develop the technology, a total of 19 SMR developers filed applications.

The technology is targeted for use in remote communities in northern Canada and

mining camps, but also many off-grid locations around the globe.

"The majority of the world population without electricity is off-grid. It's a huge market," Dabney said.



credit: starcore nuclear

The uranium core in an SMR is relatively small at 2½ metres wide by 10 metres tall. They are enclosed in silos buried 25 metres into the ground.

But the building that accompanies the core is quite large. The concrete building, shaped like a TV remote control, is as long as a football field, but narrower, and 40 metres high. The building would house the turbine for electricity conversion.

Pinawa is in close talks with two SMR developers. Each could be worth 50 to 100 well-paying jobs for the area, Skinner said. A demonstration site would also preserve many

jobs at the decommissioned reactor site to help with research and servicing SMRs.

Dabney said he has no issue with more than one demonstration SMR on the former AECL site.

Skinner maintained Pinawa is the best place in Canada for the demonstration site due to its labour force trained in nuclear energy, the community's comfort level with nuclear research, and the infrastructure still in place at the former AECL site, now run by international consortium Canadian Nuclear Laboratories, which is overseeing the disposal of the reactor.

Part of AECL's available infrastructure is six hot cells: facilities for remotely handling radioactive material. Scientists use lead-loaded gloves and tongs to manipulate radioactive material, viewed through windows at least four panes thick.

Canada is ahead of most countries because the Canadian Nuclear Safety Commission has been proactive in developing a protocol for SMRs, Skinner said.

Pinawa also has a decommissioning nuclear licence, which would make it easier to obtain licensing for the SMR, Skinner said. As well, Pinawa has letters of agreement signed with surrounding local governments: Beausejour, Whitemouth, and RMs Lac du Bonnet and Brokenhead. It has been in talks with Sagkeeng First Nation.

The target date for SMR developers is to have a demonstration site by 2022 or 2023, Skinner said. The town has also been in talks with Manitoba Hydro about retrofitting for nuclear power and transmitting any excess power.

The town's stiffest competition to become an SMR demonstration site comes from nuclear research facility Chalk River Laboratories in southern Ontario, northeast of Algonquin Provincial Park.

SMR technology has been approved as safe by the International Atomic Energy Agency.



SUPPLIED

Mayor Blair Skinner - Local
Government District of Pinawa.

Any development would have to be approved by the Canadian Nuclear Safety Commission.

Canadian Nuclear Laboratories is working with the Town of Pinawa to help ascertain the best technological fit.

"CNL wanted to enter into a formal process to determine what technologies are out there, how far along they are in their design, and what supports they would need from CNL," Skinner said.

Would an SMR be susceptible to a China Syndrome, where the nuclear core melts through its containment structure into the ground, or a real-life nuclear energy disaster like the one caused by a tsunami to the nuclear reactor in Fukushima, Japan?

"That can't happen," Dabney said. If the fuel starts to overheat, the system automatically shuts down and cools itself, he said.

The SMRs would replace diesel fuels in remote communities. Remote mining sites require a year's supply of diesel fuel on site because they can't afford shutdowns, Dabney said. Diesel fuel as a power source is noisy, costly and emits greenhouse gases.

With remote communities, construction and infrastructure costs are covered by the company, which makes its return on energy consumption. The SMRs are assembled on site.

SMRs require satellite monitoring and broad bandwidth so a residual benefit to a community would be broadband for internet reception, Dabney said.

The SMRs would not just provide cheaper electricity and heat, but could promote

economic development. Pinawa is looking to have a greenhouse with its demonstration model to show that northern communities could grow vegetables.

The cores in SMRs would have to be replaced every five to seven years. Dabney said 96 per cent of uranium in a used core can be salvaged and used again, a process currently being performed in France, Russia and Japan. Canada is getting close to choosing a site for an underground nuclear storage facility.

Today, five plants in three provinces house 22 nuclear power reactors. Nuclear energy produces about 15 per cent of Canada's electricity.

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*Read more by **Bill Redekop** .*

HISTORY

Updated on Wednesday, December 20, 2017 at 9:22 AM CST: adds graphic

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