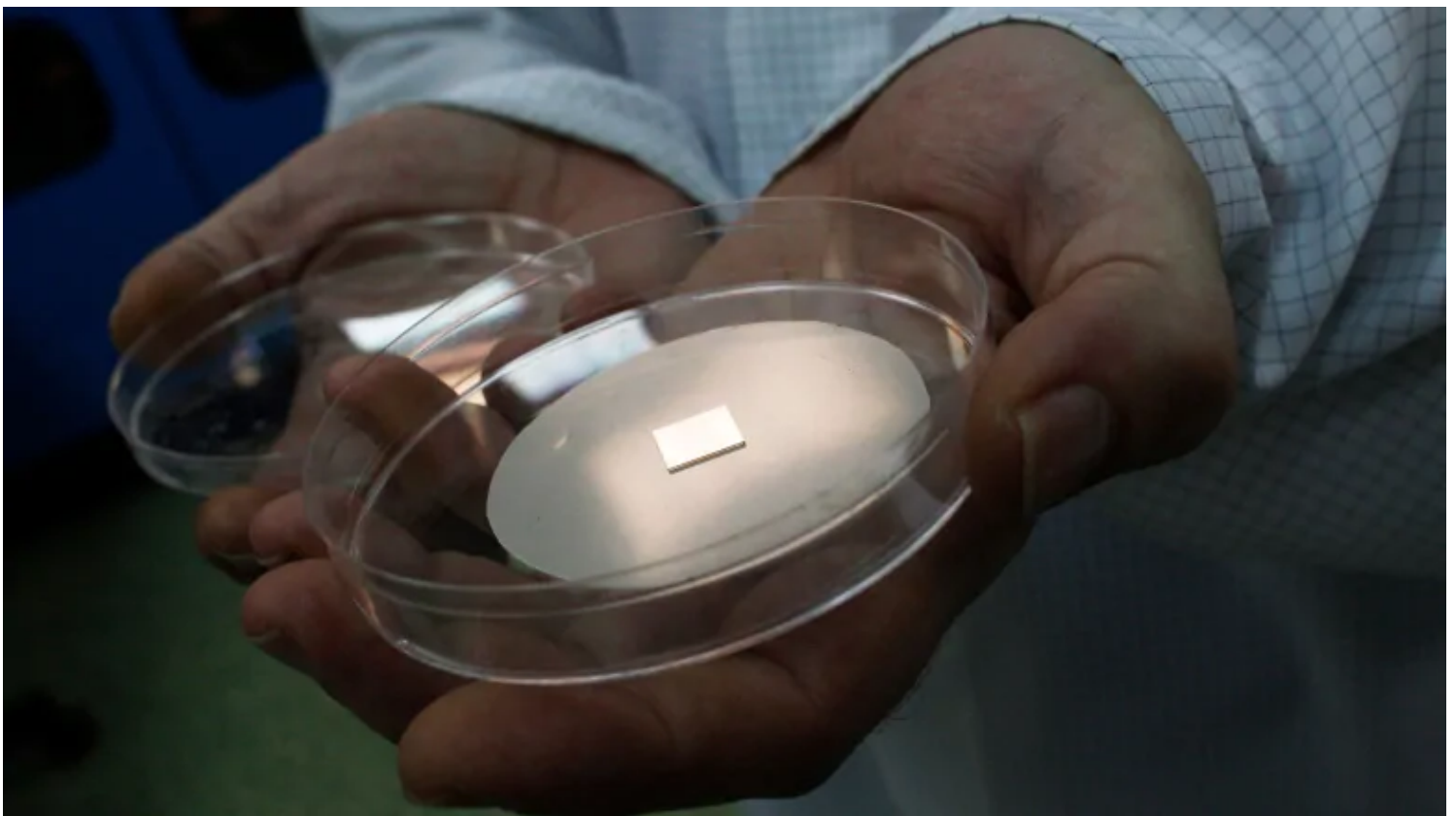


Company says it can recycle heat to reduce energy costs for N.W.T. communities



SSi Energy pitched idea to MLAs on Friday

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Senior technologist Dariusz Czolak holds a piece of silicon carbide disk covered with a layer of graphene, a material that can conduct electricity with very little resistance, in 2012. (REUTERS)

A company with roots in Fort Providence says its energy system could slash costs in northern communities by as much as 60 per cent while cutting harmful carbon emissions.

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- [N.W.T. hydro communities to no longer receive funding for solar panels](#)

Jeff Philipp of SSi Energy, a division of the Northwest Territories telecommunications company SSi Micro, presented his combined heat-and-power system to a committee of MLAs at the Legislative Assembly on Friday.

At a basic level, the "SSi Energy Solution" system would capture heat waste created through the production of power and repurpose it to warm homes, water and buildings.

The captured heat would be stored in thermal batteries at a central location and redistributed through a network of underground, insulated pipes.

Capturing wasted energy

Renewable energy sources such as wind and solar could also be tied into the system.

Right now, said Philipp, about two-thirds of the fuel used in power generation is expelled as noise, friction and heat. He said capturing that energy could cut a community's fuel consumption in half.

"This is not like I've solved some gigantic problem that nobody else has solved," Philipp told the territory's standing committee on economic development and environment.

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- [Proposed underwater link could mean cheaper energy for the Northwest Territories](#)

"This is adapting technologies that maybe nobody else has heard of to a very well-known problem and solution."

Philipp's concept is based on the off-grid energy system used to power buildings on 77,000 square feet of land in Fort Providence, including the Snowshoe Inn, which was founded by Philipp's parents.

"We've been off-grid 50 years," said Philipp.

"We understand this problem extremely well and this solution will reduce the total cost of energy in these communities by no less than 50 per cent."

Meet the graphene supercapacitor

A standout component of Philipp's concept is the graphene supercapacitor, an energy storage unit that charges and discharges energy faster than regular batteries.

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"Graphene will be the next major revolution much like the industrial or the telecommunications revolution. Graphene is no less important than that," said Philipp.

The benefits of graphene are many, he said. Graphene batteries function at temperatures as low as -30 C, they charge quickly, have a longer lifespan, and don't use chemicals, which makes them easier to dispose.

MLAs on Friday were pleased by the presentation. Frame Lake MLA Kevin O'Reilly called it "music to my ears."

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- **IN DEPTH | [High cost of living in Yellowknife and the N.W.T. still going up](#)**

Philipp wouldn't disclose the estimated startup costs for his energy system, but said the initial investment would produce long-term gains.

"I'm very confident that the return on the investment is 20 per cent," he said.

Lower energy costs could have other residual benefits for a community, added Philipp, such as reducing the costs of housing and running a business.