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Green energy for Great Whale and Wemindji

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Doing away with their old diesel power plant, the community of Whapmagoostui / Kuujjuarapik will become the first northern Native community with a renewable energy off-grid hybrid power plant. Fueled by wind and biomass with an integrated battery storage system, it will also eventually power a greenhouse to produce fresh food for Whapmagoostui and other communities.

The project, helmed by Whapmagoostui's Nimschu Iskudow Inc. is in partnership with two Chinese investors and the help of the Quebec government. According to former Grand Chief and Nimschu Iskudow President Matthew Mukash, this deal was struck in 2011 when the First Nation was searching for a partner to help replace the diesel generator.





Cree United Power

Liberal Premier Jean Charest visited China looking for investors into various projects for the Plan Nord, It was during that visit that Charest was able to establish a partnership with GuoDian UPC and Whapmagoostui to develop a technological solution. From there, Whapmagoostui created Nimschu Iskudow in 2013 and the new venture was announced at the Val-d'Or Conference for Cree Entrepreneurship.

According to Mukash, GuoDian UPC, a company four times the size of Hydro-Québec, then worked for two years to design a unique off-grid power plant. Eventually the company decided the project was too small to invest in.

"But two GuoDian UPC suppliers that worked in the feasibility study – Jiansu Central Continental Industrial and Trade Co. Ltd. (CCIT) and Tianjin Tianda Qiushi Electric Power High Technology Co. Ltd. (TDQS) – indicated their interest to participate in a company to develop the projects. They have developed various off-grid plants in China and their participation in the capital of the project would limit the project risk," said Mukash.

The Chinese companies will invest \$600,000 in Cree United Power Inc. The controlling shareholder is the Cree community of Whapmagoostui First Nation through its 100% owned Nimschu-Iskudow Inc.

Sharing their expertise in this field, TDSQ has already developed a similar technology for an off-grid power plant near the National Park of Dafeng, close to Shanghai.

The Cree Nation of Wemindji will invest \$305,000 in Nimschu-Iskudow Inc. through Tawich Development Corporation. Mukash said that the biomass plant will use wood produced in Abitibi-Témiscamingue and transported by truck to a barge in Wemindji. He said they were a perfect fit for the project as the two communities will benefit from the local employment created.

According to Mukash, this cutting-edge project is expected to generate more than \$60 million in dividends during the operational life of the plant.

"The power is composed of three wind turbines of 800 KW from Enercon Canada and one biomass turbine of 1500 KW from Nexx Energie, a Quebec company with innovative technology in that field. A greenhouse will be built to use the excess heat from the biomass turbine. The timeline is to build this power plant during the summer of 2016 and to have the power plant commissioned by 2017," said Mukash.

Quebec made a \$97,000 grant for a project study. Mukash said that the province was also essential when it came to the trade missions to China and helped build trust between the Cree and their Chinese partners.

With a lengthy career history of fighting for Cree values and environmental protection, Mukash would never have been part of this project had it not been a good fit with Cree values.

As for local employment spinoffs, the project will create opportunities for Cree who enter training programs to be offered for workers at the new facility. Mukash said there will be a training program for 10 Cree youths to work in the wind turbine and biomass operation and in maintenance. Five will be retained for the project operation and around 20 local jobs will be created with the greenhouses.

Five greenhouses will be constructed to grow vegetables locally for the community of Whapmagoostui and beyond.

"They will use the heat reject of the biomass plant to heat and will be the first northern greenhouse open in Quebec 365 days a year. The design is based on a similar greenhouse in the Chena area of Alaska. The Chena greenhouse is very successful in producing local vegetable and fruit all year long," said Mukash.

The first four warehouses would be used for a commercial greenhouse operation that will supply stores in Whapmagoostui-Kuujjuarapik. Produce will also be shipped to other communities and nearby mining projects that are accessible by Air Creebee and First Air.

A fifth warehouse will be made available to the community members of Whapmagoostui-Kuujjuarapik and the local schools for individual gardens.

During the environmental review process a survey will be completed to see which fruit and vegetables should be produced for the community. A business plant will have to be developed for the greenhouse to select the best crop. In Alaska, salad and strawberry are among the favourites. A visit to the Chena greenhouse is planned for some community member representatives to learn from their experience, said Mukash.

Mukash said that Ellen Avard, a PhD student from l'Université Laval, will provide expertise she has garnered while working on a greenhouse project in Kujjuak over the past year. A specialist from Quebec's Ministry of Agriculture has also suggested that one of the greenhouses could eventually be used to raise chickens.

Mukash said the community is planning to apply for a grant to develop the business plan of the greenhouse with the program run by Alfred Loon.



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