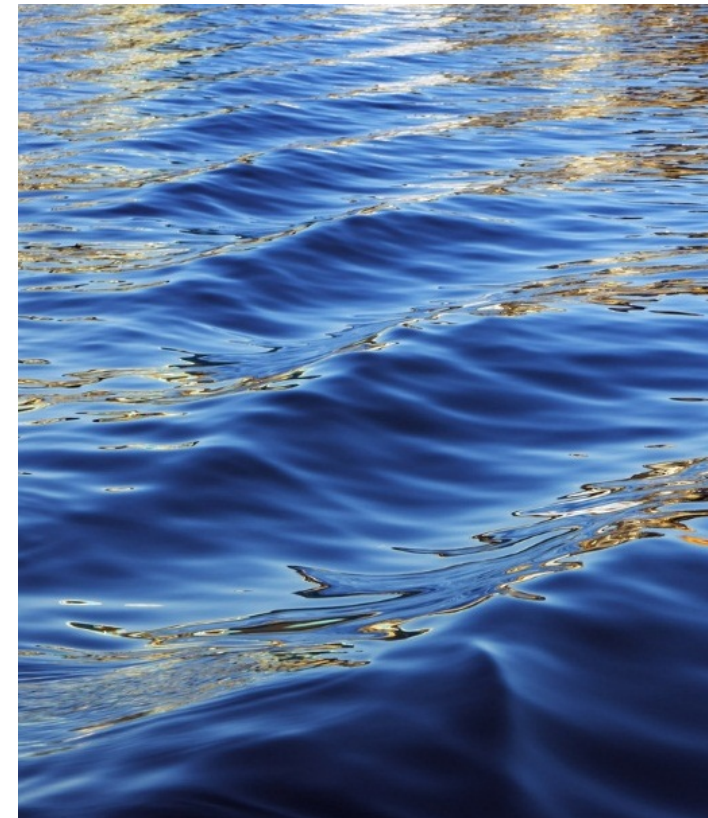




Regional Planning Deficits and Opportunities: Example of Greenstone- Marathon

Presentation for the Ontario Energy Board Framework
for Energy Innovation Working Group by Don Richardson, Ph.D.
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Northern & First Nation Regional Planning Deficits and DER Opportunities

- Where? IESO's Greenstone-Marathon Sub Region – Integrated Regional Resource Plan
- IESO regional planning is largely confined to **electricity reliability** and **evaluated at minimum every five years** in each region
 - **Analysis is led by the electricity transmitter** with data supplied by the IESO and the local electricity distribution companies (LDCs)
 - If needs can be met through focusing only on wires, meaning additions or improvements to transmission lines or infrastructure, a **Regional Infrastructure Plan (RIP) led by the transmitter will be recommended**
 - An **option** includes the local LDC and the transmitter working together to plan necessary local infrastructure investments
 - If there is the potential to integrate a mix of different options, such as conservation, generation, distribution or new technologies, an Integrated Regional Resource Plan (IRRP) will be recommended
 - **Regional energy planning may by default be biased toward the electricity transmitter's understanding and interests re the energy context – and this may be magnified when the transmitter is also the LDC – Most of Northern Ontario and most First Nations**

Maslow's Hammer Law:
If all you have is a hammer, everything looks like a nail



Greenstone-Marathon Sub Region

- **Energy Demand Growth:** Big gold mining, population growth, demand for natural gas for heating, costly reliability issues, Ring of Fire
- **Natural Gas Distribution Deficit** despite hosting the TC Energy Mainline cross-Canada natural gas pipeline – geographic constraints are real
- **Major Gold Mine Project** located in Geraldton: Fully approved **65MW+ natural gas fueled Combined Heat and Power Plant (CHPP)** in the town of Geraldton – Approved to build a – **65MW not grid connected despite clear load growth**
- **Virtual NatGas Pipeline Growth:** Lakeshore Natural Gas, a natural gas LDC for 5 communities along Lake Superior's north shore working with CNG provider Certarus Ltd., with **existing CNG facilities in Greenstone, for transportation, storage and supply of CNG**
- **Ring of Fire:** Ontario supporting the Northern Road Link to Ring of Fire - IRRP will assess the capability of the local electricity system to accommodate new load at the Ring of Fire – but **likely independent of the 65MW+ CHPP, CNG supply (DERs?)**



IESO's 2020 Needs Assessment identified higher than previously forecast load distribution connected load growth

Some Opportunities

- **Separate the LDC from the Transmitter:** Where LDCs are imbedded with transmitters – much of the north and most First Nations - require real corporate and planning separation – or look to separate the LDC from the transmitter. *LDCs motivated to serve northern and First Nation energy customers will respond to market demand – and look for tools other than hammers*
- **Battery Energy Storage System (BESS)** – Pilot project in Aroland First Nation, north of Geraldton via OEB supported settlement agreement between Anwaatin and HONI (EB-2018-0130) to **address electricity reliability issues** – opportunity to add additional “rate-based” BESS’ in similarly challenged locations, or behind the meter BESS’, *inclusive of First Nation, municipal, industrial, mining ownership and operation, and with renewable generation options*
- **Virtual Pipelines** – CNG or LNG – transportation, storage, supply, community distribution, industrial heat energy – *these are existing NatGas DERs in play*
- **EV Charging** – potential for fleet vehicle-to-grid or vehicle-to-industrial/mining-facility – unique reliability benefits to northern industries, municipalities and First Nations
- **Cold Climate Heat Pumps** – new efficient heat pumps are underutilized as “dual fuel” heat sources tied to NatGas, propane, other electrical heat, other fuels
- **Plan closely with mineral commodity investors and local community leaders** – gold mining growth in Ontario’s existing gold belts is predictable over the long-term. *Flexible, “all energy”, nimble planning is possible* – First Nations in region have been strong advocates for such planning for over a decade



Thank you!

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