



Abstract:

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Category: Alternative Energy & Sustainability

Nova Scotia's Distributed Generation Future and the East Coast Hydrogen Economy

The guiding concepts of this research are to assess both the Nova Scotia Power Grid's ability to implement Renewable Distributed Generation and how Energy Storage such as Compressed Air, Pumped Hydropower and the Hydrogen Economy will factor into our future power grid at various levels. This research reviews how Nova Scotia may meet greenhouse gas goals and energy targets set out by the Department of Energy and the Department of the Environment.

Background: The Hydrogen Economy is not a new concept. In the Maritime Provinces over the last three decades: H. Silverstein described it in 1981, L. Hughes advocated for it in 1992, and E. Kathy Stuart promoted a transition in 2006. The US, China, and Korea, have all created case study reports on each respective nations' Hydrogen Economy potential. BC and California have pursued early adoption in relation to their Hydrogen Highway programs in the last decade to showcase technology in action.

Research Question: What Technical and Economic Criteria will enable Distributed Generation Technologies to flourish along with an East Coast Hydrogen Economy?

Methods: Evaluating each technology on economics, quality of environment and human health, and social aspects of energy production and consumption. Specifically:

- The creation of a simplified Discrete Event Model (DEM) to assess MW level power production, and the forecasted energy over the next 10 years and additionally up until 2030,
- Greenhouse Gas Life Cycle Assessment, and
- Economic Outlook: with Triple Bottom Line (Environment, Social, Economic) approach.

Results: The data will be presented at a later date before the completion of my Thesis defense.

Conclusion: The main deliverable of this research along with the thesis will be an updated and revised educational energy map for the Maritimes.

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