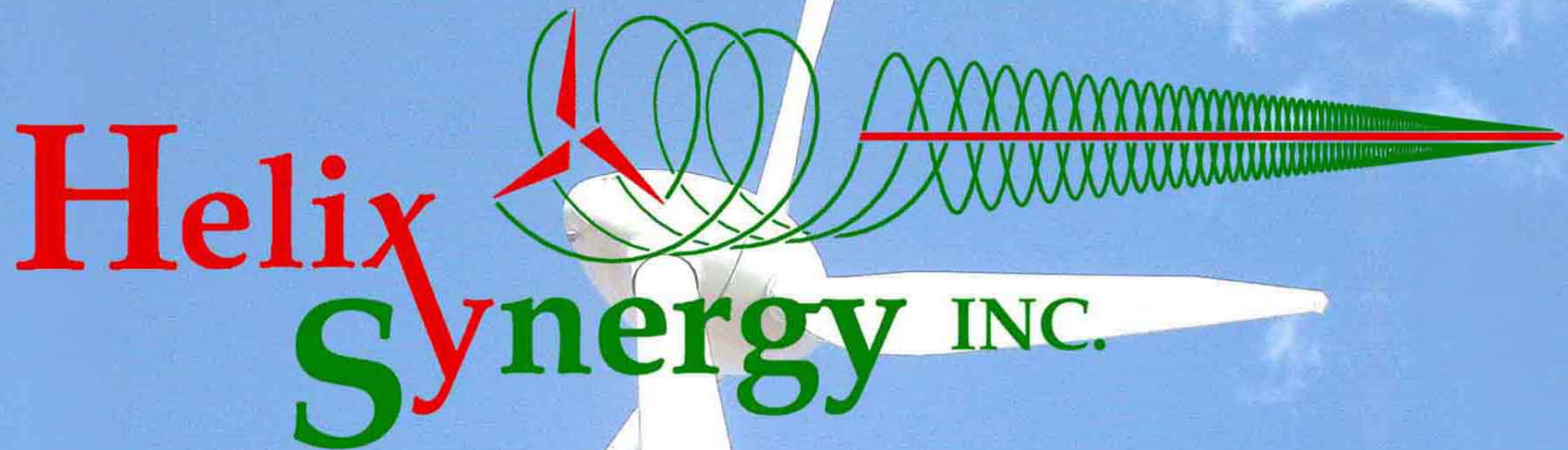


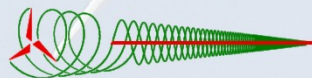
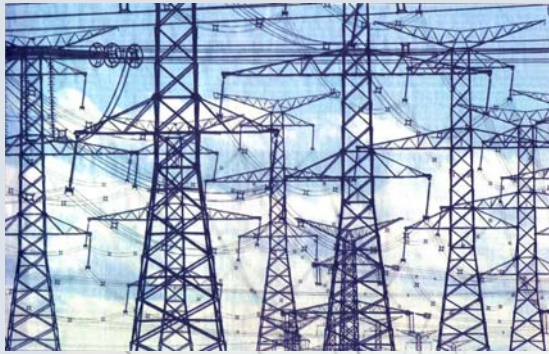
Transmission System Cost Responsibility Review

EB-2008-0003



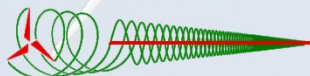
Energy in *Synergy* with Nature

Presentation given at
Ontario Energy Board offices on February 14, 2008.
Winton Dahlström, President, Helix Synergy Inc./LLC.
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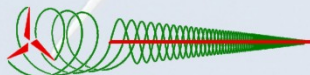
Transmission System Capital Cost Allocation...

- ' The long term beneficiaries of renewable energy generation are the rate payers as a whole... '*
- The 'low density' nature of renewable energy and the subsequent vast land and transmission requirements mean that local Municipal / Community interests now need to be reflected in the TSC for orderly and sustained infrastructure growth
 - Is there now a need for a new definition? - The 'Aggregation' System
 - 'Merchant' Aggregation System - Do regulations and TSC capital cost allocations now need to enable and stimulate such privately financed systems?



Sweeping Changes are now needed...

- Implications of the current TSC model
- Changes needed
- Renewable energy generation considerations
- Shortcomings in the current TSC model
- Suggested 'best practices' and innovations needed
- Proposed '*Aggregation*' system...



Implications of the current TSC model

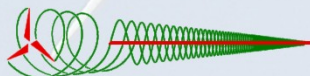
- Does not fully recognize or anticipate the coming massive infrastructure re-organization needed?
- Does not adequately structure the use of, and the ROI for, private capital in transmission development?
- Does limited coordination of the OPA, IESO, HONI and others, create higher costs and delays?

Changes needed...

- New definition(s) - *'Aggregation'* systems
- Standardization in what constitutes an *'immediate, single-point connection'* to separate *'generation'* from *'aggregation'* for capital recovery purposes
- Recognition of the unique aspects of *'Renewable'* energy generation including *'dispatchability'* issues
- Can the private sector become an *'Enablement Business'* if the OEB designs the *'Marketplace'* appropriately?
- Is a *'CUSTOMER'* a *generator* as well as a *load*?
- The private sector needs facilitation through visibility into the system to determine needs, risks and costs
- Open development access with expedited, low cost, permitting & licensing

Renewable energy generation considerations

- Renewable energy is *LOW DENSITY*
- A very high relative proportion of transmission capacity is required per kW of renewable energy generation
- Overall capital costs of renewable energy are heavily 'skewed' by high transmission 'Aggregation' costs
- Private investment needs risk definition & mitigation



Shortcomings in the current TSC model

- Inadequate definitions to reflect the coming changes that are now required...
- No 'socialized' renewables rate base to reflect it's value to all rate payers as a whole?
- Private development of transmission not well defined?

Suggested 'best practices' and innovations needed

- Green Energy 'Enabling' legislation / regulation...
- 'Qualified' obligation to connect and operate private aggregation systems
- Stimulate Private / Public partnerships
- Stimulate rapid and sustained growth in transmission by recognising Municipalities, First Nations, Farmers, Communities through specific tariff, licensing and code structures

'Aggregation' System...

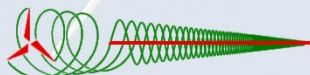
'Merchant' approach - "407 ETR"

- Provides a new definition to allow orderly code and socialized tariff development
- **UNIQUE** when compared to existing 'Transmission' and 'Distribution' Systems
- Radial Design
- Low & High Voltage
- Energy flow opposite in direction relative to 'Distribution' systems
- Private and/or Public financing
- Local Municipal / Community participation

'Aggregation' System...

Design & Connection

- Low density power means massive aggregation infrastructure over large areas of land
- Energy/Distance (W/km) criteria used to help define connection feasibility / priority / economics
- Energy availability characteristics (Dispatchable vs. Non-Dispatchable)
- Transmission equipment and system changes required (external and internal to the network)
- Municipality / Community stakeholder involvement





Photography by Raffi Kudlac - Age 9.

