



Local Energy Production and Distribution Panel

“Go Big & Stay Home”

LEVERAGING COMMUNITY ENERGY INITIATIVES TO MAXIMIZE LOCAL SOCIOECONOMIC BENEFITS

PRESENTED BY MR. DANA MORIN, BA, B.ED
DIRECTOR OF BUSINESS DEVELOPMENT
FUNDY TIDAL INC.



Personal Introduction

- Founding member of Fundy Tidal Inc.
- Co-Chair- Fundy Energy Research Network (FERN) SocioEconomic Committee
- Past Secretary/Treasurer- Marine Renewables Canada (formerly Ocean Renewable Energy Group)
- Founding member of a number of companies involved in the “The Scotian WindFields” network of community energy proponents in Nova Scotia



Opening Thought

**Clean Energy Jobs Now Exceed
Oilsands Jobs In Canada: Report** on
12/02/2014

*Local Energy equals Local Jobs not offshore or
Alberta jobs in the fossil fuel sector.*

*Note: Hypertext Links are embedded throughout the
presentation for future reference.*

Defining “Local Energy Production & Distribution”

- Does local mean “community” or a combination of private, personal or public producers?
- Does Local Distribution mean local usage/consumption?
- Are we distinguishing between Transmission & Distribution electrical grids? Are we distinguishing between producers and suppliers?
- Are we speaking of energy made, bought and sold locally?
- Does local energy mean solely electricity or are energy requirements of transportation or heating also included?
- Does local energy production include off-grid applications for home or business use?

Today...

[North Shore aims for renewable energy self-reliance](#)

[Small-scale power generation could shrink electricity costs](#)

[The New Tesla Home Battery Powered By Solar Will Make Off Grid Living Mainstream](#)

[Renewable energy, brought to you by free beer!](#)

[Cape Breton entrepreneur sees energy's future off the grid](#)

[Jason Aspin suggests Million acre organic farm for P.E.I.](#)

[Economics of happiness: what localization means for the bottom line](#)

[SURETTE: After years of mismanagement, finally a regional energy spark](#)

[Locally Controlled, Renewable Energy Championed as Key to Climate Justice](#)

The Past

1800's- Rooted in coal gas and light companies, and mass transit operators - horse-drawn rail and, later, electric trams - of the mid- to late-1800s.

Electric companies began appearing in the 1880s, first in Halifax with the 1881 incorporation of the Halifax Electric Light Co., then in municipalities throughout the province.

1919- The provincial government formed the Nova Scotia Power Commission in During this time, hydroelectric plants were built by the Power Commission, the large, privately-owned Nova Scotia Light and Power Company of Halifax, and the smaller utilities based in various towns and villages.

1937 The Rural Electrification Act helped extend distribution lines from urban areas and existing power plants, and brought affordable electricity to rural communities.

1972- The Power Commission and Light and Power Company were amalgamated to create the government-owned Nova Scotia Power Corporation.

1992- The Crown Corporation was privatized, creating Nova Scotia Power Inc.

Community Energy: The Impetus

- Between 1999 & 2005, The Province of Nova Scotia witnessed the rise of both the [CEDIF Program](#) and community energy initiatives including the network of companies referred to as the “[Scotian WindFields](#)”.
- Independent Wind Power Producers also emerged.
- In 2006, [Fundy Tidal Inc.](#) was formed to replicated this model to develop community-owned tidal power projects in the Province
- In 2010, the Province established the [COMFIT](#) program and many others have adopted this community ownership model/mechanism.

About COMFIT

- Established in 2010 to provide a guaranteed rate for community renewable electricity projects and meet renewable electricity targets of the province
- 100MW in total for small and large wind projects, biomass and tidal projects connected to the distribution system
- Power sold to NSPI for a 20-year term
- Eligible Proponents are Universities, First Nations, Community Economic Development Investment Funds (CEDIFs), Municipalities & non- profit groups
- Majority control of the project must reside with eligible proponent



What is a CEDIF?

- “A CEDIF is a pool of capital, formed through the sale of shares (or units), to persons within a defined community, created to operate or invest in local business. It cannot be charitable, non-taxable, or not-for-profit, and must have at least six directors elected from their defined community.” More than 50 CEDIFs to date including:
 - Just Us Coffee
 - Wind4All
 - Valley Funeral Home
 - Port Bistro
 - KA’NATA Investment Fund Inc.
- Cumulative Total to March 31, 2014: \$64,318,164 and 8,279 investors
- Program adopted in PEI. New Brunswick in process.

*CEDIFs can provide Debt Financing or Purchase Common Voting Shares in a company only.



CEDIF Details

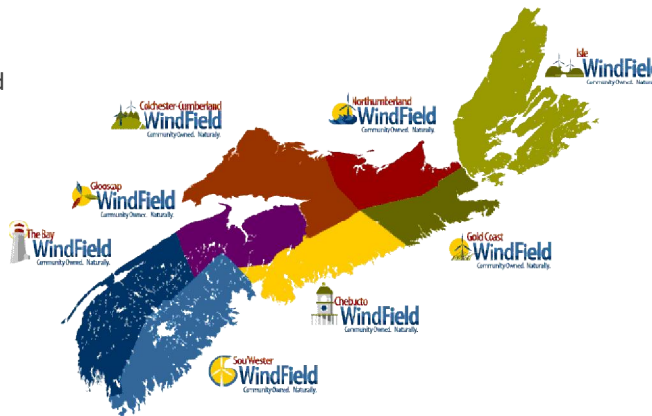
- Any Nova Scotia resident over the age of nineteen is eligible. Companies are NOT eligible.
- Minimum of 25 Investors
- No single investor with >20%
- 6 directors from the defined “community”
- Must raise a minimum of 100k on first offering. Maximum of 3 million per Simplified Offering.
- 35% ETC if held for 5 years. Potential for Additional tax credits for holding investment for 10 years (+20%) and 15 years (+10%) year periods
- RRSP Eligible (Self-Directed RRSP only), Funds in current SDRRSP can be redirected, triggering ETC
- Maximum of 50k per investor per year

Facts & Figures		
Number of CEDIF Funds	64	
Total Raised to Date	\$ 68,147,192	
Total Raised: Energy	\$ 21,971,363	32%
Largest Raise	\$ 5,500,000	Wind4All Communities Inc.
Most Investors	395	Wind4All Communities Inc.
Total Investors to Date	9,086	Note: Includes repeat investors Just Us! Fair Trade Investment Co-op
Most Offerings	11	
Total Offerings	158	

The Scotian WindFields



- 8 CEDIFs established across Province to make investments in private companies and in renewable energy projects directly
- Combination of Blind Pools, Specified Investments and Active businesses.
- 65MWs COMFITs awarded to Scotian WindFields “network” of CEDIFs



Proponent	MW	Location
Chebucto Wind Field Inc.	7.2	Terrance Bay
Chebucto Wind Field Inc.	10	Halifax
Colchester Cumberland Wind Field Inc.	0.05	Spiddle Hill
Colchester Cumberland Wind Field Inc.	0.05	Spiddle Hill
Colchester Cumberland Wind Field Inc.	0.8	Spiddle Hill
Fundy Tidal Inc.	0.1	Barra Strait
Fundy Tidal Inc.	0.5	Grand Passage
Fundy Tidal Inc.	0.5	Pettit Passage
Fundy Tidal Inc.	1.5	Digby
Fundy Tidal Inc.	0.5	Great Bras d'Or Channel
Northumberland Wind Field Inc.	0.05	Avondale
Northumberland Wind Field Inc.	0.05	Barney's River
Northumberland Wind Field Inc.	1.6	Barney's River
Northumberland Wind Field Inc.	0.05	Mulgrave
Northumberland Wind Field Inc.	0.05	Pictou
Northumberland Wind Field Inc.	0.5	Barney's River
Northumberland Wind Field Inc.	0.5	Fitzpatrick Mountain
Scotian Wind Inc.	0.8	West Green Harbour
Scotian Wind Inc.	1.6	Stewiack
Scotian Wind Inc.	1.99	Bucklaw
Scotian Wind Inc.	1.99	Isle Madame
Scotian Wind Inc.	1.99	Parkers Mountain
Scotian Wind Inc.	1.99	Roschville
Scotian Wind Inc.	1.99	Sandford
Scotian Wind Inc.	1.99	St Rose
Scotian Wind Inc.	1.99	Wedgeport
Scotian Wind Inc.	1.99	Yarmouth
Scotian Wind Inc.	2	Centre Burlington
Scotian Wind Inc.	3	Barrington
Scotian Wind Inc.	4	Elmsdale
Scotian Wind Inc.	6	Marstock Ridge
Scotian Wind Inc.	8	North Beaverbank
Total MW	65	



The Present

- NSPI Private Utility
- 6 Municipal Utilities
- Independent Power Producers (IPPs)
- COMFIT
 - First Nations
 - Universities
 - Cooperatives
 - CEDIFs & CEDCs
 - Municipalities
- Net Metering
- “Renewable to Retail”

NOVA SCOTIA'S POWERED UP ABOUT CLEAN TECH

NOVA SCOTIA, CANADA
Between the tides, the wind, and the sun, along with research and development capabilities, industry expertise and quality infrastructure, there's a lot to work with.

320 MEGAWATTS
Nova Scotia's installed wind power to date

9.5 METRES PER SECOND
Average wind speed—Nova Scotia has some of the highest winds in all of Canada

COMFIT
The world's first community feed-in tariff program for small-scale producers

1ST IN NORTH AMERICA
Innovacorp has capped on greenhouse gas emissions

INNOVACORP DEMONSTRATION CENTRE
100 acres of knowledge to develop biorescience technology

REMEDIATION EXPERTISE
Large-scale remediation of oil spills resulting in 100 acres of usable city space in Sydney, Nova Scotia

2,400 MEGAWATTS
The potential commercial power that can be harnessed from the Bay of Fundy

1 OF ONLY 3
Commercial tidal power plants in the world is in Nova Scotia

TIDAL ENERGY LEADER
Energy regulations allow early-stage projects to connect to Nova Scotia's power grid

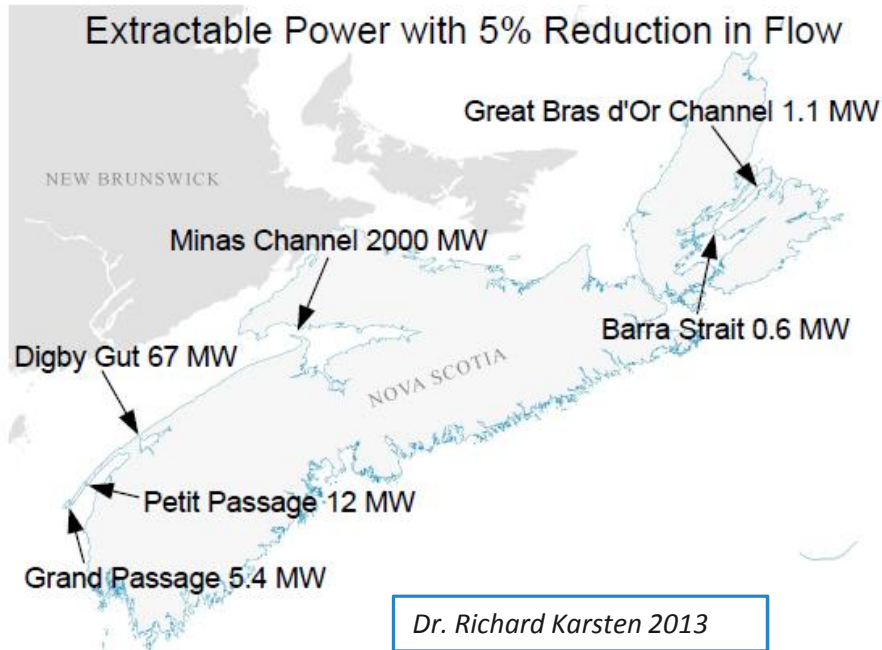
FORCE (FUNDY OCEAN RESEARCH CENTRE FOR ENERGY)
Canada's leading research centre for in-streams tidal energy

With resources like these, it's no wonder Nova Scotia is leading Canada in 2nd kind of clean technology. Find out more about what you can do here at nibbi.com

NOVA SCOTIA
C.E.M.A.S.

n i b b i
Nova Scotia BioScience Inc.

Case Study: Fundy Tidal Inc.



Location	Typical Mean speed (m/s)
Minas Channel	2 -2.5
Petit Passage	2-2.5
Grand Passage	1.5-2
Digby Gut	1-1.5
Great Bras d'Or Channel	0.5-0.7
Barra Strait	0.3-0.5

Karsten and Hay (2012)

The Challenge

- A core group of local community and business leaders ponder the challenge of stimulating the local economy severely impacted by the decline of the fishery and it's population.
- Dwindling population. Seasonal businesses. Youth leaving to find work. Heavy reliance on fossil fuels for industry, transportation and heating.
- How do we bring our kids home? How do we attract new residents and visitors? How do we keep essential health, community and educational services? How do we create year-round employment for existing businesses and attract new ones?
- What are our strengths and what do we need to turn things around? What will grow our population and economy once again?
- But what was the Enabler, the juggernaut that could perhaps create the demand for all the other socioeconomic "Bigger Picture" benefits the community aspires to?

The Bigger Picture

The vision for the Community is complex and all encompassing which must be understood and embraced to be successful:

- ❖ Sustainable Transportation
- ❖ Local Food Supply & Agriculture
- ❖ EcoTourism & Recreation
- ❖ Cultural & Heritage
- ❖ Health & Wellness
- ❖ Public Infrastructure
- ❖ Real Estate Developments
- ❖ Sustainable Energy



The Enabler

If Digby County and the Islands could become a hub for tidal energy research , development, and generation...maybe the rest of the Bigger Picture could follow:

- ❖ Local community-owned Tidal Projects would create opportunities for local supply chain and profits back to community
- ❖ Ongoing operations & maintenance would create new jobs
- ❖ The amount of R&D required to achieve our goal would bring many new people and new skills to the Islands
- ❖ Establishing ongoing testing and demonstration infrastructure, services and educational opportunities would attract industry and academia from around the world
- ❖ Becoming world leaders and applying our expertise and resources to larger initiatives in the Bay of Fundy, and those around the world, would bring further opportunities back to the community

Fundy Tidal Inc. (Fundy Tidal)

- Fundy Tidal was established on Brier Island in 2006 as a result of local interest to generate marine renewable energy from the tidal currents of the Outer Bay of Fundy, Nova Scotia including Digby Gut, Grand Passage and Petit Passage.
- Fundy Tidal's focus is small-scale tidal energy projects that involve community ownership and local benefits.
- Fundy Tidal's vision is to proactively create opportunities in the emerging marine energy sector with a focus on locally-owned and operated ventures to insure economic development opportunities that benefit local communities and businesses.
- Established as a Community economic development corporation and currently developing 3 small-scale tidal COMFIT projects in Digby County, Nova Scotia and engaged in numerous R&D initiatives with industry and academia.
- Establish Digby County as a focal point of small-scale tidal innovation, R&D and commercialization

SocioEconomic Benefits?

The budget for Digby County Projects is estimated to be \$33 million. Research activities to date are approaching 2 million dollars. Annual operating cost is estimated to be \$1 million. What will be the impact on the local economy during construction and the 20 year operating period?

- Tax Base
- FTI Staff
- University Researchers
- Providers of Turbines, Ancillaries & Equipment
- NS & Local Supply Chain: Hospitality & Service Industry, Professional Services, Local boats and crew, manufacturing & assembly, engineering and technical services
- Debt & Lease Providers
- Shareholders (if profitable!)
- New full & part-time residents
- Many interesting visitors. On the map, internationally!

20 years of O&M for COMFIT PPAs alone. What is the longevity of a marine energy or community energy systems test site?

Potential Community Economic Benefits

As a Focal point of small-scale tidal innovation, R&D and commercialization in Canada our region will have:

1. A locally owned and operated company tidal power company with benefits and profits remaining in community
2. More people working in the area permanent and part-time, year round
3. University R&D personnel in community, including young, energetic students
4. New Residents
5. New Businesses in the Community
6. More Business for existing Businesses
7. Media attention to promote the wonders of these Digby County and attract new visitors and residents

The Future...

- Decentralization & 100% local production and distribution
- 100% renewable energy
- Efficiency!
- New technologies, more efficient and cost effective
- Distribution grid enhancements
- Smart grid, smart meters
- Independent Generation (Off-grid)
- Storage Solutions
- Electrification of Transportation
- Community-owned grids and generation

Back to the Moment!

Our speakers today:

- Don Regan, Superintendent, Berwick Electrical Commission *Don will speak on the benefits and issues to managing an independent electrical grid system.*
- Bob Ashley, CAO, The City of Summerside *Bob will speak on Summerside's success with energy storage, smart-grid technology and wind energy production.*
- Eric Christmas, Director of Operations, Beaubassin Mi'kmaq Wind Management Ltd. *Eric will speak on First Nations local energy achievements and plans.*

Thanks

Dana Morin

Director-Business Development

Fundy Tidal Inc.

Box 1209, Westport, Nova Scotia, B0V 1H0

Cell: (902) 790.3565

dana@fundytidal.com