Challenges & Opportunities: the Green Energy Act, Biogas and Regulations in Ontario

Making Green Energy Happen: Lawrence National Centre for Policy and Management
April 27, 2009
Ryan Little
Who We Are and Where We Came From
Building Biogas in Ontario
Ontario: Opportunity & Challenges
Who We Are

- A Toronto-based **renewable energy company** specialized in biogas
- Utilizes **agricultural and food processing by-products** in order to create baseload renewable energy and organic fertilizer
- Developing a pipeline of projects, which will be **owned and operated by the company**
- Targeted to have **five industrial biogas installations** closed and under construction by end of 2009
- High calibre team with **over 20 years** of biogas commissioning and operating experience
- **Working with Krieg & Fischer**, the world’s top biogas engineering firm with over 120 plants in operation
- Developed **strategic relationships** with government agencies and academic organizations within Canada and several US States
- Backed by a Boston-based private equity firm with over US$4 billion of invested and committed capital
The Early Days of StormFisher

- Started by three entrepreneurs from the Ivey MBA in 2006—with a seed planted at this conference (thanks Jan!)
- Began market research phase in summer 2006: RESOP was in draft and we saw this as an opportunity for entrepreneurs to get in
- Bootstrapped through to early 2008
- In February 2008, closed a $350 million funding partnership with a Boston-based private equity company

Bas van Berkel  
President  
Finance, Engineering  
Stubborn

Chris Guillon  
VP Finance  
Finance, Biology  
Cheap

Ryan Little  
VP Business Development  
New Venture Creation  
“Big Picture” (i.e. can’t add)
Key Facts
• Projects in Active Development: 5
• Projects in Development Pipeline: 36
• Total Megawatts in Development Pipeline: 120 MW

- Pipeline of over 120 MW of clean, renewable electricity
- Utilize Ag by-products to produce high-grade organic fertilizer
- Produce biogenic natural gas, reducing reliance on fossil fuels
- Offset 15,000 tonnes of carbon dioxide per year at each facility
- Divert over 50,000 tonnes per year of organics from landfills at each facility
Agenda

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Europe’s Success

- Over 4,000 facilities in operation, predicted to exceed 20,000 by 2015
- 400 companies involved in biogas development in Germany alone
- Biogas will account for 17% of Germany’s electricity mix by 2020
- Well developed renewable energy purchase programs throughout Europe
- The model for Ontario’s Renewable Energy Standard Offer Program (RESOP) and proposed Feed In Tariff (FIT)

“Three years ago in Germany companies like StormFisher were less developed than you already are, and today they are on the stock exchange and have 300 employees.”

-Gerhard Klammer, GE Energy
Biogas in Denmark

- Denmark is where biogas in Europe began
- Fewer, larger plants than Germany and Austria; less focus on energy crops
- Started as a way to handle large amounts of pig manure
- **We believe in the viability of larger, centralized plants along the Danish model**
  - Snertinge, Denmark
  - Heats three nearby villages
  - Pig and cattle farm sludge, food and medicinal industry waste, municipal sewage waste
  - Built in 1996

Map: Jens-Bo Holm-Nielsen, University of South Denmark
Our Plants in Development: London Cogeneration Facility

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<tr>
<td>Output</td>
<td>2.85 MW electrical</td>
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<td>Feedstock</td>
<td>140,000 tonnes manure and food processing by-products</td>
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<td>Technology</td>
<td>Proven anaerobic digestion; GE Jenbacher for reciprocating engines</td>
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<td>Commercial Operation</td>
<td>2010</td>
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Our Plants in Development: Listowel Natural Gas Facility

Output  205,000 mmBTU – natural gas
Feedstock  140,000 tonnes manure and food processing by-products
Technology  Membrane filtration, solid/liquid separation, gas upgrading, pelleting, AD facility
Commercial Operation  2010
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What the Biogas Industry Could Mean to Ontario

• The biogas industry is not just about electricity:
  – Reduced costs and safer disposal for food processing companies’ organic by-products improves competitiveness
  – Solves a nutrient management problem for dairy farmers
  – Increases supply of non-chemical fertilizer; a new high-value, niche product for the fertilizer industry
  – Creates major opportunities in academia, laboratory services and biotechnology
...But Challenges Remain

- Regulations are in place for biogas as a form of manure management, and not for industrial-scale renewable energy production.
- Average sized dairy in Ontario: 63 cows. **Not every farm is a viable site for a biogas plant!**
  - Nutrient Management Act does not contemplate multi-client biogas plants; nutrients become waste under existing regulations.
- Lack of parity with definition of waste: biodiesel and ethanol have a free pass, but biogas wasn’t at the table.
- Grandfathering of feed-in prices **must** happen for biogas and biomass.
The Landscape: Legislators Are Rallying Behind Renewables

- Green Energy Act (Ontario) and Stimulus Bill (US) are indicators of new priorities and opportunities for business
  - But $112B vs. $2.6B
- Will the effects trickle down to business in time to make a difference in a failing economy?
- Trends in capital-intensive businesses today

“This field of greentech could be the largest economic opportunity of the 21st century. There’s never been a better time than now to start or accelerate a greentech venture.”

- John Doerr, Venture Capitalist, KPCB
The Green Energy Act

- Good news for the industry
- Minister Smitherman clearly the right leader for the job: bold, willing to ruffle feathers
- Devil is in the details:
  - Timing? Political process versus investors’ attention spans
  - Will the regulations be investment friendly and take into account a developer’s investment process?
  - Will the new streamlined permitting process really expedite the process or create new bottlenecks?
  - If I was in solar, I would be mad!
  - How will disparate features of the Act like manufacturing, renewable energy generation and conservation efforts line up to greatest benefit?

Source of solar data: Ontario Power Authority, Proposed Feed In Tariff
We Are Not Alone in Our Desire Build a Green Economy

• We are in a competitive landscape – many parts of North America are moving in the same direction
• How do we stack up against our neighbours?
• How do we translate lofty goals into streamlined regulation?
• What are our advantages and disadvantages relative to other jurisdictions?
  – Workforce profile
  – Incentives at the provincial/state and federal level
  – The rules of the game are different particularly relative to individual states
  – Strategic location vis-à-vis markets – where to manufacture?
The Competitive Landscape

- We’re not the only ones driving green energy...

Source: DSIRE: [www.dsireusa.org](http://www.dsireusa.org) July 2008
What the Competition is Doing: Pre-Green Energy Act

- Waterloo-based solar company, Arise Technologies
- Developed solar PV cells
- Received $6.5 Million from Sustainable Development Technology Canada
- Courted by Invest in Germany to join the 55 other solar companies operating in Germany
- Offer included €25 Million grant including €9.5 Million for the construction of a plant
- Streamlined, grant championed by Invest in Germany, funds approved in seven months
What We Can Learn from the Competition

My takeaways from the Arise story:

• This is a well-known story in renewable energy worldwide and gave lots of profile to *Invest in Germany*
  – Big moves like this make international headlines and tell investors and businesses which countries are aggressive

• Choose niches of excellence rather than a scattergun approach
  – Germany is focused heavily on solar now
  – Canada has (had?) an advantage in hydrogen – perhaps an area of focus

• Know your competition – particularly individual states
  – What are our strengths compared with them, but also our limitations?

• Government granting agencies must act like investment companies
  – The best companies out there are too busy to be looking at foreign government incentives
  – Most companies don’t know what is possible – DFAIT and Ontario International Trade must package it for them, make it specific to their companies
Contact Information

Ryan Little  
Co-Founder and Vice President, Business Development

411 Richmond Street East, Suite 200  
Toronto, ON M5A 3S5

Toll-Free: 1.877.850.7680 x203  
Fax: 1.866.575.4544

Email: rlittle@stormfisher.com  
Web: www.stormfisher.com