

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



Agenda

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



The Silver Bucket



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)

StormFisher Today

Key Facts

- Projects in Active Development: **5**
- Projects in Development Pipeline: **36**
- Total Megawatts in Development Pipeline: **120 MW**

Renewable Electricity



- Pipeline of over 120 MW of clean, renewable electricity

Fertilizer



- Utilize Ag by-products to produce high-grade organic fertilizer

Green Natural Gas



- Produce biogenic natural gas, reducing reliance on fossil fuels

Carbon Credits



- Offset 15,000 tonnes of carbon dioxide per year at each facility

Organic Diversion



- Divert over 50,000 tonnes per year of organics from landfills at each facility

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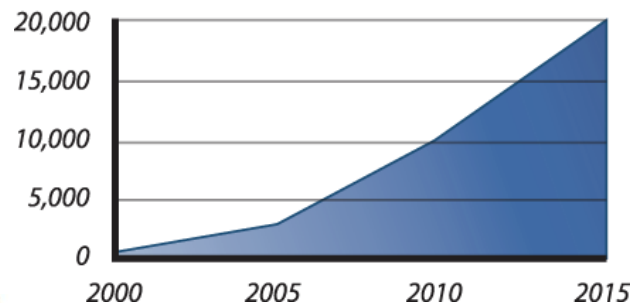
Ontario: Opportunity & Challenges

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)



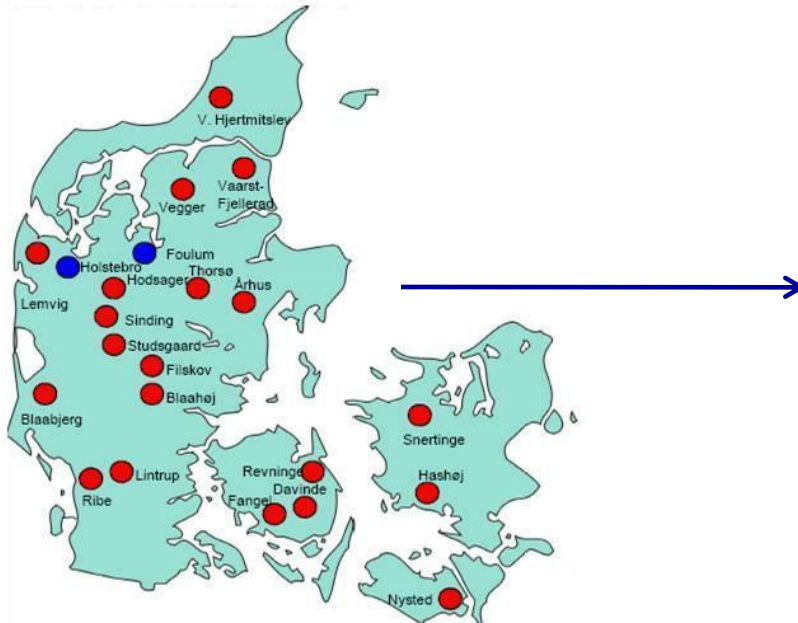
Growth of German biogas facilities



“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

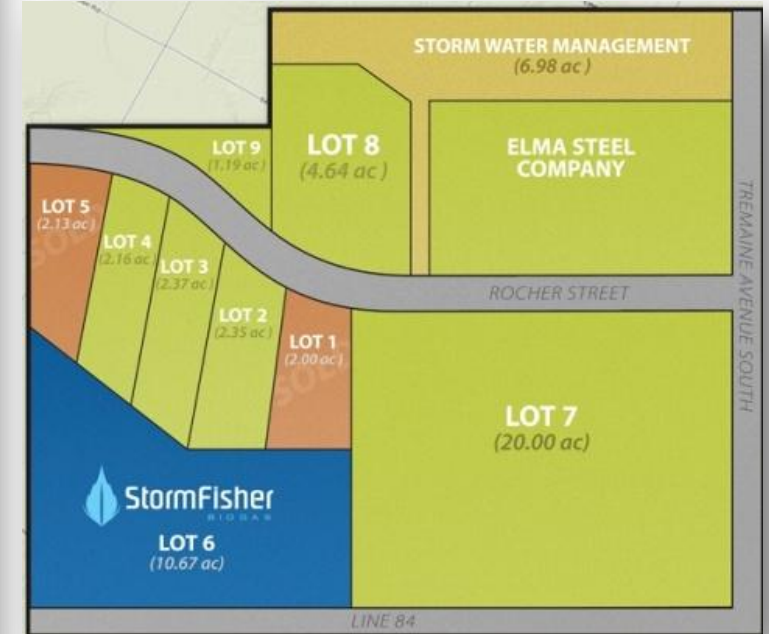
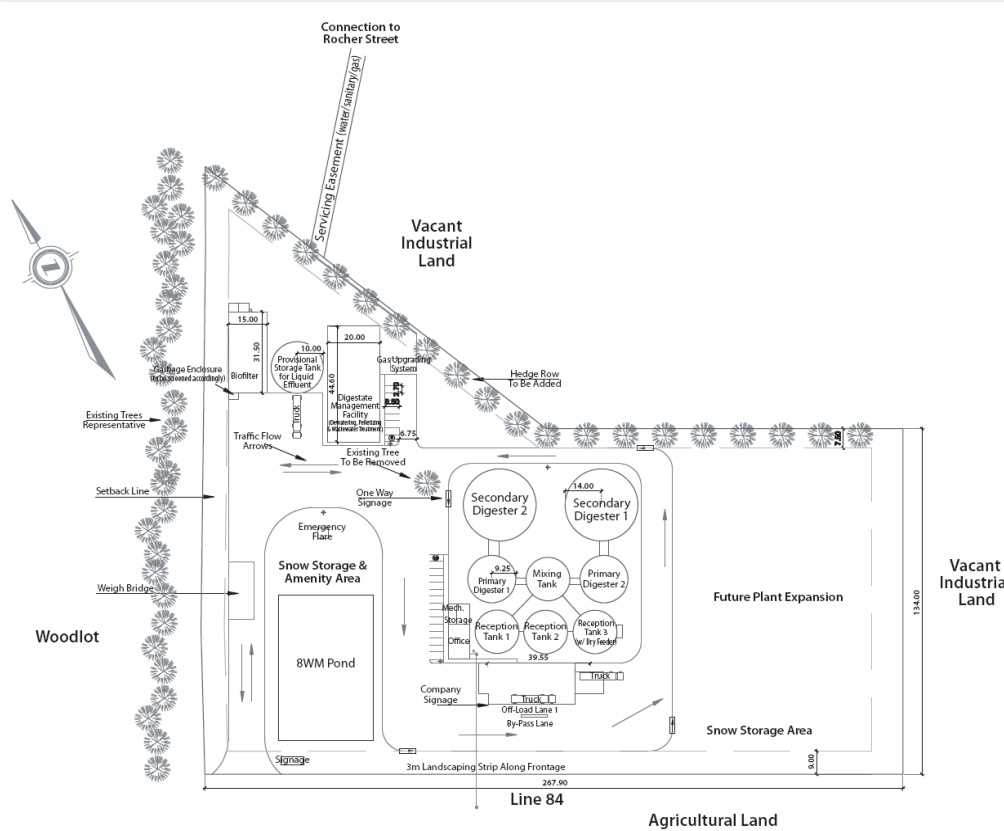
Biogas in Denmark



- 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

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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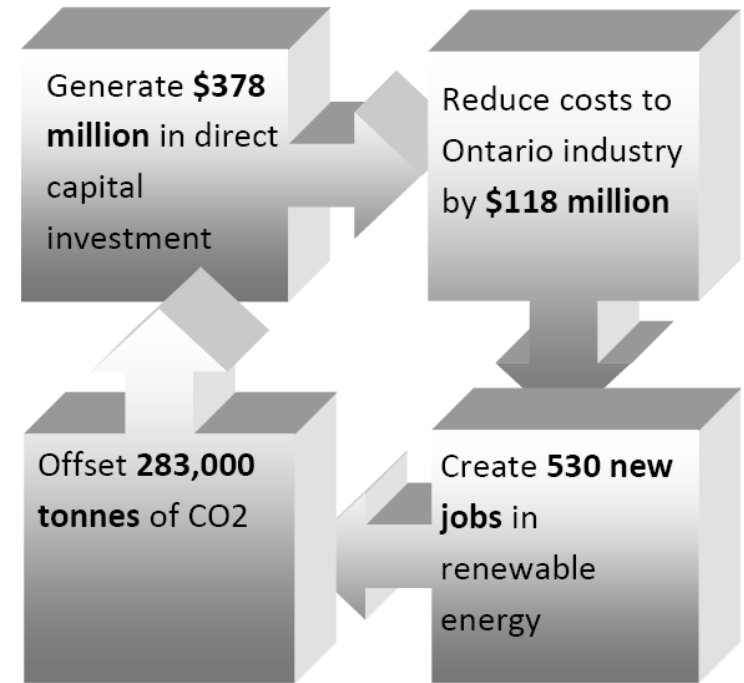
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Ontario: Opportunity & Challenges

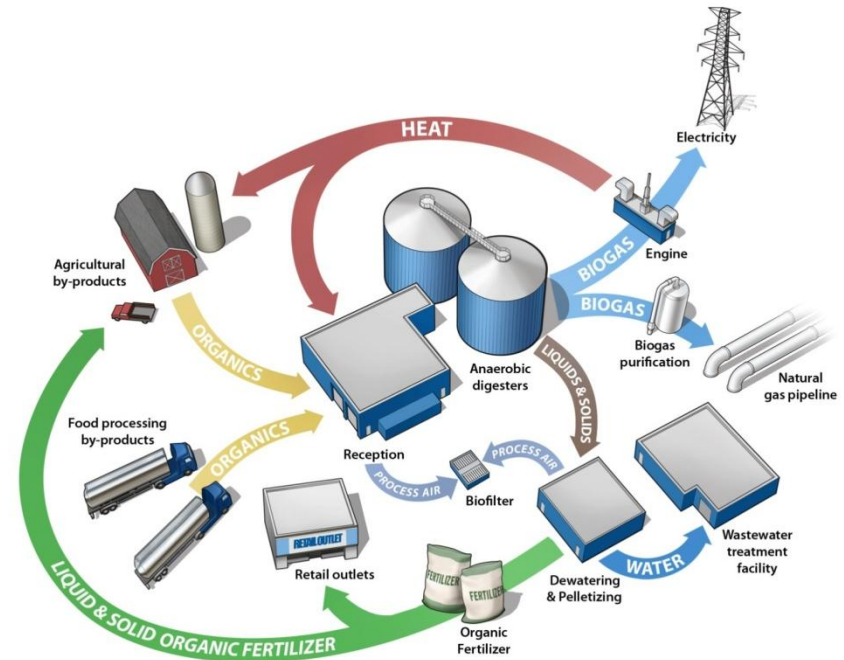
What the Biogas Industry Could Mean to Ontario

- 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

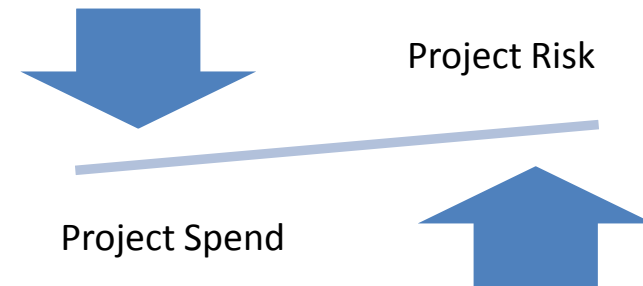


“This field of greentech could be the largest economic opportunity of the 21st century. There’s never been a better time than now to start or accelerate a greentech venture.”

- 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?



Automatic Price Adjustment (s. 5.2)

- For ground mounted solar PV, price is automatically adjusted once a certain aggregate capacity has been contracted (an "Automatic Price Adjustment")
 - In the future, prices for other technologies may also be adjusted in this manner

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?

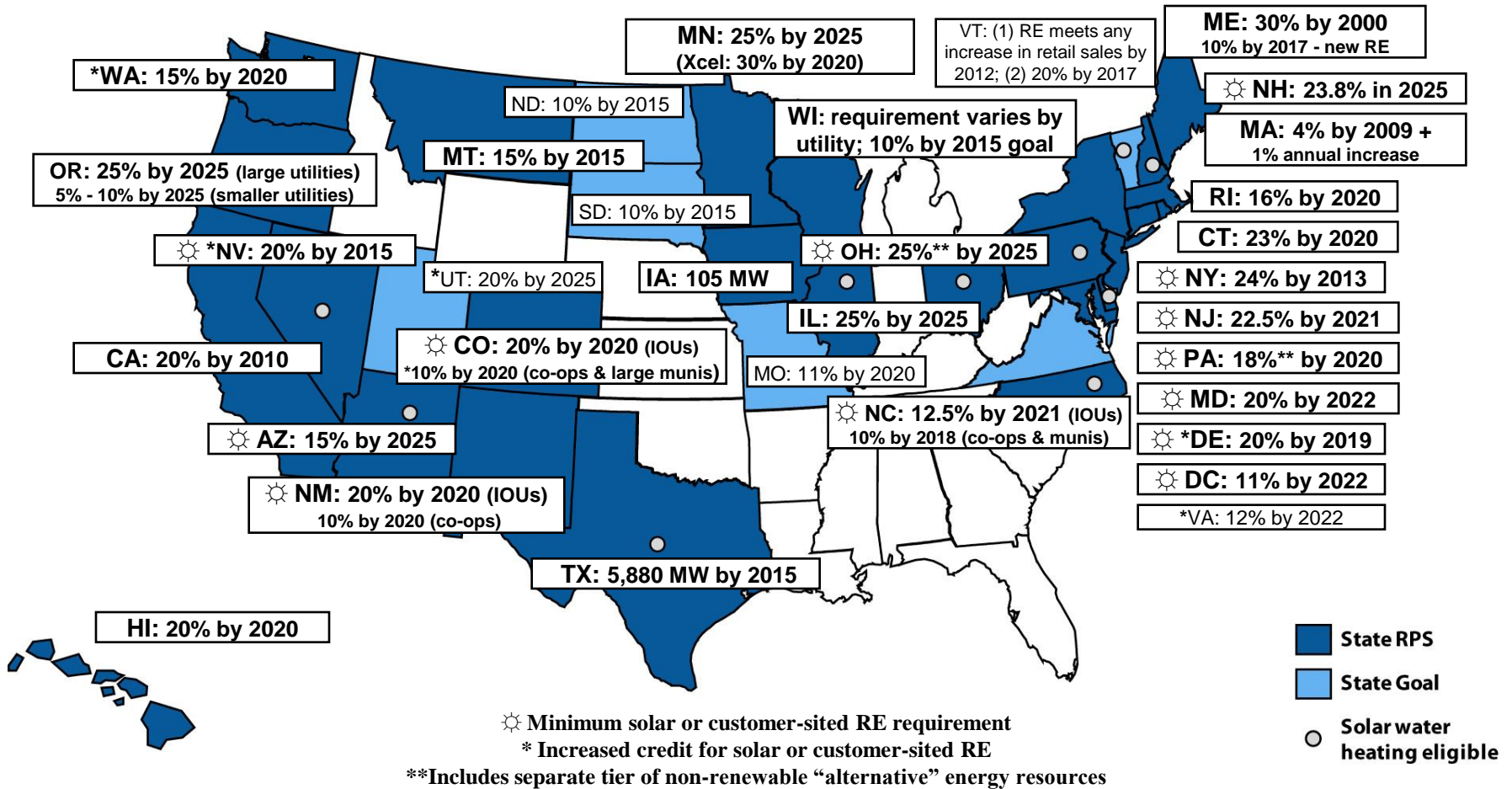
BUILDING THE RECOVERY

The General Services Administration will spend \$5.55 Billion on over 250 construction projects in all 50 states, the District of Columbia, and two U.S. territories. The projects will support the President's vision for a clean energy future, create jobs, and reinvest in our public buildings.



The Competitive Landscape

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



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

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