PRESENTATION TO

The Transformation of the Canadian Forest Sector and Swedish Experiences

Stockholm, Sweden

The Forest Sector's Status & Opportunities from the Perspective of an Investor (and What it Takes To Do More)

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CIBC World Markets Inc.

May 2012

1. Context

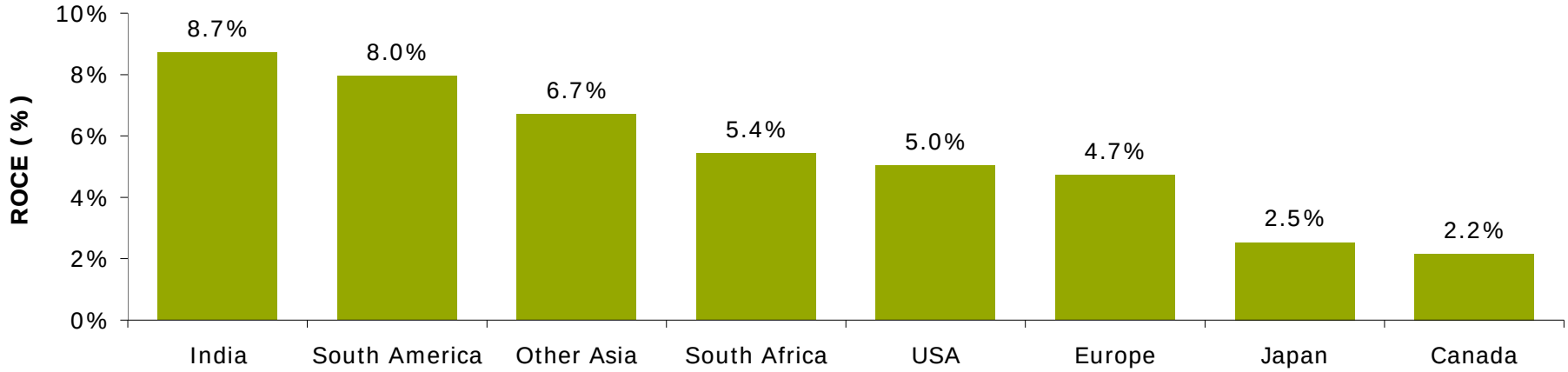
2. Investment Drivers & Trends

3. Case Study in Commercialization

4. Role of Partners

5. Role of Governments

Average Return on Capital Employed (ROCE) in the Forest Products Industry, By Region (1999-2009)



- **On average over the past decade, even the best performing national forest industries in the world have not covered their cost of capital.**

- **Given the historical returns, forest product companies should be embracing change. If not, what are we protecting? From the Capital Market's perspective, the *status quo* is not an option.**

Source: PricewaterhouseCoopers, CIBC World Markets.

Five Key Variables Drive Investment in New Bio-Products

1. **Availability of Capital – it varies by type of capital (eg, Project Finance, Public Equity, Venture Capital)**

2. **Price of Fossil Fuels – price signals vary (eg, coal vs oil vs natural gas)**

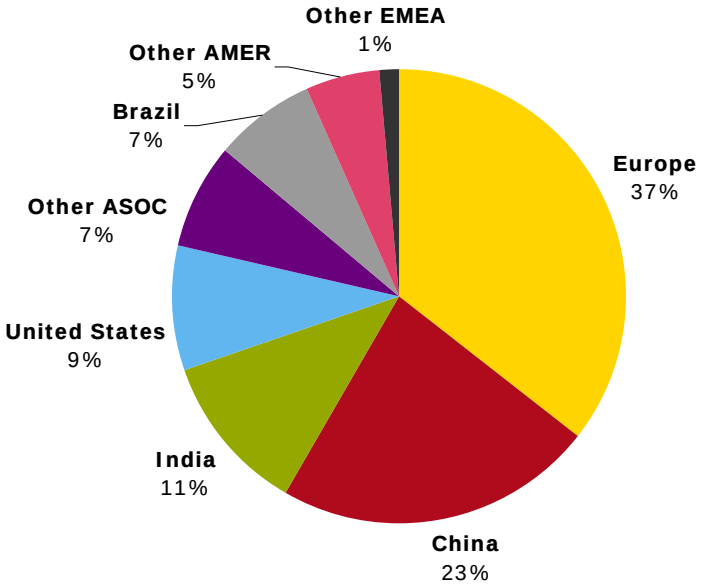
3. **Cost and Quality of the Resource – typically 60%-80% of variable cost for bio-energy, and location matters.**

4. **Efficiency of the Conversion Technology – rapid changes in technologies**

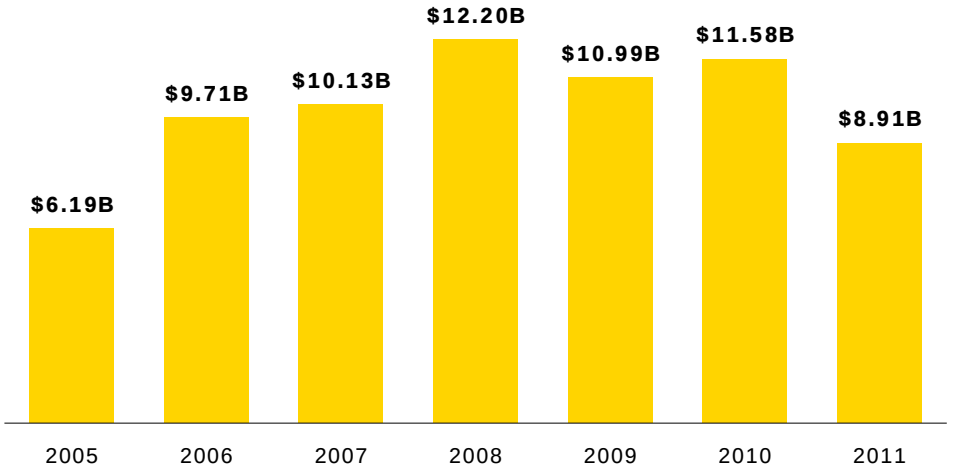
5. **Public Policy – in many cases some public support is required.**

- Global investments in energy plants using biomass (i.e., solids)have hovered around $9-10 B/year since 2007 – much more consistent than for biofuels (ie., liquids).
- Europe is the leader, followed by China.
- China's NDRC is targeting to increase biomass power from <6GW in 2010 to 24 GW by 2020 (estimated cost ~$70 billion
- EU expects to double biomass capacity by 2020 to ~26 GW (~$50 Billion)
- Brazil likely to spend at least $55 billion for power & cellulosic fuels to use wood & sugar cane biomass

Global Asset Financing in Biomass and Waste-to-Energy (2005-2011)[1]



Cumulative Growth in Biomass and Waste-to-Energy Asset Financing[1]



[1] Source: Bloomberg New Energy Finance., CIBC World Markets

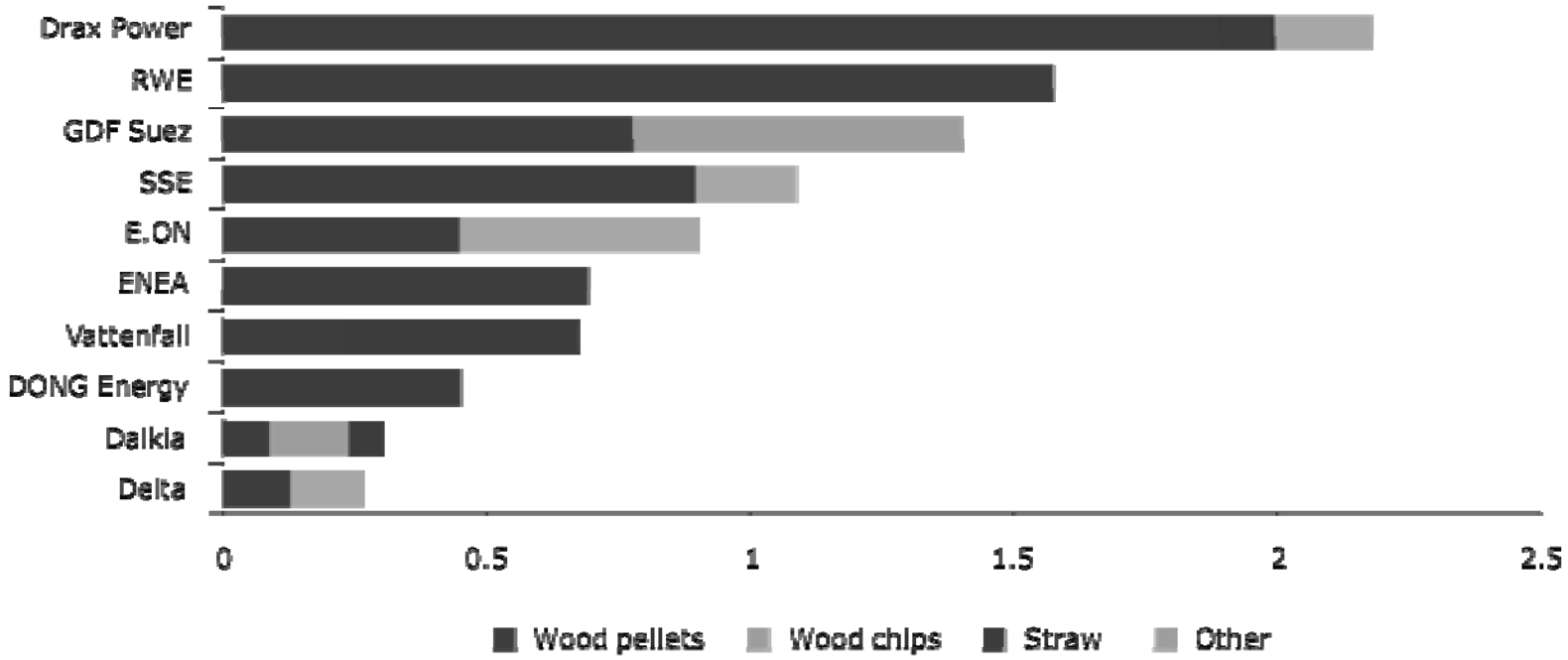
Global Biomass Shipping Routes

Note: Dotted cycles represent the major demand centres; the strength of the arrows is relative to their importance as trading routes.

Source: Bloomberg New Energy Finance, IEA

Biomass demand for co-firing in Europe is expected grow to approach 14 million tpy by 2014 – a 40% increase over 2010. Three biggest demanders are Drax, RWE and GDF Suez.

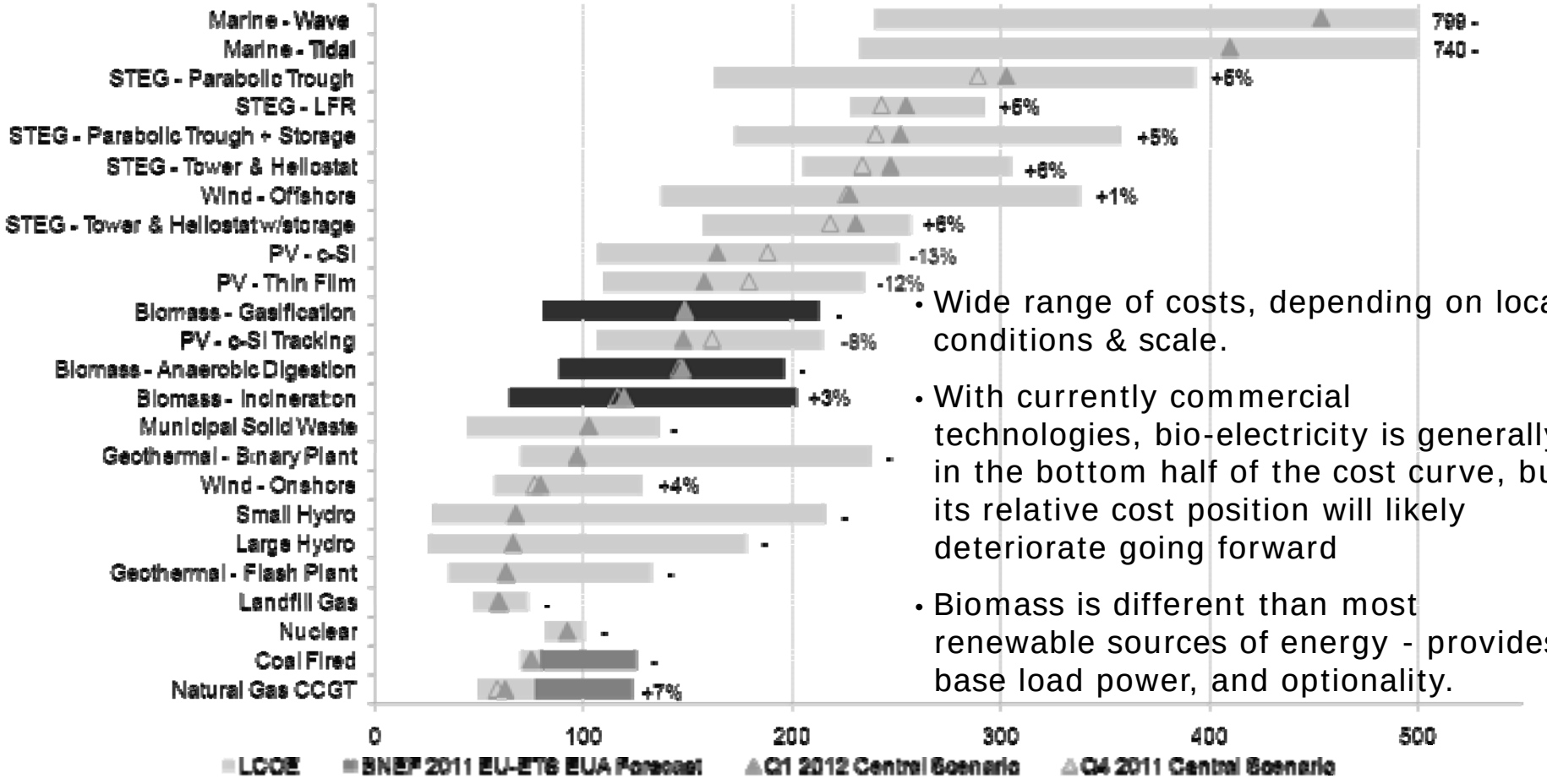
Biomass Demand For Co-Firing by Parent Company 2011 (million ODMT)



Note: using installed capacity rates in the UK, Netherlands, Poland and Denmark – this graph accounts for 83% of installed capacity. "Other" biomass includes palm kernel shells, energy crops and other biomass sources.

Source :Company reports, Bloomberg New Energy Finance, CIBC World Markets

LEVELISED COST OF ELECTRICITY Q1 2012 ($/MWH)

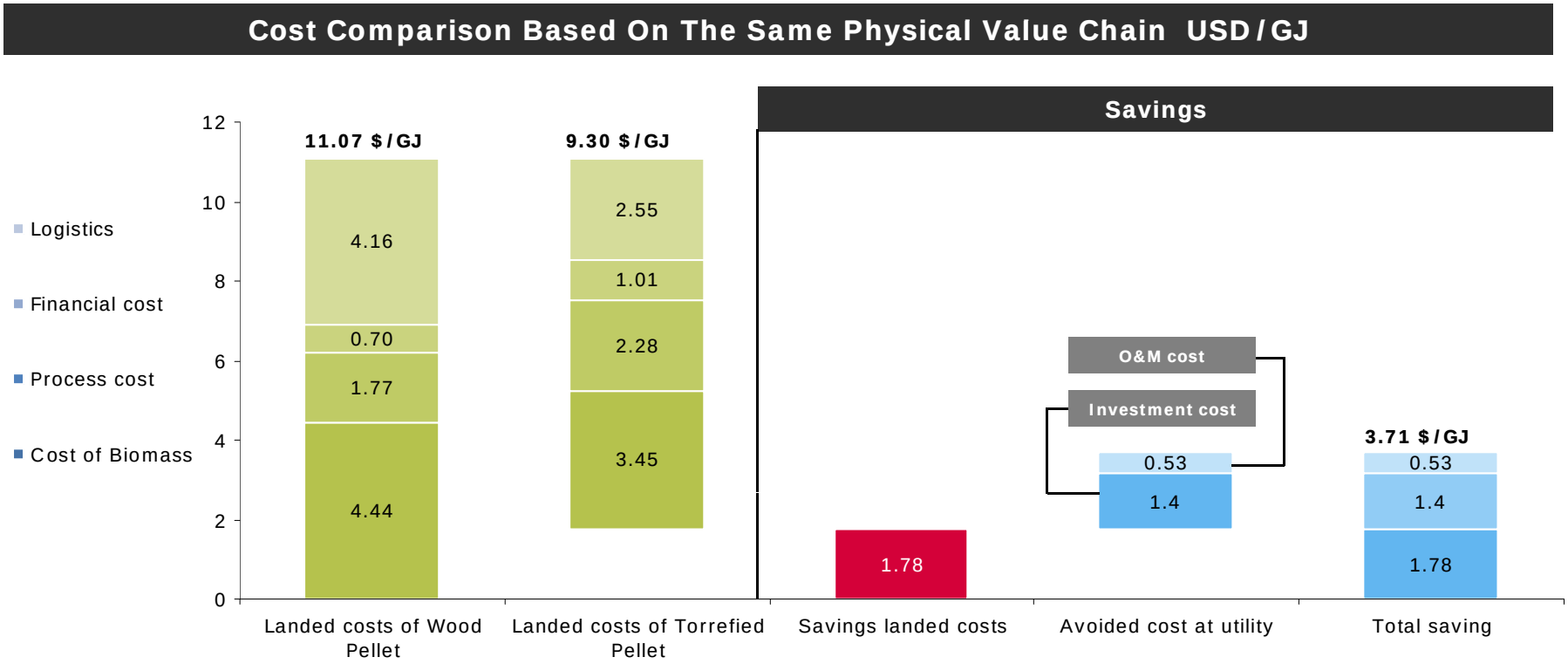


- Wide range of costs, depending on local conditions & scale.
- With currently commercial technologies, bio-electricity is generally in the bottom half of the cost curve, but its relative cost position will likely deteriorate going forward
- Biomass is different than most renewable sources of energy - provides base load power, and optionality.

Note: Carbon forecasts from the Bloomberg New Energy Finance European Carbon Model with an average price to 2020 of $33/mtCO2. Coal and natural gas prices from the US Department of Energy EIA Annual Energy Outlook 2011 and internal forecasts. Percentage change represents change from Q4 2011.

Source: Bloomberg New Energy Finance, CIBC World Markets Inc.

If you want to invest in solid biofuels, best to go opt for torrefied as opposed to conventional pellets. It results In Significantly Lower Costs In The Entire Value Chain ~20% less.

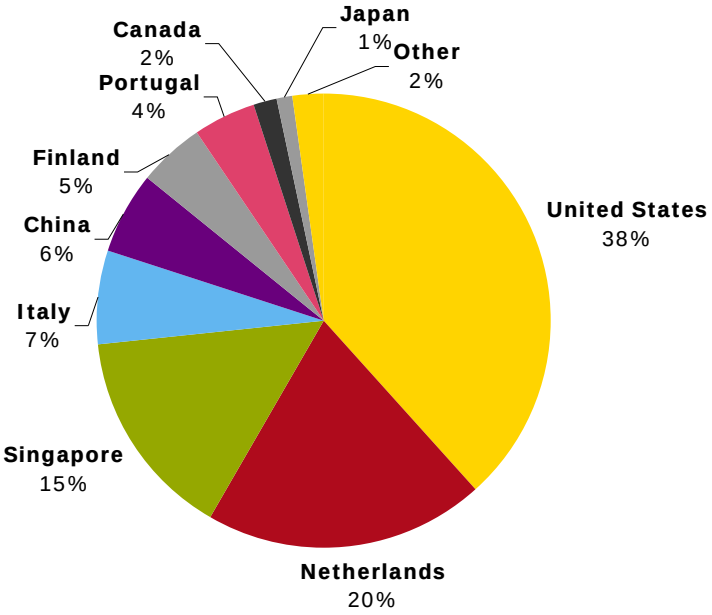


Assumption: Both plants are located in the south eastern region of the United States, are located 100 km from a deep sea port, and the pellets are shipped to Rotterdam.

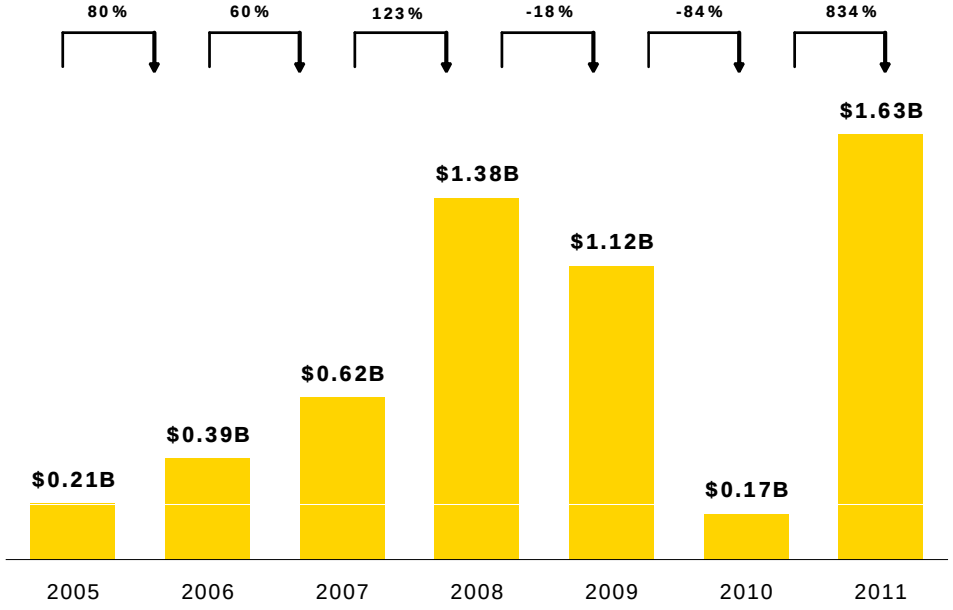
* Feedstock cost includes: delivered chipped cost of whole logs for wood pellet; whole logs and logging residues for torrefied pellet assuming 50% moisture content
** Process cost includes: electricity, labour, SG&A, binding agent, royalty and other operating costs
*** Financial cost includes: depreciation, interest on debt
**** Logistics includes: the cost of transportation and handling from plant to power plant

- Due to the global recession, investments in second-generation bio-fuels fell dramatically in 2010, and then rebounded to a record $1.6 billion in 2011.
- The U.S dominates the investments in this field, with the bulk being cellulose-based. The large investments in Singapore & the Netherlands largely use palm oil as an input.
- We expect the aggregate investment to significantly increase over the next 5-10 years, with most of the rise occurring in the United States and Brazil.

Asset Financing in Second-Generation Biofuels by Country (2005-2011)[1]

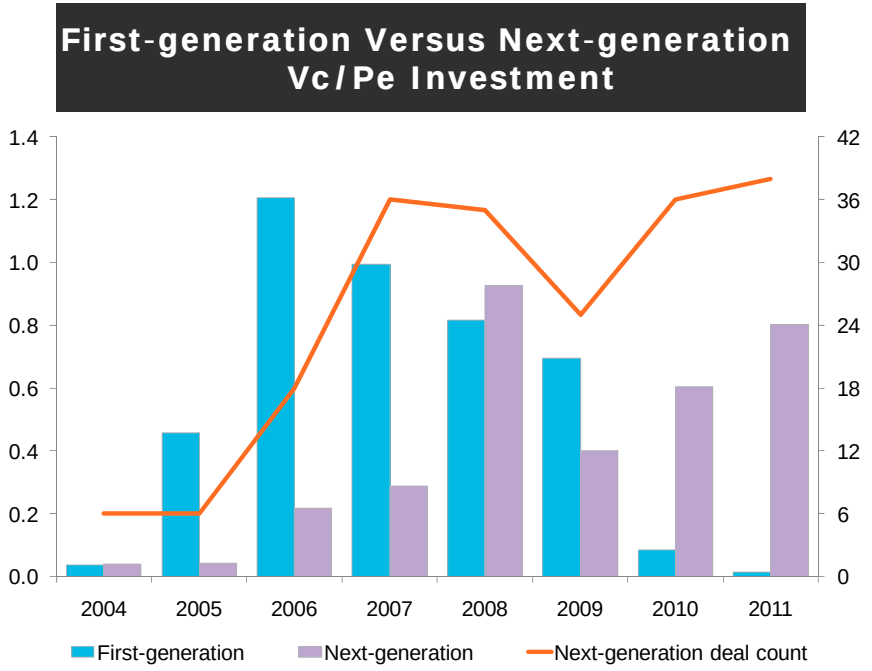


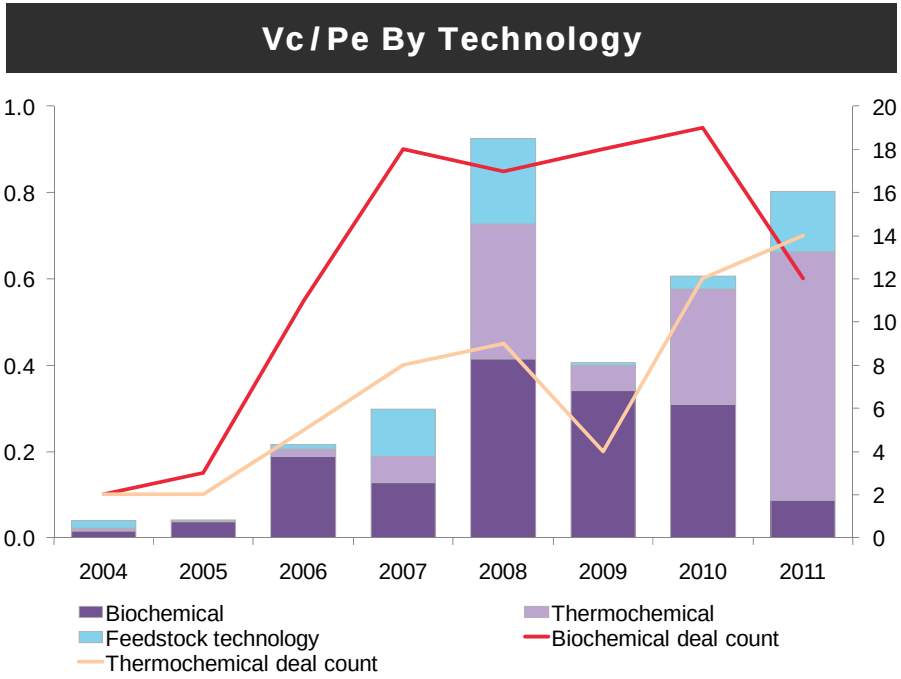
Cumulative Growth in Second-Generation Biofuels Asset Financing[1]



[1] Source: Bloomberg New Energy Finance.

BIOFUELS INVESTMENT TRENDS, 2004-11 ($BN)





Almost by definition, very little VC/PE capital is going into first generation biofuels.

Within the second generation technologies, VC/PE capital is increasingly focused on Thermo-chemical approaches (eg., pyrolysis & gasification) as opposed to Bio-chemical approaches (eg., enzymatic hydrolysis). This is partly in response to the fact that the former is generally better able to handle a wider range of feedstocks.

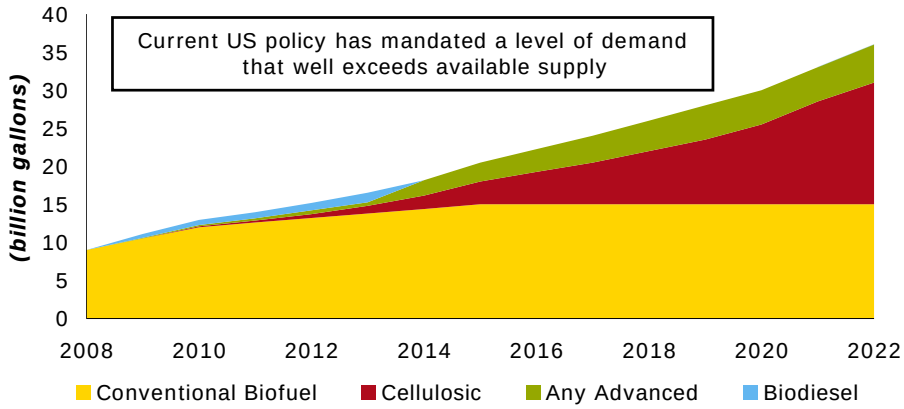
Source: Bloomberg New Energy Finance, CIBC World Markets

Objective is to stimulate the production of "next-generation bio-fuels"

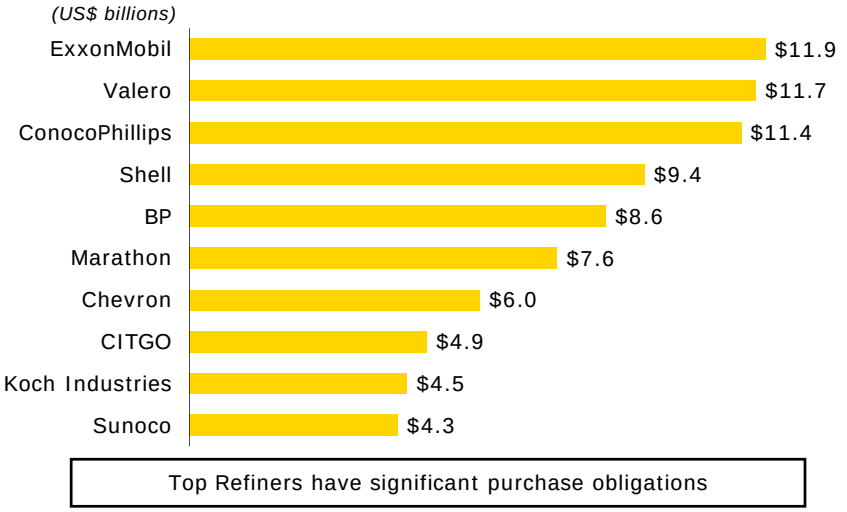
- One of the few federal initiatives to have bi-partisan support.
- Specific technological pathways must be approved by the EPA.
- The feedstock must come from a renewable and sustainably managed resource.
- Requires 21 billion gallons of advanced bio-fuels by 2022.
  - Up from 1 bgal in 2010
  - 2022 target must include at least 16 bgal of advanced cellulosic bio-fuel
  - Annual interim targets, with 5.5 bgal in 2015

RFS- 2 creates a broad and sizable market in the U.S. for cellulosic fuels with numerous motivated potential customers……but there is still some policy uncertainty.

RFS2 Mandate *(in ethanol equivalence)*



Potential Renewable Fuels Spend *(RFS2 by 2022)*

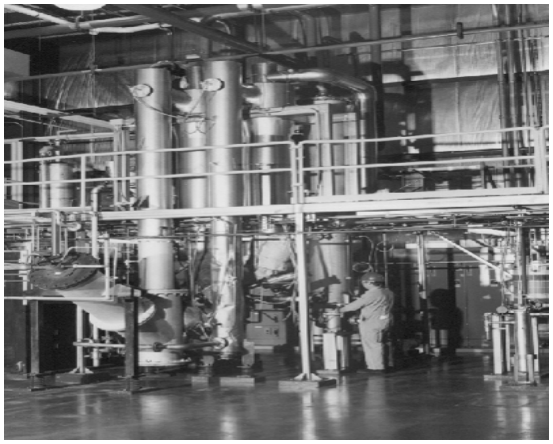


Source: U.S. EPA, Company Website., CIBC World Markets Inc.

Ensyn's Fast-Pyrolysis process is the only commercially operating biomass to liquid fuels technology

Red Arrow Products Company

- Commercialized in 1989
- Four operating facilities
- Food ingredients and liquid fuels market



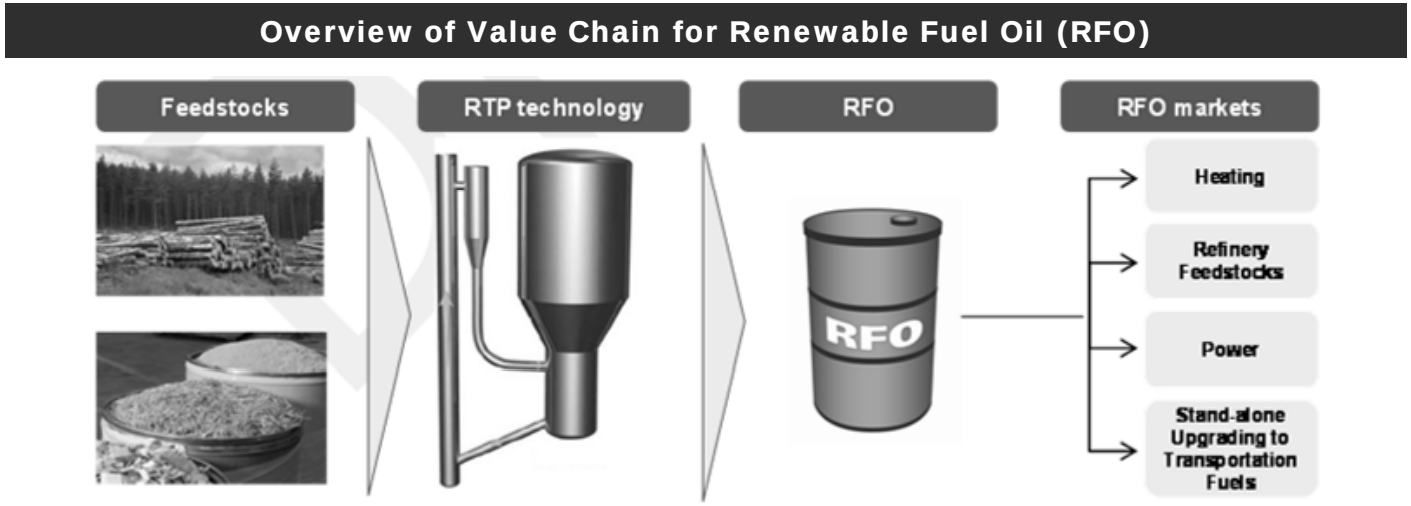
Ivanhoe Energy

- Commercialized in 2004
- 1,000 BDTPD
- Heavy oil facility
- Petroleum upgrading

Renfrew Facility

- Commercialized in 2007
- 100 BDTPD
- Renewable Fuels

Over 100 million liters (30 million gallons) of Renewable Fuel Oil (RFO) produced to date



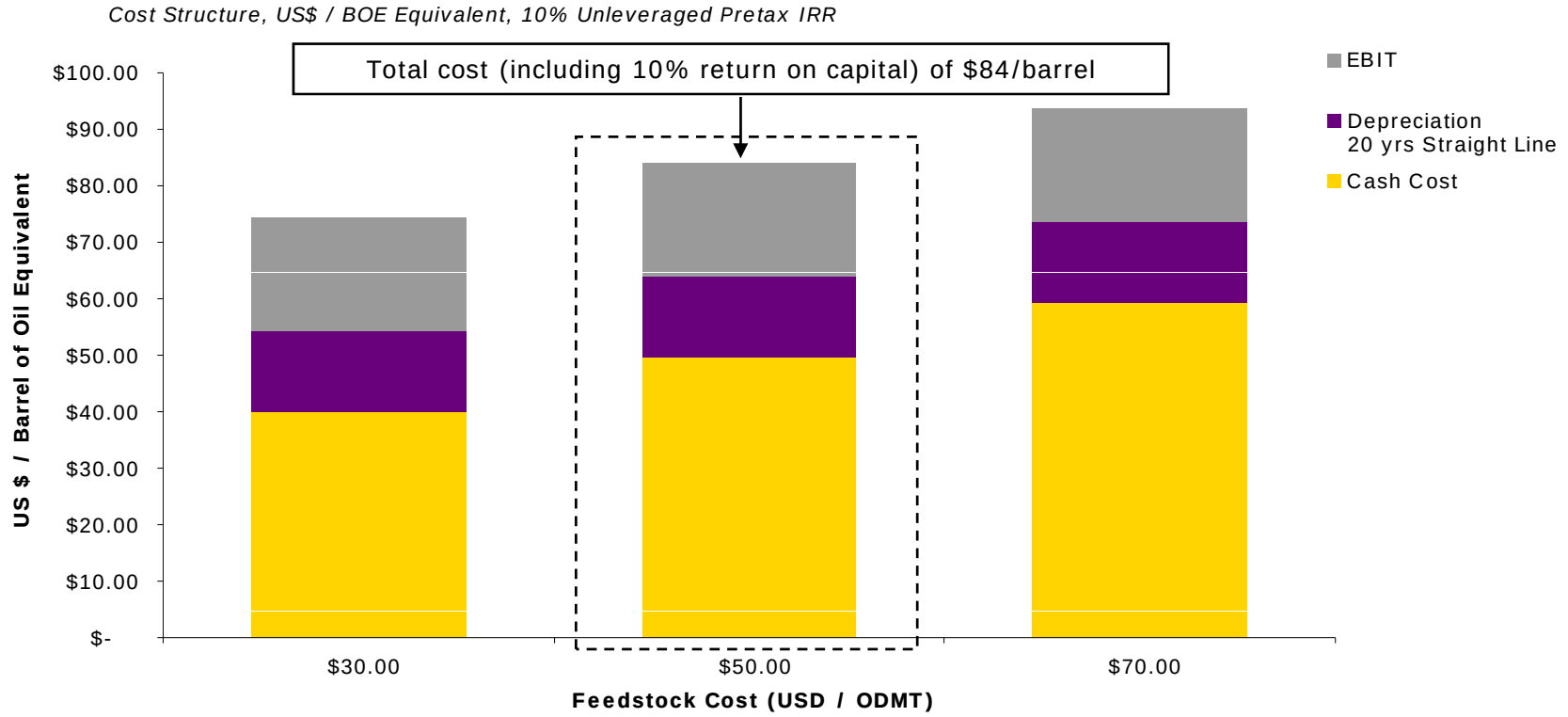
RFO can be used in different applications – including blendstock in existing oil refineries.

Benchmark plant consumes 400 ODMT of biomass, and produces 850 BOE per day
(23 million gallons/year of RFO)

Capital cost is $60-$100 million, depending on existing infrastructure & location.

- Joint venture between Ensyn and Honeywell has resulted in a significant reduction in costs.
- Given biomass price of $50/ODMT, the cash cost of RFO is now <$50/barrel of oil equivalent[1]
- Pre-tax unlevered IRR of 18% in base case (assumes no values for environmental attributes likes RINS)

Cost of Producing RFO Under Alternative Biomass Costs ($/Barrel of Oil Equivalent[1)]



[1] Source: Ensyn Management.

Partnerships are Critical

JV Partners

UOP
A Honeywell Company

premium
RENEWABLE ENERGY

Shareholders

IMPAX

Chevron

CREDIT SUISSE

FPI
FELDA PALM INDUSTRIES

Strategic Partnerships

Ivanhoe Energy

TOLKO

RCR COLL'ENERGIA

FPI
FELDA PALM INDUSTRIES

RED ARROW
Smoke • Grill • Browning • Cooking Flavors

Off-take Agreements

Chevron

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- Forest companies do not have the skill sets or capital to undergo transformative change on their own.
- What is the core competency of most forest companies? Growing trees and Materials Handling…and they do it very well.
- Also need partners with expertise in technology, construction, marketing & distribution and finance.
- To mitigate technology risk, most forest companies want to be “first to be second” when adopting new technologies. Does this always make sense?
- New partners are entering the field of renewable energy/clean technology.

Many governments are broke, so they cannot provide much financial support.

- If they do spend, it should be in supporting the earliest stage R&D and training ("General" human capital)

As usual, government's can help provide the right operating environment. They can provide **TLC**:

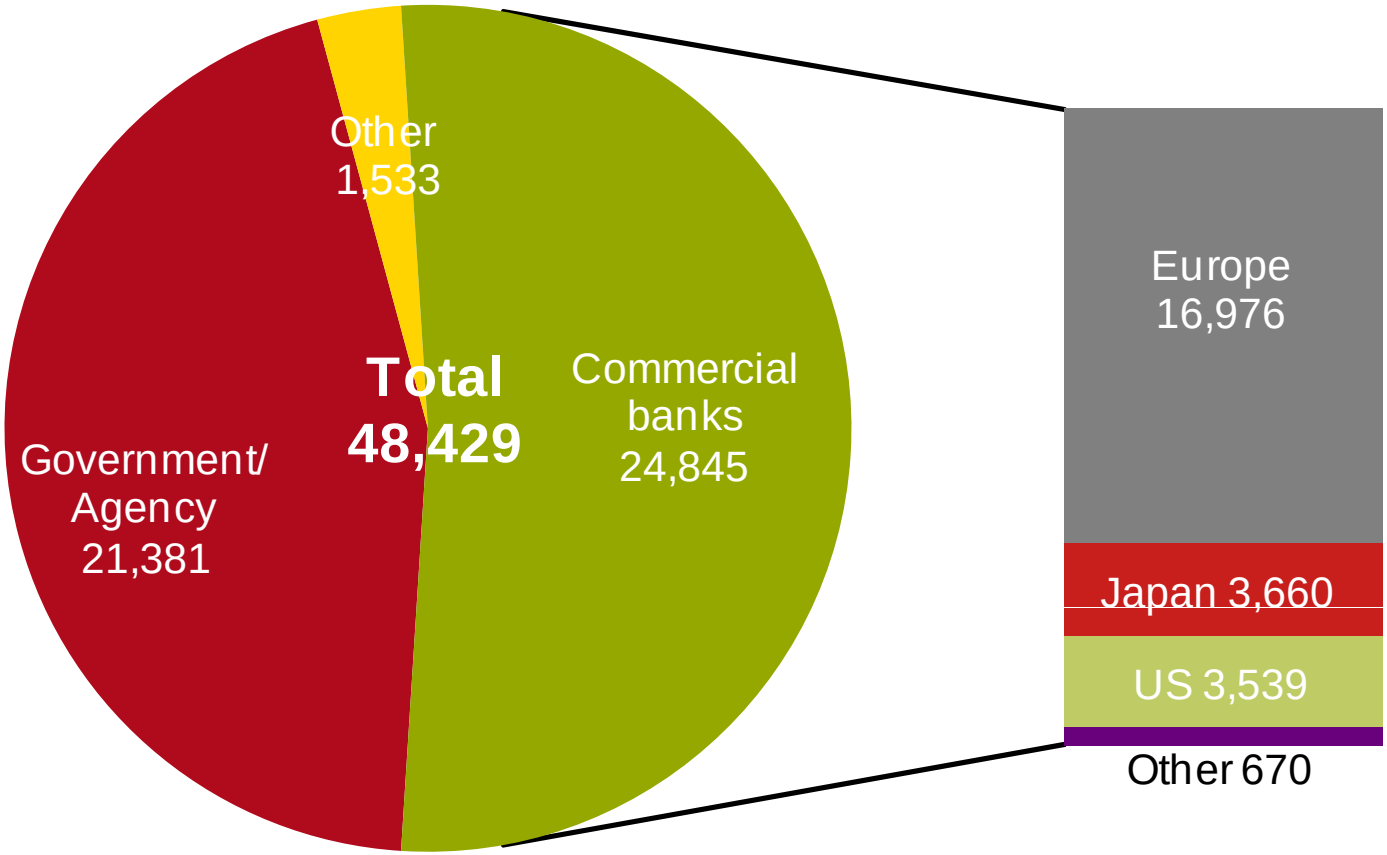
- **Transparancy** - clear rules & processes
- **Longevity** - match policies/support to the the length of the asset
- **Certainty** – minimal policy changes over time.

Increasingly, governments can play the role of:

- "Convener"
- "Information Broker".

Appendix 1:
Structural Changes in the Debt Markets

Top 50 Mandated Lead Arrangers For Clean Energy Project Finance, 2011 ($m)



Who will pick up the slack created by less capital from Governments/Agencies and the European Commercial Banks?

Source: Bloomberg New Energy Finance

Traditional sources of finance for bio-energy projects are likely to be less available in the future.

Five key reasons:

1. High government debt
   - Development Banks will have less capital

2. Weak European banking system
   - Retreat of the largest project financiers

3. Basil 3 requirements
   - More conservative capital ratios for all banks

4. Rapid reductions in the Levelised Cost of Renewable Energy
   - Driven by technological change.

5. Selected environmental regulations
   - Eg., RFS-2 in the United States – creates a market for products with technological risk.

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Appendix 2:
Bio of Don Roberts

- Mr. Roberts is a Vice-Chairman of Wholesale Banking, and Managing Director in Investment Banking with CIBC World Markets Inc.. He leads the bank's Renewable Energy & Clean Technology Team. Don also provides senior coverage for companies in the Global Forest Products Industry
- In 2011, Mr. Roberts was chosen by Corporate Knights Magazine as the individual in the Financial Services sector who contributed the most to sustainable development in Canada
- During a sabbatical year in 2009 Mr. Roberts designed and guided the Future Bio-Pathways Project on behalf of the Forest Products Association of Canada.
- Prior to assuming his current position, investor surveys consistently ranked Don among the top equity research analysts covering the North American forest products industry over a 18 year period. Previous to entering the financial services industry he was Chief Economist for the Canadian Forestry Service. In addition to his work with CIBC World Markets Inc., Don is also
  - An Adjunct Professor in the Department of Forest Resource Management at the University of British Columbia (Vancouver);
  - On the Board of Directors, Rights and Resources Institute (Washington, D.C.); and,
  - Serves in an advisory capacity for a range of government, industry, and NGO groups.
- Mr. Roberts has a Bachelor's degree in Agricultural Economics from the University of British Columbia, a Master's degree in Forestry Economics from the University of California at Berkeley, and both an MBA and doctoral studies in International Finance and Economics from the University of Chicago. He is also a certified Board Director with the Institute of Corporate Directors.