Thoughts on Transforming the Forest Sector in New Brunswick

New Brunswick Forestry Summit:
Fundamentals for Future Competitiveness
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Don Roberts
Vice Chairman, CIBC World Markets Inc.
613-564-0827
don.roberts@cibc.ca

Outline

1. **Assigned Homework**

2. **Roberts – Woodbridge 2008 Report**

3. **Public Policy Basics**

4. **Observations re:**
   - **People**
   - **Wood**
   - **Energy**

5. **Guidance from the Future Bio-Pathways Project?**

Assigned Homework

Roberts' Top Five Competitiveness Issues/Opportunities:

1. Crown and private land timber supply;
2. Industry energy policy;
3. Value-added products;
4. Innovation;
5. Other (Analytical Capacity)

Roberts-Woodbridge Report 2008

Report of the Task Force on Investment Opportunities in the New Brunswick Forest Sector: General Conclusions

- A turnaround in N.B.'s competitiveness will not happen by itself. There are many difficult challenges ahead.

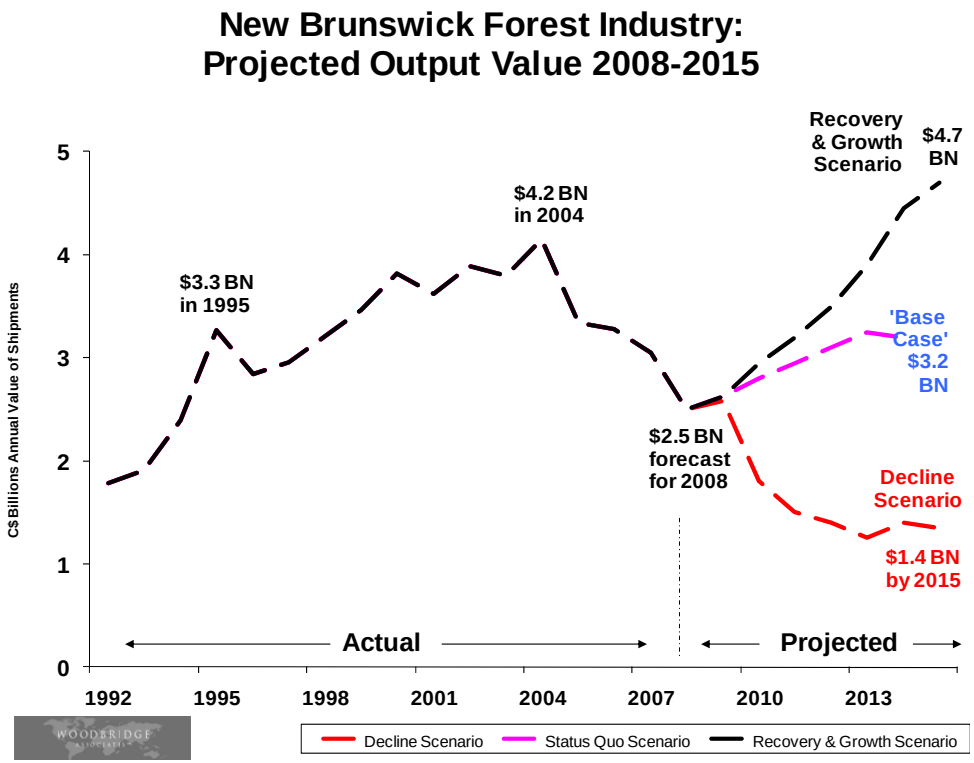
- With success, a new, more robust – and profitable – forest sector could emerge.

- Without success, the current serious loss of "critical mass" within N.B.'s forest products manufacturing industry could lead to further withdrawals of investment.

- Several scenarios were developed through 2015 which vary depending on government/industry action and market outcomes.

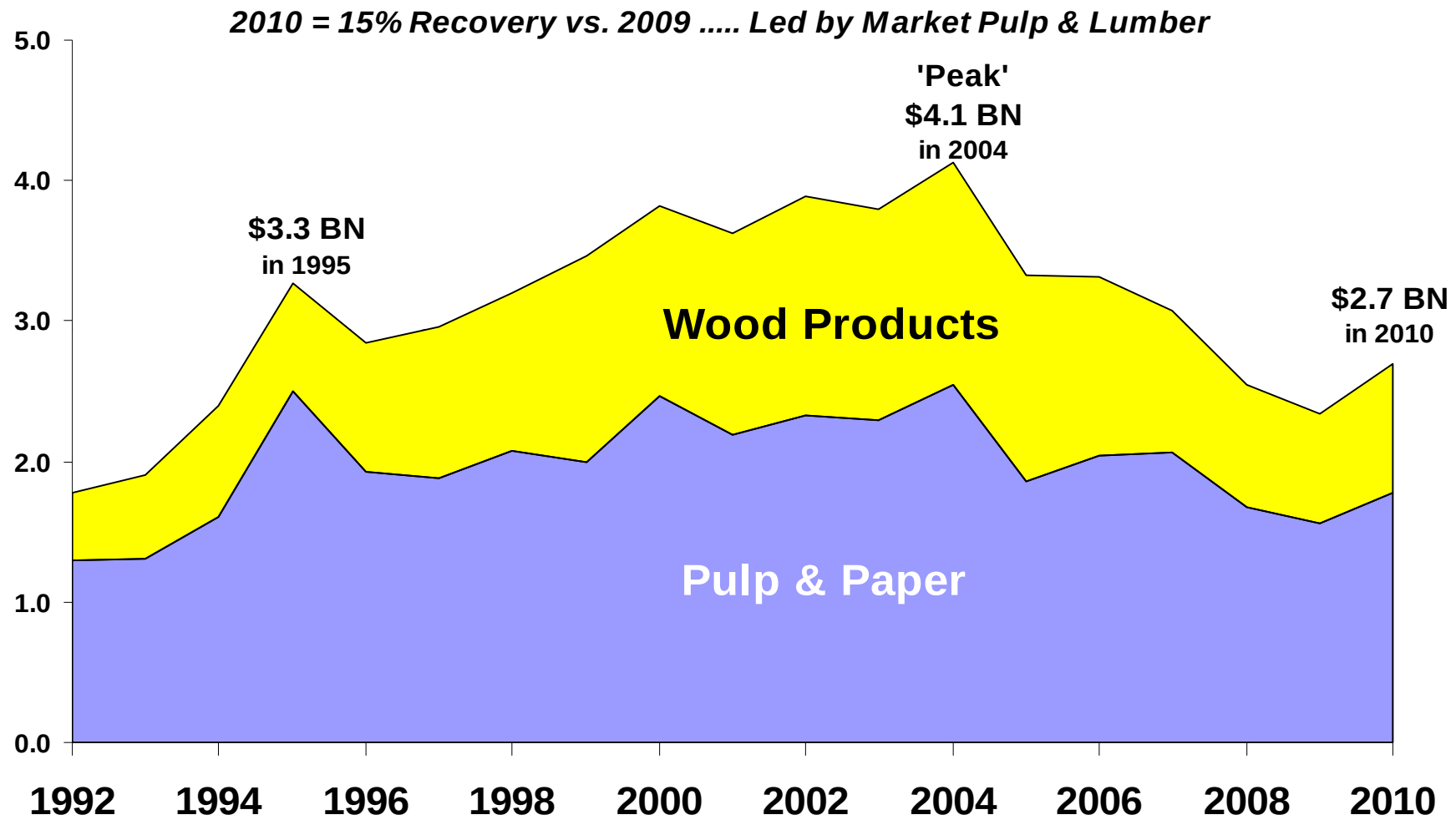
Roberts-Woodbridge Report 2008

Identified Various Growth Opportunities.



Just after the Report was submitted in July 2008, the global economy entered its worst recession in over 70 years.

New Brunswick: Forest Products Manufacturing
Value of Shipments



Data sources: StatsCan; Strategis & Woodbridge Estimates

Roberts-Woodbridge Report 2008

Seven recommendations were made in the 2008 Report, but essentially none were implemented.

Given time constraints, let's focus on four key recommendations.

1. If the objective is to generate wealth, the GNB and the industry should consider strategies to expand – not reduce – Crown and private timberland timber supply via a combination of enhanced productivity, improved forest management regimes and commercial programs for private woodlot owners.

Roberts-Woodbridge Report 2008

Four key recommendations (cont.):

2. The NB forest industry needs to place a priority on becoming self-sufficient in energy. Ultimately, the industry should target becoming a net exporter of electricity into the grid through the application of green energy technologies.

Four key recommendations (cont.):

3. The NB forest industry, notably the wood products producers, should explore the market opportunities outlined in this report through a series of well organized industry visits to key markets in the United States.

Roberts-Woodbridge Report 2008

Four key recommendations (cont.):

4. A joint industry/government initiative should be undertaken to build analytical capacity in NB's forest sector, with an emphasis on market and strategic issues. A priority should be given to developing this capacity in the provincial government and private wood lot segment.

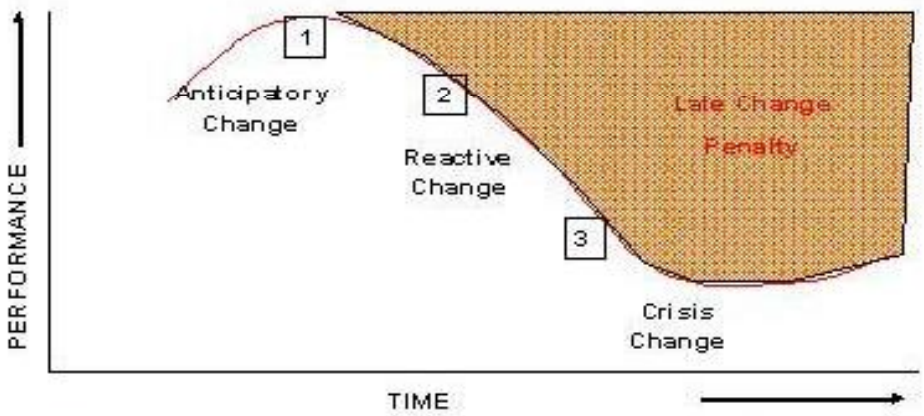
These recommendations are still valid.

However,

- NB has lost time;
- The cost of inaction has increased; and,
- Fewer options now exist because of greater debt.

Is It Time to Act?

Change, Timing and Late Change Penalties



1. Forecasted Difficulties: Anticipatory Change
2. Tangible Difficulties: Reactive Change
3. Critical Difficulties: Crisis Change

- You may not realize it, but NB is likely approaching a crisis situation.
  - The Forest industry is close to a “tipping-point” regarding the loss of critical mass.
  - Provincial debt will likely rise from $8.5 to ~$11 Billion over the next several years. What happens when interest rates rise?
  - The longer you wait to change, the greater the “late change penalty”
  - For the forest sector, the strategy should not be simple “across the board cuts”. It is necessary to change what you are doing.

NB May Not Be Greece (but is it like New Zealand or Britain?)

New Zealand was forced to monetize its public timber assets in the 1980s in response to a fiscal crisis in its public finances.

And just last month:

•……"Britain plans huge sell off of forests in bid to cut deficit" *The Sunday Telegraph*, October 24, 2010

•"We are looking to energize our forests by bringing in fresh ideas and investment, and by putting conservation in the hands of local communities", U.K. Department of the Environment, Food and Rural Affairs.

Is this what the people of NB want?

Public Policy Basics - I

- Even before assessing specific recommendations & programs, public policies need to provide TLC for investors in order to effectively catalyze private investment. In other words,
  - **Transparency** – How easy is it to navigate through the policy structure and execute?
  - **Longevity –** Does the policy match the investment horizon and create a stable environment?
  - **Certainty –** Does the policy deliver predictable revenues to support a reasonable rate of return?

Public Policy Basics - II

- Good industrial policy should embody certain basic business principles:
  - It is taken as given that all business activities must be environmentally sustainable – there is no compromise.
  - The emphasis should be on the creation of wealth – let the tax system focus on the redistribution of wealth.
  - Market forces should be allowed to drive capital and resource allocation.
  - Cost management and organizational efficiency are basic tenets if you want to participate in the industry.
  - Government's role should be strategic as opposed to making tactical decisions.
  - Regulations should focus on outcomes as opposed to methods.
  - Contracts come with obligations on both sides.

Three Areas of Focus

- People
- Wood
- Energy

People

Relative to key competing regions, the GNB needs to upgrade its internal capacity to manage/influence the forest sector.

- Important to invest more in your people and systems.

Private Woodlot owners need to upgrade their technical and business management skills – a pre-condition to getting public funding?

Players in both the public & private sectors need to understand the linkages within the forest sector complex.

- A suite of analytical models needs to be developed – a framework for analysis;

- Generate an objective set of metrics, and raise the level of debate.

People

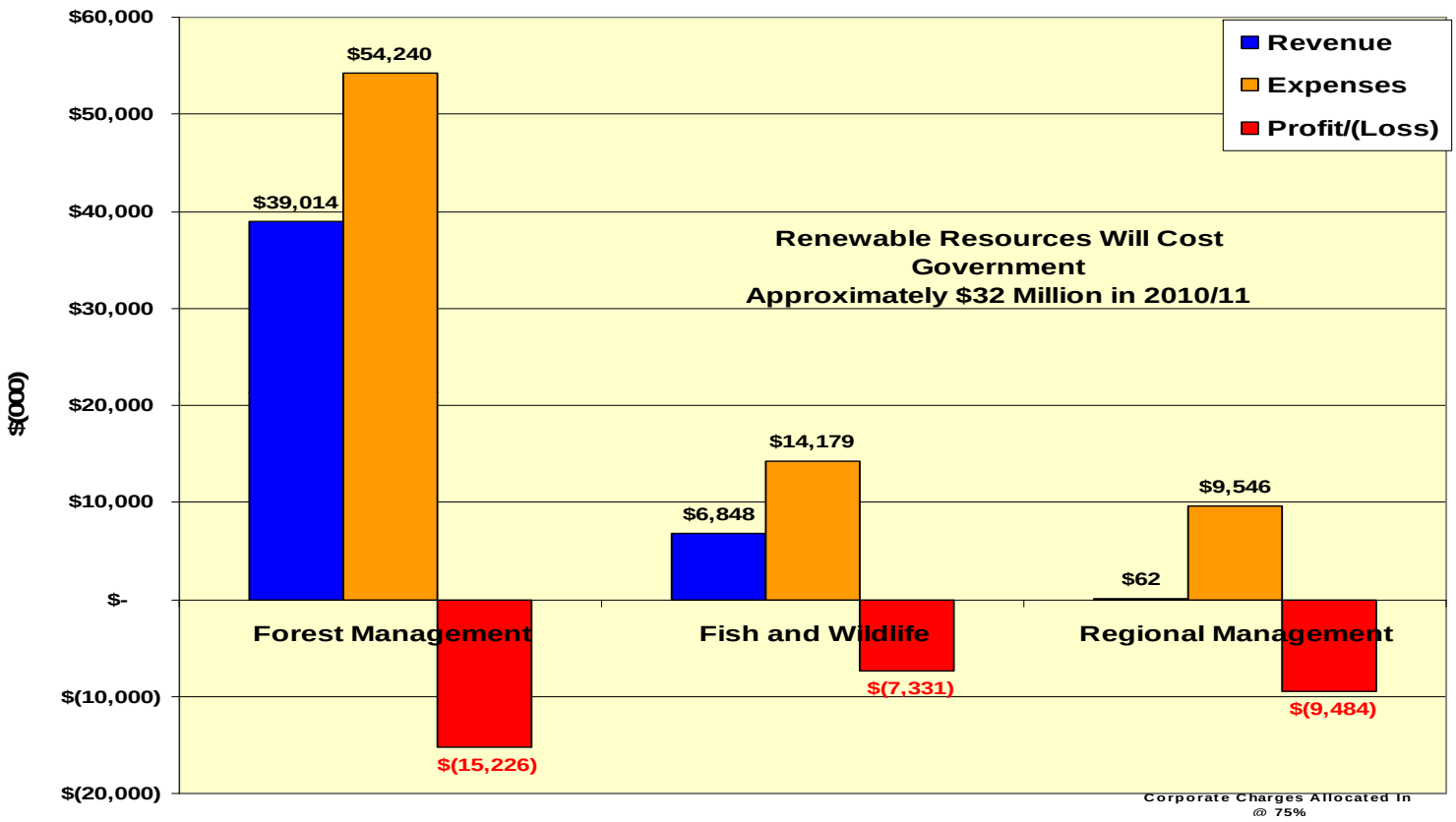
The lack of mutual trust in NB is worrisome.

- It is impeding your ability to take advantage of a natural strength
- Given your size, you should be able to reach a consensus quicker than your competition, and be more nimble in response to shocks.

People

- Lack of trust leads to cynicism, and this can be very corrosive to your community.
- Similarities between New Brunswick and Argentina?
  - Both are well endowed with natural resources.
  - While Argentina's resources are more abundant, NB has a far better strategic location.
  - Both lack trust
  - Argentina now seems to be content to be #4 in Latin America wrt the forest sector – under achieving
  - Does NB have ambition?
  - Be more like Brazil (or even Uruguay) in terms of "Can Do" attitude.

Revenue and Expenses by Major Renewable Resources in NB.

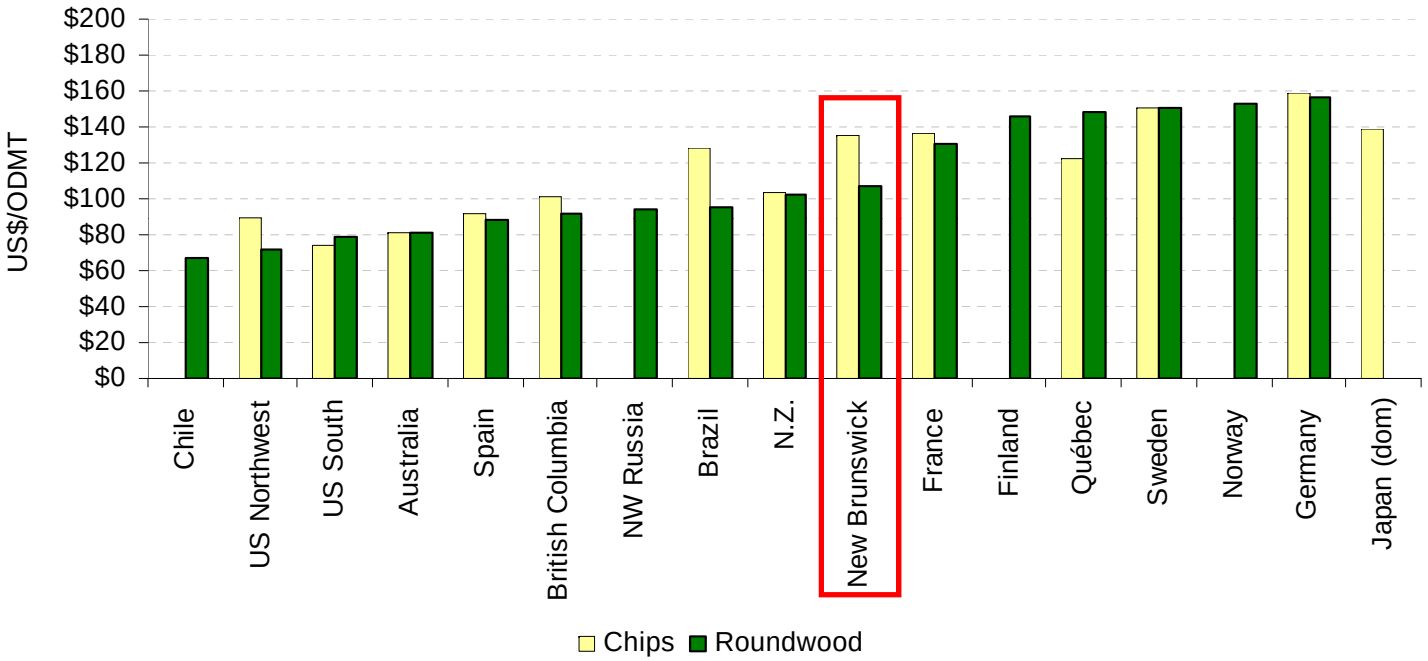


What's wrong with this picture? The British North American Act identified Natural Resources as the "cornerstone" of provincial govt. finances.

In 2010/11, it is estimated that Renewable Resources will cost the Govt of NB ~$32 million.

Wood

Average Delivered Conifer (Softwood) Pulpwood Prices (Based On Local Prices In Q2/2010)



Source: Wood Resources International, Bloomberg, CIBC World Markets Inc..

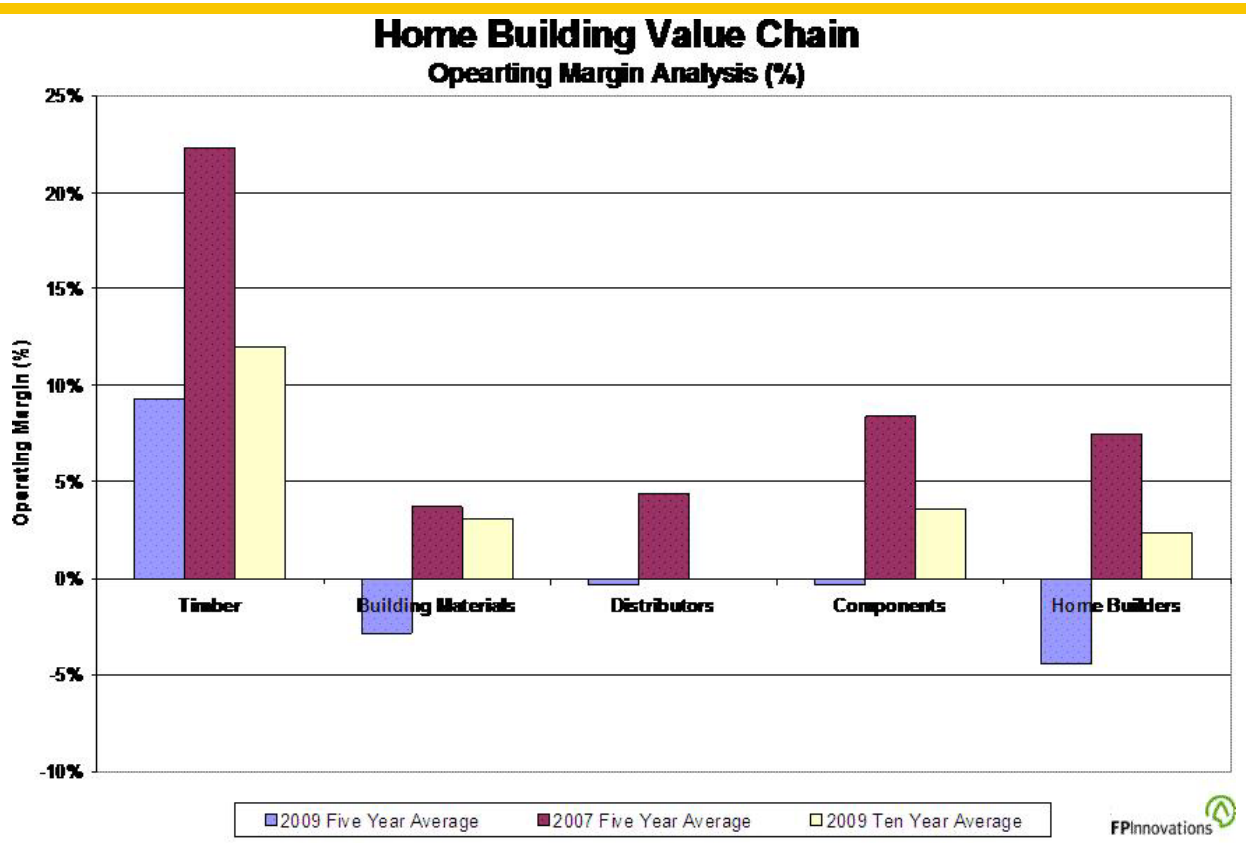
Softwood pulp fiber costs in N.B. are well above those in most of N. America, but lower than those in Europe. Compared to Quebec, roundwood prices are lower, but chip prices are higher.

Wood

Re: Crown lands:

- ~50% of productive forest land
- Growth rates ~ 50% of industrial timberland
- Emphasis on planting, not growing trees
- Cash flow/ha is actually negative
  - ~($6/ha) vs ~ $40/ha for Acadian Timber in NB/Maine.
  - Gap over land-base ~$140 million/year.
  - Even if we assume the gap is only 50%, it is still ~$70 million in foregone revenue.

Who Captures the Margin in the Solid Wood Chain?



- **In the North American Solid Wood Value Chain:**
  - **Greatest operating margins are captured by the owners of timberland - true in NB???**
  - **In terms of processing, Components look the most interesting.**

Wood

Something needs to be done to change the status quo – and soon.

Its not optimal, but a Special Operating Agency may lead to meaningful improvements.

- **Hybrid management approach which would collapse the existing DNR/Licensee management framework on Crown lands.**
- **Responsible for FMA obligations, major parts of DNR forest management, harvest/transport services for sub-licensees.**
- **Overseen by Board of Directors which includes reps from various stakeholders (eg., Sub-licensees, DNR/BNB, First Nations, Others)**
- **Operate on a break-even basis. Overhead reductions accrue to the Crown, and production savings accrue to the wood users.**
- **Linkages with Private woodlots should be seriously explored.**

Wood

Re: Private Woodlots

- **~30% of productive forest land**
- **7 marketing boards, with populace governance structures**
- **Most of the land is not 3rd party certified for sustainable management**
- **Operating well below sustainable harvest level**
- **On average, $5-$7/m3 higher cost of production than Crown wood, despite better quality land.**

Wood

Checks should not be given without obligations – it's a bad business practice.

Reasonable *quid pro quo* for getting public funding for silviculture on private woodlots?

- **3rd party certification for sustainability?**
- **Specific metrics for efficiency?**
- **Binding supply agreements?**

Wood

The business models for private woodlots and Crown lands in NB are arguably broken.

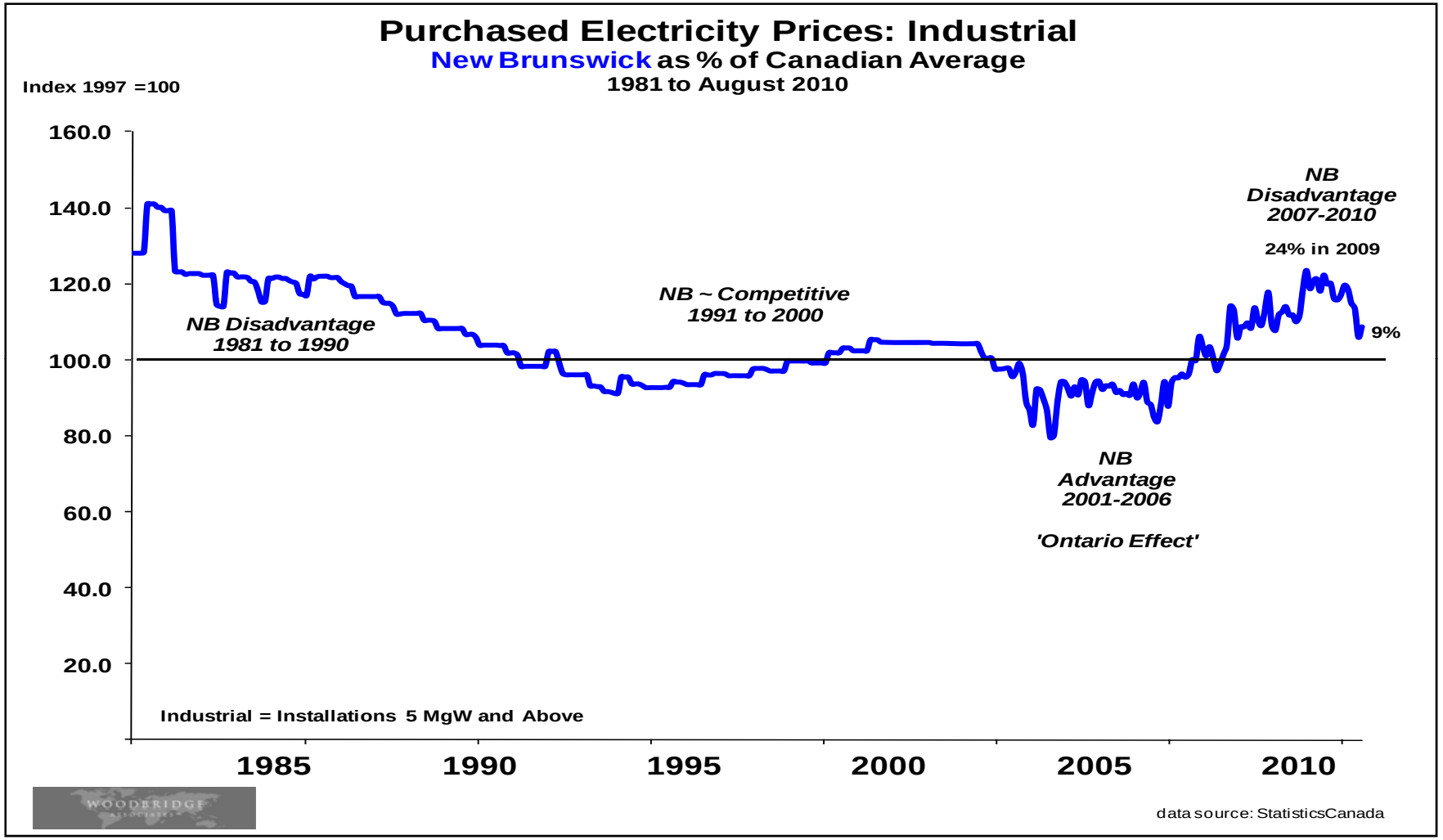
Fundamental question – Is DNR in the wood growing business…or not?

As a province, NB may need to make some hard choices between economic well being and conservation.

Consultation is important, but so is leadership.

- **Given the urgency and need for detailed dialogue, the "Town Hall" approach should likely be avoided.**
- **Identify the "leading lights", and get them talking - QUICK.**

Energy Costs: New Brunswick's National Competitiveness



Still not good enough, but relative position better since 2009 due to higher energy prices in Ontario, Alberta, and a lesser extent B.C.

Bio-Energy?

Five key variables shape the economics of investing in bio-energy:

1. The price of fossil fuels (the main substitute)

2.The price of carbon

3. The conversion technology

4. The cost of the feedstock (50%-80% of the variable cost)

5. Public Policy

Given the trends in these key variables, the long-term outlook for bio-energy is positive. However, there is also considerable uncertainty.

Bio-Energy

Biggest challenges to bio-energy in New Brunswick

1. **Low price of natural gas**
2. **No price on carbon**
3. **Relatively low price received for bio-energy**
4. **Provincial government lacks the ability to subsidize**

But:

- **Some bio-energy options don't need subsidization - true in NB?**
- **Recognize bio-energy bought for ~$.11/kWh in Quebec, ~$0.13 in B.C. and ~$0.14 in Ontario (vs. $0.07-$0.08 in NB).**
- **Explore "renewable energy complexes" which generate stable electricity.**
- **Other tools? Include bio-energy in the provincial Renewable Portfolio Standard.**

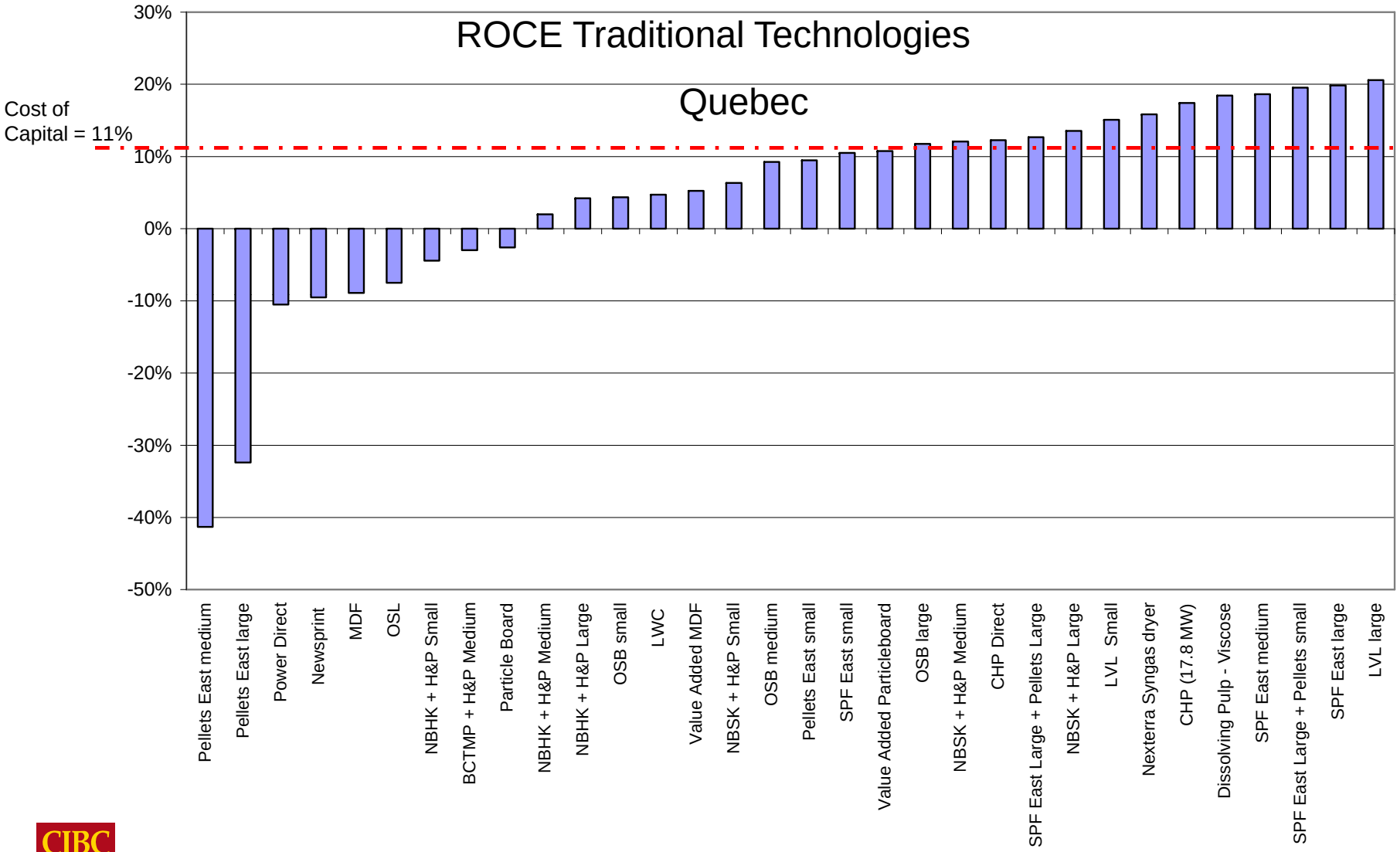
Should We Broaden NB's Product Mix?

Lessons Learned from the Canadian Future Bio-Pathways Project Conducted by FPAC/FP Innovations: Quebec Case Study

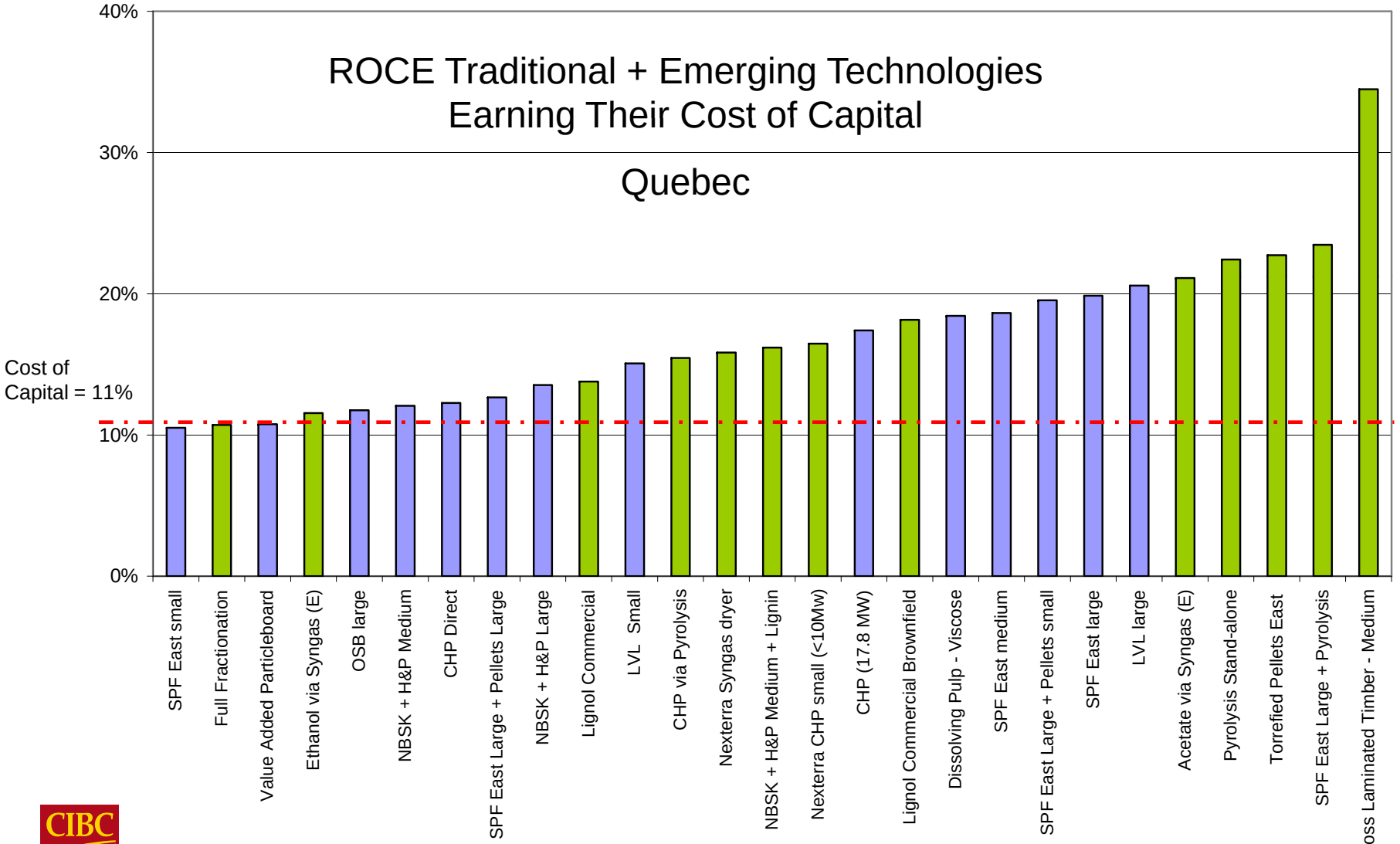
WARNING!

Generalizations are difficult…location matters

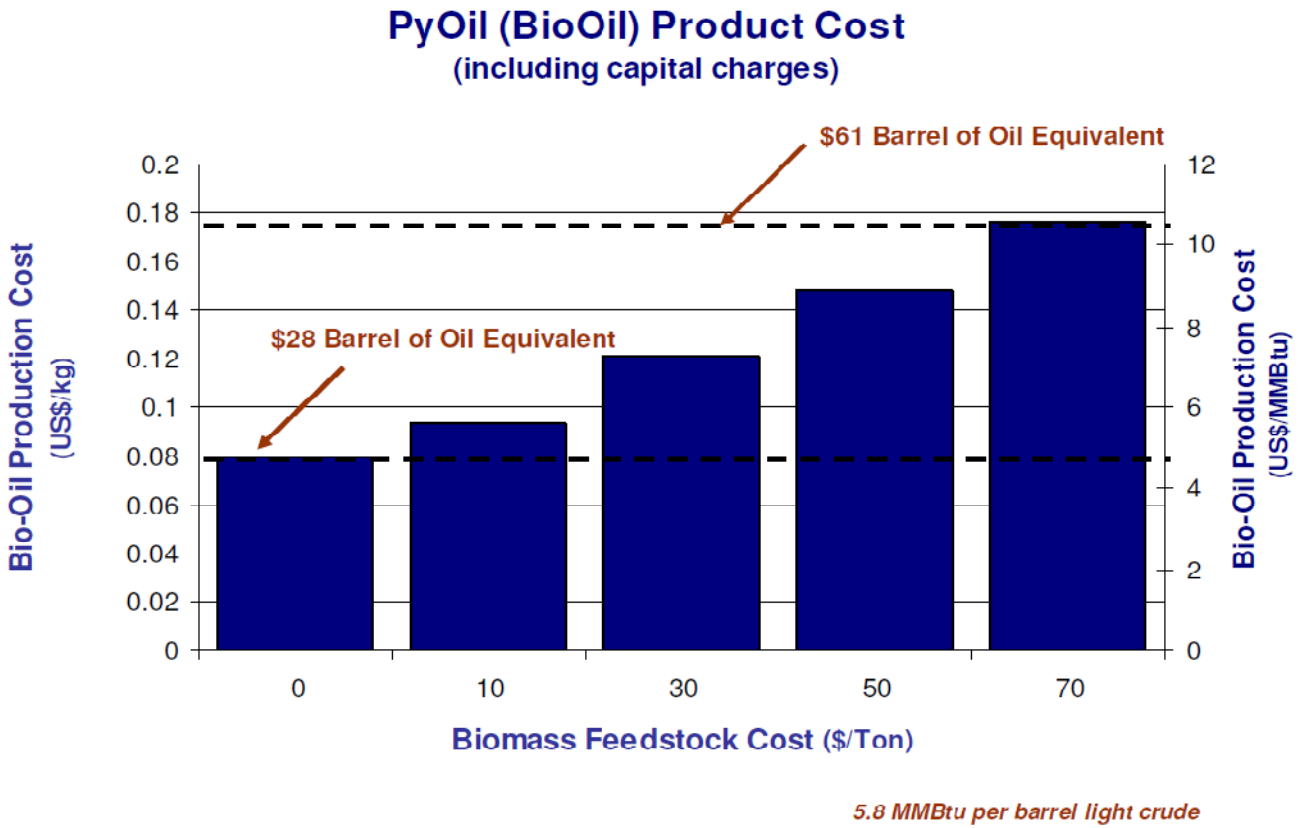
Many of the traditional products are not attractive.



But there are number of traditional & emerging products that can generate an reasonable profit over a cycle.



Case Study 1: Fast Pyrolysis For Electricity Production



- **Pyoil is competitive without subsidies as a substitute for fuel oil in generating electricity.**
- **Based on a fast-pyrolysis plant that consumes 400 ODMT/day of biomass to produce 14 MW of power & 585,000 GJ of steam, for a capital cost ~$50 million**

Case Study 2: Cross Laminated Timber

Value Proposition?

Need:

- **Non res and multi family mid-rise contractors looking for building solutions offering technical, cost competitive and environmental performance (3+ BF market)**
- **Green alternatives to concrete slabs**

Approach:

- **Align North American industry and other stakeholders**
- **Develop a generic product standard and gain code acceptance (5 years)**
- **In short run, promote the "alternative solutions" clause in the IBC**

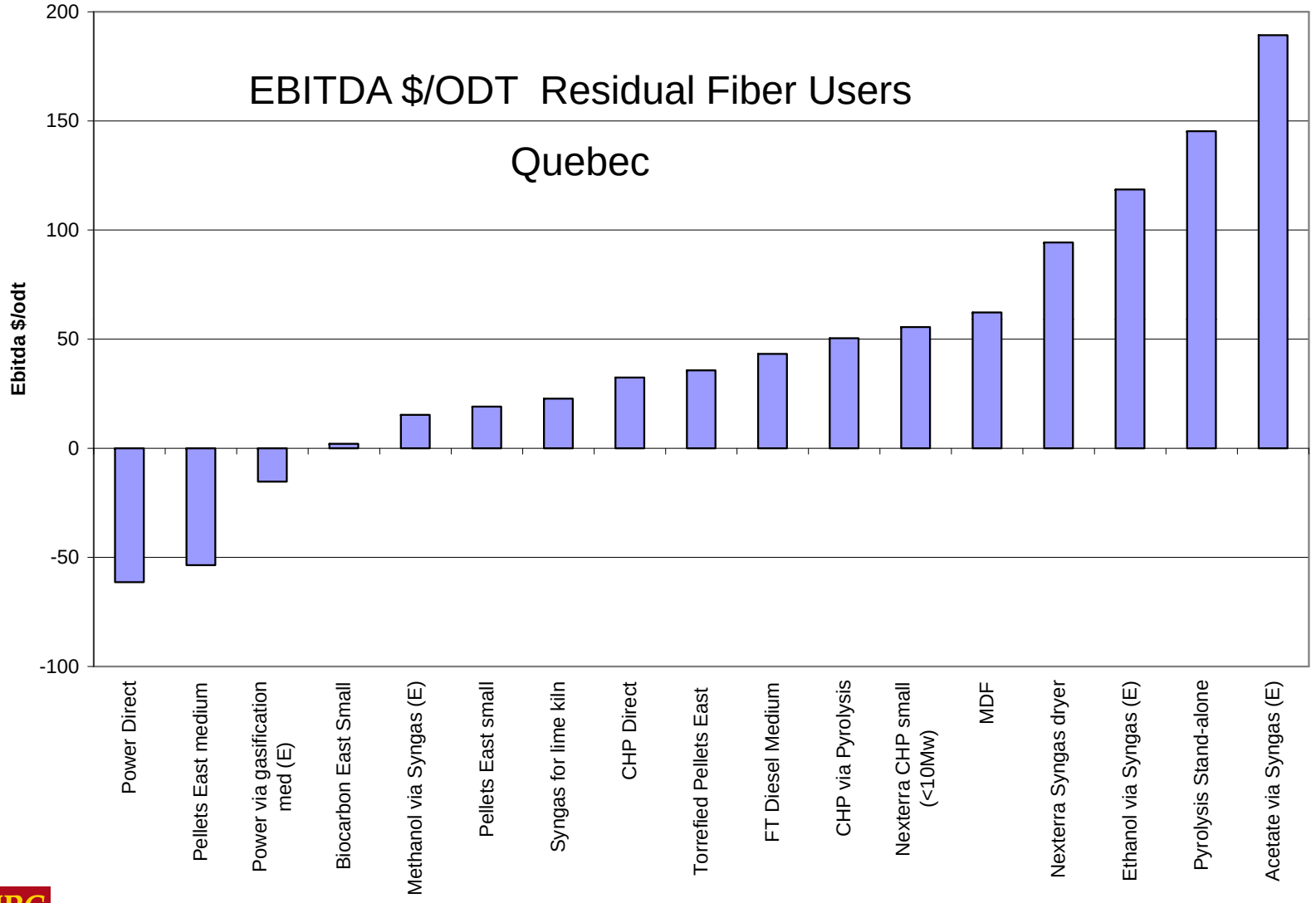
Benefit:

- **10%-50% less expensive shell costs**
- **Green: high carbon storage, superior LCA**
- **Prefabicated system (fast, safe, precise)**
- **Excellent seismic, fire and sound performance.**

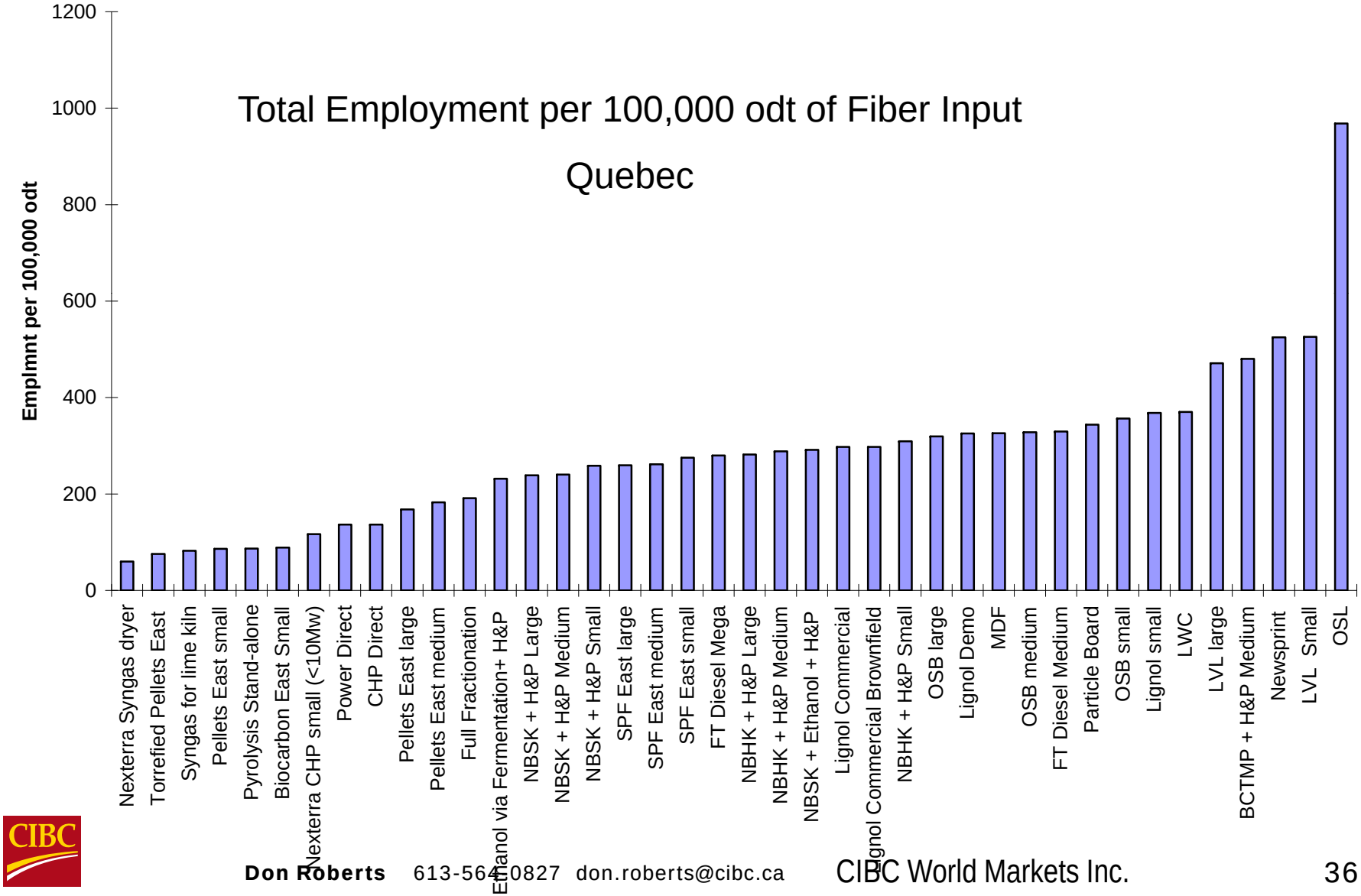
Competition:

- **Steel/concrete**

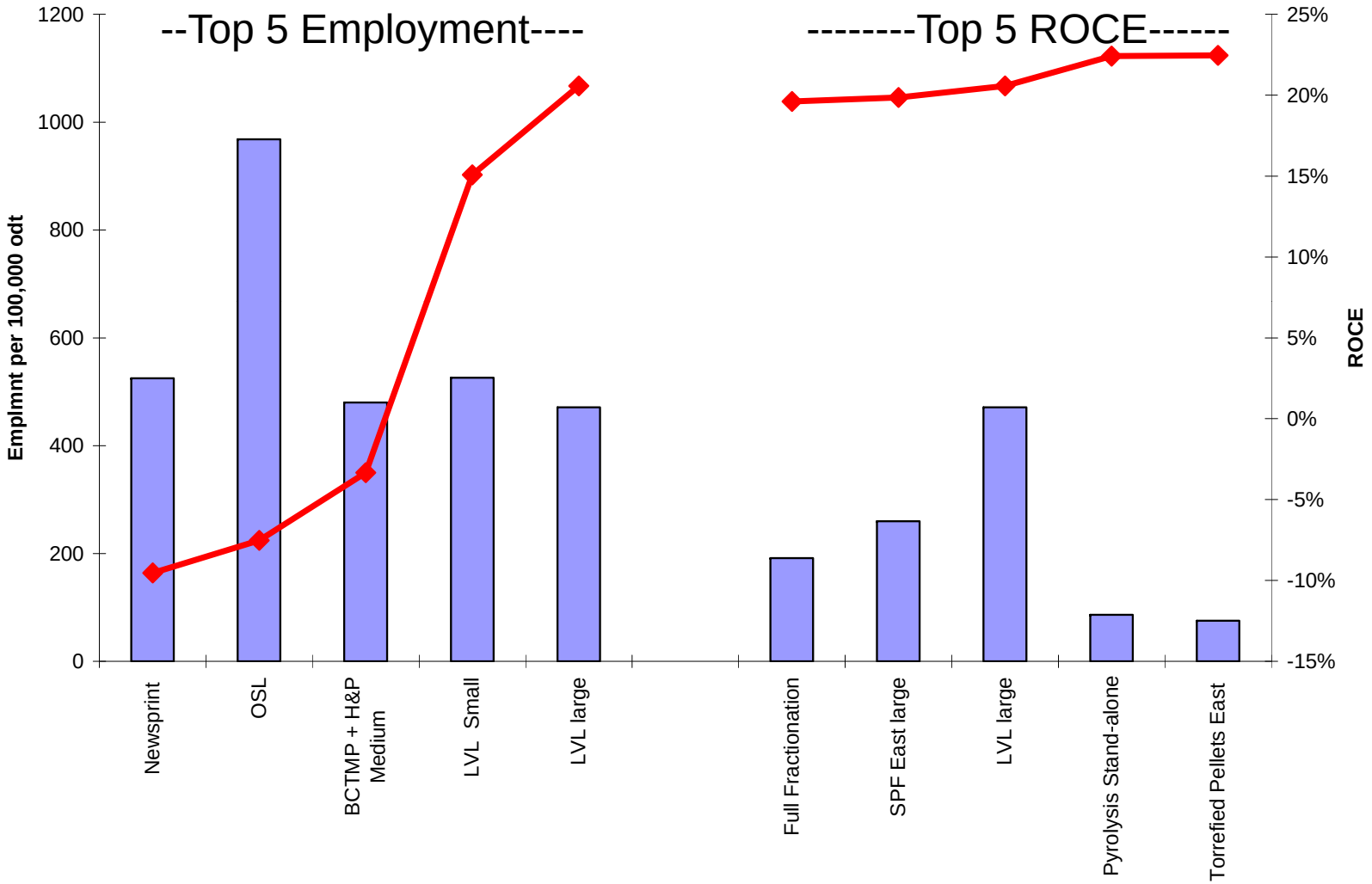
Who is best positioned to win an auction for fiber?



How Does the Relative Attractiveness of Products Change When We Shift From ROCE to Employment ?



Is There a Trade-off Between Financial Returns and Employment?



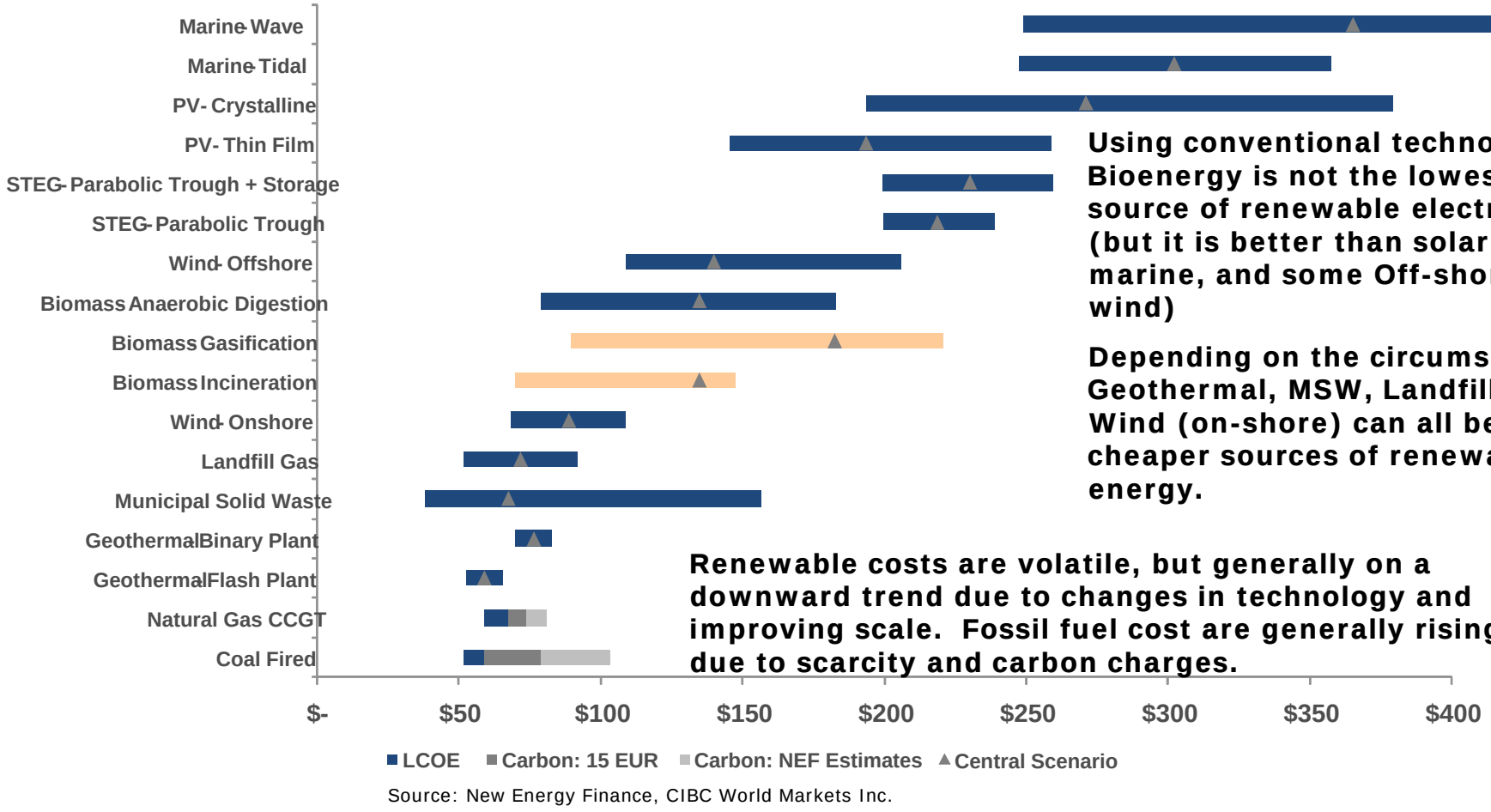
Employment

- **There appears to be a general trade-off between the financial returns and the Employment Generated per 100,000 ODT of fiber.**
  - **The top 5 products in terms of ROCE generate an average ROCE of 21% and average employment multiplier of 217.**
  - **The top 5 products in terms of Employment Multiplier generate an average ROCE of only 3%, but an average Employment Multiplier of 594.**
- **The traditional forest products tend to generate far higher employment multipliers than do the bio-energy products. Per unit of fiber consumed, it is estimated that the pulp & paper segment generates:**
  - **3x more total employment than does the bulk production of energy; and,**
  - **Almost 5x more when just the direct employment is considered.**

Key Conclusions

- **Results of the BioPathways Project provide the compelling political and business case for maintaining a healthy, strong forest industry.**
  - **The 2-3 year forecast for the lumber segment is not good. However, the secular outlook for the lumber segment is significantly better, and it provides the cornerstone for a competitive forest and bioenergy industry.**
  - **Almost all bio-energy and bio-chemical options are more economically attractive when integrated with forest industry operations. This integration is key to improving financial returns and maintaining employment.**

Levelised Cost of Electrical Energy Q2 2009 ($US/mWh, by Type of Energy)



Using conventional technologies, Bioenergy is not the lowest cost source of renewable electricity (but it is better than solar, marine, and some Off-shore wind)

Depending on the circumstances, Geothermal, MSW, Landfill gas & Wind (on-shore) can all be cheaper sources of renewable energy.

Renewable costs are volatile, but generally on a downward trend due to changes in technology and improving scale. Fossil fuel cost are generally rising due to scarcity and carbon charges.

Source: New Energy Finance, CIBC World Markets Inc.

Wide range in costs within a given technology, which mainly reflects location (quality & cost of inputs) and scale. High variable cost of bio-energy will cause a deterioration in relative competitivenss over time – other sources will fall more.

What to Produce?

Depending on the local conditions, it can make sense to produce electricity from biomass.

However, do not just limit yourself to producing "commodity electrons".

Exploit biomass' unique features:

- **Dispatchability (peak pricing, complement intermittant sources like solar and wind)**
- **Optionality (transport fuels, green chemicals)**

Conclusions Re Bio-Energy

If we look at the "best" of both the traditional and emerging biomass-based technologies in terms of ROCE, the majority of the top ten produce some form of bio-energy/bio-chemicals.

•We think solid wood mills which also produce some form of energy are the most interesting types of forest product complexes.

•In terms of emerging bio-energy technologies, we are most interested in:

- **Fast-pyrolysis (CHP, transport fuels, green chemicals)**
- **Small scale gasification (CHP)**
- **Torrefaction (Power)**

If you are in the forest industry and you are not involved in the production of bio-energy, you are at a disadvantage and not maximizing your profit.

Parting Thought

For young Clean Tech companies, sometimes the biggest threat to becoming "Good", is the desire to be "Great".

- **Tendency to keep fine-tuning the concept, and never get on to actually producing something.**

I encourage you to take action – remember the Late Change Penalty.

Appendix C: Bio Of Don Roberts

- Mr. Roberts is a Vice Chairman and Managing Director with CIBC World Markets. In addition to leading the Bank's Renewable Energy and Clean Technology Group, he also provides senior coverage for the global forest industry.
- In addition to his work with CIBC World Markets Inc., Mr. Roberts is also
  - An Adjunct Professor in the Department of Forest Resource Management at the University of British Columbia (Vancouver);
  - On the Board of Directors of the Rights & 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 Corporate Director through the Institute of Corporate Directors.