The Clean Tech Sector:
A Banker's Perspective

by Don Roberts
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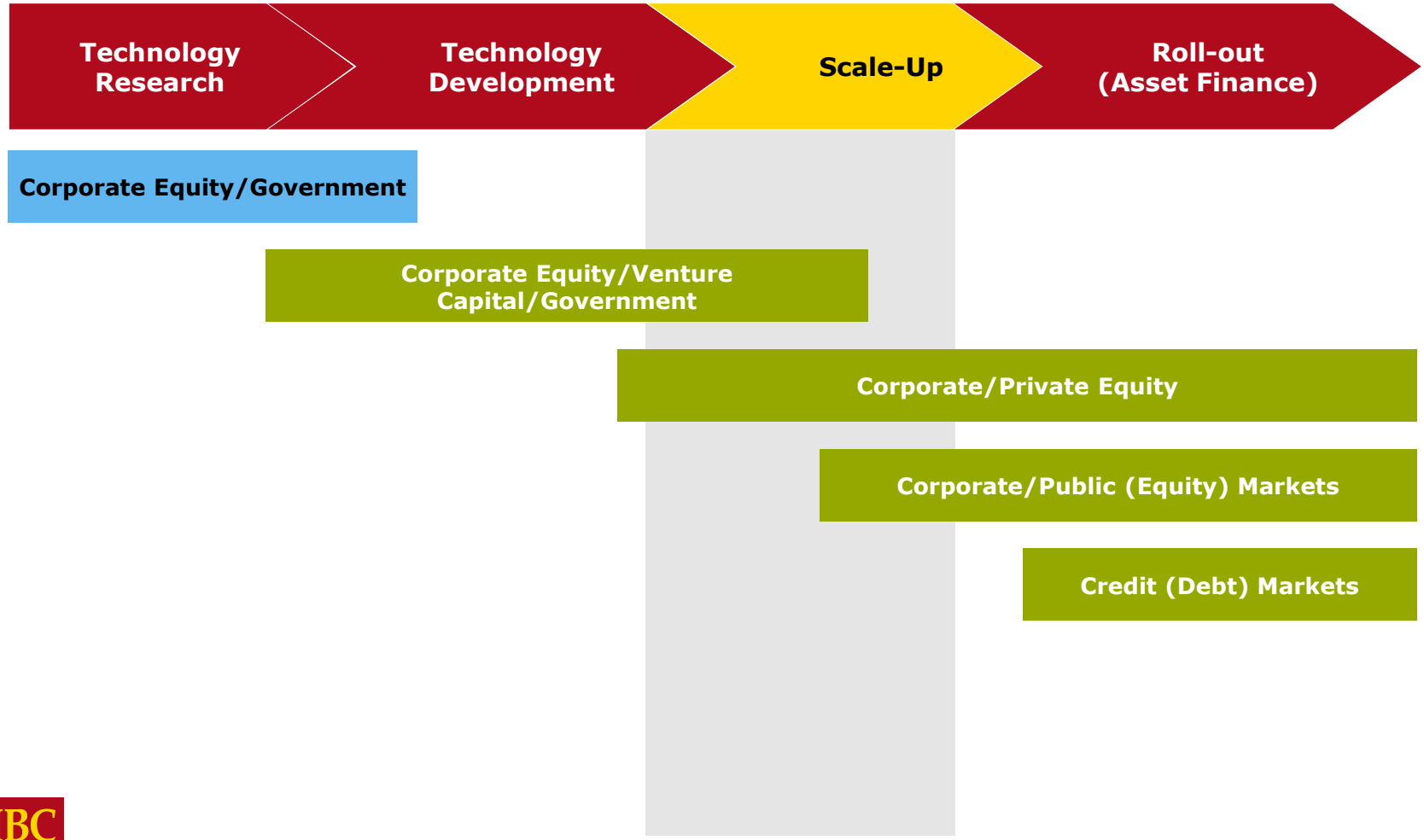
CIRS Conference
University of British Columbia
November 2011

Financing Alternatives Over the Life-cycle of a Technology

Important to match the types and uses of capital to reflect the level of risk.

- Debt should not be used in the early stages when there is a meaningful level of risk.
- CIBC plays the role of a Commercial & Investment Banker, not a Merchant Banker



CIBC's Renewable Energy & Clean Technology Franchise

Multi-disciplined approach to financing and advising Clean Technology clients, including Investment Banking, Equity, Lending and M&A.

CIBC is already a leader in the Canadian Renewable Energy & Clean Technology Sector.

- Project Finance:
  - Over the last 12 months, CIBC has deployed over $600 million of CIBC's own capital.
- Equity:
  - Since 2009, CIBC has raised over $1.5 billion in public & private equity
- Mergers & Acquisitions:
  - Since 2009, CIBC has advised on transactions valued at more than $20 billion

Firm-Wide Commitment to Renewable Energy & Clean Technology

- CIBC combines the resources of a full-service global financial institution with the level of service normally associated with highly-focused specialty firms to deliver knowledgeable, sector-specific, senior attention that leads to top quality advice and execution

- In 2009 CIBC created a "virtual team" to focus on the Renewable Energy and Clean Technology Sector, as well as a Vice Chair position to co-ordinate it – the only Canadian bank to do so.

- The objective of doing so is three-fold:
  - Signals the bank's on-going commitment to the sector, and confidence in its long-term growth and opportunities
  - Helps ensures the full alignment of CIBC's resources across the Wholesale Banking Division
  - Assists in developing an external network to help develop the sector – no one can do it alone. The "network" has four nodes:
    - Management teams/developers;
    - Private equity & strategic investors;
    - Technical experts; and,
    - Regulators/government officials.

- We have spearheaded an initiative aimed at private placements of equity –as an agent.

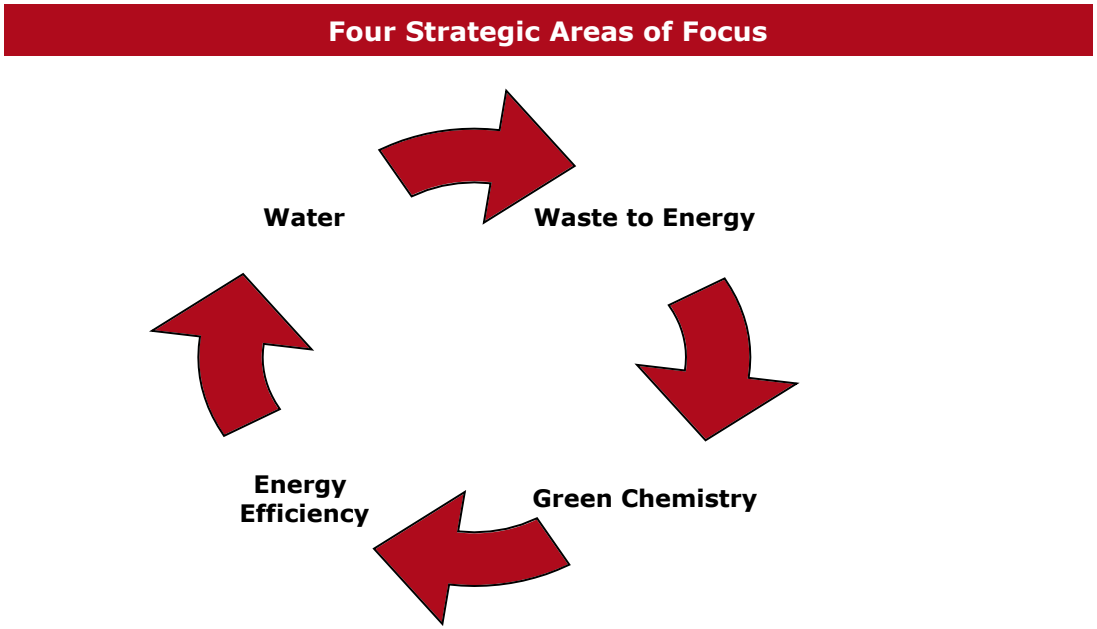
- CIBC is also an active member of the Canadian Clean Tech Coalition.

CIBC's Renewable Energy & Clean Technology Franchise

- CIBC is committing significant resources to the Renewable Energy & Clean Technology sector, and is covering the full breadth of the space.

  - The Renewable Energy segment includes the traditional technologies to produce energy from:
    - Wind
    - Solar
    - Geothermal
    - Hydro
    - Bio-energy
    - Waste-to-Energy.

CIBC's Core Focus in Clean Technology is in four areas



A Key Success Factor is developing a core competency in the content of the segment.

- Cannot be *"all things to all people"*
- Requires focus
- Strive to be a "*thought leader*" – predict the "news" before it is "news"

CIBC's Renewable Energy & Clean Technology Overview

- **Research Commitment to the Renewable Energy and Clean Technology Sectors**

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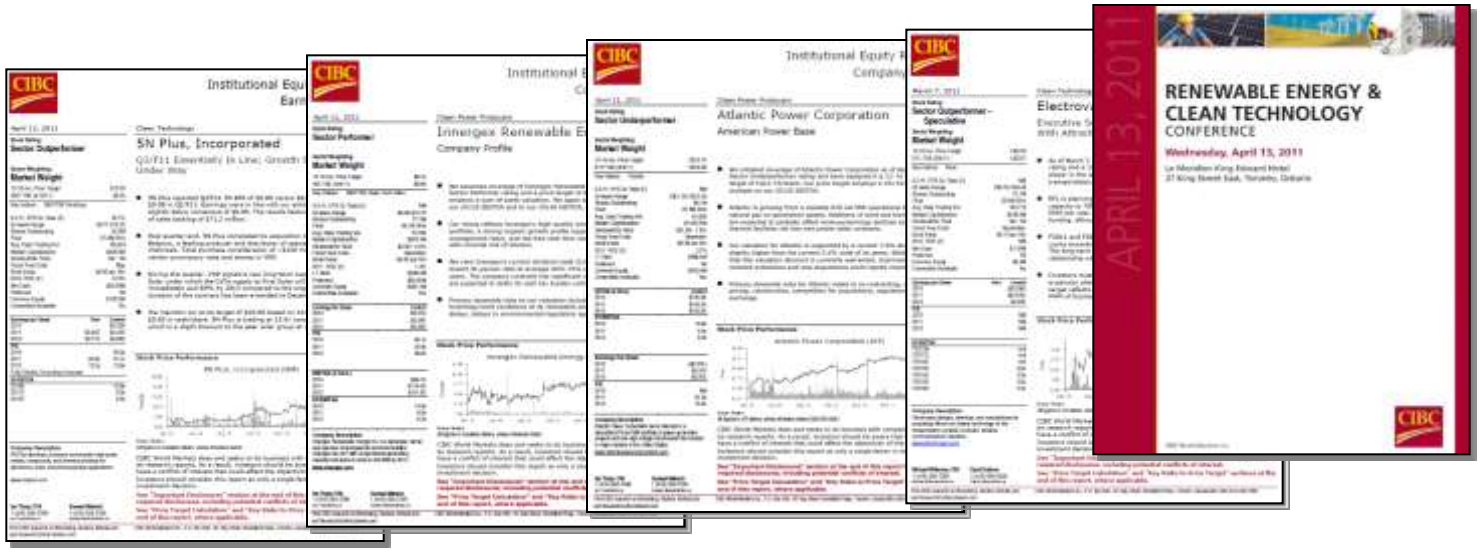
Sumeet Mahesh
Associate (Toronto)

David Galison
Associate (Toronto)

Research Coverage

BORALEX · ALGONQUIN POWER Income Fund · 5N PLUS · electrovaya · Westport INNOVATIONS INC.

AtlanticPower Corporation · NORTHLAND POWER · CAPSTONE INFRASTRUCTURE · INNERGEX Énergie renouvelable Renewable Energy · Brookfield Renewable Power



CIBC's Renewable Energy & Clean Technology Overview

Annual CIBC Clean Energy Investor Conference in Canada…….20-25 Canadian companies highlighted each year.

Participating Companies

Participating Investors

Aston Hill Financial
Aurion Capital Management
Blake, Cassels & Graydon LLP
BluMont Capital Corporation
CAI Capital Management Co.
Caldera Geothermal
Caldwell Investment Mgmt.
CPP Investment Board
Dynaco Capital Inc.
Empire Life Insurance
First Asset Management
Gilford Capital
Greenchip Financial
GWL Investment Mgmt.
HNW Management
Integrated Asset Mgmt.
Interward Asset Mgmt.
Ned Goodman Investment
OP Trust
Phillips, Hager & North
Picton Mahoney Asset Mgmt.
RBC Asset Management
Stone Investment Group
Tandem Expansion Fund
TD Asset Management
Thornburg Investment Mgmt.
Thornmark Asset Mgmt.
UBS Global Asset Mgmt.
Waratah Advisors
Wealhouse Capital Mgmt.

Acuity Investment Mgmt.
ARC Financial
Banyan Capital Partners
bcIMC
Belkorp Industries
CAI Capital Mgmt.
Caisse de dépôt
Connor, Clark & Lunn
Cypress Capital Mgmt.
Fidelity Investments
GreenAngel Energy
GreenWing Energy Mgmt.
GrowthWorks Capital
Guardian Capital
GWL Investment Mgmt.
Hemmera
Howson Tattersall
Invesco Trimark
Megantic Asset Mgmt.
MFC Global Investment
Monashee Capital
MTB Investment
Nicola Wealth Mgmt.
Northwest & Ethical Inv.
Phillips, Hager & North
Scheer Rowlett & Associates
Shoreline West Asset Mgmt.
VanCity Investment Mgmt.
Yellow Point

Acuity Investment Mgmt.
ARC Financial
Banyan Capital
Belkorp Environmental
CAI Capital Mgmt.
CGS Asset Mgmt.
Connor, Clark & Lunn
Elemental Energy
E4 Capital
Fidelity Investments
GreenWing Energy
Greystone Managed Inv.
GrowthWorks Capital
Hemmera
HSBC Global Asset Mgmt.
Investors Group
Matrix Partners
Monashee Capital
OMERS Capital Markets
Pembroke Mgmt.
Shoreline West
UBS
Ventures West Capital
Wealhouse Capital Mgmt.

CIBC

Tuesday, November 22, 2011

Renewable Energy & Clean Technology Conference

De-carbonizing the Global Economy: *Investment Opportunities from the Front Lines*

Presenting Companies Include:
Algonquin Power & Utilities | Brookfield Renewable Power | Northland Power | Ecosynthetix | Westport Innovations | Ensyn

Tuesday, November 22, 2011

CIBC
150 Cheapside
London, UK
EC2V 6ET

Registration & Breakfast: 8:30 am
Presentations: 9:00 am – 12:30 pm
Luncheon and One-on-Ones to follow

Kindly RSVP to CEEvents@cibc.ca

Please advise of any dietary restrictions

Please Join Us

CIBC

Introducing Canadian companies to overseas investors

CIBC

CIBC owns over 90% of CIBC First Caribbean Bank

Caribbean:

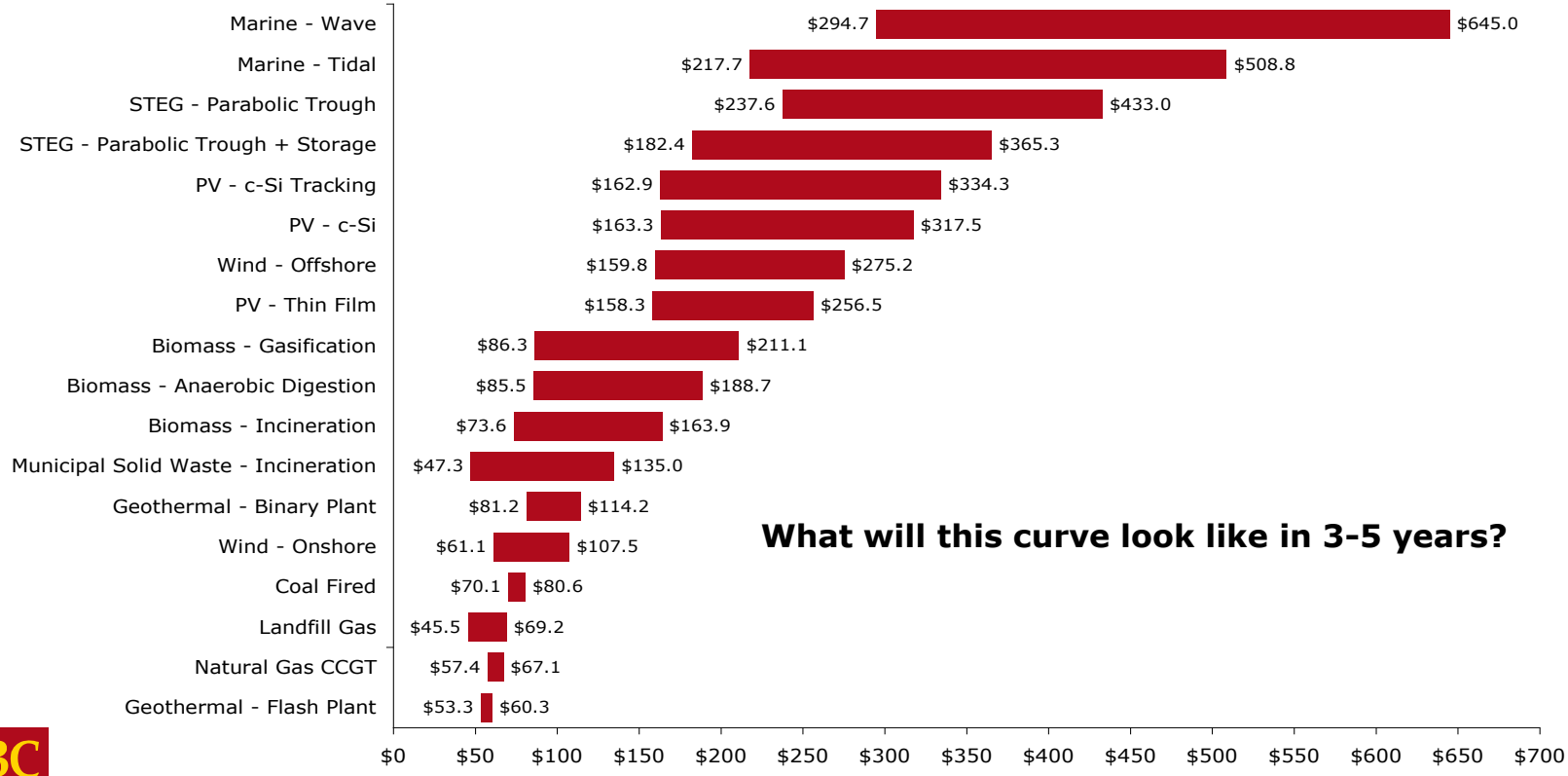
- **Depends on Diesel/Bunker C to generate most of its electricity**
- **Electricity prices in the range of 44-55 cents/kWh.**
- **Good wind & solar resources, and some biomass & geothermal.**
- **Limited land – incentive for waste-to-energy**
- **Shortage of potable water**
- **Excellent "learning lab" for integrating intermittent power into the grid – truly an "island economy"**

CIBC

Levelized Cost of Energy ($US/MWh)

We spend considerable effort assessing the competitive landscape. This means focusing on things like the Levelized Cost of Energy, and how it is likely to change over time in response to technological changes.

- For each form of renewable energy, there is a range of cost estimates which reflect differences in technology, scale and location.
- In Q2 2011 the cheapest source of power generation in most jurisdictions remains the conventional thermal sources. However, the gap is narrowing with low-cost renewables.
- Due to changes in commodity prices and technological change, the LCOE is changing rapidly.

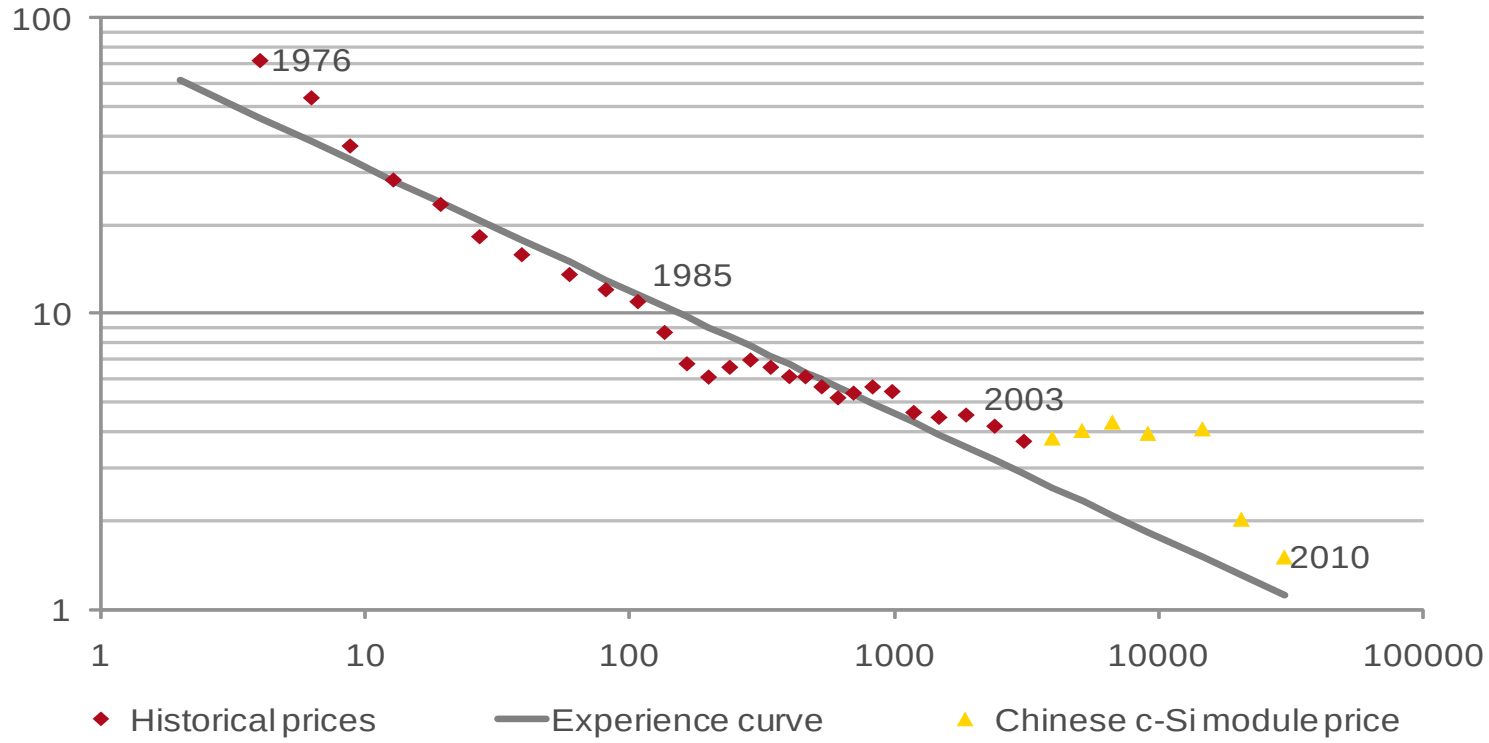


What will this curve look like in 3-5 years?

Source: Bloomberg New Energy Finance.

The Levelized Cost of Electricity is very dynamic.

- **Costs of Renewable Energy Are Falling**
- **Case Study: the Crystalline Module Experience Curve, 1975-2010: MW (log)**
  - It is estimated that the cost of building large-scale ground-mounted PV systems will fall below $2.00/W at a cumulative volume of 90GW, which could happen in 2014-2015.
  - In some jurisdictions (e.g., Hawaii, Southern Italy), solar is already competitive with fossil-based electricity.
  - Grid parity may be within reach by 2020, and is the goal from an economic and policy perspective



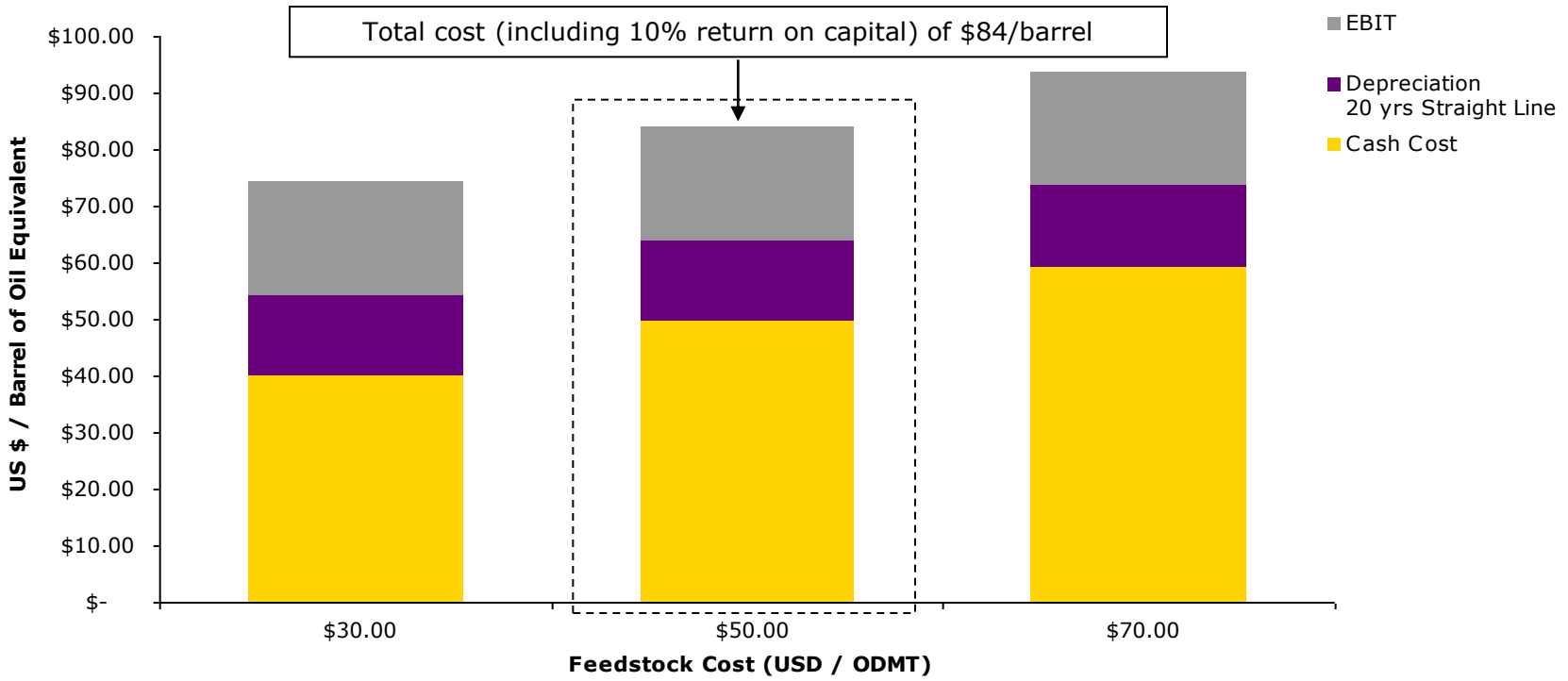
Note: learning curve is least square regression on historic data, adjusted for inflation using US CPI; R2=0.93.
Source: Bloomberg New Energy Finance, Paul Maycock.

Canada's own Ensyn Can Now Produce Renewable Fuel Oil From Biomass Which is Cost Competitive with Traditional Fossil Fuels

- Given biomass price of $50/ODMT, the cost of Renewable Fuel Oil (RFO) is now $84/barrel of oil equivalent
- Biomass in S.E. Asia is available at $5/ODMT.

Unleveraged Plant Pre Tax IRR: Feedstock Pricing ($/ODMT) vs. Fuel Pricing ($/barrel) Excluding RINs[1]

Cost Structure, US$ / BOE Equivalent, 10% Unleveraged Pretax IRR



[1] Source: Management.

Innovation is accelerating, not slowing

Over the next decade we could well see:

- **Wind, mini-hydro and geothermal costs falling 25%**
- **Demand management reducing electricity requirements by 50%**
- **Lithium battery prices dropping 50%-75%**
- **A further drop of 90% in:**
  - **Solar PV prices**
  - **LED lighting costs**
  - **Transformer losses (due to high voltage electronics)**

Note: learning curve is least square regression on historic data, adjusted for inflation using US CPI; R2=0.93.
Source: Bloomberg New Energy Finance, Paul Maycock.

- **Implications for Revenue**
  - **Equity (public & private)**
  - **Debt (loans & project finance)**
  - **M&A**

- **Implications for Risk Mitigation**
  - **Changes in what our customers do beyond the energy sector. For example,**
    - **Transportation**
    - **Construction**
    - **Manufacturing**
    - **Retailing**
  - **Shifts in the competitive position of companies and industries**
    - **Creates "winners" and "losers"**

- **We are seeing a paradigm shift in how the economy produces goods & services.**

- **Our advantage? We have a window on the full value chain. To exploit this advantage it is necessary to develop partnerships.**

- **CIBC's challenge is to develop the understanding to properly price the risk & value the opportunities that this paradigm shift is creating.**