



SUSTAINABLE DEVELOPMENT
TECHNOLOGY CANADA™

Partnering for real results.



*Canada's Cleaner Energy Technology
and Best Practices for Today and Tomorrow*

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- SDTC began operations in November of 2001
- One of several Government of Canada solutions to target greenhouse gas emissions
- Registered as a not-for-profit, non-share capital corporation under the Canada Business Corporations Act
- Operates as an arms-length independent organization
- Funding allocation of \$550M from Government of Canada
- Accountable to Parliament through the Minister of Natural Resources
- 15 Directors on the Board, 7 appointed by Canada
- Member Council (15) – proxy for shareholders
- International recognition for this Canadian initiative



- Play critical role in the innovation chain and support pre-commercialization stage
- Foster the development and demonstration of technological solutions that address:
 - Climate Change
 - Clean Air
 - Clean Water
 - Clean Soil
- Build sustainable development technology infrastructure in Canada
- Work with clean technology developers and consortia to fast track technologies to market
- SDTC funds projects not companies



- **Applications to Date (8 Rounds)**

- 1084 applications (>2,600 entities)
- \$2.3 Billion in funding requests
- \$9.2 Billion in total project value
- 80% industry-led

- **Projects Approved (7 Rounds)**

- 75 projects
- \$169 Million from STDC
- \$446 Million leveraged from consortia members (82% from industry)
- \$615 Million in total eligible project value

- **Emissions Reductions (undiscounted applicant projections for market rollout)**

- 125 Million tonnes annually undiscounted

- **SDTC Discounted Emissions**

- 12.5 Million tonnes annually in 2010



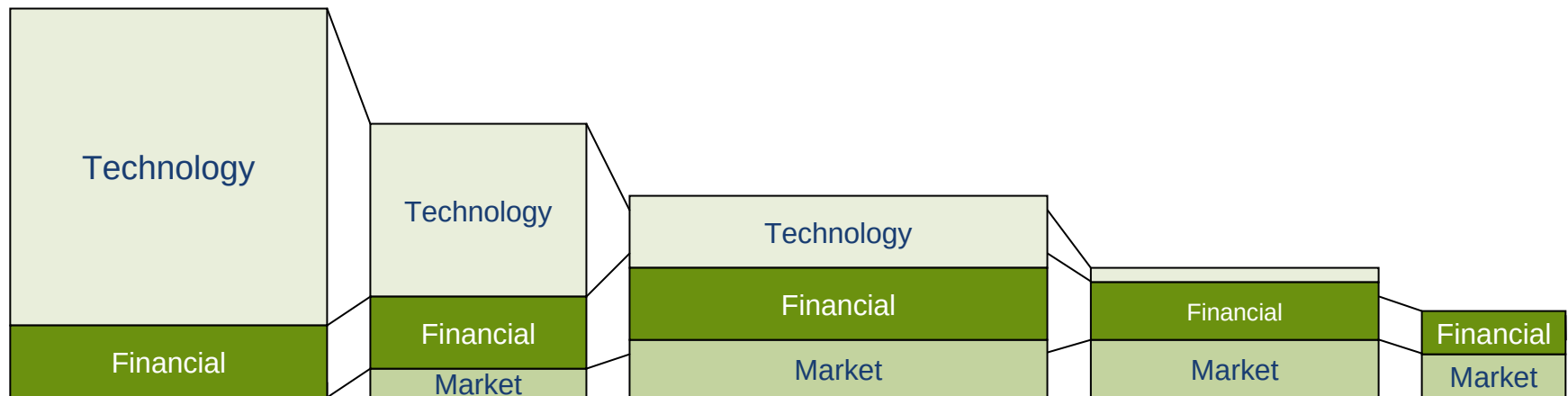
- Funding Gap/Innovation Chain
- Small and Medium Entrepreneurs' (SME) Business Capabilities and Capacity
- Greenhouse Gas Emissions Calculations



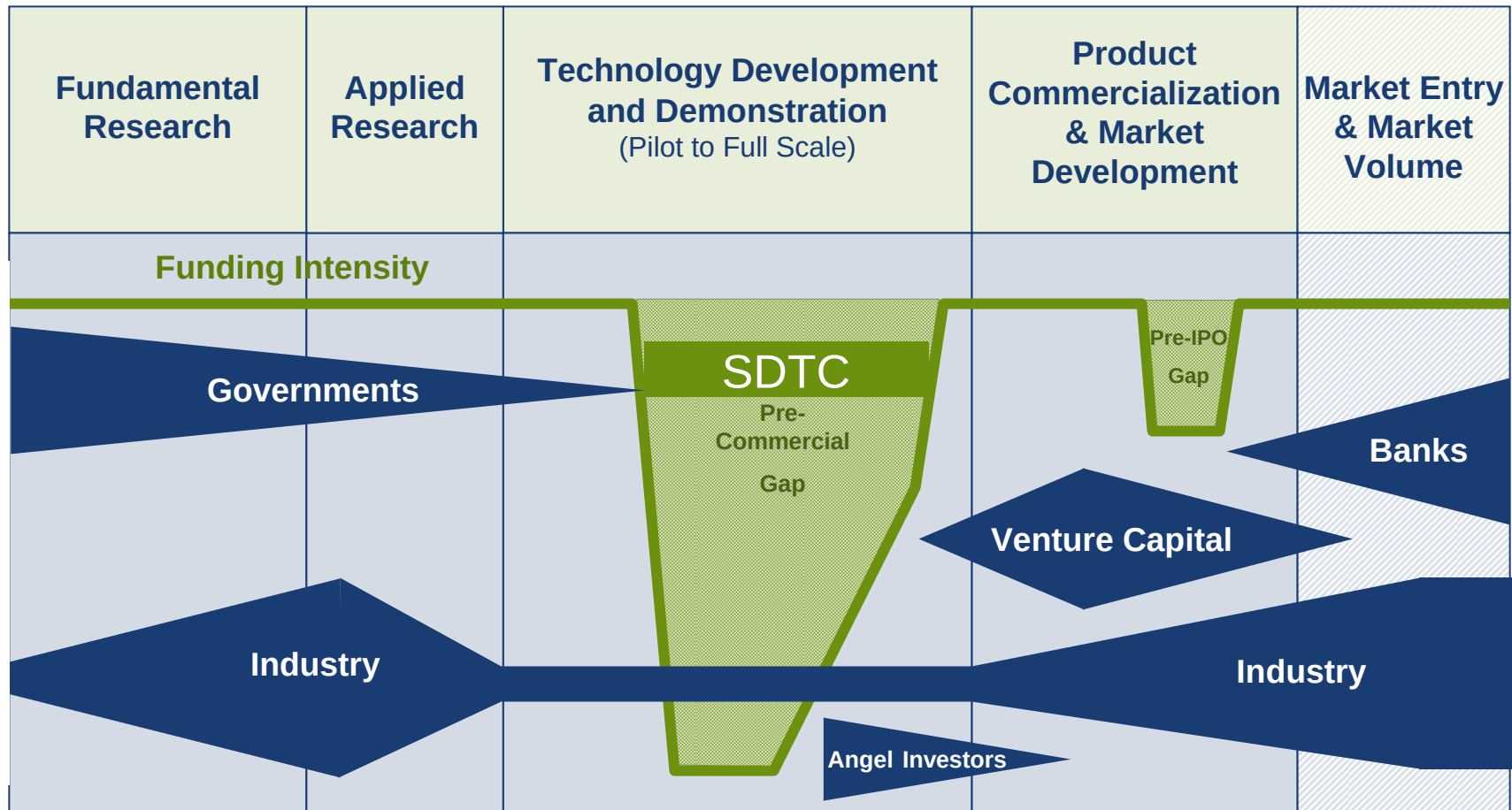
Stages of Technology development



Risk Profile



Funding Gaps



Public and Private Sector Research

12 130 10
of energy & environment deals by stage-seed, expansion & mezzanine.
From 2000 – Q3 2004

Source: MacDonald and Associates, Oct 2004



- Developing market savvy
- Strengthening 'go to market' capabilities
- Identifying technological and environmental strengths
- Defining investment potential in clean technologies
- Building/creating clean technology supply chain infrastructure



SMEs face challenges in calculating GHG emission reduction:

- Methodology
 - ☐ Calculations for existing technologies require deep expertise
 - ☐ Calculations for new technologies do not exist
- Monetizing impact
 - ☐ User vs. clean technology developer



Key considerations for getting technology to market

- Building go-to-market consortia
- Determining financing and market potential of clean technologies
- Estimating environmental benefits (i.e. GHG estimates) of clean technologies



What's a 'go-to-market' consortium?

A partnership involving every member of the technology supply chain:

- Technology developers
- Capital investors
- Marketing partners
- Suppliers
- Demonstration customers (e.g. host sites)
- End customers, etc.

There is no single 'right' model

Has to come from the technology and its roll-out requirements

Why should you build one?

- Broader perspective—awareness of challenges
- More comprehensive business planning (less chance of the unexpected)
- Superior technology
- Stronger value proposition to downstream investors
- Creating a 'real world' test situation of the market



Example (11 private-sector contributors in consortium):

Sacré-Davey Innovations: creating clean energy from vented yet untapped hydrogen

- **Technology developers:** Secure, purify and supply hydrogen
(i.e. Sacré-Davey Innovations, HTEC, QuestAir Technologies)
- **Supplier:** Sodium chlorate manufacturing plant
- **Demonstration / end-use customers / hosts:**
 - Store and distribute hydrogen
(i.e.: Sacré-Davey Innovations, Dynetek)
 - Light-duty vehicles hydrogen fuel station
(i.e. Sacré-Davey Innovations, Powertech Labs)
 - Hydrogen and natural gas blend fuel facility for heavy-duty vehicles
(i.e. Clean Energy and Translink)
 - Hydrogen-powered light-duty pick-up trucks (i.e Powertech Labs)
 - Transit buses using a blend of hydrogen and natural gas fuels
(i.e. Westport Innovations and Translink)
 - Fuel cell system supplier and car wash
(i.e. Sacré-Davey Innovations, Nuvera Fuels Cells and Easywash Inc.)



How do SMEs find the money?

- Prepare solid business case
- Demonstrate commitment of consortia to reflect market adoption
- Demonstrate endorsement from recognized body for GHG emission calculations



Example:

Blue-Zone Technologies: reclaiming and purifying wasted anaesthetic gases

Challenge: Planning new technology initiative for emissions reduction in an area not sensitized to climate change

Solution: Brought in medical-facility partners who saw the business case and environmental benefits



How to Calculate Environmental Impacts?

- ISO 14064 is coming along
- Build and leverage roster of international experts
- Establish and simplify methodologies for calculating emissions reductions for new technologies and new processes
- Factor value of GHG emission reductions that developers bring to the table



Example:

Quantiam – reducing energy in chemical production

- Innovation reduces the temperature in production from 100°C to 70°C Energy required: 25 GJ/tonne of ethylene produced
- CO₂ produced: 1 tonne of CO₂ for every tonne of ethylene produced
- Current market size: 1400 furnaces worldwide with 5-year lifetime; 280 re-tubed yearly

Why use the SDTC as a model?



- 5. SMEs can leverage partner financing**
- 4. SMEs accelerate their time to market**
- 3. SMEs will improve the commercial scale up of technology**
- 2. SMEs will refine their value proposition**
- 1. SMEs will have prepared and engaged their end customers early—leading to greater adoption by the market**



For more Information:

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