



February 18, 2011

Mr. Iain Stewart  
Secretary to the Expert Panel  
1200 – 270 Albert Street  
Ottawa ON  
K1A 5G8

Dear Mr. Stewart;

Please find enclosed our comments in response to the Panel's request for comments on issues raised in its consultation paper dated December 22, 2010.

The submission includes five annexes that hold some gems – particularly the annual investment in R&D and Commercialization. This is a recently compiled survey of Canadian companies that offers many insights on federal programs and presents a unique set of baseline information for the Panel. Our submission provides background and analysis on:

- How clean technology SMEs across Canada are transforming business expenditure and R&D into jobs and growth at an impressive and competitive level
- Existing federal programs and gaps
- How Canada can derive far greater benefits from its investments, particularly in support of a sector with tremendous potential

As our submission outlines, the companies that make up the clean technology sectors invest heavily in research and development, focus on commercialization and have become engines of growth for the economy. Clean technology companies have achieved success, as evident in the proportion of their revenues derived from exports, but Canada will not derive the full benefits of these investments unless and until it deploys programs that foster technology adoption at home.

Unfortunately today Canadian clean technology buyers prefer to buy clean technology from large foreign systems integrators rather than from Canadian technology suppliers at home. At the same time, international buyers of Canadian clean technology are understandably calling for domestic references. A set of mutually reinforcing domestic and international technology adoption policies and programs would enable the Canadian clean technology industry and other innovation-based sectors to make important contributions to Canada's capacity in terms of:

- High-value exports and innovation
- Jobs and economic productivity
- Energy and natural resource productivity
- Improved climate change, air, water and other environmental outcomes

The Canadian Clean Technology Coalition is an alliance of companies and stakeholders who are moving products and know-how into the Canadian and global green technology marketplace. It is a national voice for Canada's clean technology community.

The Canadian clean technology industry is comprised of more than 400 SMEs who together make up a \$2 billion industry that is poised to become a \$10 billion innovation-based industry in the next 5 years.

In 2009, the Business Expenditure in Research and Development (BERD) of Canadian clean energy SMEs operating in energy efficiency, clean transportation and clean power was, *in absolute terms*, comparable to that of large companies (SMEs: \$329 million versus \$344 million for large companies). Canadian clean technology SMEs are establishing the beachhead for one of Canada's next innovation-based industries through their extensive and consistent R&D investments.

Three federal programs are very highly regarded by Canadian clean technology SMEs. These are SR&ED, IRAP and the SDTC's SD Tech Fund. In addition to recommending that these programs be strengthened and extended, there are two universal calls to action by the sector regarding federal programs and policies.

- The first is to streamline and simplify federal R&D programs so that companies do not require specialized service providers to benefit from the programs and so that duplicative application reviews are eliminated.
- The second is expressed in the strongest possible terms. Comprehensive and mutually reinforcing policies and programs for technology adoption at home and abroad are essential for Canada to achieve the full benefit from its investment in R&D. In the case of the Canadian clean technology sector, domestic technology adoption will provide vital domestic references to sustain the global competitiveness of our companies. The US, Germany, Korea, Japan and China are each deploying strong domestic technology adoption policies as a foundation for their export promotion strategies.

We thank you again for the opportunity to share our views, analysis and background with you and look forward to engaging in a conversation with the Panel in the coming months.

Sincerely,

Celine Bak  
Co-Founder  
Canadian Clean Technology Coalition

Attachments:

Canadian Clean Technology Coalition Submission

Appendix A: Global context for domestic adoption as precursor for strong exports

Appendix B: The Canadian clean technology industry

Appendix C: Connecting federal business investment in R&D programs with domestic technology adoption

Appendix D; Origins of intellectual property in Canadian clean technology SMEs

Appendix E: Domestic technology adoption / procurement and equity constraints in Canada



THE CANADIAN CLEAN  
TECHNOLOGY COALITION

## About the Coalition

The Canadian Clean Technology Coalition is an alliance of companies and stakeholders who are moving products and know-how into the Canadian and global green technology marketplace and is a national voice for Canada's clean technology community.

The Coalition is made up of small, medium and large companies. The purpose of the Coalition is to build a globally competitive, Canadian clean technology industry by providing coherent policy resources and advice to all levels of government.

## Defining Clean Technology

The Coalition defines a clean technology company as “*predominantly engaged in the development and marketing and/or use of its proprietary technology to deliver products or services that reduce or eliminate negative environmental impacts, and address social needs; while delivering **competitive performance, and/or using fewer resources than conventional technologies or services.***” This definition and much of the research for this submission follows the findings contained in the 2010 SDTC Cleantech Growth & Go-To-Market Report published in 2010.

The sector can be defined as having technology and service offerings that span nine different subsectors, including:

- Biofuels & Biochemicals
- Power Generation
- Energy Infrastructure
- Energy Efficiency
- Industrial Process Efficiency & Abatement;
- Recycling & Waste;
- Remediation;
- Transportation;
- Water & Wastewater

## A Growing, Promising & National Industry

To put the clean technology industry in the context of another R&D intense sector in Canada, in 1990, twenty years after the foundation of MacDonalD Dettwiler, the Canadian aerospace industry achieved the \$10 billion threshold. Twenty years later, in 2010, the aerospace industry was a \$22 billion industry.<sup>1</sup> Today, there are approximately 400 aerospace and defence SMEs operating across Canada.

In the Canadian clean technology industry, there are an estimated 465 SMEs across Canada. Three hundred of these 465 SMEs have already commercialized their products and services. Direct employment by clean technology SMEs is conservatively estimated at 20,000 today.

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<sup>1</sup> The Canadian aerospace and defence sector experienced a four percent compounded annual growth rate over the 20 years between 1990 and 2010. Over its first twenty years it attained the \$10 billion annual revenues threshold.

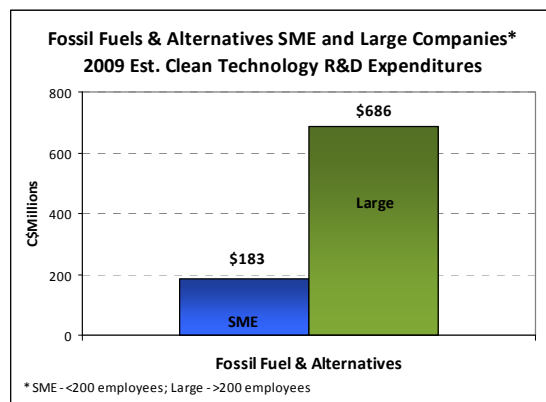
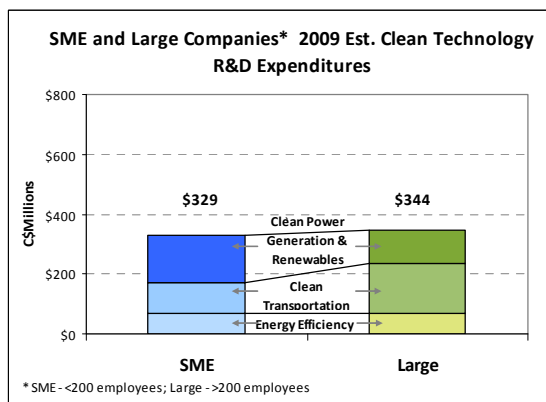
The Canadian clean technology industry is a \$2 billion industry today that is made up of companies that are on average 15 years old. The period 2007 to 2009 proved that clean technology companies can be engines of growth for the economy regardless of economic times. The industry grew at a compound annual growth rate of 47 percent during each of 2008 and 2009. Planned compound annual growth rate for 2010 to 2012 is 117 percent. Given projected growth rates, by its twentieth year milestone, the Canadian clean technology industry, much like the Canadian aerospace and defence industry, is on a trajectory to reach \$10 billion by 2015.

## Clean technology SMEs open the beachhead for future, globally competitive industries

It is important to note that in high growth sectors such as clean technology and clean energy, SMEs invest *early, unstintingly and wisely* in business expenditure in research and development (BERD). In effect, SMEs establish the beachhead for Canada's future globally competitive R&D based industries.

Here is proof. In 2009, total BERD by Canadian clean energy SMEs was \$512 million. For the same period, total BERD by Canadian clean energy large companies was \$1.02 billion. However, when the Cleaner Fossil Fuels sector is excluded, total BERD investments by SMEs in the three high growth clean energy sub-sectors of Energy Efficiency, Transportation and Clean Power were comparable in *absolute terms* to those made by large companies: \$329 million versus \$344 million. Canadian clean technology SMEs can be relied upon as leading BERD investors in new and emerging sectors such as clean energy and clean technology and this, during recessionary times.<sup>2</sup> Even in the more mature sector of Fossil Fuels, SMEs invested \$183 million in BERD, a figure representing 27 per cent of the total BERD investment made by the largest companies in Canada.

### Exhibit 1 and 2: Charts - Total BERD on Clean Energy Technology SMEs versus Large Companies<sup>3</sup>



<sup>2</sup> Please see the Appendix Exhibit A-3 and A-4

<sup>3</sup> Celine Bak, Canada Clean Energy RD&D Investment Analysis, Natural Resources Canada, December 20, 2010

## How Federal Programs Impact the Clean Technology Industry

To achieve what it has to date, the clean technology sector has benefitted from federal R&D programs. To assess the industry's experience with these programs, a survey of company views on these R&D programs was conducted in preparation for this submission.

The Coalition sent out a survey between January 29 and February 6, 2011.<sup>4</sup> Given most companies in the sector focus on commercialization and are primed for significant, global growth, the survey found:

1. Business oriented pre-commercialization R&D funding are highly regarded;
2. Administration and approvals for federal R&D programs should be streamlined;
3. In order for Canada to benefit from its business R&D investments, there is a universal call for policies that foster domestic adoption of technology

### *1. Three Federal Business Oriented Pre-commercialization R&D funding programs are highly rated*

According to clean technology companies, programs such as the Science Research & Experimental Development tax credit (SR&ED), Industrial Research Assistance Program (IRAP) and Sustainable Development Technology's SD Tech Fund are the most effective.

#### **SME Quotes – Existing Federal Programs**

'SR&ED, SDTC and IRAP are excellent programs and should be expanded!'

'We would not have survived the early days of development without SR&ED and IRAP.'

'The most effective program for us was probably The IC TPC program. It was repayable, but it was substantial, long term, needed to be cost shared, but did not have too many challenging barriers.'

Of the 63 R&D programs listed in the survey, the table in Exhibit 1 shows seven programs which are viewed as the highly effective. It is worth noting that for the majority of federal programs, the barriers to entry were too high to be attractive to Canadian clean technology SMEs. The majority of programs were not designed with this sector in mind.

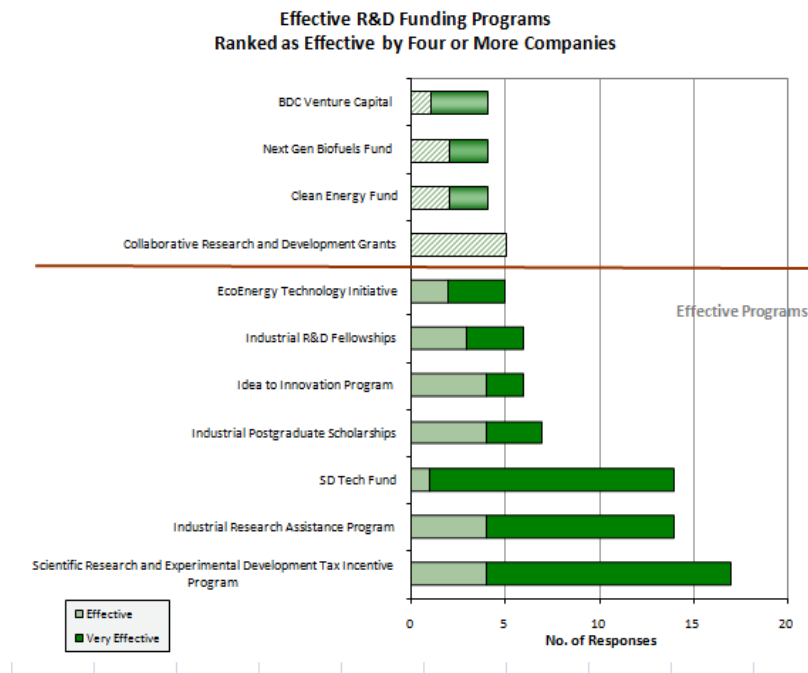
### *2. Streamlining program administration and approvals*

A single point of approval would lighten the administrative burden of good program and make more funds available for BERD. For example, would it be possible for project approval by IRAP to be deemed as approval for the Canada Revenue Agency's SR&ED tax credits? For project applications to the SD Tech fund that have already received IRAP approval, the SD Tech fund could focus on the technical due diligence for which SDTC is very well appreciated. Canada is known worldwide for its pragmatic approach to program delivery. EDC is streamlined as the single point of contact business export credit. International Trade Canada is streamlined as a single point of contact for trade promotion. Can we take the same mind-set to business R&D?

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<sup>4</sup> The survey was a short questionnaire sent to a representative sample of 120 clean technology companies in B.C., AB, SK, ON, QC and NS.

### Exhibit 3: Chart – Effective R&D Funding Programs Ranking<sup>5</sup>



### SME Quotes: Streamlining Federal R&D Funding Programs

‘I think that it would be more efficient if we had only one approval for all government funding in any single project (i.e. not get approval first from one agency and then for tax credits).’

Why can't these programs be simplified, which would likely mean more money for funding and less for overhead structure ...’

‘With regard to SR&ED, when I asked my accountant how I use the program for my business, he said he couldn't answer. Instead he referred me to a specialized accountant or a SRED consulting agency. And I got the bills for both. Clearly the program needs to be streamlined and constantly benchmarked”

### 3. Domestic adoption of technology is required for Canada to see significant growth in the sector

Through the Coalition’s survey, the industry has urgently and unanimously called for domestic technology adoption and procurement by Canadians in the public and private sector from Canadian SMEs. Canada’s domestic market for its natural resources is obviously very small when compared to the global markets.

However, Canada is not an irrelevant market for innovation-based companies. This is *because international procurers expect domestic references* before they buy our technology. As an

<sup>5</sup> The SDTC Next Gen Biofuels Fund is focused on large scale bio-plant financing and has not yet deployed its appropriated capital. Also 80% of the Clean Energy Fund program allocations have been made, per the program’s design, to large companies.

export driven industry, we know this first hand. Policies and programs to foster domestic technology adoption are *sine qua non conditions for a return on investment for federal BERD policies and programs.*

During the survey of Canadian clean technology companies prepared by the Coalition for this submission, respondents stated in the clearest possible terms that the lack of domestic adoption and domestic references was the *number one* barrier to their growth.

### SME Quotes – Domestic Technology Adoption

‘Canada is very conservative when it comes to adopting new ...In order to be accepted, you would need to leave the country and then return once you are successful.’

‘We have found it quicker and easier to have demonstration projects built in India and China. Very frustrating that as a Canadian, we have to go offshore to deploy technology developed here.’

‘The Federal Government, if committed to technology development in Canada, needs to step up and use Canadian innovations versus the present need to go outside Canada to test and develop our technology. Recently...the Victoria Australia EPA to fund a demonstration...this opportunity did not exist in Canada.’

## Conclusion

One third of the current federal programs designed to spur private sector R&D are considered effective by the clean technology industry. The sector’s diversity, knowledge, use of federal programs and growth potential make it a valuable partner in future programs and policies.

The federal government should reduce the administrative burden on companies investing in R&D. A streamlined federal process for gaining access to programs would greatly assist Canadian clean technology companies and all SMEs.

However, enlightened policies and unstinting investment in R&D will not yield the jobs, growth and competitiveness dividends, unless and until Canada establishes a comprehensive framework for technology adoption in every sector of our economy. In the case of the clean technology industry, technology adoption can be done on the basis of a clear business case made on energy and resource efficiency, replacing depleted and aging infrastructure, enhancing the global competitiveness of traditional industries while leveraging important economic productivity, energy and resource productivity and other environmental benefits.

This is a sector with tremendous potential. It’s time for smarter, more efficient and targeted programs and policies to “own the podium” and create twenty \$100M clean technology companies in Canada by 2020. We have the next generation of Research In Motion success stories in our midst. But, as our submission outlines, that will only happen with more integrated and longer-term policy design and execution.

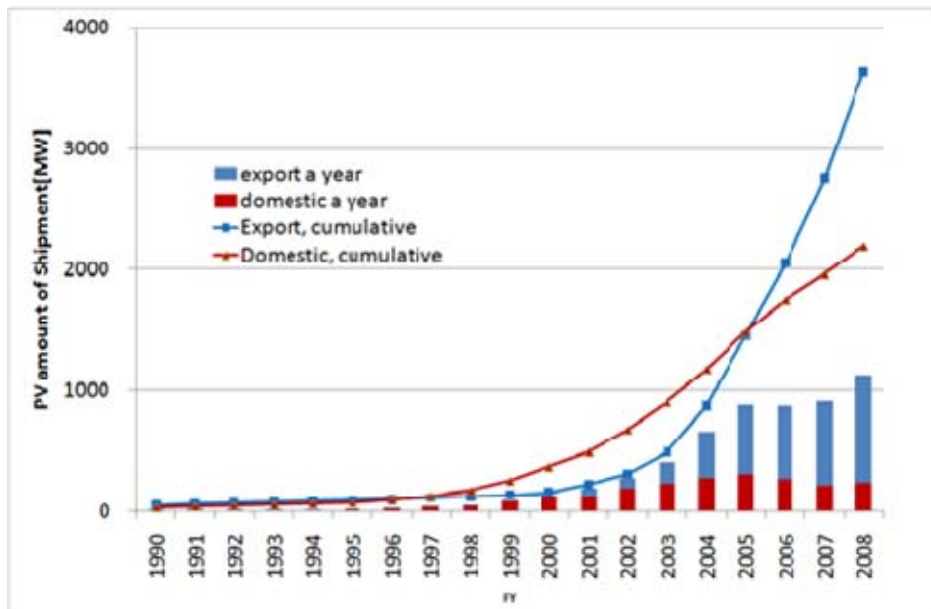


## Appendix A: Global context for domestic adoption as a precursor for strong exports

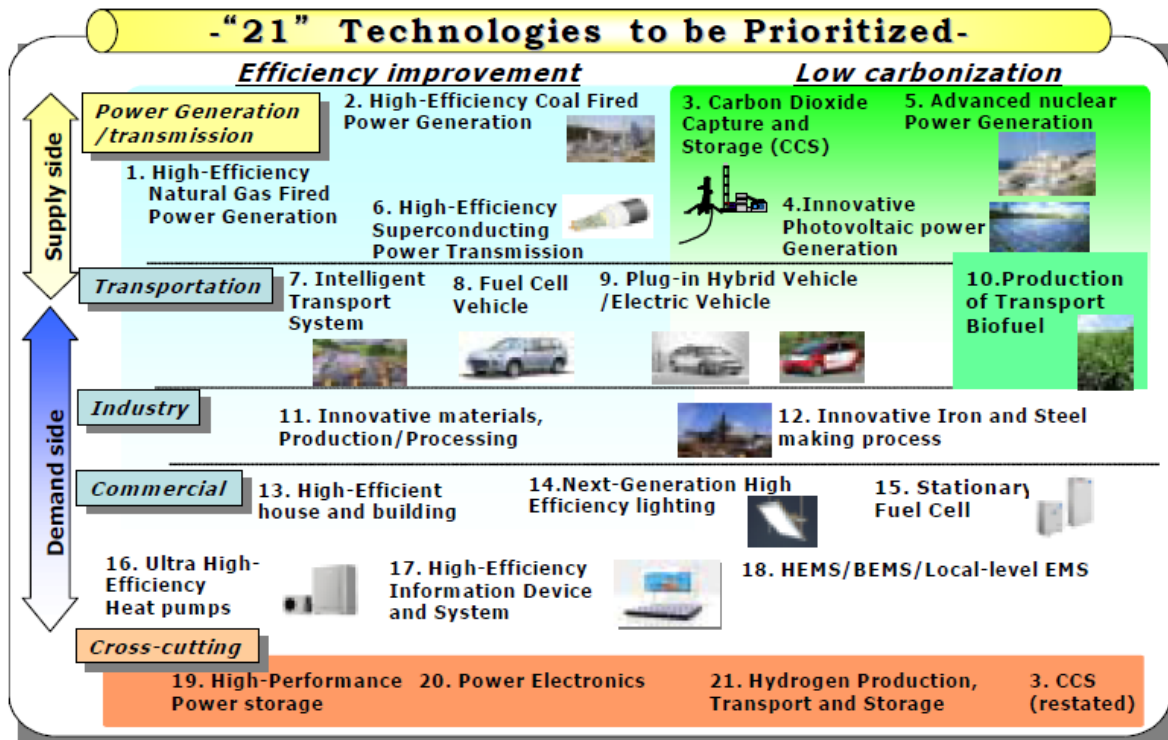
Investment in technology innovation is a core value in Canada. If this is the case, adoption of technology innovation must be as well. In Japan, photovoltaic cell technology has been the object of both domestic adoption policies and BERD investment for a number of years. This has enabled the industry to move down the manufacturing cost curve and to develop related industries. The curve below illustrated the eight year period between 1997 to 2005 when domestic shipments dominated the market. From 2005 onward, exports exceeded domestic shipments. Photovoltaic cells are but one of 21 priority technologies that Japan has identified as part of its Cool Earth Innovative Energy Technology program.

*A practical example – Japan’s investments in photovoltaic technology*

This graph shows the strong relationship between domestic support through critical development points and long-term export growth potential.



Source : Japan Photovoltaic Energy Association



Source: METI, “Cool Earth-Innovative Energy Technology Program,” March 2008, p. 4,

Canadian clean technology SMEs are very clear in their survey responses that without domestic technology adoption, the industry will not achieve its full potential and Canada will not derive the benefits it should from federal R&D investments.

### SME Quotes: Linking Domestic and International Technology Adoption

‘...Commercialization support from Canadian business is key. If our technology is so good, why is it Canadian companies won't purchase it? Funding for pilot sites and government push in publicly owned businesses (e.g. utilities, wastewater, building etc) should be absolutely mandatory. I find it interesting that the Government pushes the export market on a lot of technology but not domestic i.e. I am not going to buy Canadian technology but you should? Procurement policies are essential.’

‘Quite simply, there must be a change of priorities in resource allocation to support both the “Made-In-Canada” technology/manufacturing development process, and the subsequent commercialization activities required to ensure those technology development benefits are harvested by and remain in, Canadian held companies.’

‘Our governments (provincial and federal) continue to put window dressing on support for growing Canadian-based companies while all the while steadfastly refusing to put real muscle behind domestic adoption policies as they hide behind WTO polices that only Canada follows. The recent DOE “Made in America” criteria attached to the DOE Smart grid stimulus legislation in the US is a perfect example of this. I can't think of a single “Made in Canada” policy out of our government since the late 70's. Such practices back then were the keys that built MDA into what it is today.’

## Appendix B: The Canadian Clean Technology Industry

### *A driver of economic, energy and resource productivity*

Presently, most of Canada's clean technology companies have products and services that are economically viable without subsidies of any kind. These companies sell products and services that can enable Canadian private and public sector entities to be cheaper, better and faster, in many cases, without subsidies. Examples include water treatment equipment that can replace costly one-off engineering projects, grid management products that can reduce the need for capital outlays for power production, heavy equipment that can significantly reduce the cost of road resurfacing, plastics recycling plants that lower raw material requirements for packaging, and road lighting products that reduce the cost of providing safe roadway lighting.

Each of the companies producing these products and services enables us to do more at a lower cost than current ways of doing things. It also happens that each of these products can make a significant contribution to Canada's climate change commitments. Driven by technological advancements, all clean technology sectors contribute to stronger economic and energy productivity, as evident in the strong growth rates in Power Generation, Energy Efficiency, Energy Infrastructure and Industrial Process Efficiency.

### *A proven globally competitive exporter*

Today, sales by Canadian clean technology SMEs to global markets represent 50 percent of the industry's \$2 billion in revenues. Exports as proportion of revenues are growing and are expected to reach more than 58 percent of revenues in 2012. Recently reported findings by the German export insurance bank Euler Hermes concluded that companies with more than 50 percent of revenues derived from exports are most likely to grow and thrive as opposed to companies with only a small portion of revenues derived from exports.<sup>1</sup> As can be seen on the chart below, Canadian clean technology companies are globally competitive and are driven exporters. In 2007, (the most recent available figures), 9 percent of Canadian SMEs were exporters.<sup>2</sup> By contrast, in 2009, 81 percent of Canadian clean energy Tech SMEs were exporters. To put SME exports in context more generally, SMEs represent 30 percent of total exports in both Canada and the U.S.<sup>3</sup>

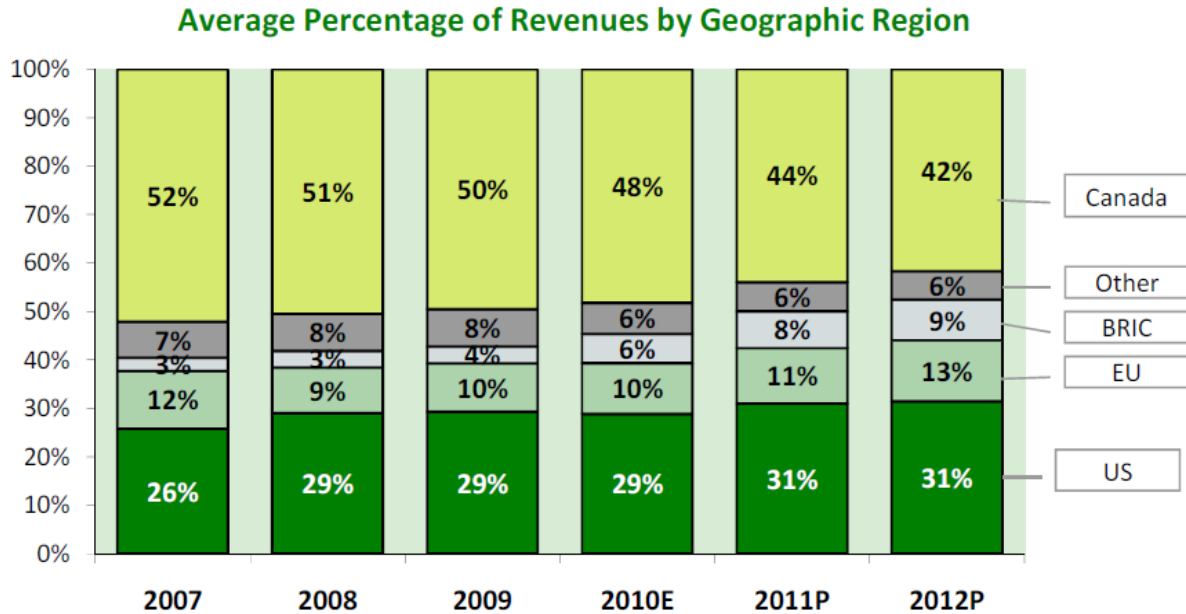
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<sup>1</sup> Le Figaro, Frédéric Schaeffer, The Volatility of the Euro is the primary brake to French SME exports, Economics Section, page 4, November 26 and 27, 2010

<sup>2</sup> SME Report, October 12, 2010, CIBC Economics, Benjamin Tal. SMEs are defined in this article as having 500 employees or fewer.

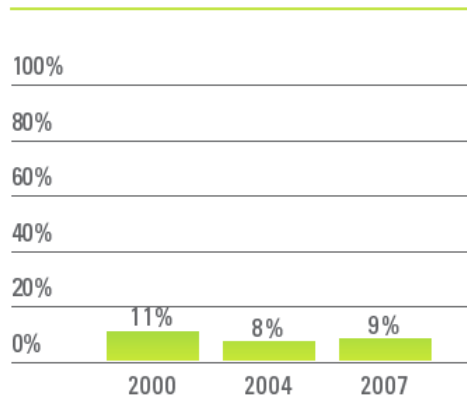
<sup>3</sup> Ibid

**Exhibit A -1: Chart - Profile of Exports for Canadian Clean Technology SMEs**



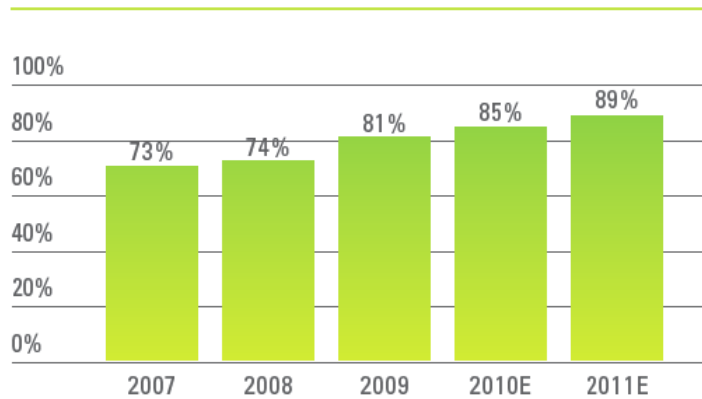
**Exhibit A - 2: Chart - Percentage of Canadian SMEs versus Canadian Clean Technology SMEs Exporting**

PERCENTAGE OF CANADIAN SMEs EXPORTING



Source: Industry Canada, CIBC

PERCENTAGE OF CLEAN TECHNOLOGY COMPANIES EXPORTING



Source: Analytica Advisors

Canada’s BERD policies for clean energy and clean technology as enablers of trade should be viewed in the context of the strategies being implemented by our largest trading partners.

The U.S. has signaled strongly that clean energy technologies are a key part of both its Trade and R&D agendas. The Department of Commerce stated that clean energy technologies would be a priority sector within its recently announced National Export Initiative. The focus on clean energy technology trade was highlighted by President Obama during his visit to India when he said that every \$1 billion in exports to India creates 5,000 jobs at home. President Obama has stated that his administration aims to create two million jobs through \$400 billion in high value exports such as clean energy technology exports.

At the same time, the U.S. clean energy trade agenda is being tightly coupled with its R&D priorities. In India, the President announced the Joint Clean Energy Research Centre and specific collaboration on areas such as solar, advanced biofuels, shale gas and smart grids.<sup>4</sup> In regards to China, the Secretary of Energy, Steven Chu announced the creation of the U.S.-China Clean Energy Research Centre to facilitate joint work. The initial research emphasis for the joint U.S.-China research facility will be energy efficient buildings, clean vehicles and clean coal including carbon capture and storage.<sup>5</sup>

Moreover, the U.S. is investing in a multi-departmental program to promote clean energy technology exports, with particular emphasis on R&D investment and trade promotion for U.S. clean energy technology SMEs. In this DOE initiative, Canadian clean technology SMEs were seen as worthy of review because of their export achievements.

Elsewhere, dynamic international trading partners have well established clean energy technology BERD, commercialization and export initiatives. Examples of strategic approaches have been deployed in Germany (notably through the Renewable Energy Conferences 2004, 2005, 2006)<sup>6</sup>, Japan (notably through Kyoto 2002, National Energy Strategy 2006, Cool Earth 50 2007, 2008)<sup>7</sup> and more recently China with its significant investments in and future commitments to the deployment of clean energy technologies.

### *An unstinting investor in R&D and Commercialization for Canadian jobs and growth*

In 2009, average business BERD investment per Canadian Clean Technology SME was \$1.13 million annually<sup>8</sup>. This figure is 25 percent more than was the average annual expenditures on commercialization (e.g. sales and marketing) of \$850,000. This is indicative of companies that are committed to commercialization strategies that balance both investment in globally competitive technology and investment in globally competitive market facing activities and who remain committed to BERD even during recessionary times.

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<sup>4</sup> President Barak Obama, November 8' 2010 Joint Session of the Indian Parliament, New Delhi, India.

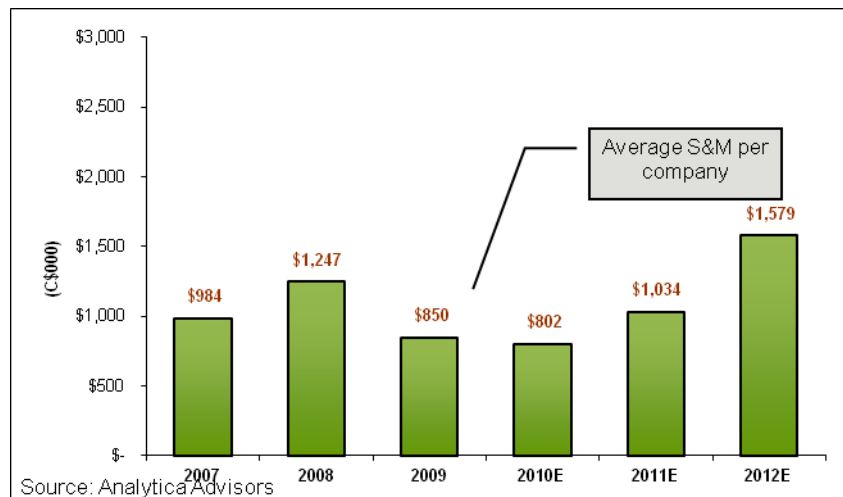
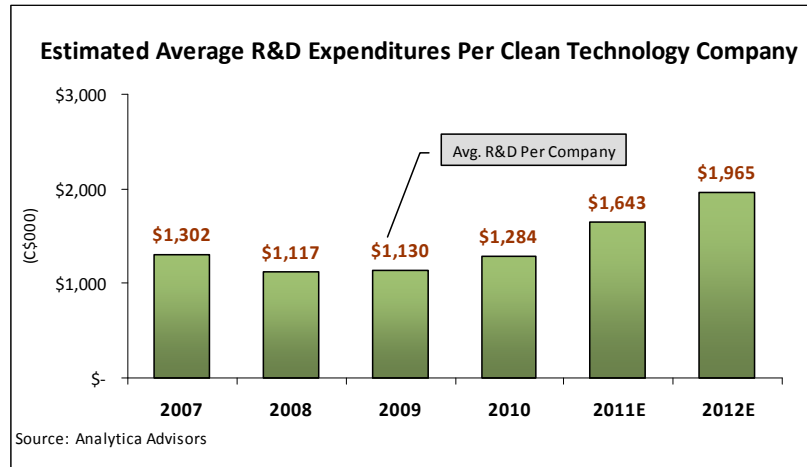
<sup>5</sup> Secretary of Energy Steven Chu, Facebook blog, November 18, 2010.

<sup>6</sup> German Export Assistance Programs Supporting Clean Energy Technology, Energy and Security Group, December 2009.

<sup>7</sup> Breakthrough Institute and the Information Technology and Innovation Foundation, "Rising Tigers, Sleeping Giant: Asian Nations Set to Dominate the Clean Energy Race by Out-Investing the United States," November 2009, pp. 31-32, [http://thebreakthrough.org/blog/Rising\\_Tigers.pdf](http://thebreakthrough.org/blog/Rising_Tigers.pdf)

<sup>8</sup> Celine Bak, primary research for The 2010 SDTC Cleantech Growth & Go-to-Market Report – Canada Edition

**Exhibit A-3 and A-4: Charts - Estimated average R&D and Sales & Marketing Expenditure per Canadian Clean Technology SME**



Within Canadian *clean energy* technology sub-sector, comparable BERD investment figures are available for both large companies and SMEs.<sup>9</sup> For the study in question, clean energy BERD investment figures were broken down into four sectors. For clarity, the equivalents for the taxonomy at the start of this submission are presented in brackets:

- Energy Efficiency (Energy Efficiency)
- Transportation (Transportation)
- Clean Power & Renewables (Power Generation, Energy Infrastructure, Recycling & Waste (Waste-to-Energy), Water & Wastewater (Hydro), Process Efficiency & Abatement, Remediation )

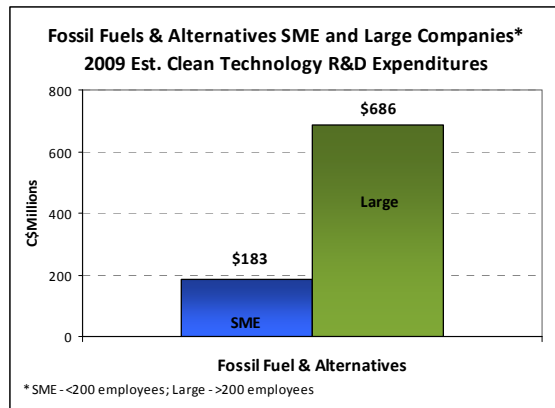
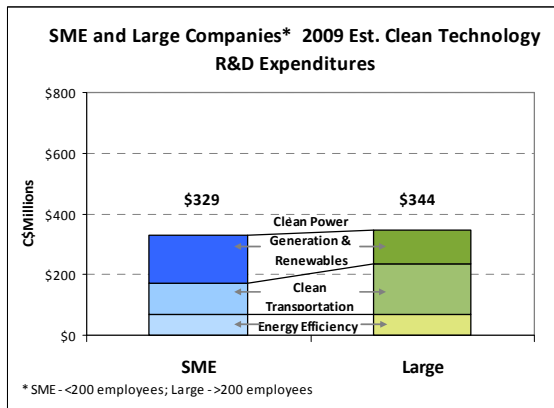
<sup>9</sup> These figures are indicative of the Canadian clean technology industry as a whole because there are approximately 320 Canadian SMEs in the Clean Energy sub-sector versus 465 SMEs in clean technology overall.

- Cleaner Fossil Fuels & Alternatives (Biofuels & Biochemicals, Recycling & Waste, Water & Wastewater, Biofuels & Biochemicals)

In 2009, total BERD by Canadian clean energy *SMEs* was \$512 million. For the same period, total BERD by Canadian clean energy *large companies* was \$1.02 billion. However when the Cleaner Fossil Fuels sector is excluded, total BERD investments by SMEs in the three clean energy sub-sectors of Energy Efficiency, Transportation and Clean Power were comparable in *absolute terms* than those made by large companies: \$329 million versus \$344 million. Even in a more mature sector such as Fossil Fuels, SMEs invested \$183 million in BERD, a figure representing 27 per cent of the investment made by the largest companies in Canada.

As Exhibit 5 and 6 demonstrate, Canadian clean technology SMEs can be relied upon as *leading BERD investors in new and emerging sectors such as clean energy and clean technology and this during a recession*. Even in sectors such as oil and gas, which are dominated by large established companies that arguably are one of Canada’s most important economic engines, Canadian technology SMEs are significant investors in BERD *in absolute terms*.

**Exhibit A-5 and A-6: Charts - Total BERD on Clean Energy Technology by Large Companies and SMEs**



## Appendix C: Connecting federal business expenditure in R&D programs with domestic technology adoption

Large business expenditure and R&D (BERD) programs provide ideal opportunities for technology adoption by large companies from SMEs. For example, existing BERD programs that are targeted at large companies could require technology adoption from technology SMEs as part of program design. R&D funding programs such as the Clean Energy Fund (total appropriation of approximately \$770 million) and EcoEnergy Technology Initiative (total appropriation of approximately \$220 million) presented an ideal opportunity for large Canadian companies to address pressing technical issues by adopting technology from Canadian SMEs.

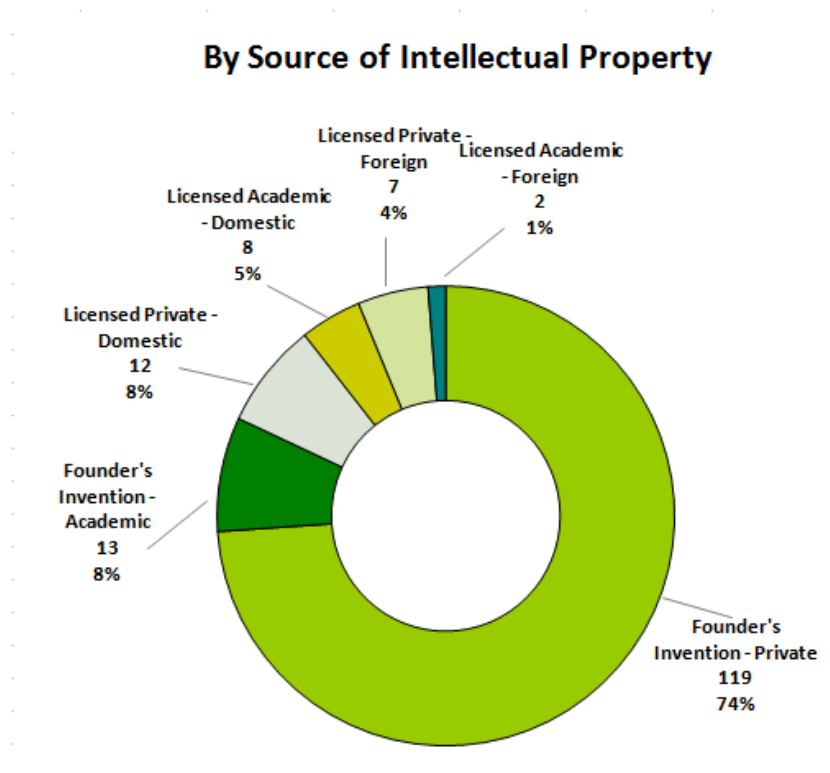
Today, these programs have no requirement for the large companies who benefit from this funding to procure any part of program requirements from technology SMEs. In many cases, this R&D funding leads to the perverse effect of paying for one-off engineering solutions, often from foreign prime contractors, for technology that currently exists from Canadian clean technology SMEs, technology that is ready to be adopted by leading customers. Ironically, for these large scale programs, Canadian clean technology SMEs find that they can only get access to large Canadian customers via U.S. channels. In the Canadian Aerospace and Defence industry, Industrial Regional Benefits (IRB) policies provide a precedent for policies that require large beneficiaries of procurement contracts to engage with Canadian providers.



## Appendix D: Origins of Intellectual Property of Canadian Clean Technology SMEs

It is important to note that like Canada's globally competitive oil and gas services industry, Canada's clean technology industry is one that has grown out of pragmatic industry-based intellectual property. Seventy-four percent of Canadian clean technology companies were established to commercialize the founder's invention while only 13 per cent of companies were established to commercialize technology developed within a Canadian academic institution.<sup>10</sup>

Exhibit A-7: Chart - Origins of Intellectual Property of Canadian Clean Technology SMEs



<sup>10</sup> Céline Bak, The 2010 SDTC Cleantech Growth & Go-to-Market Report – Canada Edition

## Appendix E: Domestic Technology Adoption / Procurement and Equity Constraints in Canada

The need for domestic adoption is all the more pressing given constraints on investment capital in Canada. Since 2002, 32 percent is the ratio between average venture capital investments in Canadian ventures versus average venture capital investments in US ventures for commercialization stage companies. That is, for every dollar invested in a Canadian company, three dollars were invested in a comparable US company. Said another way, the management team of a Canadian clean technology company is often one third the size of its closest American competitor, having three as opposed to nine vice presidents.

In the case of clean technology venture capital investments, from 2003 to 2004, there was a gap between average Canadian and US investments, but the size of gap widened significantly from 2006 onwards and stood at \$7.6 million average investment in a Canadian clean technology company versus \$35 million average investment in US clean technology company in 2008.

**Exhibit A-8: Chart – Ratio of Canada to US Venture Capital Investments 2000 to 2010**

