



**The Quebec Cleantech Industry**  
***A Review of the Funding Chain***  
November 2012

The first organization of its kind in Canada, Écotech Québec brings together all of Québec's industry stakeholders from across the province, including innovative companies, R&D and technology transfer centres, major end-user companies, the financial community, education and training institutions, labour confederations and associations working in the clean technology sector. Écotech Québec supports the design, development, adoption, commercialization and export of Québec-based clean technologies.

Écotech Québec works to position Québec as a centre of excellence for cleantech in North America. It is a major player in the development of this industry, which is recognized as an engine of wealth creation and prosperity. It helps make Québec more competitive, greener and healthier.

## EXECUTIVE SUMMARY

The clean technology industry is growing rapidly on a global scale, both in supply and demand. Among the spin-offs associated with this dynamic sector are the creation of technology companies and highly skilled jobs, the enhanced competitiveness of all economic sectors, a reduction in GHG emissions, and the fight against climate change. In other words, the cleantech industry is becoming one of the green economy's most strategic sectors, contributing to the prosperity of the entire province.

Overall, the funding chain for the Québec cleantech industry seems relatively balanced, thanks in part to tools recently implemented by the Québec government (programs, the Anges Québec capital fund, Cycle-C3E Seed Fund, etc.). These tools provide funding for start-up businesses, many of which will work their way through the entire funding chain. If inventors are to make the transition from research to commercialization, they must become entrepreneurs. This transition is all the more necessary because it can, among other things, ensure that government-funded research produces some concrete spin-offs. The case study of Enerkem (Appendix 3) is a prime example.

In Québec, the value of transactions in the seed and start-up stages of development account for 50% of all investment in cleantech (\$87 million), compared to 32% (\$532 million) of the investment in all sectors combined, for the period January 2006 to September 2011. This is obviously related to the fact that cleantech is an emerging sector. In addition, it is increasingly difficult to raise amounts of \$5 million to \$15 million during financing rounds. At the expansion stage, the value of transactions accounts for 44% (\$76 million) of all investment in cleantech, which is in line with the 46% invested at this stage in all sectors combined.

Another trend observed is the fact that the amount involved in each transaction is on the rise so as to better support leading businesses, though this has led to a decrease in the number of transactions. Furthermore, in the past five years, the renewable energy and energy efficiency sub-sectors have received the most investment (in both number of transactions and overall value).

Given these trends, if cleantech companies are to receive continued support for their efforts to reach target sales and profitability, the following conditions must be met:

- Each phase of the funding chain must receive ongoing funding so that it may adequately finance businesses working towards the expansion stage.
- All stakeholders in the funding chain must contribute enough funds (over \$100 million) to support the growth of clean technology businesses as they pass through the "valley of death." In this regard, the "fund-to-fund" approach is beginning to yield results and attract foreign co-investors.
- Experts must be involved throughout the chain because they provide different types of support to businesses, depending on the stage of development. These experts must also work together to better coordinate their efforts.

In addition to government programs and assistance at the commercialization phase, technology companies will need purchase orders (sales) to help support their transition to the next stage of development. For both public and private clients, cleantech purchase incentives or mechanisms to reduce buyer risk could be very helpful.

Finally, benchmarking Québec's cleantech companies against companies in other Canadian provinces and similar jurisdictions could be useful for identifying new ways to better help them reach their full potential.

## INTRODUCTION

From the very first discussions leading to the creation of Écotech Québec, the challenge of financing was identified as a priority issue for the sector. In fact, access to adequate funding is one of the key conditions for developing cleantech companies. Écotech Québec therefore quickly set up a cleantech financing task force with the following mandate:

"Ensure that the funding chain corresponds to the concrete needs of the ecosystem's stakeholders (innovative companies, investors, etc.) to enable the acceleration of cleantech development in Québec and, in the event of deficiencies, identify and propose practical and realistic solutions to cover the shortfall."

With this in mind, the Écotech Québec Financing Task Force mandated Deloitte to conduct a review of the funding chain. The objectives of this mandate were simple:

- Raise awareness among, and provide information to, entrepreneurs
- Identify current and projected deficiencies
- Influence public and private decisionmakers to identify potential solutions
- Promote the ecosystem to foreign companies and investors

This study therefore reviews the entire Québec funding chain, particularly the stages associated with technology development and commercialization, which are supported by venture capital.

The Deloitte study reveals that, overall, the funding chain for the Québec cleantech industry seems relatively balanced, thanks in part to tools recently implemented by the Québec government (programs, the Anges Québec capital fund, Cycle-C3E Seed Fund, etc.). These tools provide funding for start-up businesses, many of which will work their way through the entire funding chain.

The clean technology industry is growing rapidly on a global scale, both in supply and demand. Among the spin-offs associated with this dynamic sector are the creation of technology companies and highly skilled jobs, the enhanced competitiveness of all economic sectors, a reduction in GHG emissions, and the fight against climate change. In other words, the cleantech industry is becoming one of the green economy's most strategic sectors, contributing to the prosperity of the entire province.

The following sections present the methodology and data sources used as well as the various phases of the funding chain.

## METHODOLOGY

Clean technology, also known as cleantech, green technologies, greentech, eco-innovations, ecotechnologies and ecotech, refers to the products, services, processes and systems that provide users with value added while reducing harmful environmental impacts, either directly or at a different place along the various value chains.

The Québec cleantech ecosystem<sup>1</sup> is essentially composed of eight key categories: water, air, soil, waste, renewable energy, energy efficiency, green chemistry and ecomobility. These categories are easily linked to those used by VCReporter, a vital data source for this study.

Écotech Québec and Deloitte		VCReporter	
Ref	Categories	Ref	Segments
1	Water (waste, drinking)	1	Water Treatment
2	Air (emissions control, treatment)		
3	Soil (remediation, groundwater)	3	Other Environmental Technologies
4	Waste (collection, disposal, sorting, recycling, reuse)	4	Recycling Technologies
		4	Waste Management
5	Renewable energy (geothermal, solar, wind, biomass/biogas, hydroelectricity, hydrogen)	5	Alternative Energy
		5	Other Energy Technologies
6	Energy efficiency (reduction at source, smart grid)	6	Energy Conservation
		6	Energy Management
7	Green chemistry (materials, bioproducts/bioprocesses)		
8	Ecomobility (vehicle component manufacturing, intelligent transportation)		

It is important to specify that the graphs and quantitative data used throughout this document were collected from reports and organizations that cooperated with this study (e.g., TMX Group, Écotech Québec) and databases (VCReporter, Capital IQ).

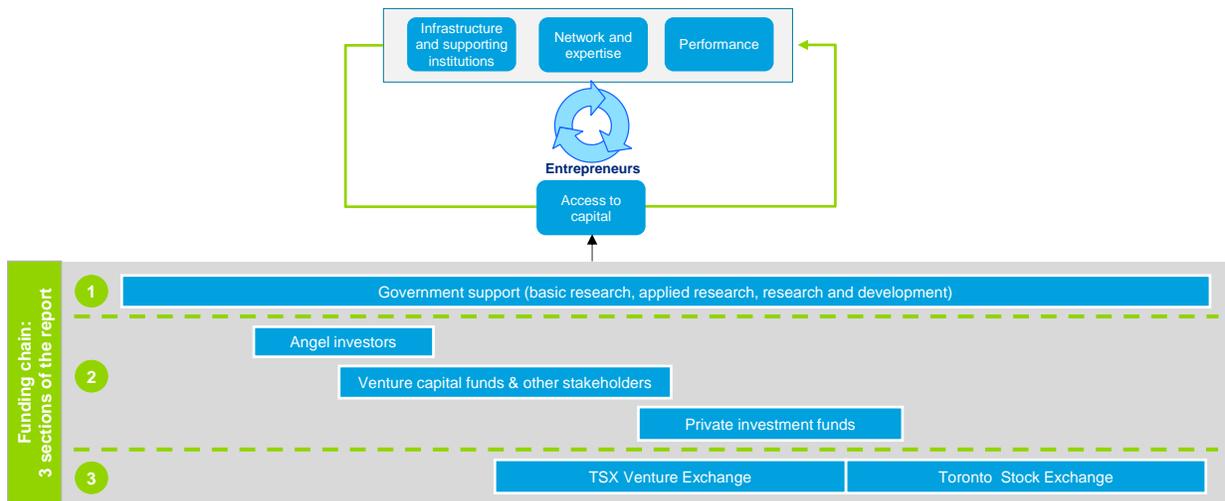
With regard to the databases consulted, transactions involving venture capital or private investment funds are not systematically made public. Consequently, the databases are only partially complete. Nonetheless, they remain the best tool for providing a realistic view of the situation. In addition, the lists of transactions were condensed and completed by representatives from Cycle Capital Management (CCM) and Sustainable Development Technology Canada (SDTC).

Finally, the limited number of transactions involving both clean technology and Québec means that it was not always possible to draw statistically reliable conclusions. However, the data identified did point to trends that could be compared and corroborated with qualitative data gathered during the various interviews conducted.

<sup>1</sup> Écotech Québec (2012). *The Quebec Cleantech Industry – Study and Benchmarking*, written by Deloitte for Écotech Québec, Montreal: Écotech Québec.

## THE CLEANTECH FUNDING CHAIN

The funding chain plays a central role in the development of Québec's cleantech sector. It aims to provide companies with access to capital throughout their development, from basic research to product commercialization to selling shares on a stock market.



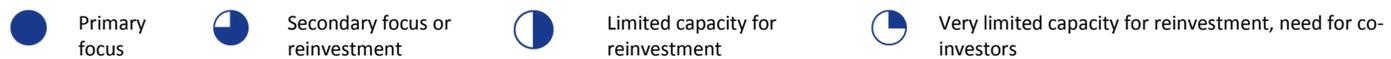
With regard to emerging sectors like Québec's cleantech industry, the venture capital stage is key because it is the one that enables businesses to expand and thus increase the cluster's critical mass.

This study therefore reviews the entire funding chain, particularly the stages associated with technology development and commercialization, which are supported by venture capital.

The following table lists all the categories of funds (direct investment) available in the Québec cleantech funding chain (see Appendix 2). In addition, for each individual fund and type of government assistance, it indicates the extent of financial participation at each stage of development, using the following symbols:

-  Primary focus
-  Secondary focus or reinvestment
-  Limited capacity for reinvestment
-  Very limited capacity for reinvestment, need for co-investors

Category	Fund	R&D	Seed	Start-up	Expansion	Consolidation
Private (or mixed) funds operating primarily in Québec	Seed Fund Cycle-C3E		●	◐	◐	
	Cycle Capital Fund I			●	◐	◐
	FIER Innovation Durable			●	◐	
	FIER Croissance Durable			●	◐	
	GO Capital		●	◐	◐	
	Tandem				●	
Private funds operating secondarily in Québec	Braemar Energy Ven.			●	◐	
	Chrysalix			●	◐	
	EnerTech Capital			●	◐	
	Rho Capital Partners			●	◐	
	Westly Group			●	◐	
Institutional funds	Caisse de dépôt et placement				●	●
Tax-advantaged funds	FSTQ				●	●
	Fondaction			◐	●	◐
	Desjardins VC			◐	◐	●
Provincial government funds	Investissement Québec			◐	◐	●
Federal government funds	BDC (Energy/Cleantech Fund)			◐	●	◐
	Export Development Canada				◐	●
Institutional funds	TD				◐	●
Other organizations (particularly NPOs)	C3E		●	◐		
	SDTC		●	●	◐	
Provincial government support	Ministère des Finances et de l'Économie	●	●	◐		
	Tech. transfer companies (res. centres)		●			
Federal government support	NRC-IRAP / Industry Canada		●	●	◐	
Stock markets	TSX-Venture Exchange (TSX-V)			◐	●	
	Toronto Stock Exchange (TSX)				●	●



## PROVINCIAL AND FEDERAL ASSISTANCE PROGRAMS

Québec cleantech entrepreneurs have access to numerous federal and provincial government assistance programs during each phase of building a business: basic and applied research, development and demonstration, and commercialization.<sup>2</sup>



There are numerous effective government programs, particularly at the research and development stage. That being said, according to many of the individuals interviewed, the wide variety and large number of programs and points of contact seem to discourage many candidates from applying for them.

If inventors are to make the transition from research to commercialization, they must become entrepreneurs. When the government has helped fund the development of an innovation, it would be useful to have a standard, systematic framework for helping the inventor become an entrepreneur. Most inventors who wish to advance from subsidized researcher to entrepreneur create a company. For example, budding entrepreneurs will try to obtain a research centre permit with an option to purchase the patent or any other rights on the innovation at a predetermined price. This way, investors are assured that the innovation has adequate intellectual property strategies. A prime example of this in Québec is the technology developed by a Université de Sherbrooke researcher and commercialized by Enerkem,<sup>3</sup> a company that develops biofuels from waste (see Appendix 3).

<sup>2</sup>Government of Québec. Brochure: La chaîne d'innovation et programmes d'aide.

<http://www.mdeie.gouv.qc.ca/objectifs/financement/r-d-et-innovation/>; Interviews conducted by Deloitte.

<sup>3</sup><http://www.enerkem.com/en/home.html>

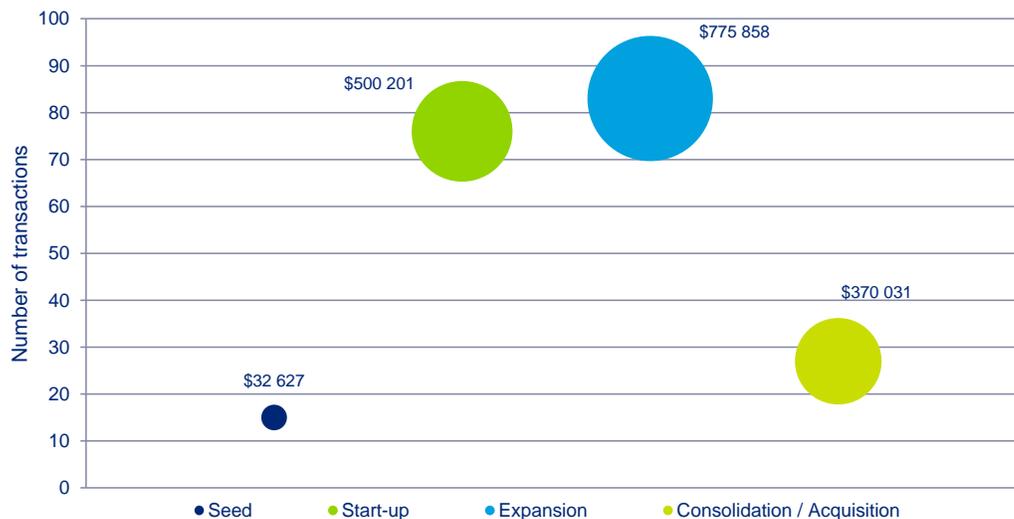
## ANGEL INVESTORS, VENTURE CAPITAL FUNDS AND PRIVATE INVESTMENT FUNDS

The preceding section identified various government programs implemented in the last few years that support entrepreneurs during the R&D stage and initial marketing of their product or technology. This section focusses on subsequent stages, which involve other stakeholders vital to the funding chain. These stakeholders include, among others, angel investors, venture capital funds, private funds, and tax-advantaged funds.

Generally speaking, the data collected for all sectors combined in Québec show that, in the past five years, at least \$1.679 million in venture capital has been invested via 201 transactions. During the same period, the average amount invested per transaction was \$2.2 million for the seed stage, \$6.6 million for the start-up stage, \$9.3 million for the expansion stage and \$13.7 million for the consolidation/acquisition stage.

The data also reveal that the start-up and expansion stages are the best funded, with the expansion stage receiving the most. The figure below illustrates, for each stage of development, the value and volume of venture capital funding for all sectors in Québec (information technology, life sciences, etc.).

**Value and volume of venture capital funding in all sectors combined in Québec, for each stage of development (January 2006 - September 2011)**



The dollar amounts are in thousands (000). The size of the coloured dots is in relation to the total dollar value of all the transactions for the stage in question.

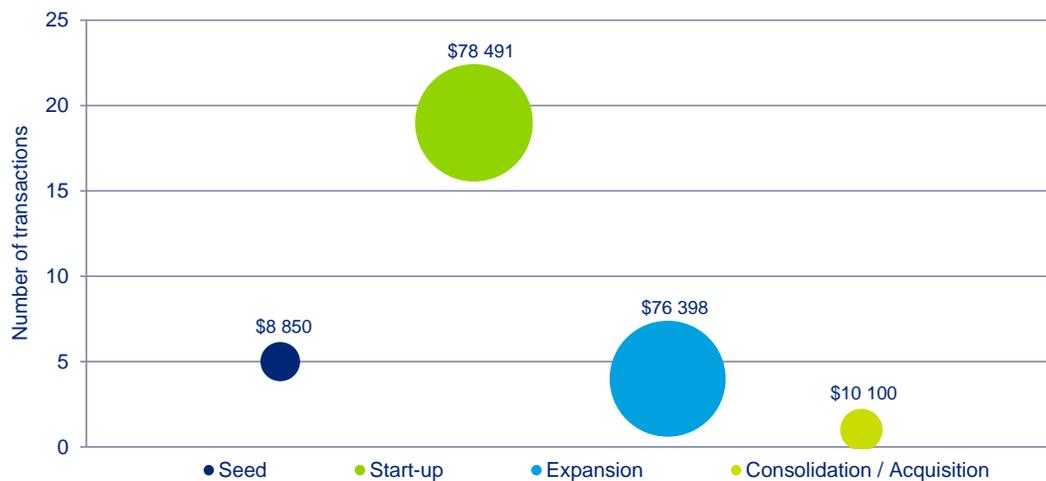
Sources: VCReporter (January 2006 – September 2011), lists condensed and completed by Cycle Capital Management and SDTC

If we focus solely on Québec's cleantech industry, according to the sources used, there have been 29 declared investment transactions totalling more than \$174 million in the past five years. Since not all transactions were declared, the true amount is likely even higher. More specifically, investments are probably less often declared during the seed and start-up stages, given the prevalence of private and family investments, so the amounts invested at these stages are perhaps underestimated.

During the same five-year period, the average amount invested per transaction was \$1.7 million for the seed stage, \$4.1 million for the start-up stage, \$19.1 million for the expansion stage and \$10.1 million for the consolidation/acquisition stage. At this time, investments in Québec's cleantech sector accounted for 10.4% of all the venture capital invested in all sectors combined in Québec and 14.4% of the number of transactions.

The figure below illustrates, for each phase of development, the value and volume of venture capital funding for the Québec cleantech sector.

**Value and volume of venture capital funding in Québec's cleantech sector, for each stage of development (January 2006 - September 2011)**



The dollar amounts are in thousands (000). The size of the coloured dots is in relation to the total dollar value of all the transactions for the stage in question.

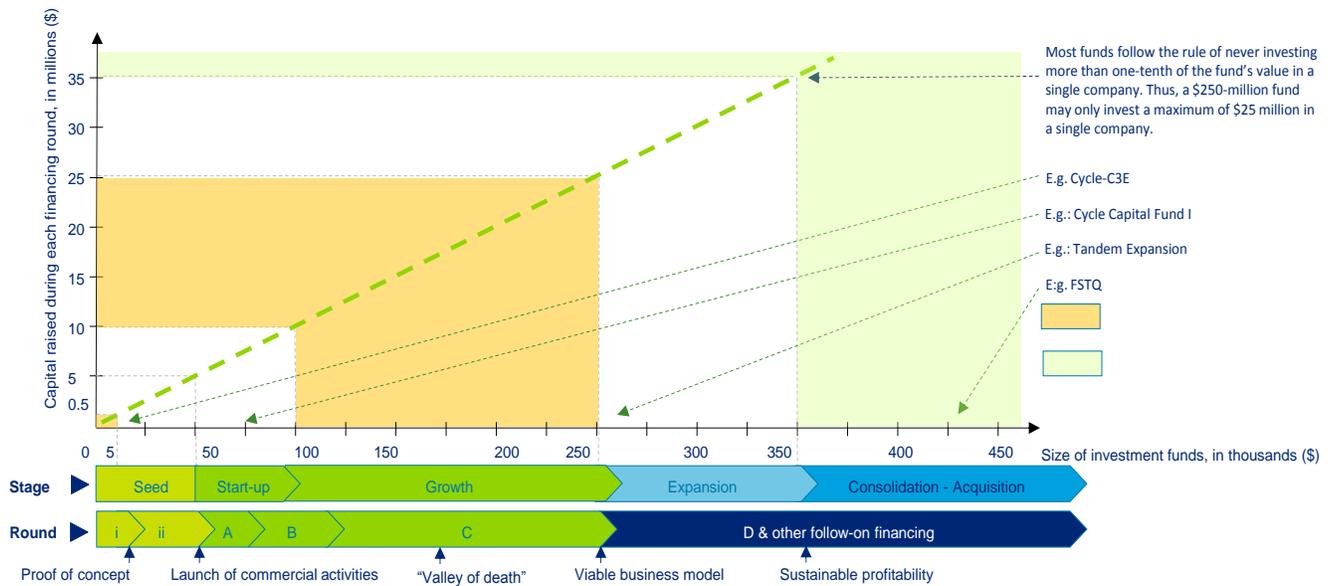
Sources: VCReporter (January 2006 – September 2011), lists condensed and completed by Cycle Capital Management and SDTC

In addition to collecting quantitative data, Deloitte conducted a series of interviews with various stakeholders in the chain to better understand their views of funding as a function of the stage and the amounts accessible. The stakeholders interviewed indicated that the following phases could be improved in the chain:

- \$0-0.5 million: few stakeholders are willing to invest when the company has not yet demonstrated its proof of concept.
- \$5-15 million: because most venture capital funds have less than \$100-150 million under management, they are less likely to invest more than \$10 million per company (during the growth stage<sup>4</sup>).
- Companies that have not established the viability of their business model after raising \$25 million will have difficulty raising new capital.
- By the time they have attracted \$35 million, only companies that have demonstrated sustained profitability will be able to continue raising funds to support their growth.

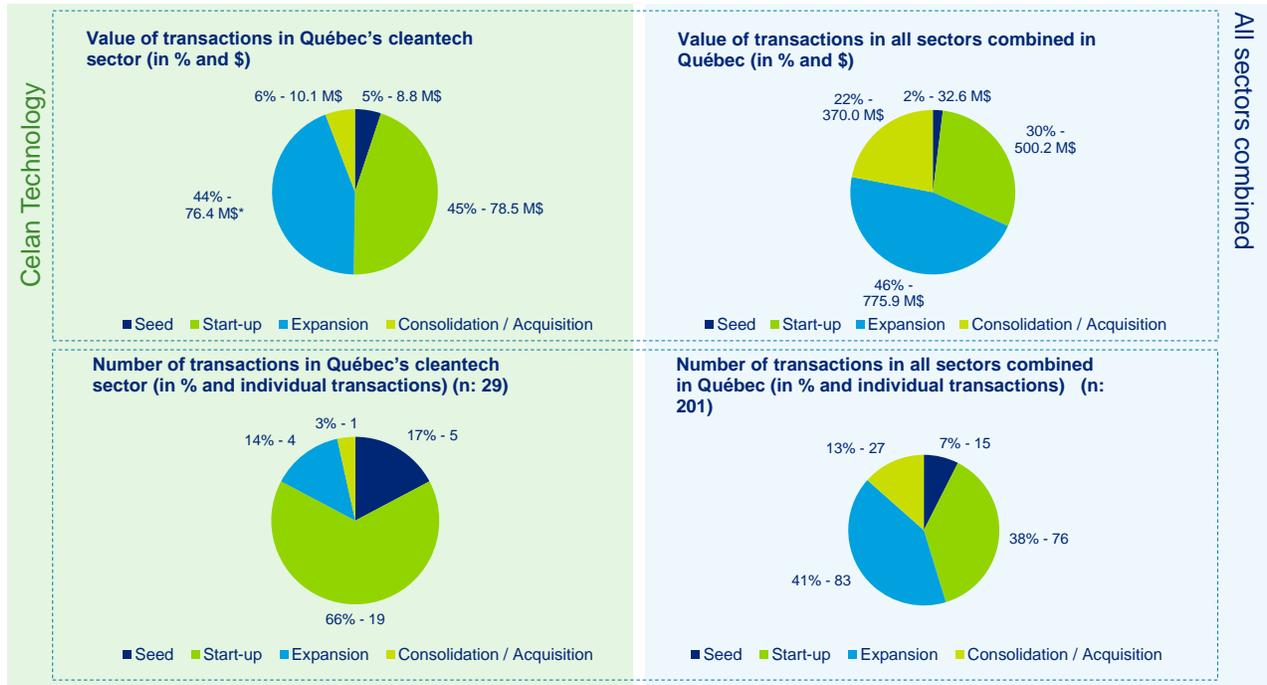
<sup>4</sup>Stage between start-up and expansion.

For illustrative purposes, the figure below presents an overview of the various categories of venture capital and variations between the different stages of business development. It was compiled using information from the interviews conducted and qualitative data collected by Deloitte. To create this graph, the stages were separated into set amounts that, in reality, are flexible and fluctuate depending on the attitude of the various stakeholders and the needs of different corporate structures.



Sources: Deloitte interviews.

Together, the seed and start-up stages account for 50% of all investment in Québec cleantech companies, in relation to the later stages (expansion, consolidation / acquisition). These same stages (seed and start-up) account for 32% of all the venture capital invested in Québec companies, all sectors combined, in relation to the later stages.

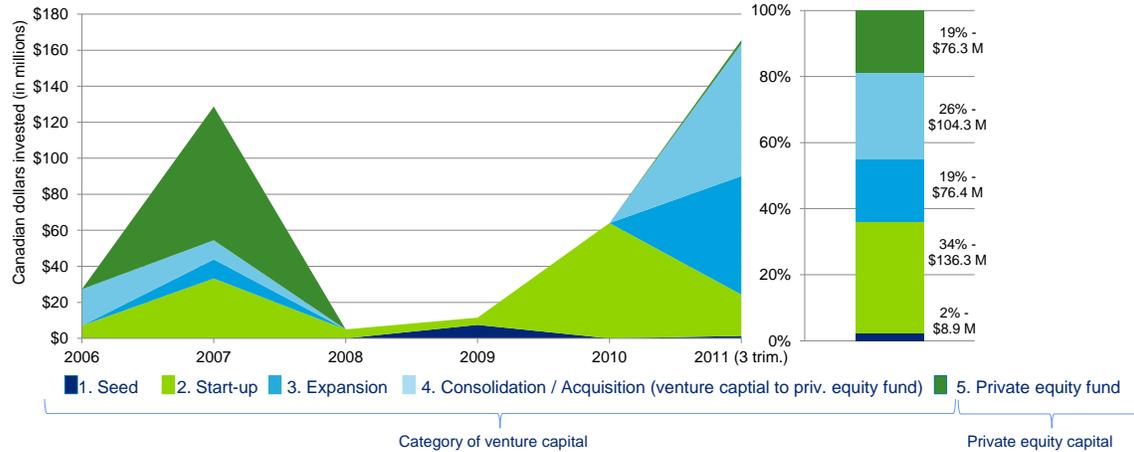


Sources: VCReporter (January 2006 – September 2011 / lists condensed and completed by Cycle Capital Management and SDTC)  
 \* This amount includes a large sum granted to Enerkem

Some funding sources have shifted their investments to companies in the expansion stage, which requires larger amounts, but with a lower risk. However, it must be noted that some of these stakeholders have also chosen to invest in other funds active in the seed and start-up stages.

Total investment (venture capital + private equity funds) for the period 2006-2011 was \$402.1 million. Venture capital funds accounted for 81% of the total invested while private equity funds represented 19%. Moreover, private equity funds lately seem to be reducing the amounts they invest in clean technology.

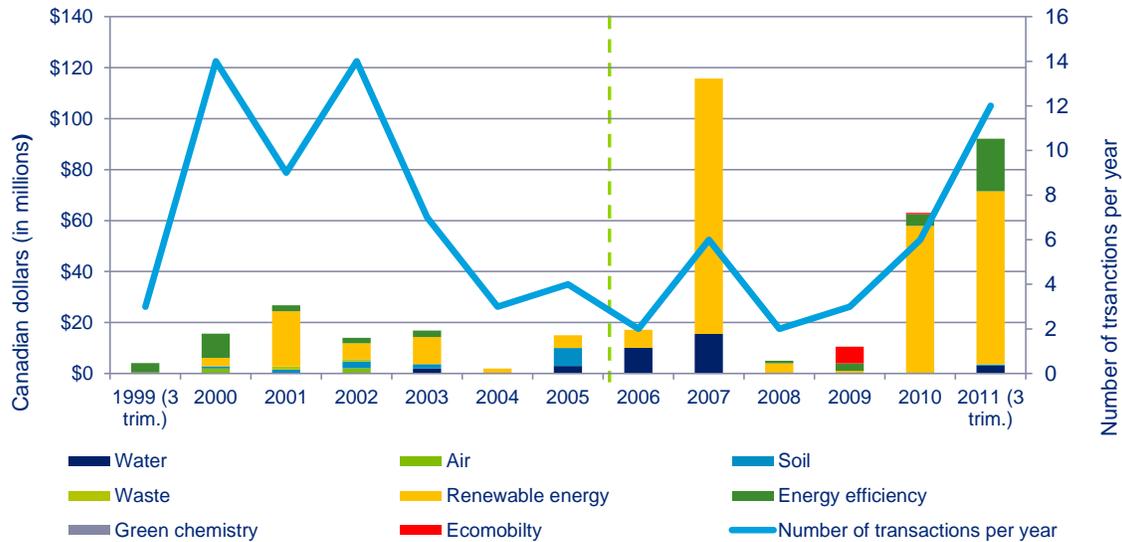
Annual value of investment in Québec's cleantech sector, for each stage of venture capital (January 2006 - September 2011)



Sources: VCReporter (January 2006 – September 2011), Capital IQ (addition of private equity fund data as well as data in the preceding stages), data updated by Cycle Capital Management and SDTC

If we look at existing funding, the amount invested per transaction is increasing to better support the companies selected. More specifically, between 1999 and 2005, the average number of transactions per year was 7.7 and the average investment per year was \$13.5 million, so the average amount per transaction was \$1.7 million. In comparison, from 2006 to 2011, the average number of transactions per year was 5.2 and the average investment per year was \$50.6 million (+375%), so the average amount per transaction was \$9.7 million (+570%).

Canadian dollars invested in Québec per year and by cleantech sub-sector – Number of transactions in Québec per year and by cleantech sub-sector (March 1999 - September 2011)



Source: VCReporter, Capital IQ (March 1999 – September 2011). The years 1999 and 2011 recorded on the chart only include 3 quarters.

The amount per individual investment has been on the rise since the early 2000s. This trend reflects the fact that venture capital funds wish to stop filling the market with numerous smaller investments that, in the end, do not enable young companies to compete effectively. Instead, the idea is to better screen companies and support a potential "champion" to enable it to become a leader in its field. Investment criteria have also become stricter in the past five years.

## STOCK MARKETS

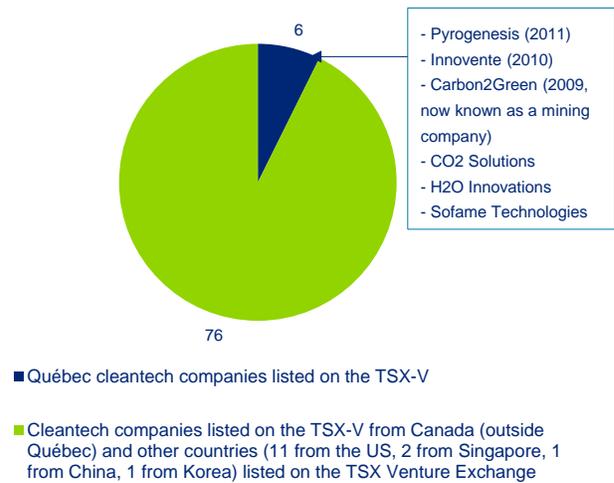
Another option for Québec companies is to seek funding from a venture exchange, but this is rarely done. Money is raised from stock markets in two ways: by listing the company publicly (initial public offering) and by having already listed companies issue additional shares.

With regard to being listed on the TSX Venture Exchange (TSX-V), three Québec-based companies have done just that in the past three years. Even though very few companies have gone public on the TSX-V and so are hardly representative, it is interesting to note that, in relation to the rest of Canada, Québec is well-represented in terms of the number of cleantech companies newly listed on this exchange. Moreover, of all the Québec-based companies listed on the TSX-V, those in the clean technology sector represent 7.9%.

**Relative numbers of cleantech companies from Québec and Canada newly listed on the TSX-V**



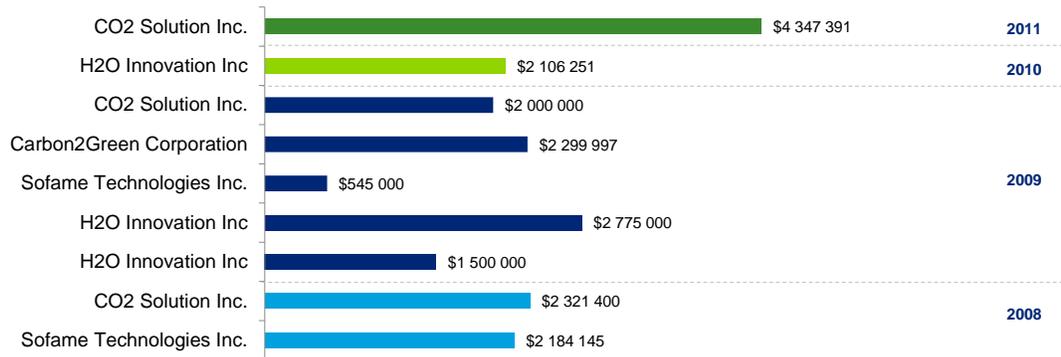
**Number of cleantech companies listed on the TSX Venture Exchange, by province**



Source: 2009-2011 Data –TMX Group. TMX Website

Six Québec-based cleantech companies are currently listed on the TSX-V (out of a total 82 cleantech companies). Of these six, four obtained follow-on financing via the stock market between 2008 and 2011, raising a total of \$20 million. The other two were just recently listed, which explains why they have not yet sought follow-on financing.

**Follow-on financing obtained via the TSX Venture Exchange by listed Québec-based cleantech companies (2008-2011)**

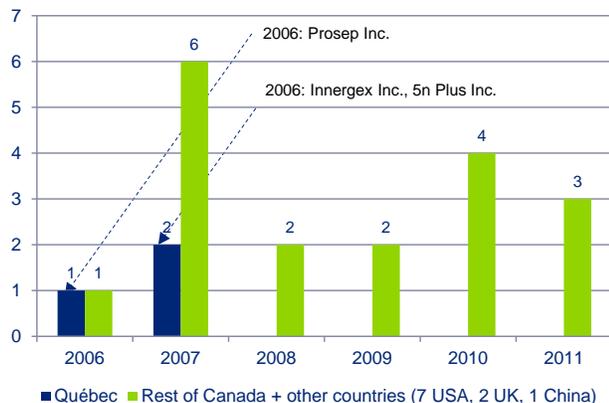


Source: 2008-2011 Data –TMX Group. TMX Website

The TSX-V can offer companies an alternative to venture capital, particularly in the case of those looking for sustained growth, both internal and external. Although the TSX-V entry and structural costs are significant (approximately \$250,000), listed companies can raise funds regularly and offer shares should they require currency for a future acquisition.

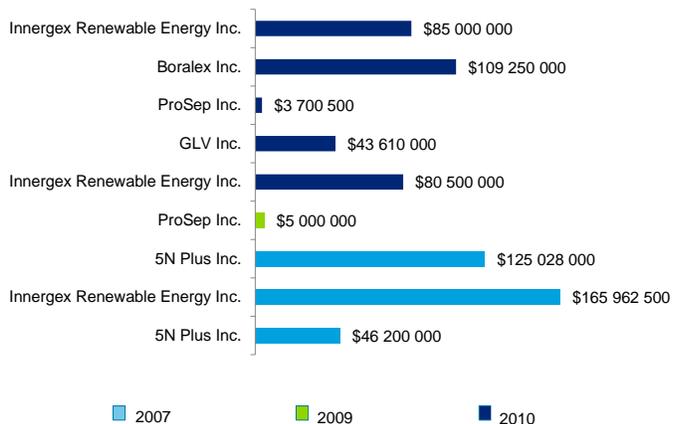
Québec-based companies issue few IPOs on the Toronto Stock Exchange (TSX), compared to their counterparts in the rest of Canada. Specifically in the cleantech sector, no Québec cleantech companies have issued an IPO on the TSX in the last four years (compared to 11 IPOs in this sector for the rest of Canada over the same period).

**Cleantech IPOs on the Toronto Stock Exchange (TSX), per year and by region (2006 – 2011)**



Source: 2006-2011 Data –TMX Group. TMX Website

**Follow-on financing obtained via the TSX by listed Québec-based cleantech companies (2007-2011)**



Companies already listed on the TSX can also secure follow-on financing; \$664 million has been raised this way since 2007 by Québec-based cleantech companies.

Overall, of the 49 "technology" companies listed on the TSX according to the TMX Group definition (which differs from that used by Écotech Québec), 9 are located in Québec if one includes Cascades, Tembec, Boralex, Brookfield REP, GLV and Xebec Adsorption.

## CONCLUSION

Overall, the funding chain for Québec cleantech companies seems relatively balanced thanks in part to tools recently implemented by the Québec government (programs, the Anges Québec capital fund, Cycle-C3E Seed Fund, etc.). These tools provide funding for start-up businesses, many of which will work their way through the entire funding chain. If inventors are to make the transition from research to commercialization, they must become entrepreneurs. This transition is all the more necessary because it can, among other things, ensure that government-funded research produces some concrete spin-offs.

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- Each phase of the funding chain must receive ongoing funding so that it may adequately finance businesses working towards the expansion stage.
- All stakeholders in the funding chain must contribute enough funds (over \$100 million) to support the growth of clean technology companies as they pass through the "valley of death." In this regard, the "fund-to-fund" approach is beginning to yield results and attract foreign co-investors.
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In addition to government programs and assistance at the commercialization phase, technology companies will need orders (sales) to help support their transition to the next stage of development. For both public and private clients, cleantech purchase incentives or mechanisms to reduce buyer risk could be very helpful.

Finally, benchmarking Québec's cleantech companies against companies in other Canadian provinces and similar jurisdictions could be useful for identifying new ways to better help them reach their full potential.

## APPENDIX 1: GLOSSARY

**Angel investor:** A high net worth individual active in venture financing, typically participating at an early stage of growth, either through direct investment or via the TSX Venture Exchange.

### Capital

**Available for investment:** The total value of capital under management, less the resources already invested by the fund. Also known as liquidity. In the case of tax-advantaged funds, mandatory reserves are not included in liquidity calculations.

**Capital under management:** The total dollar value of capital resources, both invested and uninvested, in a fund or market as a whole.

**Fund raising:** New capital commitments raised from external sources of supply.

**Clean technology:** Clean technology, also known as cleantech, green technologies, greentech, eco-innovations, ecotechnologies and ecotech, refers to the products, services, processes and systems that provide users with value added while reducing harmful environmental impacts, either directly or at a different place along the various value chains.

### Financings and investments:

Each transaction involving a fund or funds in a given portfolio company represents one round of financing, commonly known as a deal. Each financing or deal is made up of one or more investments, depending on the presence of co-investors.

### Investment

**Follow-on financing:** A supplementary round of financing in a portfolio company that enables it to build on its original financing, generally in line with business growth and development. Venture-backed firms are often engaged in multiple follow-on deals.

**New investment:** The initial round of financing in a company.

### Investor types

**Corporate or strategic:** Subsidiaries of financial or industrial corporations.

**Foreign investors:** Non-resident equity funds or corporations active in Canada.

**Government funds:** Agencies or Crown corporations owned by government.

**Institutional investors:** Funds managed inside certain large institutions.

**Other investors:** Investors with an interest in venture capital transactions but without a permanent market presence.

**Private independent funds:** Funds structured on limited partnerships and other related vehicles.

**Tax-advantaged funds:** Funds that offer the benefit of government tax credits to individuals.

**IPO:** Initial public offering

**R&D:** Research and development

### Stages of development

**Seed stage:** A developing business entity that has not yet established commercial operations and needs financing for research and product development.

**Start-up stage:** A business in the earliest phase of operations that requires capital for product development, initial marketing and other goals.

**Expansion stage:** An established or near-established business that needs capital to expand its production capacity, marketing and sales.

**Acquisition stage:** An established or near-established business that needs financing to acquire all or part of another business entity for growth purposes.

**Toronto Stock Exchange or TSX:** A division of the TMX Group based in Toronto that operates markets for the trading of shares. It is Canada's largest stock market for large-cap companies (*senior equity market*).

**TSX Venture Exchange or TSX-V:** A division of the TMX Group based in Calgary and Vancouver that operates markets for the trading of shares for emerging businesses. It is the public venture capital exchange.

**Valley of death:** Refers to the stages preceding the commercialization stage that receive insufficient financing.

**Venture and development capital:** A specialized form of private equity, characterized chiefly by high-risk investment in young or new companies following a growth path in the field of technology or any other high value-added sector.

## APPENDIX 2: STAKEHOLDERS IN THE CHAIN – GENERAL INFORMATION

Provincial government support	
<b>Ministère des Finances et de l'Économie (MFE)</b> <a href="http://www.finances.gouv.qc.ca/en/index.asp?">http://www.finances.gouv.qc.ca/en/index.asp?</a>	The MFE creates and implements various financial assistance programs and tax measures aimed at supporting businesses and research organizations as they develop and grow their activities.
<b>Technology transfer companies</b> <b>Univalor</b> <a href="http://www.univalor.ca/">http://www.univalor.ca/</a> <b>MSBiV and Valeo Management</b> <a href="http://www.msбив.ca/">http://www.msбив.ca/</a> <a href="http://www.gestionvaleo.com/en/valeo.html">http://www.gestionvaleo.com/en/valeo.html</a> <b>SOVAR</b> <a href="http://www.sovar.com/">http://www.sovar.com/</a>	Technology transfer companies are limited partnerships that partner with universities, affiliated research centres and teaching hospitals. The mission of a technology transfer company is to commercialize the technologies resulting from research carried out by its limited partners, through activities that enhance the value of the intellectual property of these technologies.
Federal government support	
<b>IRAP – National Research Council Canada</b> <a href="http://www.nrc-cnrc.gc.ca/eng/irap/index.html">http://www.nrc-cnrc.gc.ca/eng/irap/index.html</a>	The National Research Council of Canada Industrial Research Assistance Program (NRC-IRAP) helps Canada's small and medium-sized enterprises increase their capacity for technology and innovation. Its Industrial Technology Advisors work on-site to help businesses determine their needs and find tailor-made solutions.
Other organizations (particularly NPOs)	
<b>C3E</b> <a href="http://www.c3e.ca/en">www.c3e.ca/en</a> Yvon Brousseau Chief Executive Officer	C3E contributes to the commercial success of proven technological innovations in energy efficiency and renewable energy by financially supporting the implementation of innovative business models.
<b>SDTC</b> <a href="http://www.sdтc.ca/index.php?page=home&amp;hl=en_CA">http://www.sdтc.ca/index.php?page=home&amp;hl=en_CA</a> Paul Austin Regional Director, Partnerships	Sustainable Development Technology Canada (SDTC) is a not-for-profit foundation that finances and supports the development and demonstration of clean technologies which provide solutions to issues of climate change, clean air, water quality and soil, and which deliver economic, environmental and health benefits to Canadians.

Private (or mixed) funds operating primarily in Québec	
<p><b>Cycle Capital Management</b> (Seed Fund Cycle-C3E and Cycle Capital Fund I) <a href="http://www.cyclecapital.com/EN/index.php">http://www.cyclecapital.com/EN/index.php</a></p> <p>Andrée-Lise Méthot Founder and Principal Partner</p>	<p>Cycle Capital is a pioneer among Canadian venture capital funds focussed on the cleantech sector. The fund invests in companies developing and commercializing clean technologies. Cycle Capital has assembled a unique team of investment professionals, strategic advisors and experts in sustainable development with extensive expertise in both business and the clean technology sector.</p>
<p><b>FIER Innovation Durable/ FIER Croissance Durable</b> <a href="http://www.corposanacapital.com/en/index.php">http://www.corposanacapital.com/en/index.php</a></p> <p>Alain Boissonneault (Innovation Durable) Jean Pelchat (Croissance Durable)</p>	<p>In its capacity as an investment fund manager, whether through FIER Innovation Durable s.e.c. or FIER Croissance Durable s.e.c., - both limited partnerships - Corposana Capital supports the development and growth of companies in Québec and across Canada by giving them access to a source of capital that favours industrial innovation, growth in productivity and the creation of specialized jobs.</p>
<p><b>GO Capital</b> <a href="http://www.bdc.ca/EN/solutions/venture_capital/">http://www.bdc.ca/EN/solutions/venture_capital/</a></p> <p>Charles Cazabon Managing Partner</p>	<p>The GO Capital venture capital fund supports the creation of companies in all sectors of science and technology in Québec, including natural sciences, life sciences and information technology. The Fund invests in companies launched as a result of research and development efforts undertaken in universities, public-sector laboratories and private-sector initiatives.</p>
<p><b>Tandem Expansion</b> <a href="http://www.tandemexpansion.com">www.tandemexpansion.com</a></p> <p>Antoine Michaud Principal</p>	<p>Tandem is a growth equity investor that has been formed to make significant minority investments in Canadian technology companies with exciting commercial prospects and a unique value proposition. Beyond capital, the Tandem team actively contributes its experience in building companies and relationships around the globe and its proven ability to create value.</p>

Private funds operating secondarily in Québec	
<p><b>Braemer Energy Venture</b>  <a href="http://www.braemarenergy.com/">www.braemarenergy.com/</a></p> <p>Dorothea Bersani  New York Office Manager</p>	<p>Braemar Energy Ventures is a leading energy venture capital firm. Our principals have more than 100 years of combined energy experience, and an investment record that dates back to the mid-1980s. We partner with exceptional companies and management teams, in both alternative and traditional energy markets, that can contribute to a more profitable and efficient energy landscape through innovation and marketplace expertise.</p>
<p><b>Chrysalix</b>  <a href="http://www.chrysalix.com/">www.chrysalix.com/</a></p> <p>Wal van Lierop  Co-Founder, President &amp; CEO</p>	<p>Chrysalix is a venture capital firm investing in technologies that will drive the new energy economy. The Firm provides early-stage financing, hands-on assistance, and strategic connections to innovative companies confronting the world's most important energy and environmental issues. For the past two years, the Firm has ranked the most active clean energy technology venture capital firm in the world.</p>
<p><b>EnerTech Capital</b>  <a href="http://www.enertechcapital.com/">www.enertechcapital.com/</a></p> <p>Anne-Marie Bourgeois  Vice President, Investments</p>	<p>EnerTech Capital is a private venture capital company focussed on innovation in the energy and electricity sectors, particularly early to growth stage companies that offer products or services that dramatically improve the profitability of producing or consuming energy.</p>
<p><b>Rho Capital Partners</b>  <a href="http://www.rhocanada.com/">www.rhocanada.com/</a></p>	<p>Rho Canada Ventures is a division of Rho Capital Partners focussing on early-stage investing in Canada's most innovative technology companies. Rho Canada Ventures' portfolio companies are a diverse group of investments that span new media, mobile applications, wireless infrastructure, semiconductors &amp; materials, and software (including SaaS).</p>
<p><b>Westly Group</b>  <a href="http://www.westlygroup.com/">www.westlygroup.com/</a></p> <p>Steve Westly  Managing Partner</p>	<p>With extensive operating experience in the private and public sectors, from Silicon Valley to Washington, D.C. and beyond, the Westly Group uses its experiences to give firms the momentum they need to achieve their potential.</p> <p>The Westly Group invests in leading and up-and-coming cleantech companies in an effort to accelerate this revolution.</p>

Institutional funds	
<b>Caisse de dépôt et placement du Québec</b> <a href="http://www.lacaisse.com/en">www.lacaisse.com/en</a>	<p>The Caisse seeks opportunities to contribute to the growth of successful and promising Québec companies of various sizes and at various stages of development.</p> <p>The Caisse provides significant support to Québec companies, typically at a crucial stage of their development, such as during an expansion or acquisition project. Currently, approximately 500 Québec businesses are receiving support from the Caisse.</p>
<b>TD</b> <a href="http://www.tdaminstitutional.com/tmi/content/IS_InstitutionalFundDetail?key=E15054&amp;language=en_CA">http://www.tdaminstitutional.com/tmi/content/IS_InstitutionalFundDetail?key=E15054&amp;language=en_CA</a>	<p>The portfolio of the Fund consists of Canadian, federal, provincial and municipal issued bonds and debentures that are selected and weighted to approximate the overall characteristics of the DEX Long Term Government Bond Index.</p>
Tax-advantaged funds	
<b>FSTQ</b> <a href="http://www.fondsftq.com/en/accueil.aspx">http://www.fondsftq.com/en/accueil.aspx</a>	<p>The largest development capital network in the province, the Fonds de solidarité FTQ was created on the initiative of the FTQ, Québec's largest central labour body. Through its governance and codes of ethics, the Fonds is a socially responsible investor committed to sustainable economic development where people come first. Aside from investing capital, the Fonds is committed to supporting the growth of its partner companies by offering value-added services such as economic training.</p>
<b>Fondaction</b> <a href="http://www.fondaction.com/">www.fondaction.com/</a>	<p>Fondaction can invest in any Québec company, both unionized and non-unionized, as long as the majority of employees reside in Québec. These businesses must have less than \$100 million in assets and a net equity of not more than \$50 million, regardless of the sector of activity. Fondaction prefers to invest in companies that subscribe to a participative management process, worker-controlled or cooperative enterprises and those concerned with the environment.</p>
<b>Desjardins VC</b> <a href="http://www.desjardins.com/en/entreprises/solutions/financement/capital-developpement/capital-risque.jsp">http://www.desjardins.com/en/entreprises/solutions/financement/capital-developpement/capital-risque.jsp</a>	<p>Desjardins Venture Capital is the venture capital fund management arm of Desjardins Group. In its work as a manager, Desjardins Venture Capital invests in dynamic and innovative businesses in diverse sectors across Québec. The financial instruments used, in the form of share capital or debt, aim to obtain an optimum return for funds managed, in keeping with each fund's investment policy.</p>

Provincial government funds	
<b>Investissement Québec</b> <a href="http://www.investquebec.com/en/index.aspx?">http://www.investquebec.com/en/index.aspx?</a>	Investissement Québec's financing products, which are complementary to those of partner financial institutions, support companies, cooperative businesses and non-profit organizations at every stage of their growth so that they can achieve their objectives. In particular, it provides loans and loan guarantees, and can invest in the share capital of businesses. In this way, it supports the growth of Québec companies and contributes to the province's economic development.
Federal government funds	
<b>Business Development Bank of Canada (BDC)</b> (Energy/Cleantech Fund) <a href="http://www.bdc.ca/en/solutions/venture_capital/Pages/venture_capital.aspx#.UMlhvIM8B8E">http://www.bdc.ca/en/solutions/venture_capital/Pages/venture_capital.aspx#.UMlhvIM8B8E</a>	BDC Venture Capital is a major venture capital investor in Canada, active at every stage of the business development cycle, from seed through expansion, with a focus on innovative technology-based Canadian companies that have high growth potential, offer unique products or services and that are positioned to become dominant players in their markets.
<b>Export Development Canada (EDC)</b> <a href="http://www.edc.ca/EN/Pages/default.aspx">http://www.edc.ca/EN/Pages/default.aspx</a>	EDC provides insurance and financial services, bonding products and small business solutions to Canadian exporters and investors and their international buyers. It also supports Canadian direct investment abroad and investment into Canada. Much of its business is done in partnership with other financial institutions and through collaboration with the government of Canada.
Stock markets	
<b>TSX Venture and TSX</b> <a href="http://www.tmx.com">www.tmx.com</a> <a href="http://www.tmx.com/en/listings/sector_profiles/clean_technology.html">http://www.tmx.com/en/listings/sector_profiles/clean_technology.html</a>  Louis Doyle Vice-President, Montréal	TMX Group is an integrated, multi-asset class exchange group. TMX Group's businesses operate cash and derivative markets for multiple asset classes including equities, fixed income and energy. The Group also provides clearing facilities, data products and other services to the international financial community.

## APPENDIX 3: ENERKEM

*"In addition to presenting an alternate solution to landfilling, [this project] will enable greenhouse gas emissions to be reduced by about 110,000 metric tons of CO<sub>2</sub> per year. Cellulosic ethanol is a renewable fuel that will help reduce our dependence on petroleum products. By supporting this project, our government is taking concrete action to strengthen Québec's energy supply security. Today's announcement also puts Québec in an advantageous position in the search for alternatives to fossil fuel consumption."*

With these words, in February 2012 Minister Clément Gignac commented on the project announced by partners Enerkem and GreenField Ethanol to build Québec's first full-scale commercial cellulosic ethanol plant in Varennes. The Québec government's \$27 million contribution to this project includes \$18 million in financial assistance from the Ministère des Ressources naturelles et de la Faune (MRNF) and a \$9 million loan from Investissement Québec. This funding will facilitate the partners' efforts to develop the project and thereby stimulate the regional economy, create green jobs and help launch a new hub for green chemistry.

Such projects diversify our energy sources while reducing our use of fossil fuels. This is all the more important when one considers that the transportation sector is the greatest producer of greenhouse gases in Québec and that in 2009 the province imported \$8 billion in crude oil, a heavy commercial burden for Québec society.

In the 1980s and 1990s, Esteban Chornet, a professor emeritus at the Université de Sherbrooke and the world's leading expert in biomass conversion, conducted the initial research that led to the creation of Enerkem. The company was founded in 2000 by Chornet and his son, entrepreneur Vincent Chornet. In 2002, the Fonds de Solidarité des travailleurs du Québec and Innovatech Sud du Québec both invested in Enerkem to enable the company to build a high-capacity (200 kg per hour) pilot plant in Sherbrooke to test and perfect its proprietary technology. In 2003, a pilot plant using Enerkem's technology opened in Sherbrooke, Québec.

To finance its ongoing R&D efforts as well as the construction of a demonstration plant, Enerkem then raised its own capital from major venture capital investors. During this round of financing in 2006, Rho Ventures and Braemar Energy Ventures became shareholders.

Then, in June 2007, Québec Premier Jean Charest announced the creation of a research chair at the Université de Sherbrooke as well as support for the establishment of a demonstration cellulosic ethanol production plant in Westbury. In addition to perfecting emerging cellulosic ethanol production technologies, the creation of this chair has helped provide concrete support for the creation of an Enerkem demonstration plant in Westbury, which paved the way for the company's full-scale commercial plants like the facility under construction in Alberta.

Since 2007, Enerkem has grown exponentially from 25 to 130 employees in Québec, many of whom are engineers. Enerkem also creates work for a large network of Québec suppliers. Nearly 600 Québec suppliers of equipment and services have worked with Enerkem over the past three years.

In addition, each Enerkem full-scale commercial plant will create 40 high-quality permanent direct jobs, almost as many indirect jobs, and more than one hundred jobs for the construction of the plant itself.

Since its founding, Enkern has received \$145 million in private funding. The private capital raised by Enkern has come from institutional and industrial investors as well as investors from the cleantech sector such as [Rho Ventures](#), [Braemar Energy Ventures](#), [Waste Management](#), [Valero](#), [BDR Capital](#), [Cycle Capital](#), [The Westly Group](#), [Fondaction CSN](#) and [Quince Associates, L.P.](#) These amounts are in addition to government funding from the Québec Ministère des ressources naturelles (MRN), Investissement Québec, Natural Resources Canada, Sustainable Development Technology Canada, the government of Alberta, the United States Department of Energy (DOE) and the US Department of Agriculture (USDA). Thanks to the combined support of these different partners, Enkern is now a leader in the biofuels and renewable chemicals sector.