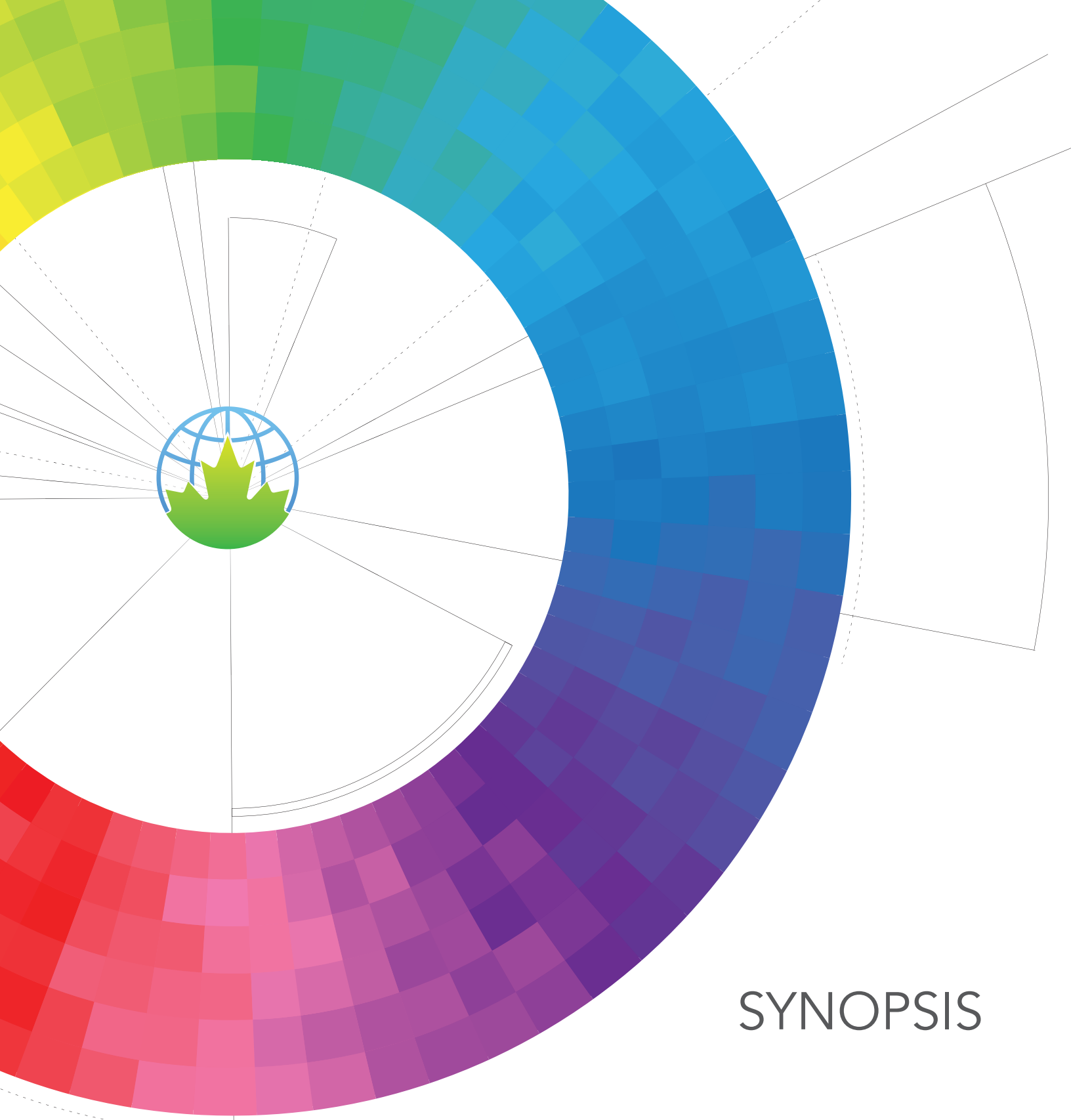

SYNOPSIS

2015 CANADIAN CLEAN TECHNOLOGY INDUSTRY REPORT

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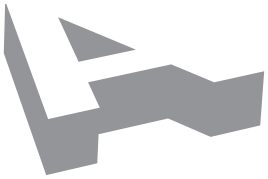

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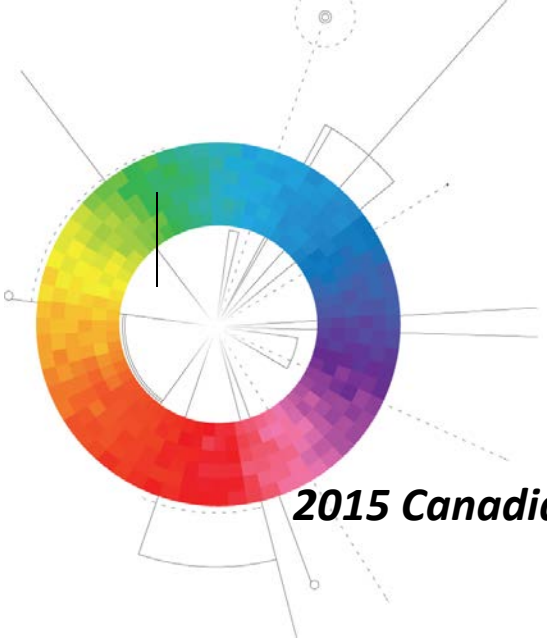

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2015 Canadian Clean Technology Industry Report

Synopsis

A powerful new industry for Canada – time to get behind it

Canada's clean technology industry is Canada's first new industry of the 21st century.

In fact, with 50,000 people employed directly in more than 800 firms, some might say Canada's clean technology industry has come of age.

The industry reflects our national values and our ability to invest in innovation, to protect the environment, build strong companies and create good jobs.

Canadian clean technology companies are winning in global markets where competition is fierce. People working in the industry are building companies with a range and diversity that is breathtaking, including creating new career paths that combine skill sets as diverse as engineering, international business development and communications.

Canada is building an industry that boosts productivity at home and grows trade abroad. The industry is creating jobs at a stunning rate and has continued to grow at four times the rate of the overall Canadian economy. Direct employment in the clean technology industry has already exceeded direct employment in the forestry and logging industries as well as pharmaceuticals and medical devices.

Employment in the Canadian clean technology industry now also exceeds that of the aerospace manufacturing sector. And in 2013 alone, Canadian clean technology firms created three times the employment of GM's largest and busiest Canadian plant – the CAMI plant in Ingersoll, Ontario.

What unites these clean technology industry innovators is a collective desire to solve problems to do with the air, water and earth through know-how that wins business all over the world. They are dedicated to building companies that protect our environment and grow our economy.

It is time to both highlight and capitalize on Canada's clean technology credentials.

2015 Canadian Clean Technology Industry Report

The *2015 Canadian Clean Technology Industry Report*, compiled and published by Analytica Advisors Inc., concerns itself with the people working in the growing number of businesses in the industry.

At the core of this report, and those that preceded it, are the 126 participating companies, including 16 public companies and 110 private companies, that share their confidential financial information and plans with Analytica Advisors so that they can benchmark themselves against their peers in this report. Additional research was conducted on 63 public companies and 637 private companies.

The research for the 2015 report was conducted in the summer and fall of 2014 and companies reported their results for 2013 and their plans for 2014.

For the first time this year, the report includes an analysis of Canada's global market share ranking for both 2005 and 2013 among the top 24 exporters of manufactured Environmental Goods, based on global trade reports. It also includes an analysis and ranking of the change in global market share for these top 24 global exporters for the same period. These are the biggest winners and biggest losers over the past eight years.

This report is prepared for the exclusive use and information of those clean technology companies who participated in Analytica's research, elected officials and their advisors with responsibility for clean technology, innovation, energy and the environment, and subscribers to the report.

What is clean technology and what is a clean technology company?

Clean technology is much more than technology that produces renewable energy from the sun and the wind. In Canada alone, the industry is worth almost $12 billion and is made up of 10 clean technology sectors.

These 10 sectors form the basis of the *2015 Canadian Clean Technology Industry Report* and fall under three broad market segments — Upstream, Downstream, Water & Agriculture.

A clean technology company is defined as a company with proprietary technology or know-how that addresses one or more of the markets below:

The 2015 report has two pieces of good news for Canada...

- There is improved productivity and exports of products and services that is strengthening the economic fabric of Canada. The clean technology industry of today is doing what the aerospace and automotive industries have done for the last 50 years.

- There is greater integration of clean technologies into current business practices across all resource sectors as well as infrastructure, electricity, buildings and manufacturing here in Canada. The industry is saving money, using natural resources more efficiently and improving environmental performance.

But one cautionary warning – the not so good news…

- The absence of government policies to stimulate take up of these new technologies does not bode well for Canada.

Newly developed analyses in the 2015 report force us to consider some hard questions about the future. Most importantly, will Canada's policy makers have the courage to support the industry as innovation moves towards full commercialization?

Are we, possibly, about to sell off yet another industry in which public and private funders have invested unstintingly in innovation? Will foreign companies and economies reap the benefits of the innovations that Canadian taxpayers and investors have helped to finance?

Innovation and market-based policies fostered by government have enabled the launch of many companies. However, in the absence of policies that stimulate the take up of new technology, the technologies fail to deliver long-term productivity and growth.

Government policies that pull innovation into markets may include regular reporting on sector performance within the Canadian and global economy, inclusion of the sector in trade discussions and consultation with the sector on intellectual property protection. Opportunities to leverage the private sector in international development and support for climate mitigation and even education on clean technology solutions that are cheaper than traditional ways of doing business would also benefit the industry.

For many of our trading partners, this sector is key to diplomatic engagement with emerging markets. All of these together are part of enabling leading innovative companies to become world leaders in their markets. Not so for Canada.

The key findings and challenges from the 2015 Report

Canada's position in the Global Market

Again, it's good and bad news.

The good news is global markets are now very large – close to $1 trillion in 2014 – and the export of Canadian Environmental Goods already exceeds many sectors currently tracked by the federal

government. Canada's exports of manufactured Environmental Goods are on a par with Mineral Products, Wood, Livestock and Processed Food – all major industries for Canada.

The bad news is that Canada's global share of Environmental Goods is steadily declining and we are the world's third greatest loser of market share since 2008. Our market share of manufactured Environmental Goods declined by 41 percent from 2.2 percent to 1.3 percent. Worse still, our global ranking fell from 14th to 19th. After the UK and Japan, Canada's is the steepest decline in global market share.

For Renewable Energy and Energy Efficiency manufactured Environmental Goods, Canada has lost 71 percent of its 2005 market share and is the biggest loser of market share among the top 24 exporting countries.

The report noted that governments in countries such as Germany, Mexico, China and South Korea are wholeheartedly supporting the clean technology industry. It also found that the US, Europe and China are the top three countries for Canada's clean technology exports, and that for the second year in a row, China remains the third priority country, up from eighth place in 2013.

A $50 billion industry by 2022?

Canada's economy is two percent of the Global Economy, but the country currently punches above its weight and is responsible for 2.6 percent of global trade. Some industries do much better. Our civilian aerospace industry for example has a six percent global market share.

Achieving just our 'fair share' of the global industry would create a $50 billion Canadian clean technology industry by 2022. This would represent 2.5 percent of global market share.

After five years of study and four annual national reports documenting Canada's clean technology industry, the patterns continue to suggest that this is within Canada's grasp. However, we will need to have the kind of strategic capital and private sector engagement that aerospace and other sectors have enjoyed for the last several decades.

The crucial role of policy through private and public sector engagement

The clean technology industry has the potential to be a source of sustainable export-led growth as commodity-led industries come under price and competitive pressures.

Canada has a well-oiled machine in terms of innovation policy and programs. But Canada does not always have an integrated approach to innovation policy in relation to environmental protection, intellectual property, trade, regulatory, international development and competition policy to name but a few. This lack of an integrated approach can lead to wasted opportunities whereby innovation investment is not then translated into economic growth. This could be the case for Canada's clean technology industry if the support for innovation is not followed through fully by connecting the dots.

Jobs for the future

This year, Canadian clean technology industry revenues grew at four times the rate of the overall Canadian economy. The industry's true standout though was employment. Between 2012 and 2013, employment grew by a stunning 9,000 to 50,000 jobs for a year-on-year growth of 21 percent.

This continues to be a sector that holds great potential for the sustainable development of a high-skill, high-wage, knowledge-based economy for Canada. At a time when growth in well-paid full-time jobs remains patchy, clean technology continues to out-perform other industries.

Direct employment in the clean technology industry has already exceeded that of the forestry and logging industries, aerospace and pharmaceuticals and medical devices.

If the industry manages to sustain an eight percent annual growth rate, the industry will employ 100,000 people directly before 2022. This is an innovation-driven industry, which will continue to protect the environment and drive well-paid jobs at home for some time to come.

People aged 30 years or under represent about one fifth of all employees in the industry. That means that 10,000 young people already view this as an industry in which young people are welcome and needed and they are investing their time and talent in building strong careers.

The continuing challenge of financing growth

Financing remains a dominant concern for clean technology companies in Canada. Previous reports have highlighted the need to increase equity investment in Canadian innovation-based industries.

In the future, debt financing will play an increasingly important part in assuring the growth of the Canadian clean technology industry by enabling financing of turnkey contracts. A turnkey contract is a business arrangement, which delivers a project or good or service in a completed state, rather than developing it in stages.

As companies move into full-scale commercialization of their technologies, debt will enable them to deliver turnkey solutions and projects, which in turn provide stable and predictable revenues.

Given their 'intangible IP assets', reviewing policies regarding access to debt by technology companies should be considered as a way to protect the public investments made in R&D through innovation programs.

Canada could make more use of the tools originally designed for mature industries such as the aerospace and oil & gas industries. These tools include Export Development Canada (EDC), as well as the Canadian Commercial Corporation's mandate to act as prime contractor in sovereign procurement.

Refocusing ambition

There are increasing signs that, perhaps because of global competition or the difficulties in securing debt and equity financing, many clean technology companies are refocusing their attention away from becoming global leaders.

Many firms have tempered their strategy by aiming to be globally competitive in *niches*. This is a marked shift away from their previous aim of achieving a dominant global positioning.

The significance of this development is still not fully clear, but to avoid Canadian clean technology losing its momentum policy makers will need to use all the levers available to them.

This includes better integration between the federal and provincial governments in policy discussions, be it trade, regulation or other. As well, we need to leverage our regulatory frameworks and experience as an avenue to trade.

Still an export-fuelled industry

Exports of clean technology industries equalled domestic revenues and reached $5.8 billion or 50 percent of revenues, up from 48 percent in 2012 and regaining 2011 levels. More than 40 percent of exports were to non-US markets. The proportion of Canadian companies actively exporting remained strong but declined to 68 percent during 2013, down from three quarters of companies in 2012.

When we first reported on this matter in 2011, a massive 85 percent of companies expected to be exporting by 2013. However, only 68 percent of companies actually achieved this. This year, the industry's forecast for the next two years remains the same, with 83 percent of companies expecting to be actively exporting in 2015.

Too much focus on R&D?

The clean technology industry's cumulative investment in R&D was an astounding $6.4 billion from 2008 to 2013. Of this, $4.5 billion in R&D investments were from SMEs. This is an industry of young firms establishing new franchises in sizable niche markets through investments on a number of dimensions, including R&D and sales and marketing.

It may be that an R&D bubble is developing due to the lack of coordination among the federal and provincial governments regarding innovation policy and pull levers for the industry. This bubble may also turn Canadian companies into the classic takeover target for foreign-owned companies who can then profit from Canadian innovations.

Elsewhere, countries such as Germany, Mexico, China and South Korea are moving with conviction, based on their assessment of market opportunity and achieved competitive results. It's time for Canada to take note.

Seven key recommendations

The *2015 Canadian Clean Technology Industry Report* primarily exists to provide the data and analysis that owners, managers, investors and policy makers need to make decisions that can make the difference between whether a company thrives or struggles. But the analysis in the report also leads the authors to make a number of important recommendations for the whole industry and the country to consider. The country faces some important choices.

1. Clean technology requires political recognition and leadership

Clean technology is Canada's first new industry of the 21st century. Its exports are on par with those of mining, wood, livestock and processed foods. While each of these sectors has a single minister and ministry responsible for its economic stewardship, this is not the case for clean technology. Clean technology has no formal policy capacity either federally or provincially. It is time for change. Provinces need to engage with one another and with federal counterparts on energy and the economy and clean technology should be part of this.

2. We must end the jobs vs. the environment debate

Clean technology does not mean sacrificing economic growth to preserve the environment. It means generating economic growth through export-led clean technology products and services to protect the environment and achieve sustainable and balanced growth. Canada needs to learn from countries that have grown their global market share.

3. Canada must develop policies that support domestic demand generation

Canada must encourage and support its domestic markets in clean technology and ensure that economic recovery generates jobs at home and does not become a 'jobless recovery.' Clean technology fits the bill. Again, the country should learn from other countries that have grown market share on the back of a domestic market for clean technologies.

4. Government and financial institutions need to rethink their role

Access to both debt and equity finance is the biggest single barrier clean technology companies face in achieving their growth potential. Government and the private sectors have not engaged directly on the matter of finance. Benchmarking international best practices would help ground consultations in fact. It is time for Canada to clearly layout financing alternatives for the next great Canadian industry.

5. The industry itself needs to speak with a clearer and stronger voice

The clean technology industry needs to up its game through industry organization. There is much good work being done, but there is a lot more scope to address these issues and give the industry a more powerful voice in the national conversation. Simply put, clean technology industries need to unite under an umbrella association to present a more unified and stronger voice when dealing with governments, stakeholders and other sectors.

6. International knowledge must evolve

The 2015 report has much to say about the Canadian clean technology industry, but there is a pressing need to understand more about the global market. We need to deepen our understanding of international markets and consider how the industry can focus on geographic market opportunities.

7. The aid budget can work harder for Canada

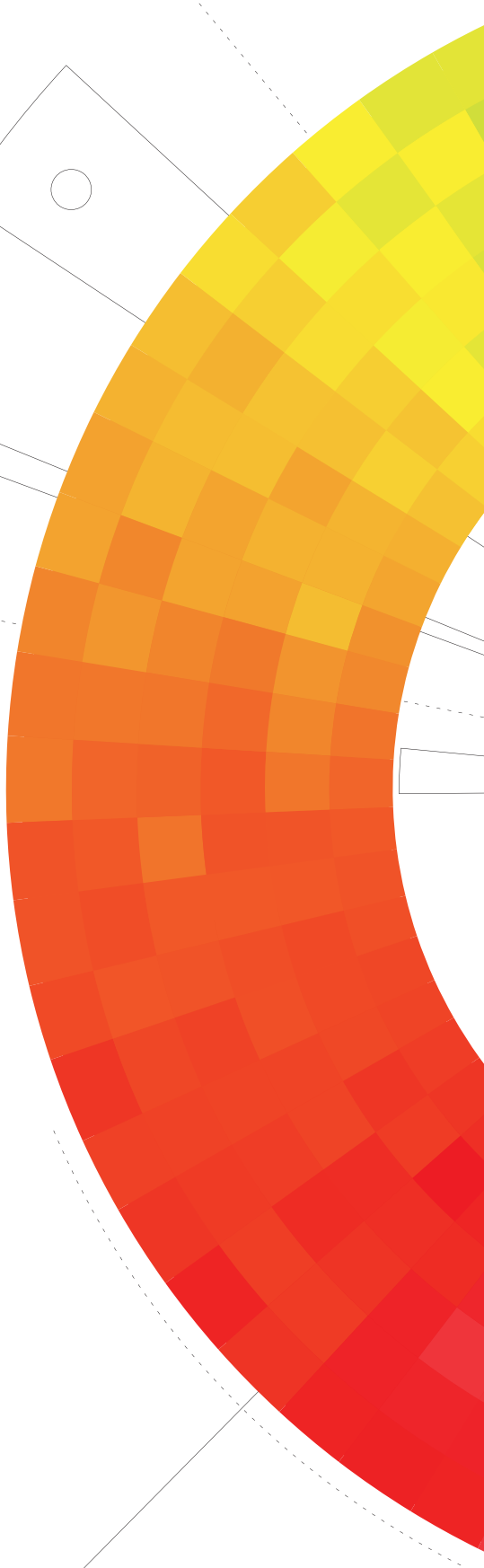
Canada plays an important role in international development, climate change negotiations and International Financial Institutions (IFIs). But too often that investment is disconnected from the potential of the clean technology industry. We need to determine how the industry is connected to policy initiatives in the areas of international development, climate change and IFIs, how bilateral aid addresses the need for energy and water, and how the industry can participate as a provider of technical capabilities.

Let's not miss out

This report clearly demonstrates the strong domestic and global opportunities for Canada's clean technology industry. However, it is important to remember that we have been here before.

Over the last 20 years, we have had held and then lost leads in biotechnology, cable and satellite technology, and others as well. Canada has a small domestic market and a reluctance to implement industrial strategies that build scale among industries that arise from push innovation policies.

Canada's clean technology industry can overcome these challenges, but it requires us to embrace the urgency that is required to avoid being left behind in a global race – again.



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