

# FINANCING THE TRANSITION TO THE LOW CARBON ECONOMY

2017 Federal Pre-Budget Submission



The Canadian Coalition for Green Finance

Lorraine Becker and Bryan C. Becker

## Executive Summary

The investment required for Canada to meet our climate change commitments is of a scale and pace unprecedented in Canadian history. Mobilizing private sector capital will be central to Canada's success in both meeting targets and creating economic opportunities for Canadians. Public finance targeted at risk reduction and enabling scale can help overcome barriers for private sector investors in the low-carbon economy. The Canadian Coalition for Green Finance recommends deploying the Low-Carbon Economy Fund to capitalize a Green Investment Bank for Canada in 2017.

## 1. Introduction: The Low-Carbon Investment Challenge

**“This is our Apollo mission, if we seize the moment.**

**It could be our Titanic if we don't.”**

John Stackhouse, a Senior Vice-President, Royal Bank of Canada

In 2015 Canada joined over 190 countries by making a ground-breaking commitment to respond to climate change. Our commitment will require unprecedented investment in low-carbon and climate-resilient (LCR) infrastructure, which represents both a challenge and an opportunity. The challenge is that we must fully mobilize all of our resources to deal with the defining issue of our generation. The opportunity is to create new infrastructure, that reduces emissions and mitigates climate risk, and that will also spur economic development and demonstrate new possibilities to investors.

The scale of the investment that is required is staggering. Globally, \$93T needs to be invested in LCR infrastructure in the period between 2015 and 2030. Canada’s international commitments to a 30% reduction in Green House Gas (GHG) emissions by 2030 necessitates substantial investment from our nation. It will entail the implementation of new technologies and the retooling of many key sectors of our economy, so that we might ensure continued economic growth and job creation. The full scale of the investment required will start to become apparent in November 2016 with the completion of the Pan-Canadian Clean Growth and Climate Change Agreement.

**“Out of \$100 trillion in institutional funds around the World, less than 1 percent is invested in anything you could call ‘green’.”**

Mark Carney, Governor of Bank of England, Chairman of the Financial Stability Board

Understandably, corporate and institutional investors, whom we mandate to be risk adverse, are not yet rushing into the “green space”. The case for sustainable investment has not been sufficiently compelling, and uncertainty abounds. Some believe that carbon policies, carbon pricing, and government spending will carry us through the transition. While we will need all three approaches, they will not be enough for us to achieve our goals:

- **Carbon Policies** will not achieve all the necessary emission reductions; analysis shows a shortfall of 91 Mt in 2030.
- **Carbon Pricing** will help, but the resulting incentives will not be strong enough. The price of carbon would have to jump dramatically to create the changes in behaviour needed in the short term, which could bring unintended and untenable side effects. In addition, there are many specific market failures that carbon pricing fails to address.
- **Government Spending** will not be enough. The Federal budget for 2016 outlined significant increases in public funding of infrastructure, but this will need meet the investment demand, nor is the government likely to have the capability to increase spending to the levels required.

The transition to a low-carbon economy will not be smooth without a significant increased level of participation from private sector investors. While clean growth represents a remarkable prospect for the private sector, it is not without its challenges. Barriers to private sector participation include (McKinsey 2016):

- Lack of investable projects
- High development and transaction costs
- Lack of viable funding models
- Inadequate risk-adjusted returns
- Policy uncertainty

## 2. Mobilizing Private Sector Investment in the Low Carbon Economy

There are a range of solutions to address the range of barriers that impede investment in the low-carbon economy. However, the underlying principle tactic is to reduce the cost of capital for project proponents. This is the crux of the issue because for most low-carbon projects, the cost of capital is often the largest project cost, not uncommonly at 70% of the cost of the project (OECD 2015). The cost of capital tracks to risk, or perceived risk: investors often perceive risks as high for investment types that are novel or unfamiliar to them, even if risks are well mitigated at the project level. Where risk perception is high, a risk premium is added to the cost of capital, which limits the availability of affordable capital. Therefore, reducing risk and hence the cost to capital, is core to scaling up private sector investment.

Ensuring that enabling policies are in place is important, as is technical assistance, grant funding for early stage projects, and project development assistance. These are all crucial parts of the system for breaking down the barriers. However, good public policy in these areas will not be effective without an accompanying financial strategy to increase private sector investment. This strategy should be focused on reducing risk, to reduce the cost of capital, and increasing access to capital for low-carbon project developers. Public financial approaches, employed as mobilization tools, will be key component of Canada’s success in meeting our international emission reduction targets.

The key investment risks and appropriate risk mitigation tools are outlined in Figures 1 and 2.

Definition of key investment risks	
<b>Political Risk</b>	Risks associated with political events that adversely impact the value of investments (e.g. war, civil disturbance, currency inconvertibility, breach of contract, expropriation, non-honouring of obligations).
<b>Policy or Regulatory Risk</b>	Risks associated with changes in legal or regulatory policies that have significant, adverse impacts on project development or implementation (e.g. incentive programs, interconnection regulations, permitting process)
<b>Counterparty Risk (Power Off-Taker Risk)</b>	Credit and default risk by a counterparty in a financial transaction. For renewable energy investments, it is related to the risk of default by power off-taker, typically the electric utility.
<b>Grid and Transmission Risk</b>	Limitations associated with limitations in interconnection, grid management, and transmission infrastructure.
<b>Technology Risk</b>	Risk associated with use of nascent technology or inexperienced and unskilled labour deploying it.
<b>Currency Risk</b>	Risks associated with changing or volatile foreign exchange rates that adversely impact the value of investments and arises when there is a currency mismatch between assets (revenues) and liabilities (debt financing).
<b>Liquidity Risk</b>	Possibility of operational liquidity issues arising from revenue shortfalls or mismatches between the timing of cash receipts and payments.
<b>Refinancing Risk</b>	Risk that a borrower is unable to refinance the outstanding loan midway through the life of a project due to inadequate loan terms (the maturity of the loan is mismatched with the lifetime of the asset).
<b>Resource Risk</b>	Risk associated with uncertainties around the availability, future price and/or supply of the renewable energy resource (e.g. risk related to geothermal energy projects).

IRENA analysis

Figure 1 – Definition of Key Investment Risks (Source: IRENA 2016)

Common risk mitigants that would assist in crowding in private capital into the low-carbon economy in Canada include:

- Loan Guarantees
- Partial Risk Guarantees
- Credit and Partial Credit Guarantees
- Put Options
- Convertible Grants
- Guarantee Funds
- Development Guarantees

Additionally, mechanisms for achieving scale and reducing transaction costs are required. These include:

- Green Bonds
- Yieldcos
- Aggregation
- Securitization
- Standardized Contracts
- Standardized Procedures
- Standardized Metrics

To effectively reduce the cost of capital for low-carbon projects, and attract investors, these risk mitigants and scale enablers need to be delivered by public financial institutions.

Financial risk mitigation tools to address investment risks								
	Political risk	Policy and regulatory risk	Counterparty risk (power off-taker risk)	Grid interconnection and transmission line risk	Technology risk	Currency risk	Liquidity and refinancing risk	Resource risk
Government guarantee	✓	✓	✓					
Political risk insurance	✓	✓	✓	✓			✓	
Partial risk/credit guarantee	✓	✓	✓	✓	✓	✓		
Export credit guarantee	✓	✓	✓	✓	✓	✓		
Currency risk hedging instrument							✓	
Currency risk guarantee fund							✓	
Local currency lending							✓	
Internal/external liquidity facility				✓				✓
Liquidity guarantee								✓
Put option								✓
Grant and convertible grant								✓
Resource guarantee fund								✓
Geothermal exploration insurance								✓
Portfolio guarantee								✓

Figure 2 – Financial Risk Mitigation Tools versus Investment Risks (Source: IRENA 2016)

### 3. Public Financial Institutions for Mobilizing Investment into Low-Carbon Projects in Canada

#### What types of projects will be required?

The low-carbon projects that will be effective in achieving emissions reductions for Canada in the period of between now and 2030 will have technologies that are at a high level of technology readiness (greater than 8 on the TRL scale), will be commercially ready, and can be implemented at scale quickly.

#### What would a public financial institution need to do to assist mobilizing the investment?

The low-carbon projects that Canada needs will require commercialization funding in the order of \$5M to \$100M per project, which needs to be backed with risk mitigants tools to make them “investable”.

Institutional investors typically transact at the scale of \$300M to \$600M per transaction (average size of transaction in 2014 was \$438M, Preqin 2015). In order to meet their needs will require the scale enablers listed above.

All in all, we need the delivery of a range financial mechanisms made available to low-carbon project developers in order to attract the investment required to fund the transition to a low-carbon economy

Arguably we do have a number of Canadian public financial institutions that provide one or more of these financial tools. However, currently there is no public financial institution that assist in financing the types of projects that we require in order to transition to the low-carbon economy using the suite of tools required. Only the Climate Change and Emissions Management Corporation (CCEMC) and Sustainable Development Technology Canada (SDTC) focus on domestic “green projects”, however they:

- Do not provide any of the financial mechanisms required
- Do not (typically) work with “commercial ready projects”<sup>1</sup>

Export Development Canada (EDC), while able to deliver the financial mechanisms, does not assist domestic projects. Business Development Bank of Canada (BDC), while providing a few of the required financial mechanisms related to risk, does not have a focus on low-carbon projects, nor does it address scale-related problems.

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<sup>1</sup> Commercial readiness implies that a TRL level that is greater 9. These institutions typically work at TRL levels 3 to 7.



### A public financial institution dedicated to serve the low-carbon economy?

One model that can be effective in delivering the range of financial mechanisms required to mobilize private investment into the low-carbon economy is a Green Investment Bank. In 12 jurisdictions around the world, Green Investment Banks have proven themselves to be an effective means of encouraging private sector involvement in low-carbon infrastructure. They do this by using a range of financial instruments – risk mitigants and transaction enablers – to create innovative vehicles that “crowd-in” corporate and institutional investment. A Canadian Green Investment Bank would play a key role in financing the transition by mobilizing private capital.

#### “Green Investment Bank” Defined

A Green Investment Bank (GIB) is a publicly capitalized entity established specifically to facilitate private investment into domestic low-carbon and climate-resilient (LCR) infrastructure (OECD, 2016). GIBs help transform markets by leveraging limited public resources with private sector investment while providing market rates of return.

While GIBs differ in name, scope, scale and approach, however effective GIBs generally operate according to the following principles:

- **Public Institution:** GIBs are established by governments.
- **Public Policy Mandate:** GIBs achieve public policy objectives that result in a reduction in GHG emissions.
- **Independence:** GIBs are established as quasi-public or arm’s length institutions.
- **Private Capital:** GIBs have the mobilization of private capital as part of their mandate, and do so by addressing the problems of scale and risk.
- **Market Failures:** GIBs use targeted interventions to address specific market failures.
- **Commercial Readiness:** GIBs deploy technologies that are ready for commercialization.
- **Profitable:** GIBs are profitable and create returns for the sponsoring government and its private sector partners.
- **Additionality:** GIBs participate in transactions that would not occur without its involvement.
- **Demonstrability:** Institutional investors may harbor incorrect perceptions of risk related to LCR investment opportunities. GIBs demonstrate the actual risks and returns of these ventures.
- **Replicability and Standardization:** By standardizing processes, contracts, and data collection, GIBs lower transaction costs.
- **Accountability:** GIBs are evaluated using metrics such as GHG reductions, the amount of private capital mobilized, return on capital, and number of jobs created.

### A Green Investment Bank for Canada

A dedicated GIB for Canada would deliver focused resources, including technical expertise, and innovative thinking, in order to:

- Overcome specific investment barriers and market failures;
- Build confidence while reducing risk;
- Provide scale through aggregation;
- Reduce financing costs for low-carbon projects;
- Demonstrate the feasibility and profitability of low-carbon projects; and
- Help Canada become an innovator in the commercialization of clean technology.

### Green Investment Banks expedite the transition away from grants and subsidies

Public finance that targets green projects has traditionally focused on grants and subsidies, which are typically spent on “high cost capital”. Shifting interventions from subsidization, to risk reduction, lowers the cost of capital at source, and is fiscally efficient.

## 4. Recommendations for Budget 2017

### Allocate the Low Carbon Economy Fund for Capitalization of the Green Bank

The Low Carbon Economy Fund detailed in Budget 2016 for \$2B over 4 years starting in 2017 should be allocated to capitalize a Green Investment Bank. This will ensure that those funds are deployed in a fiscally efficient manner because:

- The funds will be leveraged up by private sector capital
- The limited public dollars will be loaned to project developers and the capital will be recovered and redeployed for other projects over time
- Avoid grants and subsidies that end up supporting higher capital lending rates for low-carbon projects
- Increase access to affordable capital for commercially viable low-carbon projects
- The use of grants and subsidies to pay for the higher cost of capital that low carbon project developers face will be avoided: the cost of capital will be reduced at source through the reduction of risk.

### Allocate \$2M for the design of a Canadian Green Investment Bank

Any public financial institution requires careful research and design prior to implementation. Detailed economic analysis will be required to pinpoint the specific barriers and market failures. There are numerous precedents for this type of work in other jurisdictions.