FCM FEDERATION OF CANADIAN MUNICIPALITIES FÉDÉRATION CANADIENNE DES MUNICIPALITÉS

BUILDING CANADA'S GREEN ECONOMY:

THE MUNICIPAL ROLE

www.fcm.ca

By David Thompson[1] and Shannon A. Joseph

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ON THE FRONT LINE OF CANADA'S GREEN ECONOMY

Canada, like the rest of the world, must adapt to the growing scarcity of non-renewable resources while meeting the challenges posed by pollution and climate change.

The solution? Harness innovation and coordinate proven and cost-effective government policy and action to build a green economy.

As defined by the United Nations Environment Programme, a green economy is one where income and employment growth are driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystems.

Canada should be a world leader in the transition to a green economy, but that is far from certain today. Innovation is taking place around the world, and Canada is capable of contributing, but the question is whether we will be a net consumer or net producer of these innovations.

Canada's municipal governments are ready to do our part. Not only do we implement policies that generate much of Canada's economic activity and innovation, we play a major role in land-use planning, transportation, water treatment and energy use, making us uniquely placed to drive the shift to a green economy.

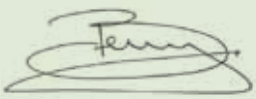
In this report, *Building Canada's Green Economy: The municipal role*, the Federation of Canadian Municipalities has identified three basic principles to guide this approach: act locally, make value for money a top priority; and work with the market where the market can work. Within these three principles, we have identified policy measures the federal government can introduce to enable strong municipal action in support of a green economy. As our 2009 report, *Act Locally*, made clear, municipal governments are making a major contribution to cutting greenhouse gas emissions in Canada, where we have direct or indirect control over 45 per cent of these emissions. The same local approach can be taken to achieve other national objectives, including developing a green economy.

Green economy initiatives can improve a community's quality of life, foster economic development and drive competitiveness, while creating jobs and enhancing the skills of the local workforce. Reducing energy requirements for housing, buildings and transportation can lower operating costs for companies and households. Making municipal operations more energy efficient can produce substantial cost savings, freeing resources for other municipal objectives.

Municipal governments have already contributed significantly to making sustainability a priority in planning and development, in addition to cutting greenhouse gas emissions and curbing energy use. Better collaboration among all orders of government would help local governments do even more, driving gross domestic product growth, job creation and economic growth at ground level.

This report identifies some of the key opportunities for municipal governments and the federal government to work together to meet national environmental and economic goals, while helping Canada move toward a green economy. Key elements include a long-term, predictable infrastructure funding plan that makes sustainable transportation a priority, and federal-municipal collaboration on energy-efficient building retrofits.

We look forward to working with our federal colleagues to improve collaboration and start changing course toward a sustainable future.



Berry Vrbanovic
President, Federation of Canadian Municipalities

EXECUTIVE SUMMARY

The world economy is going to get greener. Rising energy prices and increased scarcity of non-renewable resources will drive new and innovative ways to meet global needs while confronting the consequences of pollution and climate change.

Canada should be a world leader in the transition to a green economy, but that is far from certain today. Innovation is taking place around the world, and Canada is capable of contributing. The question is whether we will be a net consumer or net producer of these innovations.

Municipalities are on the front line of the green economy in Canada. Smart municipal policies have improved quality of life and made communities more attractive for investment, businesses and labour. We have shown leadership in protecting the environment by:

- improving energy efficiency
- providing sustainable transportation options
- treating wastewater
- safely disposing of waste
- limiting nuisance-causing air pollution.

The time has now come for greater partnership between municipalities and the federal government – and for the federal government to put in place the policy framework that will multiply the benefits of municipal action and position Canada for the future.

This report presents the way forward for municipal governments and the federal government to each take action in their own areas of jurisdiction, working together to position Canada as a global green economy leader, and to realize national economic and environmental goals.

WHY A GREEN ECONOMY?

The employment and economic benefits of investing in a green economy span the public and private sectors, and also the goods-producing and services sectors – regionally, provincially and nationally.

Many businesses would benefit, not just traditionally "green" businesses. Construction firms, transportation firms, manufacturing firms, even resource extraction and processing firms would benefit. And the benefits would be spread across Canada, in both large and small communities, rather than being isolated in one or a few pockets.

Investments benefit not only those who are directly employed, but also many others. Green economy sectors provide high levels of employment and gross domestic product (GDP) impact per dollar invested – from 10 to 20 person-years employment per million dollars invested. The oil and gas extraction sector, by comparison, receives significant subsidies in the name of job creation, but creates relatively few jobs per dollar invested – a third to a sixth of that produced by green economy sectors.

Green economy investments provide good economic, employment and business bang-for-the-buck.

THE IMPORTANT ROLE MUNICIPALITIES PLAY

Municipalities are both the engine of the Canadian economy and the place where most of the solutions for Canada's pursuit of a green economy reside. From a practical standpoint, municipalities operate closest to the people and can place green economy policies in a tangible context that visibly displays their benefits, helping generate political support for policy change.

Being on the front line of key environmental challenges – such as those related to transportation, sprawl and the quality of building stock – we are best-placed to identify challenges and formulate solutions. Municipal governments tend to be less partisan and less prone to ideological gridlock; we get things done. Finally, in many important areas (e.g. land use), it is local government that has the jurisdiction to take action.

The municipal policy toolkit includes a range of effective instruments, including: planning, zoning, development control, establishing protected areas, adjusting property taxes, user fees and user taxes, exemptions and relaxation of standards and rules, financing instruments, and procurement policies.

KEY PRIORITY AREAS

FCM has identified the following priority areas for fostering a greener economy and over which municipal governments have a significant degree of control. Taking action in these areas can help the green economy by creating jobs and GDP growth, supporting business development across Canada.

Key priority areas:

- Sustainable transportation
- Energy efficiency of buildings
- Renewable electricity and conservation
- Wastewater treatment and water conservation
- Efficient urban land use
- Solid waste management

Sustainable transportation: Municipalities could further improve transit systems and service to attract new riders. Additional costs would be covered through the increased fare-box revenues arising from higher ridership, and by accessing additional revenue through cost-sharing among different levels of government and road-user pricing (tolls, increased gas tax rates and transfers to municipalities, parking pricing, etc.).

Energy efficiency of buildings: Municipalities could undertake corporate building retrofits to improve energy efficiency and establish energy-efficient standards for new municipal buildings. At a community-wide level, we could encourage energy efficiency retrofits by homeowners and energy efficiency in new commercial/industrial buildings (e.g. by setting environmental standards for fast-tracking approvals).

Renewable electricity and conservation: Municipalities could take additional steps to boost both conservation and the proportion of electricity supplied by renewable sources. By providing education and information, and working with utilities and other orders of government to structure financial incentives for customers, we can reduce the environmental impacts of electricity generation, and create jobs and innovation.

Wastewater treatment and water conservation: Municipalities could take further steps to reduce contaminant loads (e.g. through industrial effluent standards) and volumes. By introducing progressive block-billing water rates we would provide an incentive to use less water, thereby also deferring or even eliminating the need for costly infrastructure upgrades and expansion while protecting lower-income people.

Efficient urban land use: Local government could employ planning and development controls, establish growth boundaries, and adjust development cost charges and property taxes to favour brownfield and infill development over greenfield sprawl. Such actions could be bolstered by complementary policies, such as integrated community energy systems that also address transportation and energy supply and may provide even greater returns on investment.

Solid waste management: Municipalities already take action by bolstering waste diversion and recycling where feasible. We could also implement landfill gas capture and other waste-to-energy (WTE) systems, thereby reducing greenhouse gas (GHG) emissions directly as well as indirectly through displacement of fossil fuel combustion.

CREATING A POLICY CONTEXT FOR STRONG MUNICIPAL ACTION

Canada needs an overarching approach to greening the economy that provides a policy context for stronger municipal action. The federal government must send a clear signal to businesses providing sustainability services and products that Canada wants them. Related policies should strengthen municipalities' hands when we take action on opportunities to advance national sustainable economic growth.

THREE FUNDAMENTAL PRINCIPLES

FCM has identified three fundamental principles, each supported by a set of specific policy measures that the federal government could introduce to provide the policy context for strong municipal action in creating a greener economy for Canada.

Three fundamental principles identified by the FCM:

1. Act locally
2. Make value for money a top priority
3. Work with the market where the market can work

1. Act locally

Act Locally, a 2009 FCM report,[2] presents the case for supporting the municipal role in fighting climate change. It highlights the fact that municipalities have direct or indirect control over 45 per cent of GHG emissions in Canada. Many of these emissions could be reduced through cost-effective initiatives that have widespread support. A similar case can be made for other national objectives, including the greening of the economy, yielding benefits not only in terms of sustainability, but also job creation and economic growth.

Key elements within this rubric are:

a. Putting in place long-term predictable infrastructure funding: A long-term infrastructure financing plan for Canada, to follow the Building Canada Fund (BCF) when it expires in 2014, will keep Canada well positioned to plan for and green its infrastructure.

b. Making sustainable transportation an infrastructure priority: A new long-term plan for infrastructure must address challenges around public transit and transportation corridors. Specifically, clear objectives to reduce gridlock and address strategic gaps in our nation's road, rail, air and marine transportation networks need to be included in the next infrastructure plan, supported by sufficient funding to achieve these objectives.

c. Collaborating on energy-efficiency building retrofits: Federal programs, such as Sustainable Development Technology Canada and ecoENERGY, position Canada to capture energy-efficiency gains and to export energy solutions to the world. In collaboration with provincial, territorial and municipal governments, the federal government could establish a plan with clear targets for the number of retrofits to be financed (e.g. a percentage of commercial, industrial and residential buildings in Canada) and a corresponding funding commitment.

2. Make value for money a top priority

Value for money is fundamentally about making sound investments that are informed by the best available information and that tap into emerging opportunities. For Canada to have a green economy surplus – instead of a deficit – we need to be attentive to where markets and opportunities are headed and get there first.

There is a need to build local capacity so that all communities in Canada can help move the nation toward that common goal. This involves aligning financial incentives with value, investing in climate change adaptation, enhancing knowledge sharing and building capacity.

a. **Aligning financial incentives with value:** As a first step toward a greener economy, the federal government could examine subsidies that cause environmental harm, and reduce and eventually eliminate those subsidies. This is not about punishing traditional sectors, which provide products people need, great jobs and wealth. Rather, this is about investing in the future, and moving dollars to green economy sectors where the products and services of the future are going to be.

b. **Adapting to climate change:** The risks and opportunities of the future include climate change and the need for climate resilience, throughout Canada's economy and its infrastructure. The long-term infrastructure plan should incorporate climate change adaptation principles, and be designed to overcome implementation barriers to sustainability and resilience design features, including a preference for what has been tried and tested.

c. **Enhancing knowledge sharing and building capacity:** Knowledge sharing and capacity building around sustainability has a multiplier effect, as FCM has learned through its management of the Green Municipal Fund (GMF). When communities know what new technologies and practices save money and reduce environmental impact, we make choices armed with this knowledge. The collective impact is strong market demand for green products and services.

3. Work with the market where the market can work

The market is a forum where ideas are tested and either succeed or fail. It is also one where real constraints, such as availability, price, durability and environmental impact, affect consumer choices. The externalization of costs associated with GHG emissions, road use, water consumption and pollution limits the market's ability to prevent economic losses and environmental harm.

All orders of government must collaborate to internalize additional costs and drive innovation. A national user fee policy, the internalization of costs associated with GHG emissions and a national framework for extended producer responsibility (EPR) are key components of this principle.

"IF WE WANT TO MAKE THE MOST OF GREEN GROWTH WE NEED TO BRIDGE THE GAP BETWEEN NATIONAL AND CITY STRATEGIES. NATIONAL GOVERNMENTS HAVE A KEY ROLE TO PLAY IN ENHANCING CITIES' CAPACITY TO ACT ON GREEN GROWTH."

— Angel Gurría, Secretary-General of the OECD[3]

a. **Introducing a national user fee policy:** User fees can encourage conservation and reduce waste by linking how much you pay for a public good or service to how much of it you use. Striking the right balance between user- and tax-supported funding formulas requires new research and collaboration among all orders of government, to establish the user costs of public infrastructure, coordinate user-pay policies in specific regions, and establish general principles for the use of user fees in funding public services.

b. **Internalizing costs associated with GHG emissions:** Canada already has carbon pricing; however, it is uneven and inconsistent. Some provinces have explicitly adopted a carbon price while others have not. There are implicit carbon prices embedded in gasoline and diesel fuel taxes across the country, but not in other fuels. The federal government could start by working with provinces and territories to harmonize Canada's existing carbon prices.

c. **Creating a national framework for EPR:** Post-consumer packaging and associated products now make up the largest proportion of municipal solid waste. Policies to encourage recycling and extended producer responsibility vary across the country by product and jurisdiction. Using its authorities with respect to product labelling and establishment of standards, the federal government can enhance the recyclability of packaging materials used in Canada. This, in turn, would support provincial EPR policies and municipal diversion targets.

CONCLUSION

Municipalities have shown leadership in increasing sustainability and strengthening competitiveness. We have been using the policy levers available to us to put Canada on the course to a greener economy. The time has come for greater partnership between municipalities and the federal government – and for the federal government to put in place the policy framework that will multiply the benefits of municipal action.

The principles for these policies should be: act locally, make value for money a top priority and work with market where the market can work.

This report indicates that significant employment, economic and environmental benefits are available if cities and communities can be given the necessary support to play our full role. However, further research is needed to accurately estimate expected benefits of the different elements of a green economy program.

The need for further study should not arrest progress toward actions and policies that allow us to seize green economic opportunities. We know, for instance, that municipalities face enormous infrastructure deficits and have projects ready to roll; investments made today will lock the country into a set of options for decades to come. Communities need the knowledge and planning to make sound investments that position Canada for the future.

Canada is an economic leader today; the transition to a green economy is about being a leader tomorrow. Municipalities are ready to do our part, and to work with federal, provincial and territorial partners to get there.

A GREEN ECONOMY FOR CANADA

The world economy is going to get greener. Rising energy prices and increased scarcity of non-renewable resources will drive new and innovative ways to meet global needs while avoiding the consequences of pollution and climate change.

Canada should be a world leader in the transition to a green economy, but that is far from certain today. Innovation is taking place around the world, and Canada is capable of contributing, but the question is whether we will be a net consumer or net producer of these innovations.

With our strong economy and vast clean energy potential, Canada is well positioned to be a global green economic leader. Saying that, it is unclear whether we are making the right strategic choices today that will win us a share of the new jobs, investment and innovation associated with a greener global economy. We could easily find ourselves watching those benefits flow to other countries and being net consumers of future innovations, instead of net producers.

Over recent decades a range of economic and environmental priorities have emerged nationally. Federal policies, including the 2011 federal budget, *A Low-Tax Plan for Jobs and Growth*, have emphasized gross domestic product (GDP) growth, job creation and entrepreneurship, debt reduction and investments in technological innovation.

At the same time a number of environmental objectives have also emerged, including climate change mitigation and adaptation, watershed protection, improved solid waste management and reduced air pollution. These objectives have been addressed in a range of policies, including the 2008 *Federal Sustainable Development Act*, the Cancun Climate Agreement and the proposed Wastewater System Effluent Regulation.

Investments such as those under the ecoENERGY retrofit program or the Churchill Falls hydro power project bring Canada closer toward operationalizing green or sustainable economic growth. However, these investments remain uncoordinated.

Significant time and energy have been spent to date debating the most divisive sustainability issues, at the expense of moving forward on simple, agreed-upon cost-effective initiatives.

Municipalities are on the front line of the green economy in Canada. Smart municipal policies have improved quality of life and made communities more attractive for businesses and labour. We have shown leadership in protecting the environment by:

- improving energy efficiency
- providing sustainable transportation options
- treating wastewater
- safely disposing of waste
- limiting nuisance-causing air pollution.

In addition, municipalities themselves command close to $98 billion worth of procurement on an annual basis.[4]

This experience and capacity puts municipalities in a unique position to advance the policy goals of a greener economy for Canada. While federal, provincial and territorial governments can establish such goals, local governments have a clear role to play in delivery.

This report presents the way forward for municipal governments and the federal government to each take action in their own areas of jurisdiction, working together to position Canada as a global green economy leader and realize national economic and environmental goals.

> "The last two years have seen the idea of a 'green economy' float out of its specialist moorings in environmental economics and into the mainstream of policy discourse. It is found increasingly in the words of heads of state and finance ministers, in the text of G20 communiqués, and discussed in the context of sustainable development and poverty eradication."
>
> **— UNEP, "Towards a Green Economy"[5]**

"A GREEN ECONOMY NEEDS TO RECOGNIZE THE TRUE VALUE OF ECOSYSTEMS AND NATURAL RESOURCES, AND THE ECONOMIC BENEFITS OF LONG-TERM ECOLOGICALLY AND SOCIALLY SOUND ECONOMIC ACTIVITIES."

— ICLEI – Local Governments for Sustainability[8]

WHAT IS A GREEN ECONOMY?

The term "green economy" has been used in a number of ways. The federal Minister of the Environment has described it as the "great re-set" that "better integrates our environmental objectives into Canada's economic structure and infrastructure."[6] The government has also described it as "job creation and energy production in an environmentally sustainable way."[7]

Others use it almost synonymously with renewable energy development, while still others emphasize research and development in high-tech, innovative and niche industries.

There are pragmatic reasons to avoid an overly narrow definition of a green economy.

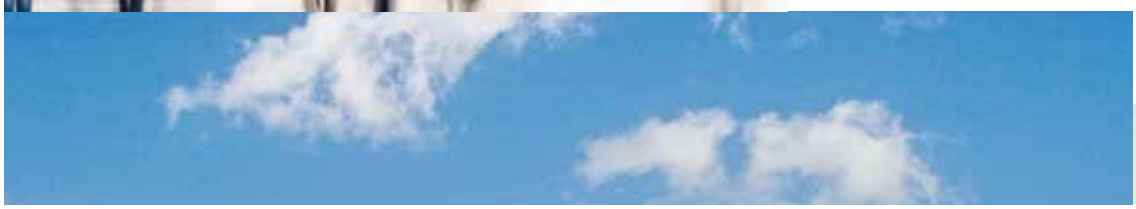
1. To have a healthy population we need to reduce our impact in a number of areas, including climate change, water quality and quantity, lands and watersheds, solid waste and air quality. We need to drive down our environmental footprint in both the short and long term.

2. We need to not only develop leadership in green and niche industries, but also to reduce the environmental impact of existing industries, and of governments and individuals.

3. We need an economy that generates wealth and employment to meet human needs, including food and shelter, health care, education and opportunities to contribute to society.

So, while the ultimate goal of any economy should be to improve human welfare, the green economy explicitly acknowledges the environmental underpinnings of wealth generation and prosperity over the long term.

Important in the discussion of the green economy is the concept of sustainable development. In its most popular formulation, sustainable development means, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[9] The concept of a green economy is not a replacement for that of sustainable development, but rather a way of conceiving the contribution of economic activities to sustainable development[10] If sustainable development is the "what," a green economy is the "how."



"WE WANT TO EMERGE AS A LEADER IN GREEN TECHNOLOGY DEVELOPMENT, GREEN JOB CREATION, RESEARCH AND DEVELOPMENT, AND ALTERNATIVE ENERGY."

— Joe Oliver, Minister of Natural Resources[11]

CHALLENGES AND OPPORTUNITIES FOR CANADA

By some estimates the global green economy is already worth more than US$4 trillion.[12] The Canadian sustainability market (green technologies and services) is growing rapidly. It was estimated to be worth $2.3 billion in 2010 and is expected to reach $3.7 billion by 2014.[13] Growth in this market could be even higher, but is being held back by the absence of enabling federal policies.[14]

Government's role is to optimize public investments, to direct them where they create new jobs and get the next generation of technologies to market. Policies that foster green growth will level the playing field in terms of public investments, creating incentives for the private sector to internalize pollution abatement costs that are now frequently handled by the general taxpayer. These kinds of policies help create the market conditions that support innovation, efficiency and ultimately job creation and growth.

Several indicators suggest Canada has room to enhance market drivers associated with environmental performance:

- Canada ranks 24th out of 25 in sustainability compared with other Organisation for Economic Co-operation and Development (OECD) countries.[15]
- The National Roundtable on the Environment and the Economy has found Canada needs to improve in a number of key areas, including investment and policy.[16]
- The United Nations Environment Programme (UNEP) points out that in recent decades, we have seen a massive global "misallocation of capital"[17] and Canada has not been immune.

Gains to be realized from the global green economy will be disproportionately captured by early adopters. Considering renewable energy, for instance, there is significant employment and economic potential in installing and maintaining equipment here in Canada. However, there is even more potential in manufacturing and exporting the equipment to other countries.

Being an early participant in an emerging industry means establishing strong relationships with both suppliers and buyers, developing reputation assets and reducing costs through experience and economies of scale. It often brings with it many first-mover advantages that can help secure and bolster market share.

> "China is emerging as the world's clean energy powerhouse. For the first time, China took the top spot for overall clean energy finance and investment in 2009, pushing the United States into second place. Having built a strong manufacturing base and export markets, China is working now to meet domestic demand by installing substantial new clean energy-generating capacity to meet ambitious renewable energy targets."
>
> **— The Pew Charitable Trust[18]**

Similarly, the Porter Hypothesis suggests that environmental policy measures can cause innovation and adoption of cleaner technologies. Being ahead of competitors in other jurisdictions confers advantages of scale, intellectual property and more.[19]

Various jurisdictions have adopted policy measures to tap into opportunities associated with greening the economy. Many provinces, notably Ontario, have created their own clean energy programs.[20] These efforts are seeing the installation of large supplies of clean electricity, as well as the creation of green manufacturing industries and the employment of thousands of people. However, these programs and their benefits are spread unevenly across Canada.

As a net exporter of energy, and with ambitions to be a clean energy superpower, there is more that Canada can achieve economically through smart environmental policy.

The magnitude of the opportunity in the clean energy sector is enormous – with the potential of an additional $70 billion in trade with the United States in clean energy if certain barriers were removed.[21] Investments in improved North American grid infrastructure would be a first crucial element. The second would be a federal–provincial initiative to map clean energy potential and facilitate permissions, approvals and access to the grid, and address other regulatory barriers related to distributed electricity generation.

The private sector has the capacity to play a role, particularly in technology innovation. Most firms, however, wait for regulatory and economic frameworks to provide direction. Policy uncertainty continues to be an important barrier to innovation.

Several studies have shown that the greatest impact of policies to promote the green economy will come in urban settings. Employment growth in "green jobs," as mentioned previously, is centred around services, trades and specialized, light manufacturing – which are concentrated in urban settings. Green jobs in rural settings related to sustainable forestry and sustainable resource development more generally are also expected to grow as demand for low-impact products increases.

On the infrastructure side, policies designed to promote a green economy would generate a number of "win-wins," starting with the increased focus on energy efficiency (particularly in the built environment), and also public transit, renewable energy, and solid and liquid waste management systems. Notably, most of these opportunities lie in the municipal realm.

MUNICIPAL DRIVERS FOR GREEN ECONOMY GROWTH

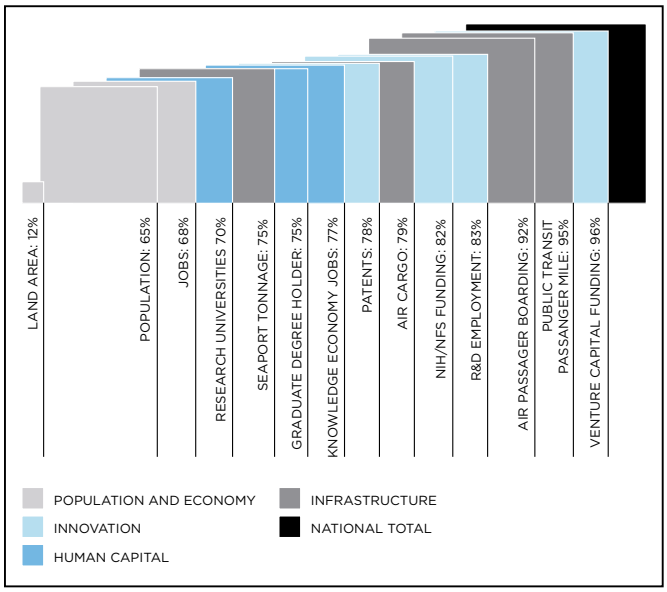
Canada's green economy is and will continue to be built in Canada's municipalities. That is because the green economy is largely a knowledge- and service-based economy, which are simultaneously core strengths in Canadian municipalities and what cities and communities need to continue to develop a greener economy in Canada.

The intersection of municipalities and action on the green economy is a critical one. At the most basic level, the intersection matters because the municipal role in the economy, "green" or not, is so important.

Figure 1 shows (for the hundred largest U.S. municipalities) the overwhelming contribution that municipalities make to the national economy and to factors driving economic growth, like innovation. Simply put, municipalities drive economic growth and are well positioned to drive green economic growth.

From a practical standpoint, municipalities operate closest to the people and can most effectively place green economy policies in a tangible context that visibly displays their benefits. It will be possible to convey to voters that a given investment or policy change will create jobs

FIGURE 1:
DRIVERS OF GROWTH – PROPORTION IN 100 LARGEST AMERICAN MUNICIPALITIES



Source: Muro, Katz, Rahman and Warren, "Metro Policy: Shaping a New Federal Partnership for a Metropolitan Nation."[23]

locally, and reduce environmental impacts locally. In short, municipalities can generate more political support for policy change.

Second, municipalities are on the front line of key environmental challenges, such as those related to transportation, sprawl and the quality of building stock. We are best placed to identify those challenges and formulate solutions.

"CITIES WILL BE CENTRAL IN BRINGING ABOUT TOMORROW'S ECONOMIC BENEFITS AND WELFARE, THE PROVISION OF DECENT JOBS AND HUMAN WELL-BEING WITHIN AN ENVIRONMENT LIBERATED FROM THE RISKS AND THREATS OF CLIMATE CHANGE, POLLUTION, RESOURCE DEPLETION AND ECOSYSTEM DEGRADATION."

— Pavan Sukhdev[22]

Third, municipal governments tend to be less partisan and less prone to ideological gridlock. The notable lack of national progress on GHG emissions, for instance – over two ruling parties and 20 years – demonstrates that action also needs to be taken by other levels of government. Municipalities can get things done.

Finally, there are some areas where the federal government does not have the power to act, but local governments do (e.g. zoning, land use). Municipalities have direct or indirect control over 45 per cent of GHG emissions, with the potential to supply between 20 and 55 megatonnes (Mt) of reductions.[24] Municipal governments also manage solid waste, treat wastewater, and own and maintain road and transit systems.

FCM INVESTMENTS IN A GREEN ECONOMY

Programs such as Partners for Climate Protection (PCP) and the Green Municipal Fund (GMF) demonstrate the leadership of the municipal sector in sustainability and the high level of demand for resources to support it.

More than 200 municipal governments are members of PCP. Together we have invested over $145 million in projects that have reduced GHG impacts by 350,000 tonnes of CO_2e and saved communities close to $3.5 million per year.

GMF, a $550-million federal endowment to FCM, has approved more than $544.3 million in capital projects in the Brownfields, Energy, Transportation, Waste and Water sectors, which have yielded or have the potential to generate significant economic spinoffs, as indicated in Table 1.

TABLE 1:
ECONOMIC IMPACT OF $544 MILLION IN GMF CAPITAL PROJECT SPENDING

GMF sector	GMF spending	Total project value	Jobs	GDP
Brownfields	$23.3M	$36.1M	391	$43.3M
Energy	$260.1M	$1,410.9M	15,304	$1,692.3M
Integrated	$16.1M	$179.4M	1,946	$215.2M
Waste	$46.4M	$184.7M	1,905	$220.8M
Water	$165.6M	$1,000.5M	9,895	$1,183.8M
Transportation	$32.8M	$292.9M	3,209	$366.0M
Total	**$544.3M**	**$3,104.5M**	**32,650**	**$3,721.4M**

Note: Inputs were adjusted for inflation to 2011, and sectors were grouped in the most appropriate fields.
Sources: FCM GMF data on approved capital projects as of October 31, 2011; Informetrica – Infrastructure Calculator 2008 for jobs and GDP calculations.

GMF is an excellent example of federal–municipal collaboration in infrastructure investments that have added value in terms of lifetime cost, climate resilience and resource efficiency. The job and GDP impacts of GMF offer a glimpse of what strategic green economy investments, coupled with knowledge, can do.

NEED FOR BOTH CORPORATE AND COMMUNITY-WIDE ACTION

There are two areas where municipal governments can boost environmental and economic performance: corporate and community. Corporate impact is caused by the municipality's own operations – the buildings it owns, the vehicle fleet it uses, etc. Community impact is caused by the individuals and businesses that reside and work in the municipality, which are influenced by the municipality's budget and regulatory actions.

Addressing corporate impact is important in a number of ways.

First are the environmental and economic gains themselves. Due to the size of municipal corporations, these gains are significant.

Second, corporate action by municipalities can raise awareness in the broader community to demonstrate that greener options exist.

Third, municipal corporate projects can pilot and test new technologies and methods, demonstrating that new systems work and how they can save money; corporate pilots can be seen as a down payment on wider community action.

Fourth, corporate action can build support for community-wide policies, demonstrating the municipality's policy resolve in proceeding toward a greener economy.

However, corporate action alone is not enough; the broader community needs to be part of greening the economy. And while examples are helpful, the bottom line remains the bottom line. Firms will still have profit maximization as their paramount objective, and will seek to reduce costs and boost revenues. Individuals have a broader range of motives for their decisions, but certainly they do like to save money and make more of it.

The reality is that municipal corporate action is a vital starting point. If Canada wants firms and individuals to contribute to a greener economy, local governments will need greater support in aligning community-wide financial incentives with environmental and economic goals.

MUNICIPAL POLICY TOOLKIT

A number of municipal policy tools exist[25] for stimulating green economy growth. The following categories provide an overview of some of the tools commonly used, or that have significant potential for use. While most of the tools in these categories are available to all municipalities in Canada, the specific tools available to any given municipality depend on provincial enabling legislation.

Planning is the articulation of a community's goals and expectations for its future development. Plans provide guidance for subsequent municipal decisions (e.g. on zoning or specific development applications), operating at scales ranging from regional and municipal, down to neighbourhood and site development. Planning can be employed to guide urban density policy, green economic development zones, sustainable transportation, etc.

Zoning is the set of rules that determines how land will be used in different parts of a municipality. Zoning can be used to promote developments that include mixed use and walkability, and that lend themselves to transit and active transportation.

Development control identifies the requirements to obtain a permit, and the terms and conditions of the permit. Development control permits can require a number of characteristics that, over time, can green an economy – such as the density, shape and characteristics of development, water management, parking limits, etc.

Protected areas allow for protection of watersheds and preservation of agricultural land and local food production. Municipalities and regional authorities, alone or working with other governments, can define where development does not occur, and thereby also encourage brownfield redevelopment, infill and greater density.

Property taxes are the largest source of revenues for municipalities in Canada, and a significant lever for influencing development. Normally based on property values, property tax structures often encourage sprawl and discourage infill development. Municipalities can restructure property taxes to align with green development goals, while reducing demand for new infrastructure.

User fees and user taxes are mechanisms for recovery of the costs municipalities pay for providing infrastructure and services. Moving toward full-cost recovery and marginal pricing of goods and services that have an environmental cost – with safeguards for lower-income people[26] – can restrain demand for costly new infrastructure, reduce environmental impacts, reduce economic distortions and diversify a municipality's revenue streams.

Exemptions and relaxation of standards and rules (e.g. relating to development limits or taxes owing) can be employed to achieve green economy goals. Density bonuses and tax incentives, for instance, can motivate developers to build walkable, transit-oriented communities and encourage green sector industries.

Financing instruments can be employed to help owners cover the upfront cost of green investments, such as building energy-efficiency improvements. Municipalities, alone or with utilities and other governments or the private sector, can establish various mechanisms to help building owners overcome capital cost barriers to energy efficiency or other sustainability improvements to properties on their territory (e.g. utility on-bill financing, property tax-assessed financing, revolving funds).

Procurement policies can be refined to use the purchasing power of municipal governments to foster growth and competitiveness of green products and services. Municipalities can buy cleaner vehicles (green fleets),[27] adopt green standards for new municipal-owned buildings, etc.

KEY PRIORITY AREAS

Using the municipal policy toolkit, municipalities can take a number of steps toward a green economy. Some actions can be taken on by local governments now, unilaterally. Others will require a relaxation of provincial limits on municipal powers and fiscal tools, and yet others will require national leadership, coordination and financial participation.

Below are the key priority areas for action. These are not all of the possible areas, and not all municipalities will want to act in every area; depending on local conditions, some will be appropriate at this time and others will not. These are, however all significant areas in that they have large potential for environmental, employment and economic gains over which local governments have a significant degree of control.

PRIMARY ECONOMIC POLICIES SERVED:

- Job creation
- GDP growth
- Innovation

PRIMARY ENVIRONMENTAL POLICIES SERVED:

- Climate change mitigation and adaptation
- Reduced air pollution

Federal policy-makers serious about fostering a greener economy will need to address them. A description of some of the potential benefits of particular policies and investments is provided. Systematic modelling would be needed to estimate total effects, ideally under a range of policy scenarios.

SUSTAINABLE TRANSPORTATION

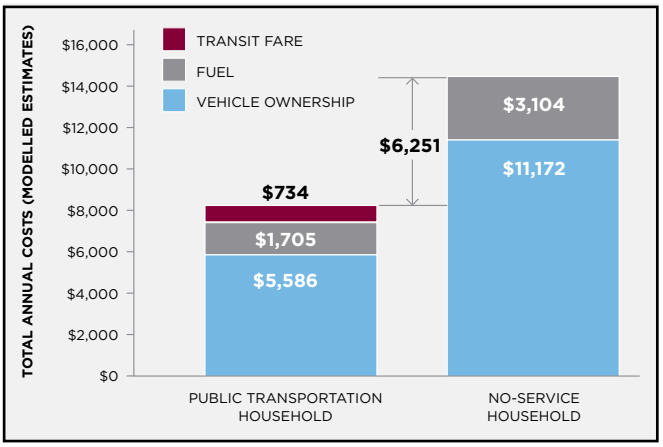
Transportation is Canada's largest and fastest-growing sector for GHG emissions. This increase has largely been caused by the shift from cars toward light trucks (SUVs and pickup trucks), as well as increases in heavy truck traffic. Fossil-fuelled transportation also causes smog-forming emissions, resulting in billions of dollars in costs and thousands of deaths per year in Toronto alone,[28] and much more across Canada.

Transit and other sustainable transportation improvements can yield billions of dollars per year in savings on health, traffic congestion and lost productivity.[29] In addition, the process of building out the infrastructure for sustainable transportation – light rail transit (LRT), subways, bus rapid transit (BRT), bike and pedestrian facilities – can create enormous employment and economic benefits.

Improving public transit can also help relieve road congestion, reduce commute times, improve traffic flow efficiency and lower the emissions of vehicles remaining on the road. It is estimated that Canadians spend the equivalent of almost 32 working days a year commuting to and from work.[30] Time lost in road traffic costs the Canadian economy $5 billion annually.[31]

Building out public transit also increases the disposable income of urban dwellers. (See Figure 2.) More disposable income for those dwellers translates into greater economic activity, wealth and prosperity. Evidence from Europe indicates public transportation investments yield regional economic benefits at a level more than double their cost.[32]

FIGURE 2:
TRANSIT BOOSTS HOUSEHOLD DISPOSABLE INCOME



Source: Bailey, "Public Transportation and Petroleum Savings in the U.S."[33]

Municipalities could further improve transit systems and service to attract new riders. Some, but not all of the costs of doing so could be covered by increased fare-box revenues arising from higher ridership. Additional sources of revenue to finance transit improvements are needed and could include cost sharing among different levels of government, and pricing (tolls, increased gas tax rates and transfers to municipalities, parking pricing, etc.),[34] which would help to reduce emissions, reduce demand for new and expanded roads, and boost use of transit and active transportation.

Recent studies suggest there is a significant shortfall in capital investment for transit across Canada.[35] Total infrastructure needs for the period 2010–14, $18 billion, or $3.5 billion a year over the next five years, cannot be met by existing funding programs.[36] Based on national construction multipliers,[37] such an investment would generate in the order of 176,000 jobs.

Transit *operations* multipliers are even larger than those for construction. As a result, investing in transit service (in addition to infrastructure) would create even greater benefits.

A national transportation strategy that integrates

"CURRENT STUDIES INDICATE THAT A TYPICAL ADDITIONAL CAPITAL INVESTMENT OF TWO PER CENT IN CONSTRUCTION COSTS TO INCORPORATE LEED® FEATURES WILL RESULT IN OVERALL LIFECYCLE COST SAVINGS OF APPROXIMATELY 10 TIMES THE INITIAL CAPITAL INVESTMENT, THROUGH THE REDUCTION OF ENERGY EXPENDITURES AND OVERALL MAINTENANCE SAVINGS, AS WELL AS POTENTIAL EMPLOYEE PRODUCTIVITY IMPROVEMENTS."

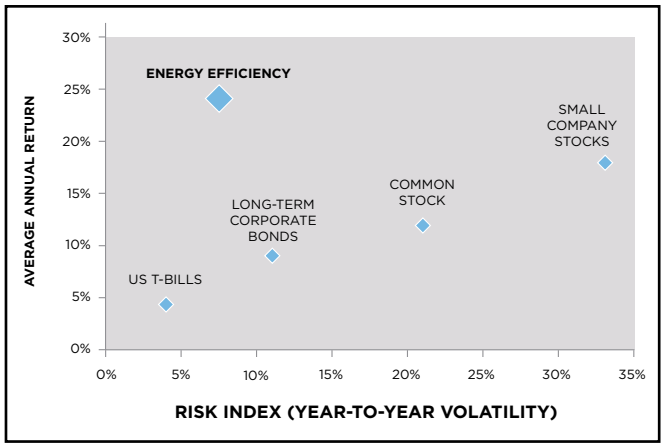
— City of North Vancouver[47]

the municipal role would bring Canada up to par with other developed economies. Many municipalities are ready to proceed with planned projects, and await confirmation of cost-sharing with other orders of government.

A federal funding commitment would launch transit expansion in communities across Canada, generating hundreds of thousands of jobs and hundreds of billions in economic benefits in construction, engineering, manufacturing, resource extraction, and processing firms. These impacts would be created starting in the short term, continuing into the longer term.

All types of communities would benefit from such a program. Large communities would focus on rail-based systems, while smaller communities could focus on expanded bus services and bus rapid transit (BRT) facilities. Firms in all communities would benefit from upgrading cycling and pedestrian facilities – an area with job-creation multipliers that are significantly higher than comparable road transportation infrastructure.[38]

FIGURE 3:
ENERGY-EFFICIENCY INVESTMENTS: HIGH RETURN, LOW RISK



Adapted from: Laitner, "What Role, How Big Energy Efficiency?"[39]

ENERGY EFFICIENCY OF BUILDINGS

Canada's buildings are another major source of GHG and smog-forming emissions. Older buildings, with poor insulation and leaks, require more heating in winter and more cooling in summer. Increasing the energy efficiency of the stock of buildings can reduce emissions and provide a boost to employment and GDP.

The positive economics of energy efficiency have been known for some time, but the policy instruments to deliver on that economic opportunity have not yet been fully developed or adopted. Creating instruments in the pursuit of green economic growth would unleash substantial investment, given the very attractive returns (at low risk – see Figure 3) that energy efficiency can provide. Energy efficiency reduces costs for businesses, individuals and municipalities.

Municipalities can undertake corporate building retrofits to improve energy efficiency, financing them by borrowing against future energy cost savings, using revolving funds[40] or other means.[41] Municipalities can also establish energy-efficient new building standards for new municipal buildings; in just three years up to 2008, over 26 municipalities in Canada adopted LEED® policies for municipal buildings.[42]

At a community-wide level, local governments can encourage energy efficiency retrofits (e.g. by providing financing for homeowners – property tax assessed payments for home or commercial retrofits).[43] This could build on the federal government's own ecoACTION home retrofit program.[44] We can also encourage energy efficiency in new buildings, for example, by setting LEED building standards for developments seeking financial assistance or re-zoning,[45] or establishing permit policies that fast-track approvals for new building construction.[46]

PRIMARY ECONOMIC POLICIES SERVED:

- Job creation
- GDP growth

PRIMARY ENVIRONMENTAL POLICIES SERVED:

- Climate change mitigation and adaptation
- Reduced air pollution

A number of Canadian and foreign studies in recent years have estimated the potential benefits of energy-efficiency retrofit programs. The impact of such programs will vary, depending on the rate, scale and type of investment.

One national-level study suggested federal grants of $3 billion could create 27,500 jobs and $11 billion in GDP growth, with loans leveraging even more investment, employment and economic activity.[48] Provincial studies have suggested Alberta could generate 28,000 jobs, with a $2-billion investment[49] and that programs in British Columbia – depending on the scale and intensity of the program – could generate 8,000 to 30,000 jobs.[50]

Clearly, a national financing program that engaged municipalities in retrofits, possibly leveraging municipal regulatory powers or even financial contributions, could create tens or even hundreds of thousands of jobs nationally and generate tens of billions of dollars in GDP growth. This expansion would build on the market already created by the extended ecoENERGY home retrofit program for products and services that reduce energy demand. These impacts can be created starting in the short term; retrofits require no lengthy study or approval processes.

Improving standards for new buildings can also contribute to employment and GDP growth. While the increases in construction industry employment and economic activity would be relatively modest, there is a significant potential in the manufacturing sector – producing energy-efficient HVAC systems, windows, doors and building materials.

Many businesses would benefit from a national energy-efficiency program, and not just traditionally "green" businesses. Construction firms, transportation firms, manufacturing firms, and even resource extraction and processing firms would benefit. And the benefits would be spread across Canada, in large communities and small, rather than being isolated in one or a few areas.

RENEWABLE ELECTRICITY AND CONSERVATION

In some parts of Canada (e.g. Quebec and British Columbia), existing electricity supplies are very low in emissions. In other parts of the country, coal-fired plants result in emissions that are very high. Indeed, in Alberta, GHG emissions from electricity generation are currently higher than those from the oil sands. In such areas, development of renewable electricity is a way to supply electricity at a much lower emissions level.

In any region – whether emissions from electricity generation are high or low – conservation efforts can reduce or even reverse consumption growth and the attendant environmental harm and high financial costs of building extra-generation capacity. Conservation programs can also create high levels of employment; indeed, they can create more jobs than construction of new supply.[51]

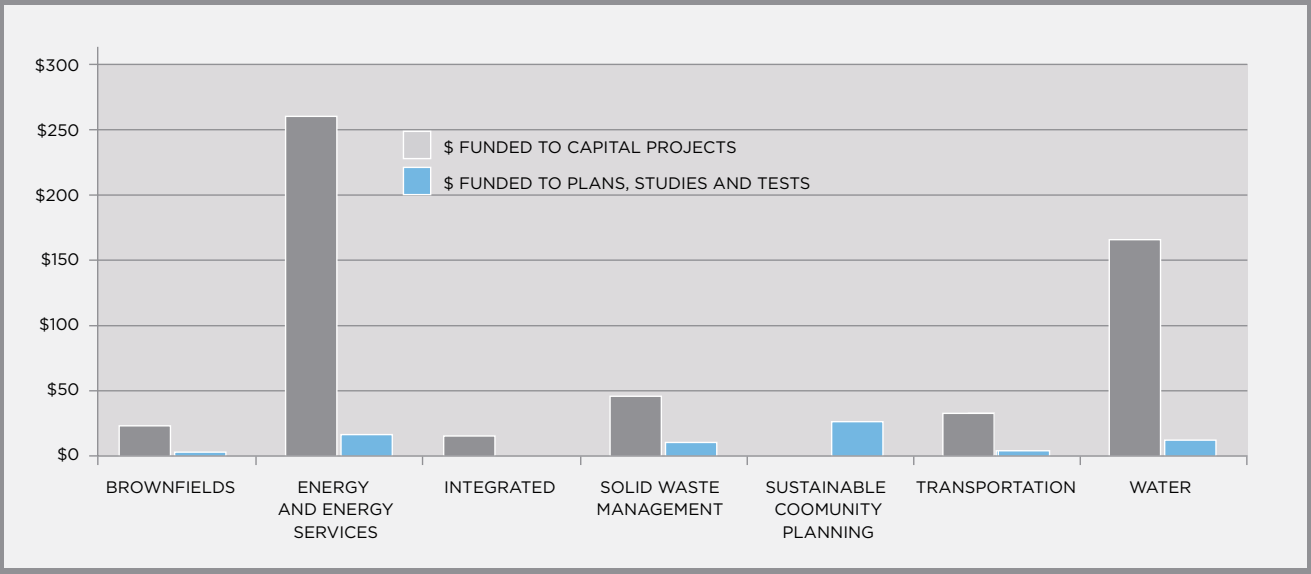
Municipalities can take steps to boost both conservation and the proportion of electricity supplied by renewable sources. By providing education and information, working with provincial and territorial governments, and with utilities to structure financial incentives for customers, local governments can reduce the environmental impacts of electricity generation, and create jobs and innovation.

FCM'S GREEN MUNICIPAL FUND: INVESTING IN A GREENER ECONOMY

Created in 2001 through an endowment by the federal government, FCM's Green Municipal Fund (GMF) offers funding and knowledge to municipal governments and their partners for municipal environmental projects.

The fund's objective is to improve air, water and soil quality, and protect the climate. Its application and peer review process are designed to identify and fund innovative, replicable projects with high environmental impact. Its knowledge products have a multiplier effect on the benefits on capital projects in communities across Canada. The figure below indicates how much money has been approved for various projects by sector.

FIGURE 4: GMF CUMULATIVE APPROVED FUNDING $ BY SECTOR AS OF OCTOBER 31, 2011 (MILLIONS)



Source: FCM Green Municipal Fund data.

The anticipated environmental impact of these initiatives is significant, and includes:

- more than 950,000 tonnes CO^2e per year in reduced GHG emissions
- more than a 2,000 tonnes per year decrease in criteria air contaminants
- conservation of more than 400,000 metres cubed (m^3) of water per year
- treatment of more than 288 million m^3 per year of potable and wastewater
- more than 425,000 tonnes per year of solid waste diverted from landfills
- remediation or risk management of more than 288,000 m^3 of contaminated soil.

The locally driven projects made possible by GMF benefit individual communities and the country as a whole, generating more than $3 billion in economic activity and creating tens of thousands of jobs.

PRIMARY ECONOMIC POLICIES SERVED:

- Job creation
- Reducing debt/GDP ratio
- Innovation

PRIMARY ENVIRONMENTAL POLICIES SERVED:

- Reduced water consumption and water protection
- Reduced air pollution

Investing in conservation and our emerging renewable energy, industry would help ease Canada's transition away from GHG-intensive coal-fired electricity generation, forestall further demand for contentious nuclear power, allow northern and remote communities to become energy self-sufficient, and allow cities and communities across Canada to catch up to leaders like Ontario. This would also enhance Canada's energy security and energy independence, reducing risks associated with large point-source energy production, and insulating our economy against volatility in world energy prices.

One study suggests a federal investment of $2.8 billion in renewable energy capacity could create 40,000 jobs and contribute $6 billion to GDP growth.[52] Ontario alone aims to create 50,000 jobs in coming years, through renewable energy generation. The province has already signed hundreds of contracts that will create more than 20,000 jobs, including jobs in four manufacturing plants.[53] A scaled-up version of Ontario's plan could create more than double the employment Ontario anticipates.[54] As noted earlier, strong electricity conservation programs nationally could create even more employment.

The benefits of conservation and renewable energy development would be felt in cities large and small, as well as in rural communities where farmers stand to gain thousands of dollars per year for siting wind turbines in their fields.[55] Large generation facilities would be complemented by rooftop solar installations, providing jobs and profits in construction, installation and manufacturing.

WASTEWATER TREATMENT AND WATER CONSERVATION

A number of Canadian municipalities have already achieved excellent wastewater treatment standards. Others have some catching up to do, and the federal government has announced new wastewater regulations that will require some municipalities to make major improvements.

In addition to complying with the new regulations, municipalities can take further steps to reduce the concentrations of polluting substances – through setting and enforcing industrial effluent standards. They can also take steps to reduce wastewater volumes (e.g. by creating progressive [or increasing] block-billing water consumption rates). Such rates provide an incentive to use less water, thereby also deferring or even eliminating the need for costly infrastructure upgrades and expansion, while protecting lower-income people.[56]

Clean watersheds and safe drinking water are important for all Canadians, and we know that municipal water and wastewater system upgrades are needed across Canada.

One study proposes a $4.5-billion investment in water and wastewater infrastructure, estimating the creation of at least 50,000 new jobs, and more if the spending is matched by other orders of government.[57] Other benefits, enhanced by complementary policies, would include GDP growth, reduced operating costs, water and energy conservation, and the potential to get out in front of the curve in the emerging global market in innovative water technology.

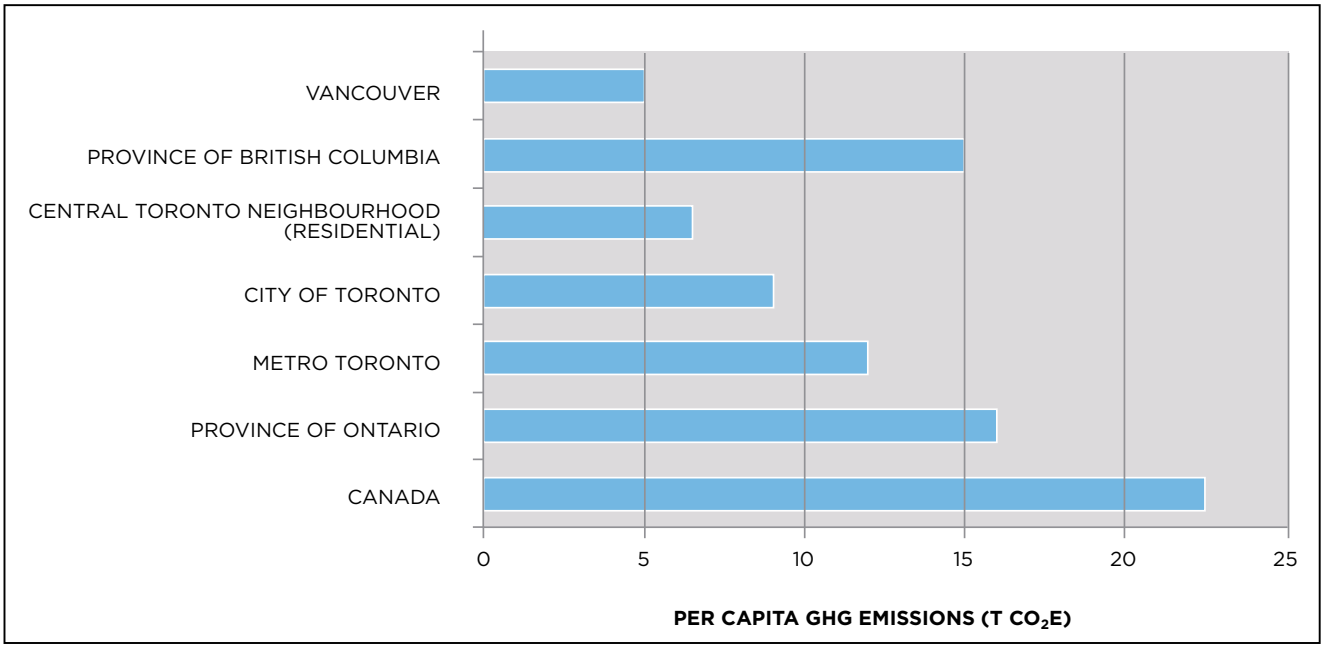
The same study estimates the municipal water infrastructure deficit at $31 billion. A conservative cost estimate of complying with the new wastewater regulations alone is $20 billion.[58] So, investing at a level that would actually address the existing needs would mean far greater job creation – in the order of hundreds of thousands of jobs.

The benefits would be spread to communities across Canada, and firms would benefit in the construction, engineering, resource extraction and processing sectors.

EFFICIENT URBAN LAND USE

Urban form is a keystone factor for energy efficiency, air quality, and protection of land and watersheds. Sprawl locks in automobile dependency, along with its myriad environmental and health impacts, and makes effective transit service prohibitively expensive. It eats up farmland, jeopardizing local agriculture and sustainable food systems. It also creates legacy infrastructure liabilities – maintenance, repair and replacement costs that will grow to become major public expenditures in just a few decades.

FIGURE 5: GHG EMISSIONS: URBAN VS. OTHER RESIDENCE



Source: Figure adapted from Hoornweg, Sugar and Gomez, "Cities and Greenhouse Gas Emissions: Moving Forward."[59]

PRIMARY ECONOMIC POLICIES SERVED:

- Reducing debt/GDP ratio

PRIMARY ENVIRONMENTAL POLICIES SERVED:

- Climate change mitigation and adaptation
- Reduced water consumption and water protection
- Reduced air pollution

Simply put, high-density development is more efficient in terms of energy use and emissions. (See Figure 5.)

Urban density also contributes to economic growth. By boosting density, we improve access of firms to workers and vice versa. Firms have more potential workers to choose from, resulting in better employment fit and higher labour productivity. Job seekers also have more employers to select from, reducing unemployment. Urban density also improves the access of firms to suppliers and markets, and results in knowledge spillovers both between and within sectors.

Efficient land use enables the economic opportunities described previously for sustainable transportation, renewable electricity and conservation, and wastewater treatment and water conservation.

Municipalities are the level of government with the most direct control over urban form, and will need to be front and centre in efforts to rein in sprawl.

Local government can employ planning and development controls, establish growth boundaries, and adjust development cost charges and property taxes to favour brownfield and infill development over greenfield sprawl.[60] Such actions can be bolstered by complementary actions in other areas, such as transportation and energy supply. Integrated community energy systems policies may provide greater returns than isolated policies.[61]

The federal government can adopt policies that support municipalities in their efforts to rein in sprawl. For example, eliminating harmful subsidies and harmonizing carbon prices across Canada would send a consistent policy signal,[62] and demonstrate political unity and commitment to achieving better land-use patterns.

SOLID WASTE MANAGEMENT

Solid waste management is largely administered by municipalities – from waste reduction, to collection, recycling, disposal and landfill management. The federal government provides resources and some funding programs to help improve outcomes.[63] It also has a role with respect to product content and safety, transboundary movement, information gathering and dissemination, labelling, development of standards and guidelines, and environmental assessment of waste management projects where federal funding is used.

These federal levers can be used to capture the full value of "waste," expanding recycling markets and green jobs through policies that establish a context conducive to extended producer responsibility. Among these are targets for recycled content, including demolition materials, in federal procurement to complement the efforts of other orders of government and enhance the market for Canada's recycling industry. Such a policy would support achievement of the government's own "greening government operations," target as prescribed in the 2008 *Federal Sustainable Development Act*. Currently Canada's diversion rate for recycling and

composting sits at approximately 24 per cent, where two-thirds of waste for disposal comes from non-residential sources.[64]

A large amount of GHG (27 Mt of CO_2e) is released from landfills across Canada, where the balance of residential waste ends up. Of that, only about one-quarter is captured; the rest escapes into the atmosphere.[65, 66] Accessing the direct use or electricity-generating potential of landfill gas capture (LFG) projects contributes to the economic benefits described under *Renewable electricity and conservation*.

In the right national context, municipalities can take action by bolstering waste prevention and recycling where feasible (e.g. introducing plastic bag fees, banning organics from the waste stream, providing composting, working with provincial governments to introduce extended producer responsibility). They can also implement landfill gas capture and other waste-to-energy (WTE) systems, thereby reducing GHG releases directly as well as indirectly through displacement of fossil fuel combustion.

The global WTE market is growing quickly and is expected to reach $27 billion within 10 years.[67] Vancouver already has a WTE electricity generation facility that can power 12,300 homes,[68] and Edmonton is developing a WTE biofuels plant that would reduce GHG emissions equivalent to 42,000 cars annually.[69]

The federal government could set the policy context for this to occur. It is estimated that to achieve additional emissions reductions of approximately 4 Mt across Canada, a total capital investment in the order of $220 million would be required. At a carbon price of $10 per tonne or more, these reductions could be achieved and could provide a source of high-quality reduction in the context of a potential emissions trading framework.[70]

TABLE 2:
INVENTORY LANDFILL PROJECT TYPES AND POTENTIAL EMISSION REDUCTIONS

Project type	Number of landfills	LFG production (scfm)[1]	Current CO_2e reductions (tonnes/yr)	Additional potential CO_2e reductions (tonnes/yr)
Existing LFG&C project	66	106,000	6,963,000	3,032,000
Developing	11	14,100	-	914,000
Candidate	34	30,700	-	1,939,000
Lower potential	25	4,900	-	352,000
Total	**136**	**155,700**	**6,963,000**	**6,237,000**

Note: scfm[1] is the estimated total flow rate of LFG that is generated at the landfill site in standard cubic feet per minute. LFG flow rates typically peak at landfills several years after closure and then decline over the next 15 to 30 years depending on the rate of decay of organic wastes.
Source: FCM internal report prepared by EnviroEconomics, 2010.

PRIMARY ECONOMIC POLICIES SERVED:
- Job creation
- Innovation

PRIMARY ENVIRONMENTAL POLICIES SERVED:
- Climate change mitigation and adaptation
- Improved solid waste management

BUSINESS, EMPLOYMENT, ECONOMIC BENEFITS

The options for municipal and federal cooperation to build the green economy – as discussed in the previous section, will create jobs and GDP growth, and help businesses across Canada.

The employment and economic benefits of investments can be estimated using economic multipliers. Produced by governments and based on economic models, multipliers predict the direct, indirect and induced effects of investments – for both employment and GDP.

- Direct effects are those created in the industry where the investment is made.
- Indirect effects are those created in industries that supply the inputs to industry in which the investment is made.
- Induced effects are those created by spending of workers employed in the above industries.

Noteworthy is that the employment and economic benefits of a given investment are spread throughout the economy – across the public and private sectors, across the goods-producing and services sectors, and across regions, provinces and the national economy. Investments benefit not only those who are directly employed, but also many others. Indeed, some sectors produce more jobs indirectly and through induced employment than through direct employment.

However, multipliers vary by industry: a dollar of investment in one industry will yield a different employment and GDP impact than a dollar invested in another industry. This is due to a range of factors, including how labour-intensive or capital-intensive the industry is, and the degree to which it relies on imports as opposed to local production. As it turns out, green economy sectors provide relatively high levels of employment and GDP impact per dollar invested.

Jobs and person-years of employment

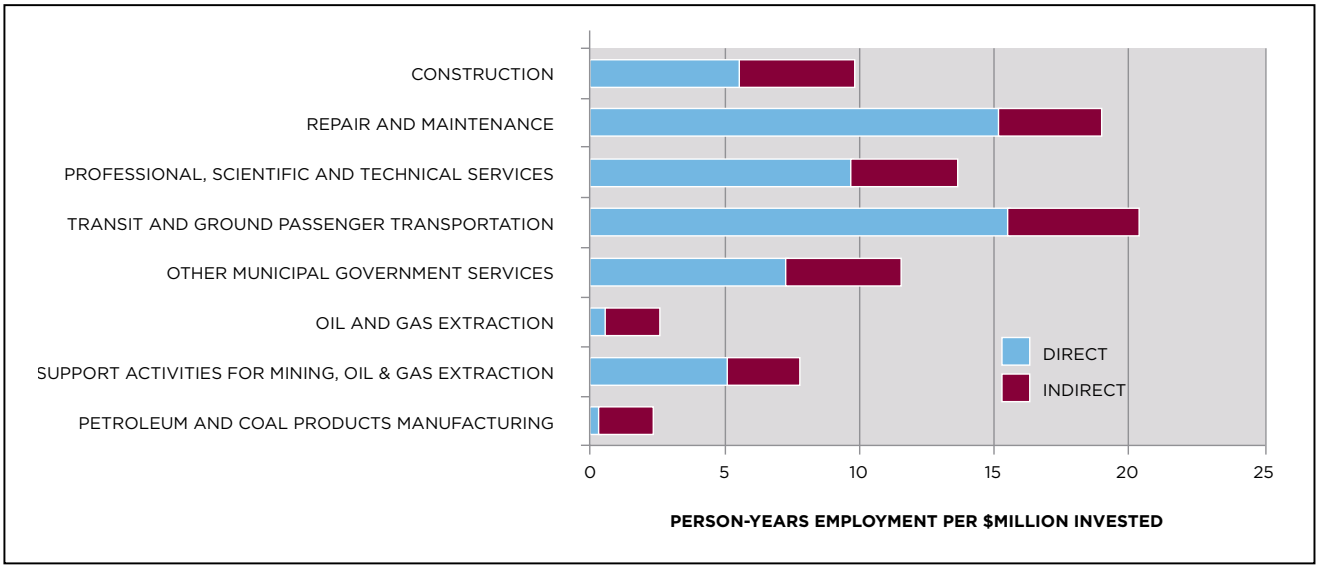
Governments and businesses often describe the impact of their investments as creating a certain number of "jobs." Typically, they use the word "jobs" as a short form for the actual output of multiplier tables and economic models: "person-years of employment." This report follows that convention.

Figure 6 shows the direct and indirect jobs that would be created by million dollar investments in different sectors. Several of the sectors that would receive investment in a green economy program would create many jobs per dollar invested. The staple industry for infrastructure expansion – construction – creates almost 10 jobs per million dollars invested. The repair and maintenance industry also would benefit (e.g. in the expansion of transit service and energy efficiency retrofits), creating about 18 jobs per million dollars invested. The transit and ground passenger transportation sector itself would create over 20 jobs per million dollars invested – a very favourable ratio. Professional, scientific and technical services, which are key to innovation and high tech, also create a lot of jobs – about 13 per million dollars invested. The general municipal government services sector also has a fairly good job creation ratio.

As a comparison, the oil and gas sector, an important element of the national economy and federal economic policy, creates fewer jobs per dollar invested than sectors with high potential to contribute to the green economy. Extraction activities generate roughly 3 jobs per million dollars invested, while support activities for mining, oil and gas extraction generate about 8 jobs per million. From a purely job creation perspective, they rank 58th and 43rd out of 59 industries.

Job creation is an enduring public policy priority. Because green economy investments have strong multipliers, they provide a good economic, employment and business bang-for-the-buck.

FIGURE 6:
CANADIAN EMPLOYMENT MULTIPLIERS – SELECTED SECTORS (DIRECT AND INDIRECT EMPLOYMENT)



Source: Statistics Canada, "National Input-Output Multipliers".[71]

CREATING A POLICY CONTEXT FOR STRONG MUNICIPAL ACTION

Canada needs an overarching approach to greening the economy that provides a policy context for stronger municipal action.

The federal government must send a clear signal to businesses providing sustainability services and products that Canada wants them. Related policies should strengthen municipalities' hands when we take action on opportunities to advance national sustainable economic growth.

"URBAN GREEN GROWTH POLICIES NEED NATIONAL PRICE SIGNALS AND STANDARDS, FOR EXAMPLE. GREEN GROWTH ONLY MAKES SENSE WITH A PRICE OF CARBON EMISSIONS AND A VALUE OF ENVIRONMENTAL QUALITY. THIS PRICE AND THIS VALUE NEED TO BE SET AT THE NATIONAL LEVEL TO AVOID CREATING HARMFUL COMPETITION AMONG REGIONS."

— Angel Gurría, Secretary-General of the OECD[72]

THREE FUNDAMENTAL PRINCIPLES

FCM has identified three fundamental principles, each supported by a set of specific policy measures that the federal government could introduce to provide the policy context for strong municipal action in creating a greener economy for Canada.

1. Act locally

Act Locally, a 2009 FCM report[73] presents the case for supporting the municipal role in fighting climate change. The report highlights the fact that municipalities have direct or indirect control over 45 per cent of GHG emissions in Canada, many of which could be reduced through cost-effective initiatives that have widespread support. A similar case can be made for other national objectives, including the greening of the economy, yielding benefits not only in terms of sustainability but also job creation and economic growth.

a. Putting in place long-term predictable infrastructure funding: As discussed previously, infrastructure investments not only yield direct results in terms of transportation, water resource management and energy use, but also create jobs in both the construction and operating phases, as well as indirect and induced economic benefits. They strengthen the role of cities and communities as engines of the national economy and platforms for the country's exports, wealth generation, labour and innovation. In terms of existing policies, the $2-billion Gas Tax Fund (GTF) and the seven-year Building Canada Fund (BCF) are important examples of long-term infrastructure funding that have yielded positive social, economic and environmental benefits in communities across Canada. Although the BCF is expiring, the GTF will be made permanent; protecting the value of GTF through indexation would be an important next step. A long-term infrastructure financing plan for Canada to follow the BCF when it expires in 2014 will keep Canada well positioned to plan for and green its infrastructure.

b. Making sustainable transportation an infrastructure priority: According to a 2011 report by the Toronto Board of Trade,[74] Canada's two largest urban centres have commute times of more than 75 minutes, negatively impacting quality of life and economic competitiveness. Every year, traffic gridlock costs motorists more than $5 billion per year in delays and wastes between $176 million and $213 million in fuel per year.[75] Collaboration between all governments could fill strategic transportation gaps, and put a ceiling on the millions of hours a year of traffic gridlock and associated air pollution. A new long-term plan for infrastructure must address challenges around public transit and transportation corridors. Specifically, clear objectives to reduce gridlock and address strategic gaps in our nation's road, rail, air and marine transportation networks need to be included in the next infrastructure plan, along with sufficient funding to support these objectives. These key federal actions would allow municipalities – many of which have transit and sustainable transportation projects planned, costed and ready to roll – to act immediately, expanding service, creating jobs and strengthening Canada's economy.

THE TRUE COSTS OF ROAD TRANSPORT (FUEL TAXES DON'T BEGIN TO COVER IT)

There are two elements of road costs. First are the financial costs – the costs of building and maintaining roads. Fuel taxes generally fail to cover these costs. Even when added to other user-pay taxes for transportation, the whole basket of road-user taxes covers only 60 to 70 per cent of road costs, with the remainder covered by subsidies from other tax sources.[76]

Moreover, the existing basket of fuel and other road user taxes fails to cover the substantial environmental and health costs of road use. These costs arise, in part, from air pollution and CO_2 emissions, traffic congestion and lost productivity, and health care (vehicle crashes).[77]

c. **Collaborating on energy-efficiency building retrofits:** Federal programs, such as Sustainable Development Technology Canada and ecoENERGY, position Canada to capture energy-efficiency gains and to export energy solutions to the world. In collaboration with provincial, territorial and municipal governments, the federal government could establish a plan with clear targets for the number of retrofits to be financed (e.g. a percentage of commercial, industrial and residential buildings in Canada), supported by a corresponding funding commitment. Municipal mechanisms such as the property assess payments for energy-efficiency retrofits could be part of the delivery mechanism for these dollars, creating a municipal level mechanism for a type of federal energy endowment. This clear commitment could restore confidence in Canada's commitment to energy efficiency and leverage significant private sector investment. The longer funding window would allow time for planning, financing and implementation of retrofits for complex or large facilities, and avoid the inflationary start-stop spikes of activity that have affected the ecoENERGY program in recent years. Federal grants and loan facilities could play a role, as could assistance from Canada Mortgage and Housing Corporation in establishing financing mechanisms that engaged private lenders.

2. Make value for money a top priority
Value for money is fundamentally about making sound investments that are informed by the best available information and tap into emerging opportunities. For Canada to have a green economy surplus – instead of a deficit – we need to be attentive to where markets and opportunities are headed and get there first.

Nationally, there is a need to build local capacity so that all communities in Canada can help move toward that common goal. This involves aligning financial incentives with value, investing in climate change adaptation, as well as in knowledge sharing and capacity enhancement.

a. **Aligning financial incentives with value:** As a first step toward a greener economy, the federal government could examine subsidies that cause environmental harm, and reduce and eventually eliminate those subsidies. This would help green economy sectors compete for investment dollars, and help to moderate the Canadian dollar and thus level the playing field so as to allow for an expansion of green economy exports. There may be strong public support for such a change; even in Alberta, a large majority (78 per cent) would prefer to see subsidies for renewable and alternative energy rather than oil and gas development.[78] This is not about punishing traditional sectors, which provide products people need and great jobs and wealth. Rather, this is about investing in the future, and moving dollars to where the products and services of the future are going to be. As discussed, green economy sectors provide high levels of employment and GDP impact per dollar invested – from 10 to 20 person-years employment per million dollars invested. New jobs are created through new initiatives – Canada needs an incentives policy that allows those initiatives to thrive.

b. **Adapting to climate change:** The risks and opportunities of the future include climate change, and the need for climate resilience throughout Canada's economy and its infrastructure. The long-term infrastructure plan should incorporate climate change adaptation principles, and be designed to overcome implementation barriers to sustainability and resilience design features – including a preference for what has been tried and tested. Continued dissemination of adaptation knowledge and investments that will build climate resilience into the next generation of infrastructure and technologies will generate benefits that will be felt for decades. These benefits not only include improved system performance, but also the development of businesses and expertise Canada can export to a world that must adapt to climate change.

c. **Enhancing knowledge sharing and building capacity:** Going green will save Canada and individuals money, and will decrease overall pollution of air, water and land. Waste itself could be translated into a resource, if the opportunity could be identified and integrated into municipal plans. Knowledge sharing and capacity building around sustainability has a multiplier effect, as FCM has learned through its management of the GMF. When communities know which new technologies and practices save money and reduce environmental impact, we make choices that create strong market demand for green products and services. The spin-off benefits not only include environmental protection, but also job creation, innovation and economic growth. Knowledge makes federal investments go further and last longer.

3. Work with the market where the market can work

The market is a forum where ideas are tested and either succeed or fail. It is also a forum that allows real constraints, such as availability, price, durability and environmental impact, to affect consumer choices. The externalization of costs associated with GHG emissions, road use, water consumption and pollution limits the market's ability to prevent economic losses and environmental harm.

All orders of government must collaborate if those costs are to be internalized and to drive innovation. A national user fee policy, the internalization of costs associated with GHG emissions, and a national framework for extended producer responsibility are key components of this principle.

a. **Introducing a national user fee policy:** User fees can encourage conservation and reduce waste by linking how much you pay for a public good or service to how much you use. For example, approximately 63.1 per cent[79] of Canadians are metered for their water use. The average daily water consumption rate in communities with no metering can be up to 76 per cent higher than in those with metering.[80] But user fees can be regressive and, when not implemented with broad citizen support, are often rejected by the public. Striking the right balance between user- and tax-supported funding formulas, and coordinating policies to maximize effectiveness and efficiency, will be critical to Canada's ability to manage scarce natural and public resources in the face of growing fiscal restraint. This requires new research and collaboration among all governments, to establish the user costs of public infrastructure, coordinate user pay policies in specific regions, and establish general principles for the use of user fees in funding public services.

b. **Internalizing costs associated with GHG emissions:** Canadian business leaders view certainty on carbon policy in particular as important for business. The Canadian Council of Chief Executives, the Canadian Association of Petroleum Producers, the Canadian Gas Association and the Canadian Vehicle Manufacturers Association are among the great majority of energy- and carbon-intensive industries in Canada that support a price on carbon.[81]

   For municipal governments, an effective carbon price could help to reduce excessive automobile use and provide an incentive for brownfield, infill and urban development. Canada already has carbon pricing, however, it is uneven and inconsistent. Some provinces have explicitly adopted a carbon price while others have not. There are implicit carbon prices embedded in gasoline and diesel fuel taxes across the country, but not on other fuels. The federal excise tax of 10 cents per litre of gasoline works out to an implicit carbon price of about $42 per tonne of carbon dioxide.[82] The federal government could start by working with provinces and territories to harmonize Canada's existing carbon prices, and adjusting them to correspond to GHG intensity – coal would be priced higher

than gasoline. Carbon pricing is more economically efficient than regulation at reducing GHG emissions, and although many decisions cannot be regulated (e.g. location and transportation decisions), they can be influenced by pricing.[83] Effective policy design, including keeping or investing revenues from carbon pricing in the provinces in which they are generated, could limit negative regional impacts and enhance public support.

c. Creating a national framework for EPR: Post-consumer packaging and associated products now make up the largest proportion of municipal solid waste. Policies to encourage recycling and extended producer responsibility vary across the country by product and jurisdiction. Using its authorities with respect to product labelling and establishment of standards, the federal government can enhance the recyclability of packaging materials used in Canada, which would support provincial EPR policies and municipal diversion targets. National harmonization of which product should be designed for compost will protect and enhance Canadian recycling markets for plastics and other materials.

The federal government could also negotiate the development of EPR programs with national industry associations to support provincial EPR goals and conduct research on the potential market opportunities for waste reuse, recycling and recovery (of materials or energy). Implementation of the Canadian Council of Ministers of the Environment's Canada-Wide Strategy for Sustainable Packaging would be an important starting point. This would take millions of dollars off the general tax base and create an incentive for industry to standardize products and design for re-use. It will ensure that public funds are truly directed to public needs.

ATHABASCA OIL SANDS

Unavoidable in any discussion of Canada's broad energy or environmental picture are the oil sands (also termed tar sands or bituminous sands[84]). The deposits cover more than 140,000 square kilometres (km^2) – an area about the size of Florida, with the majority of that area already having been leased for extraction.[85] As a petroleum reserve, it is second only to Saudi Arabia in size, and production currently represents about one-half of Canada's total fossil energy output.

While its GDP and employment impacts are considerable, the Canadian Association of Petroleum Producers points out that the development has a "big impact" on the environment.[86] This includes GHG emissions (higher than for conventional oil extraction), impacts from tailings ponds, and impacts on land use and water use. There are also serious concerns about impacts on Aboriginal uses and rights.[87] A doubling of the size of the existing development has already been approved, with more growth expected.

The federal and Alberta governments provide hundreds of millions of dollars every year in subsidies to the development.[88] In early 2011, the federal government proposed to slowly reduce some of its subsidies, recognizing the maturity of the industry[89] and lack of justification for such support.[90] The majority of Canadians would like to see such subsidies eliminated,[91] but doing so would likely have a small environmental impact. Nor is carbon capture and storage an easy solution. From a GHG perspective, the operations tend to have a number of dispersed streams of emissions; a joint federal-Alberta study found that "only a small portion" of the streams are currently amendable to capture.[92]

While major reductions in GHG emissions from the development are unlikely, given current and predicted future levels of production, those emissions could be offset by reductions elsewhere in the economy. Savings from eliminating subsidies could generate much-needed revenues for investment in the clean energy and technology sectors, supporting the wide-scale deployment of these technologies in municipalities across the country. This could lead to the equivalent of 15 to 40 per cent of Canada's 2020 emissions reduction target,[93] and position Canadian business to meet the needs of a world market with increasing demand for technologies and services that protect natural capital.

While no municipal government has regulatory power over oil sands developments, municipalities may provide an opportunity to move beyond the challenge they pose.

CONCLUSION

Municipalities have shown leadership in increasing sustainability and in enhancing competitiveness. We have been using the policy levers available to us to put Canada on the course to a greener economy. The time has come for greater partnership and for the federal government to put in place the policy framework that will multiply the benefits of municipal action.

The principles for these policies should be: act locally, make value for money a top priority and work with the market where the market can work. This report indicates that significant employment, economic and environmental benefits are available, if cities and communities can be given the necessary support to play our full role. However, further research is needed to accurately estimate the expected benefits of the different elements of a green economy program.

The need for further study should not arrest progress toward actions and policies that allow us to seize green economic opportunities. We know, for instance, that municipalities face enormous infrastructure deficits and have projects ready to roll; investments made today will lock the country into a set of options for decades to come. Communities need the knowledge and planning to make sound investments that position Canada for the future.

Canada is an economic leader today; the transition to a green economy is about being a leader tomorrow. Municipalities are ready to work with federal, provincial and territorial partners to get there.

ENDNOTES

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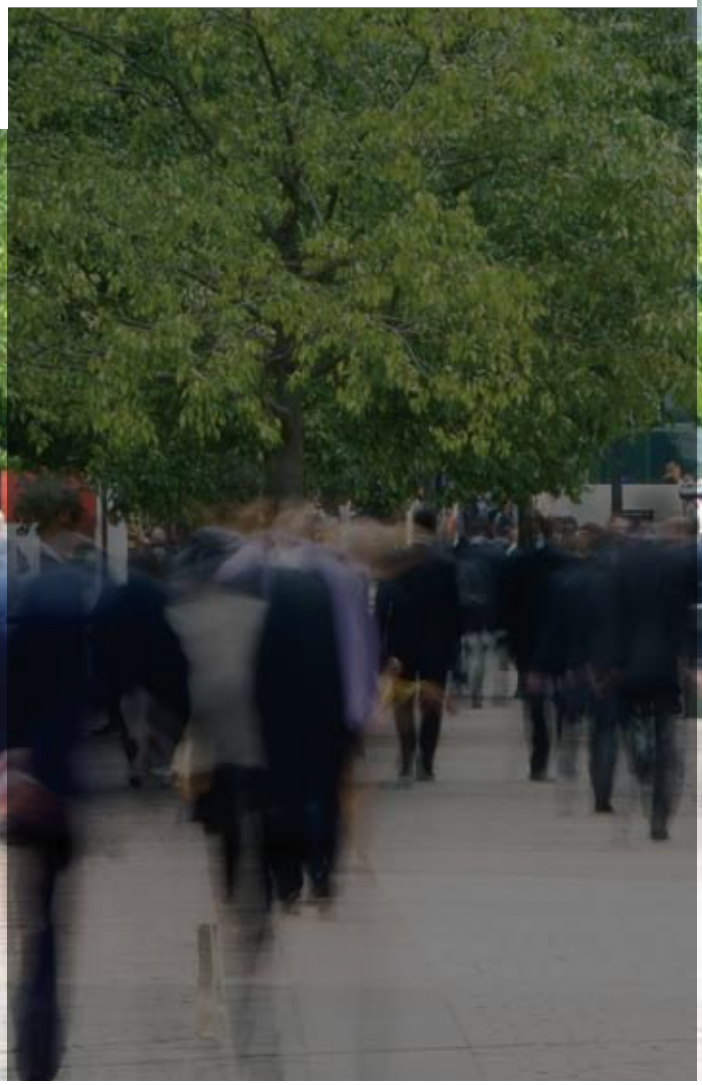

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