



Greening the Economy

Approaches for Canada's Capital Region

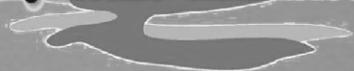
A Discussion Paper for
Choosing our Future

Building a Sustainable
National Capital Region



Bâtir une région de la
capitale nationale viable

Choosing our Future Choisir notre avenir





Choosing our Future Discussion Paper

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City of Ottawa

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Choosing our Future is an initiative led by the City of Ottawa, in partnership with the City of Gatineau and the National Capital Commission, to prepare Canada's Capital Region to meet the challenges of the 21st century. It will result in long-term strategic directions that integrate the concepts of sustainability, resiliency and liveability into all aspects of our communities.

Purpose

This series of Discussion Papers presents a range of ideas for how we can succeed in facing challenges such as demographic change; resource scarcity; a changing climate; globalization and economic uncertainty; rising energy and food prices and sudden shocks such as extreme weather conditions and emergencies. The papers are intended to stimulate dialogue about the best ideas for the future of the region and provide the basis for our future plans.

Discussion Papers in this series include:

- The Future of Culture
- Greening the Economy
- The Future of Social Development
- The Future of Food and Farming
- The Future of Natural Systems
- The Future of Buildings and Energy Supply
- The Future of Water, Stormwater, and Wastewater Infrastructure
- The Future of Materials and Solid Waste Management
- The Future of Land Use, Growth Management and Urban Form
- The Future of Mobility

The ideas discussed in this series include many that were suggested by participants at public and stakeholder events during the process to date.

Other information about the initiative can be found online at:

www.choosinaourfuture.ca

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1 Introduction

1.1. A Sustainable and Prosperous Economy

Economic development is about taking a long-term view to competing for investment dollars, enhancing our tax base, engaging our own resources and talents toward social and environmental innovation, and contributing to the quality of place where we live, work, and play. In the National Capital Region, the federal government presence is an economic anchor that brings talent, the seat of national policy development, cultural assets and international linkages. Just the same, Ottawa has been a hot spot for emerging technologies, research and education, which has led to a significant critical mass of policy makers, industry associations and a wide variety of non-governmental groups based in this city.

With this strong base of knowledge workers and being poised to attract investment dollars with its natural and cultural assets, the National Capital Region needs to evaluate how it can continue to sustain economic growth and consumption in its current form. As such, the Region should look at how it can leverage the twin challenges of diminishing cheap energy and a changing climate to stay competitive and maintain a high quality of life.

The 20th century was one of progress for most people in Canada and for Canada's Capital Region. As Canada embraced a multitude of people from around the globe, we enjoyed growing prosperity, improved health, and greater access to education—all facets of a higher quality of life. However, there are signs that the limits of the earth's capacity to support the demands of a growing economy and an expanding human population are being tested. The groundbreaking United Nations Brundtland report¹ and many others since have warned that continued economic growth along with population growth, increased energy and resource consumption, and high levels of waste will undermine the systems that sustain us and, in doing so, will threaten the foundations of economic success, as currently defined.

This discussion paper looks beyond short-term tactical challenges to address emerging and long-term challenges that require us to start preparing for a future that will look very different from the past. From an economic development perspective, the region is currently doing well, but the future may belong to organizations that are successful by selling less or reducing consumption.

1.2. Summary

A range of high-level strategic directions for greening the economy is explored in this paper. Each strategic approach is a response to the question: "How can we develop the economy such that it supports residents, community well-being and ecological health?" Based on public and stakeholder feedback, this paper is designed to help forge a preferred path for the long-term plans developed through Choosing our Future. The strategic directions described here are not meant to be exclusive. Rather, they are framed as questions to stimulate discussion, responses and additional ideas. These areas of discussion include:

- **Greening existing businesses** — How can we work with existing businesses to reduce the local and global environmental impact of business activities? What strategies can we use to reduce the energy and material intensity, pollution, and waste of these businesses? to better ensure their future competitiveness and the competitiveness of the region as a whole.
- **Sustainable business sectors** — How can we attract and retain the types of businesses and jobs that use the region's expertise in high technology to reduce ecological impact and improve social welfare? The region is already a leader in this regard with a thriving clean technology sector.
- **Green buildings and infrastructure** — How could we build infrastructure that allows more businesses to grow in the region without increasing overall energy use, water consumption, or waste creation?

- **Localization** — How can we leverage regional economic development initiatives to support local business? What types of partnerships with non-profit organizations and communities will bring the region the greatest economic success? How do we support local businesses?
- **Redefining growth** —How can we challenge the notion that greater efficiency and de-materialization of the economy is the solution? Given that growth is not a net gain in and of itself, should we plan for deliberate, slow, economic growth or no growth? How can we explore the concept of creating shared value, offering companies a way to pursue their self-interest while also acting in the common good?
- **Measuring success** — How can we introduce new ways of measuring the region’s economic performance, such as triple bottom line accounting or tracking the energy intensity of economic output? What other methods of measuring success could we use beyond GDP? Should happiness be a factor? How much effort is the right amount for a City to do considering the role of other levels of government?



2 Background

2.1. Greening the Economy Defined

The economy is a broad term that we use to describe the system of production, consumption, and exchange of value in human society. Commonly, the health of the economy is measured by how fast it is growing compared to other places (measured in GDP per capita) and by what percentage of the workforce is employed. These will remain important measures, but recent events have highlighted the need to focus on economic resilience and a more nuanced discussion of what we understand as economic success.

2.2. Context

Canada's Capital Region has seen significant economic growth and increasing diversity over the last 30 years. It has achieved a high level of economic growth compared to many other cities and the region's per capita incomes are some of the highest in North America. The region has become a significant technological and research centre; and with 138,000 jobs in the federal government, it continues to be the core of federal employment. It is also home to some of Canada's most innovative companies and an up-and-coming clean technology sector. The region has a strong higher education sector that is leading to entrepreneurial success and the highest proportion of scientists in North America outside of Silicon Valley. The region is also well-positioned to be a leader in developing a successful green economy.

Ottawa has a knowledge-based economy, so retaining its knowledge workers is important. Such workers earn a living by developing or using knowledge in key sectors. They want to live in safe cities that are clean and work for employers that care about the environment and the community.

2.3. Challenges and Trends

Looking forward, Canada's Capital Region will need to deal with a number of growing challenges in order to maintain the high quality of life that residents currently enjoy and to advance regional sustainability.

Population growth

Assuming the region maintains its share of immigration, the population of Canada's Capital Region is expected to increase by 50% between 2010 and 2060.ⁱⁱ This will increase the demand for goods and services and put pressure on the land and resource base.

Demographic change

The next 50 years will likely see dramatic changes to the way people move, spend money, live and consume. The region's population will be more ethnically diverse. The age structure of the population will shift towards the older age groups as fewer children are born in the region and people live longer lives. An aging population poses significant implications for the future economy, including rising health care costs and potential labour shortages.

Quick Facts

- The population of Ottawa and Gatineau is growing (5% and 8% respectively from 2001–2006).
- The median age in Ottawa grew from 35 to 38.6 between 1996 and 2006.
- Poverty and income inequality have risen in the last 15 years and now exceed the average for countries in the OECD (Organization for Economic Co-operation and Development).
- With a regional real (adjusted for price changes) GDP of over \$40 billion annually, Ottawa's forecasted GDP is expected to grow by \$7 billion by 2013.
- The region's current workforce has the highest percentage of university graduates in the country, and the highest concentration of PhDs in North America—tied with Boston.
- The region's high tech sector includes more than 1,800 technology companies employing nearly 35,000 people, covering photonics, software, security and defence, customer technical support centres, life sciences, telecommunications, and semiconductor and wireless technology.
- Over the last decade Ottawa-Gatineau has consistently maintained higher employment and labour participation rates in the economy than the national average
- Ottawa-Gatineau has the second largest concentration of science and engineering employment out of 316 North American cities, surpassed only by Silicon Valley; one in nine employees is a scientist or engineer

(Sources: Stats Canada; OCRI 2010; GOGA)

Labour shortages

Labour shortages in the Capital Region could occur given demographic shifts (aging populations, declining birthrates), workforce participation changes, competition from the developing world and changing employer and educational needs.

Talent shortages

Challenges could occur with the overall availability of labour as well as with the specific skills and expertise required in emerging, developing, and industrialized economies.ⁱⁱⁱ As the quality of life improves in developing nations, North America may lose its competitive edge to attract global talent. We need to retain foreign students who do their training here, rather than have them leave when they graduate.

Resource scarcity

Global shortages, most notably for energy, water, food and building materials combined with higher transportation costs, due to energy prices, could lead to increased prices for resources and products as well as associated behaviour changes in consumers. Local economies and businesses that reduce their reliance on materials and energy are more likely to stay competitive. Equally, Canada's water resources, which are present in the Capital Region, could increase our attractiveness as a business and tourist destination provided we take the appropriate steps to use these resources sustainably to maintain their quality for future use.

Technological change

We are in a period of rapidly increasing technological change. Technological innovations and their adoption influence economic cycles. Trends towards miniaturization, decentralization, low- or zero-emission homes and vehicles, renewable energy, and social networking have the potential to profoundly influence and grow the region's economy.

2.4. Goals

Recognizing the need to address these issues and challenges and to envision a better future, Choosing our Future, through community outreach, has developed a set of high-level aspirational goals to define success over the long term. This discussion paper and the strategic options identified respond to the primary *Economic Prosperity* goal as well as several other related goals.

Primary Goal

Economic prosperity supports residents, community well-being, and ecological health

Wealth is generated with a fraction of today's material and energy throughput and with respect for the limits of planetary ecosystems and resources. The region's economy supports regional self-reliance, good jobs for residents, and contributes to a high quality of life for all residents. Residents and businesses also support responsibly produced goods and services from around the world.

Other goals can be found on the project website: www.choosingourfuture.ca.

2.5. Current Plans and Programs

Ottawa's current economic development strategy is "Partnerships for Prosperity". Released in 2010, it is now rolling out in 2011. The plan's Vision states: "Smart People, Prosperous Economy - Ottawa is recognized as a competitive global hub for innovative, knowledge-based talent, businesses and organizations. Its unique combination of recreational, social, cultural, and business assets, natural environment and physical infrastructure create sustainable prosperity for all its citizens, attracting businesses, visitors and new residents."^{iv}

Succeeding in the "new economy" is vital to the newly updated strategy, which is characterized by highly mobile capital and labour and the central role played by technology. While geared towards meeting the challenges of the increasingly globalized and high tech economy, Ottawa's economic strategy also acknowledges the importance of a sustainable environment

Seeds of Success

Companies in the region are forging a path towards sustainability. Some of the innovations include:

- A biomass conversion plant that uses pyrolysis technology to convert forest waste into natural resin products, co-polymers, liquid fuel and green energy.
- Waste energy recovery facilities ideally suited to industrial and institutional applications that have reduced costs by 10 to 35 per cent, with similar reduction levels in emissions.
- Innovations to plasma arc technology that are being used to convert 80 tonnes of municipal waste per day into power and secondary products.
- The world's only demonstration-scale facility that converts biomass into cellulosic ethanol.
- The first Leadership in Energy and Environmental Design (LEED) Platinum certification in North America for a multi-residential building.
- Highly efficient solar conversion systems suitable for residential, commercial and institutional uses.

(Source: OCRI, 2009. Ottawa Clean Technology; Directory of Capabilities)

and equitable society to attracting and retaining businesses and a knowledge workforce. The updated strategy is geared to “better prepare the City for coming challenges in the local, national and global economy, explore areas of the existing strategy where there are opportunities for improvement, and will continue to build on the City’s track record of delivering high-quality programs and initiatives that support the local economy, small business and entrepreneurs.” Strategic Objectives include:

- *International competitiveness* — The City, with its partners and stakeholders, will take greater advantage of the opportunities inherent in the knowledge economy and address both the opportunities and the threats created by economic globalization.
- *Inclusive and sustainable communities* — The City will strive to balance business prosperity with social equity, environmental responsibility, and cultural expression.
- *Brand and market development* — The City will aggressively build on its current level of international marketing by developing with its partners and stakeholders consistent and coordinated city-wide branding.
- *City leadership* —The City will take a more proactive leadership role in shaping the economic direction of Ottawa.

The Vision Statement and Strategic Objectives have inspired three main goals:

1. Leverage the City of Ottawa’s existing strengths as a competitive global hub for innovative, knowledge-based talent, businesses and organizations to inspire and facilitate future economic development activities.
2. Promote Ottawa globally, as a top destination in which to study, work, live and to visit.
3. Make Ottawa a global role model for holistic planning, to the benefit of the economy, society, culture, and environment.

These goals represent several objectives that are discussed throughout the document and translated into concrete actions.

Partnerships for Prosperity is linked with the other growth management plans including the Official Plan, Transportation Master Plan, Infrastructure Master Plan, Human Services Plan, Arts and Heritage Plans, Talent Plan, and Environmental Strategy. It also reinforces the Poverty Reduction Strategy.

Gatineau Economic Development: Strategic Plan 2010–2014

Created by a partnership of organizations, the Gatineau Strategic Economic Development Plan is based on three directives: (1) to create conditions favourable to

economic activity, (2) to ensure the economic development of the Gatineau Region, and (3) to ensure vitality of the sectors and networks already in place.

At the core of the strategy are the goals of supporting 400 new business start-ups, attracting 15 new companies, and entering into 25 new markets (new locations, new clients, or new sectors). In addition to these specific growth-oriented goals, Gatineau is also focusing significant effort towards the health of its existing businesses and networks. This includes working with business leaders as they plan for the succession of their organizations and expanding into new business networks.

At the base of strategy is the mission of the *Développement économique - CLD Gatineau (CE-DLG)* to stimulate the economy using an integrated development perspective that is sustainable and includes the collaboration of partners to support the growth of businesses as well as the social economy of the region. The mission, combined with the clear directives and associated goals, have resulted in 17 specific and measurable objectives for the next five years.

For the most part, these objectives fit well within a larger context of creating a green economy that will require new technologies, entrepreneurs, and innovation. For instance, the Environmental Practices objective is to have 50 businesses adopt principles of energy efficiency, eco-buildings, sustainable development, and to become paperless. In addition, the website of the CE-DLG promotes sustainable development and tries to educate developers on the higher rate of return that can result from green investment in their buildings.

The strategy does not specifically mention any links to the City of Gatineau's extensive environmental policy.^v



3 New Directions

3.1. Greening the Economy

Current economic development strategies in the region have laid the groundwork for a successful economic future. Greening our economy represents an opportunity to build on this base to respond to issues of increasing energy insecurity, resource scarcity, and widening income inequality. The following presents a range of approaches and practices for greening the economy including some of those already under consideration. Any strategy for greening the region's economy must be a collaborative effort involving businesses, economic development agencies, educational institutions, and local and senior governments.

Greening existing business

The first and most basic strategy to create a green economy is to make existing business more efficient by reducing their material and energy requirements for each unit of output. The overall target now dominating sustainable development discussions strives to reduce businesses' ecological impact by 80%—or achieving a "Factor Five" economy.^{vi} Achieving this target will require maintaining or increasing levels of production while making dramatic reductions in energy use, material use, and the production of wastes (especially wastes that are toxic to humans and ecosystems). This will require existing businesses to integrate sustainability objectives and targets into every aspect of their business: strategic plans, product or service design, production, marketing, facilities,

distribution, and reporting. In some cases, this may require a complete re-think of how the company conducts its business. Several large corporations have re-thought and redesigned their businesses and have achieved significant efficiency improvements in their operations (Xerox and Interface Carpets are two such examples). This hyper-efficiency approach is illustrated by the concept of cradle-to-cradle. This term describes a zero waste manufacturing process that designs new products to easily break down into reusable or recyclable components once the product reaches the end of its useful life. The City of Ottawa, City of Gatineau and the National Capital Commission can also play a leadership role to help shift the ways that corporations do business. For example, the City of Ottawa has a Corporate Sustainability Program as a platform to launch these new ideas. Finding better ways to foster and develop ideas is what author and business strategy guru Michael Porter believes is the next important big idea toward “creating shared value” in the new economy. He argues that traditional capitalists focus too narrowly on profits and that corporate social responsibility (CSR) creates too much tension between business and society. Creating shared value offers companies a way to pursue their self-interest while also acting in the common good. For example, GE’s “ecomagination” strategy of creating environmentally friendly products, is said to be responsible for \$18 billion in annual revenues. Walmart has achieved significant savings by reducing wasteful packaging. IBM and Intel are helping utilities cut power use. Unilever generates 5% of its sales in India through a host of underprivileged female entrepreneurs. Some initiatives are less well known, such as a scheme to support small cocoa farmers in Côte d’Ivoire, which raised their incomes by over 300% by improving yields, product quality and procurement.^{vii}

Individual businesses can also form relationships or networks to improve their performance and profitability. Eco-industrial networking is an approach where businesses co-locate (sometimes in eco-industrial parks) in order to better share resources and make productive use of wastes—such as waste heat, wastewater, and waste materials. A leading example of the eco-industrial approach is found in Kalundborg, Denmark where co-operation among a number of companies and the Kalundborg municipality allows wastes from one facility to become an energy or heat source for another. Eco-industrial parks have been established in Hinton, Alberta with the development of the Innovista Business Park, and by the Toronto and Region Conservation Authority in a project called Partners in Project Green located on the 12,000 hectares spanning four municipalities surrounding Pearson Airport.

Sustainable business sectors

There are a range of emerging industry sectors, products, and services that are responding to the growing demand for sustainable solutions. Green jobs aimed at reducing energy use, water consumption, material use, and GHG emissions are being created in new or existing sectors. The region is well positioned to target, attract and

grow green sector businesses as it is already a leader in the clean technology sector with a number of thriving businesses. There is also a wealth of knowledge in agriculture, information and communications technology, and biotechnology, all of which can be used to attract highly desired new businesses as well as create a more sustainable, resilient region.

Green building and infrastructure

Most businesses are located in a physical structure. These buildings are major contributors to the region's GHG emissions and energy consumption. Expanding on the work Ottawa and Gatineau are already doing, a number of strategies could be applied to encourage buildings and sites to be more energy and carbon efficient, use fewer virgin materials, generate less waste and have healthier indoor environments.

There has been some progress in the region toward improved standards for new buildings (especially municipal buildings) and there are examples of private and institutional developers applying LEED (Leadership in Energy and Environmental Design) standards. There is also an opportunity for the region to emulate other cities in North America that are setting progressively higher standards for new buildings and kick-starting the retrofit of existing buildings with innovative financing methods. Chicago, Portland, and Vancouver are developing green building industries and associated expertise that are in demand worldwide.

Buildings last many decades, so while new building standards are important, the existing building stock needs to be addressed. More could be done to adapt existing buildings for new uses, and in doing such conversion these buildings could be upgraded or retrofitted to become more sustainable. Federal and provincial energy retrofit programs such as EnerGuide and EcoENERGY have been irregular; consistent local policy and programs are one way to encourage the necessary long-term investments by owners of these assets.

How do we build the infrastructure to allow businesses to grow in the region without increasing the overall amount of energy and water used or the amount of waste produced? This could include investment in renewable energy and district energy systems, high-quality public space, ecosystem maintenance and protection, and fiscal support and training for businesses.

Greening local business

Business improvement areas (BIAs) and community economic development initiatives offer two means of stimulating the local economy in a way that may improve community well-being. BIAs come into existence when local business and property owners join together to improve, promote and undertake projects that will result in a stronger and more competitive commercial main street or business district. Beyond

commercial activities and marketing, Ottawa currently has 17 BIAs. –BIAs contribute to business recruitment, streetscape improvement, seasonal decorations and special events. For example, many BIAs provide for more customer-friendly lighting, signage, street furniture, planters, banners and sidewalk treatments that help to make more complete streets and more complete communities. Some municipalities have grant programs to assist with façades and murals; however, Ottawa to date has not explored using the same approach to promote “green initiatives” with BIAs. This represents an opportunity to encourage the businesses closest to our main streets to participate in “greening” the economy at a local level.

Community economic development (CED) differs from conventional economic development by approaching problems facing communities, including unemployment and environmental degradation, in a holistic way. By enhancing economic opportunities while improving social conditions, CED can contribute to improving community well-being and environmental health. In this light, there is an opportunity to explore the creation of social enterprises – a business that operates as part of a non-profit organization in order to increase their revenue stream – to encourage local economic development that also supports sustainability and green growth.

From a broader perspective, the relaxation of government restrictions on global trade coupled with the “comparative advantage” that certain countries and regions have for manufacturing means that most of the products that are consumed in the region are imported. This has the benefit of keeping the cost of products low, but it also means that these products have a high amount of embodied energy (energy required to make and move the product) due to long-distance transportation from countries across the globe... As labour costs in developing economies rise and transportation costs increase due to higher energy prices, there is an opportunity to market the advantages - economic and environmental - of local spending.

Redefining progress

A number of social and economic commentators and thinkers consider the traditional idea of GDP-oriented growth to support global capitalism as destined to eventually fail. Authors such as Peter Victor argue that we need to move our focus away from growth and towards quality of life, arguing that a focus on growth has failed to deliver the social benefits we need and that the link between wealth and happiness is a weak one.^{viii} While this concept is far from the political mainstream in Canada today, it has become an increasingly important element of sustainability discussions. Victor and other economic thinkers challenge the notion that greater efficiency and de-materialization of the economy is the solution, suggesting instead that increased efficiency simply frees up resources for others to consume; they recommend that we start planning for deliberately slow approaches to growth or no growth at all.

People concerned about the long-term implications of pursuing continual growth believe that policies are required now to ensure an orderly transition to a post-growth economy. Distinguishing between economic development and economic growth is important; the word “growth” means increasing physical size, while the term “development” suggests a qualitative improvement. How can we shift to continue to develop and improve (make progress) without expanding the size of the economy?

Measuring success

In pursuit of a sustainable economy, the use of appropriate measures is important. GDP is only one measure in terms of providing a picture of a truly prosperous economy. To supplement the information provided by traditional economic measures such as GDP, indicators of social and economic well-being could be added to or could replace former standards. Alternative measures that could be explored include the Environment and Sustainable Development Indicators for Canada, the Genuine Progress Index, the Index of Sustainable Economic Welfare, and the Canadian Index of Well-Being. In addition:

- *Triple Bottom Line (TBL)* is an expanded accounting method that includes social and environmental costs and benefits. However, TBL accounting can be challenged because environmental and social costs can be harder to quantify than economic values.
- *Energy Intensity in the Economy* is an important indicator of diverse items such as economic output and potential environmental effects. By tracking and mapping the source and efficiency of energy intensity in the economy, a broader view of a sustainable economy can be understood.

In this context of performance measurement, a municipality or a region can only do so much. Some standards, to be globally effective, would need to be implemented by the Provincial or Federal governments. However, there is a need for the Capital Region to select an approach that is within its financial constraints, but that is also meaningful and understandable to its residents and businesses.

The question then is: where should the Capital Region focus its limited resources and how much effort is the right amount for a city to do? Should the City of Ottawa and City of Gatineau develop expertise for social cost accounting in concert with the NCC? Is a sustainability lens and annual indicator reporting sufficient?

3.2. Conclusion

Canada's Capital Region will need to deal with a number of trends such as demographic change, labour and talent shortages, and increasingly scarce and more expensive resources such as fossil fuels—all at a time when our impacts on the environment have become both more evident and highly scrutinized.

There are a number of approaches to greening the region's economy that can improve the region's competitiveness and attract new business and talent while addressing the challenges of sustainability and resilience. Most of these approaches will require a high level of co-operation between business, academia, economic development agencies and government. The City of Ottawa, City of Gatineau, and the National Capital Commission can play an important role in greening the economy through policy development, setting standards, planning and approvals, investing in or requiring the right kind of infrastructure to support sustainable businesses, and facilitating dialogue and information sharing amongst stakeholders.

Endnotes

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ⁱⁱ Urban Futures, 2009: A Context for Change Management in the National Capital Region. Prepared for Choosing our Future.

ⁱⁱⁱ Confronting the Coming Talent Crunch; Manpower Inc. Milwaukee, 2008.

^{iv} City of Ottawa. 2010. Partnerships for Prosperity, page 9.

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^{viii} Victor, Peter A. 2008. *Managing without Growth: Slower by Design Not Disaster*. Edward Elgar, UK.