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CHARTING THE GREEN ECONOMY

Governments today are increasingly interested in what is often described as the “green economy”. Three principal reasons are advanced for pursuing new initiatives in this area: as part of the world-wide effort to tackle climate change; to help the economy recover from the current recession; and, to take advantage of a longer-term opportunity to create new jobs. But what does the “green economy” consist of? What counts as a “green job”? And what is the role of public policy in developing a greener economy? This issue of the Business Council’s *Environment and Energy Bulletin* investigates these questions and considers what the possible answers might mean for British Columbia.

Defining the Green Economy

The appeal of the green economy as a driver of growth and jobs is undeniable. The International Labour Organization (ILO) estimates that the global market for environmental products and services will double in size from US\$1.37 trillion (2008) to US \$2.74 trillion by 2020.¹ Statistics Canada reports that Canadian firms earned \$18.5 billion from selling environmental goods and services in 2004, an increase of almost 17% from 2002 (Table 1 below).²

Table 1
Revenues* from Environmental Goods and Services, BC and Canada, 2002 and 2004

| Revenues (\$millions) | BC | | Canada | |
|---------------------------------|-----------------------------|---------------|----------------------------|----------------------------|
| | 2002 | 2004 | 2002 | 2004 |
| Sales of Env Goods | 837.7 | 985.4 | 8,771.4 | 10,070.1 |
| Sales of Env Services | 1,094.1 | 1,314.8 | 7,006.4 | 8,383.3 |
| Top Env Good | Technologies to reduce GHGs | Not specified | Noise/ vibration abatement | Noise/ vibration abatement |
| Sales of Top Env Good | 71.1 | n/a | 5,453.5 | 4,138.6 |
| Top Env Service | Waste mgmt | Waste mgmt | Waste mgmt | Waste mgmt |
| Sales of Top Env Service | 800.2 | 834.0 | 5,081.0 | 5,504.9 |
| Exports of Env Goods & Services | 173.2 | 212.8 | 1,372.2 | 1,501.4 |

Source: Statistics Canada, 2007.

*Employment data were not reported provincially.

¹ International Labour Organization, *Green jobs: Facts and Figures*. International Labour Office, September 2008.

² Statistics Canada, *Environment Industry: Business Sector, 2002 (revised) and 2004*. Minister of Industry, September 2007.



A number of institutions have proposed definitions of the green economy/green jobs. At the international level, the United Nations Environment Programme (UNEP) defines green jobs as positions in agricultural, manufacturing, research and development, administrative, and service activities “that contribute substantially to preserving or restoring environmental quality”. This includes jobs that directly or indirectly help to protect ecosystems and biodiversity, reduce the use of energy, materials and water consumption, “de-carbonize” the economy, and minimize or avoid waste and pollution.³

In the United States, different researchers have looked at aspects of the green economy using varying definitions.⁴ How the Obama administration is likely to promote green jobs is suggested by its recently appointed Special Advisor for Green Jobs, Enterprise and Innovation, who sits as part of the President’s Council on Environmental Quality. He argues that green jobs require new skills, but also new thinking about old skills in “traditional” industries and occupations. The key will be identifying the skill sets in demand by the green economy, and then re-training workers to apply their existing knowledge in new ways.⁵ This approach, while useful in illustrating the possibilities for transitioning the skill sets of workers in shrinking industries, rests on a very expansive view of what counts as a green job.

In this country, Statistics Canada notes that there is no universal definition of environmental goods, services or the firms producing them. For analytical purposes, the agency treats the “environment industry” as consisting of activities undertaken by firms in measuring, preventing, limiting or correcting environmental damage, as well as those that engage in clean or resource-efficient technologies, that reduce emissions and/or that minimize waste disposal problems. This definition focuses on *end use* rather than *inputs or attributes* of the good or service. It also acknowledges the difficulty of defining an environmental good/service by whether it *solely or partly* exists because of its environmental component. Statistics Canada sensibly maintains that an environmental job is one involved in the production or provision of environmental goods or services.⁶

Counting Green Jobs

Bringing these definitions to ground is a challenge. A review of the literature reveals a widespread tendency to over-state the number of green jobs or the contributions made to

³ UNEP/ILO/IOE/ITUC, *Green Jobs: Toward decent work in a sustainable, low carbon world*. United Nations Environment Programme, September 2008, p.35.

⁴ See for example, Political Economy Research Institute (PERI), *Job Opportunities for the Green Economy: A State-By-State Picture of Occupations that Gain from Green Investments*. University of Massachusetts, Amherst, June 2008; Next 10, *California Green Innovation Index*, Next 10, 2008; and Climate Solutions and Clean Edge, *Carbon-Free Prosperity 2025: How the Northwest can Create Green Jobs, Deliver Energy Security, and Thrive in the Global Clean-Tech Marketplace*. Clean Edge Inc. and Climate Solutions, October 2008. The Pew Center on Global Climate Change summarises major recent studies in a Review of Green Jobs, accessible via <http://www.pewclimate.org/review-greenjobs>.

⁵ Van Jones, former President of Green For All “Green-Collar Jobs Overview,” accessible via <http://www.greenforall.org/resources/green-collar-jobs-overview/green-collar-jobs-overview>.

⁶ Statistics Canada, *Environment Industry: Business Sector 2002(revised) and 2004*. Minister of Industry 2007, p 5.



GDP by green industries. As noted above, the broader the definition of a green job, the more occupational groupings will be captured by the label. At one extreme, the Political Economy Research Institute (PERI) at the University of Massachusetts (Amherst) surveyed 12 American states and compiled employment numbers for occupations associated with what it views as the top six “strategies” to address global warming (building retrofitting, mass transit, energy-efficient automobiles, wind power, solar power and cellulosic biofuels).⁷ In the case of wind power, PERI argues that constructing wind farms creates jobs for sheet metal workers, machinists and truck drivers, and “what makes these entirely familiar occupations ‘green jobs’ is that the people working in them are contributing their everyday labors toward environmental solutions.”⁸ Thus, in the case of wind power, for example, sheet metal workers in Indiana or Oregon are classified as “green economy” workers, regardless of whether they ever cut steel for an actual wind turbine.⁹ This approach may provide some insight into prospective green economy employment opportunities, but it is based on an inflated concept of what should be included under the rubric of the green economy. The same flaw is found in a new report on fostering green jobs in Ontario sponsored by the province’s Green Energy Alliance, Blue Green Canada, and the World Wildlife Fund, and authored by researchers from PERI at the University of Massachusetts. This study improbably suggests that 90,000 net new jobs *per year* can be created by a stepped up pace of investment in building Ontario’s green economy.

In Germany, recently released government projections of job growth in the renewable energy sector (from 249,300 in 2007 to possibly 400,000 by 2020) caught the attention of North American policy-makers and environmental organizations, with some unfortunate results. Some politicians and commentators in Canada claimed that Germany’s policies had *already* led to the creation of 400,000 new jobs. Drilling into the data, it turns out that roughly 60% of all green jobs in Germany in 2007 involved “government employment in energy planning, environmental regulatory affairs and enforcement” – i.e., they are part of the public sector architecture that manages the private renewable energy sector.¹⁰

Statistics Canada’s recent review of the green economy looks at the sector’s contribution to economic output.¹¹ The agency notes that most entities in the environmental sector are grouped across the industry spectrum of the existing North American Industry Classification System (NAICS) – see Box 1. In measuring the sector’s size and growth, key variables of interest are revenues and employment. The Statistics Canada review uses the standard industrial classification system, which measures industry groups rather than occupational

⁷ Political Economy Research Institute (PERI), *Job Opportunities for the Green Economy: A State-By-State Picture of Occupations that Gain from Green Investments*. University of Massachusetts, Amherst, June 2008. The so-called strategies identified in the paper may be more appropriately characterised as categories.

⁸ PERI, p. 4.

⁹ PERI, p. 10.

¹⁰ Jane Burgmeister, “Renewable Energy Jobs Soar in Germany,” *RenewableEnergyWorld.com*. Accessible via <http://www.renewableenergyworld.com/rea/news/article/2008/04/renewable-energy-jobs-soar-in-germany-52089>.

¹¹ Statistics Canada, *Environment Industry*.



groups (Table 1). Like other studies, it grapples with the issue of green-economy-related versus unrelated employment.

Statistics Canada’s work offers the best application for British Columbia, not least because the data collection methods are familiar and relatively congruent at the national and provincial levels. Estimating the dollar value of green sector output and the level of employment in industries that produce environmental goods and services provides a useful foundation for evaluating ideas aimed at further developing the green economy.

| <u>Box 1</u> Industry Groups Containing Establishments that Provide Environmental Goods and Services (NAICS) | |
|--|-----------------------|
| <u>Goods</u> | <u>Services</u> |
| Agriculture | Wholesale trade |
| Mining/O&G extraction | Retail trade |
| Utilities | Finance & insurance |
| Construction | Architecture |
| Chemical | Engineering |
| Plastics | Surveying & mapping |
| Non-metallic mineral | Testing labs |
| Primary metal | Computer systems |
| Fabricated metal | Env. consulting |
| Machinery | Management consulting |
| Computer & electronic prod | R&D services |
| Electrical equipments | Legal |
| | Management |
| | Admin & support |
| | Waste management |

Source: Statistics Canada, 2007.

The Risks of Getting It Wrong

As suggested above, the policy goals commonly cited in connection with stimulating the green economy are: encouraging the growth of green jobs as an end in itself; positioning green industries as part of a broader economic recovery strategy; and promoting green industries in order to help combat climate change. For an increasing number of politicians, expanding the green economy is seen as one solution to several of society’s biggest problems.

However, the policy goals identified by governments need to be clearly specified and prioritised, otherwise unintended consequences may result. Further, public sector stimulus dollars and private investments alike can be misallocated, costing taxpayers and ratepayers more than is necessary to pursue the goal of a lower-carbon economy. Policymakers around North America have yet to settle on a single set of tools to accomplish the “big picture” goals of mitigating climate change and stimulating the green economy. However the US government’s recent massive stimulus package offers some clues on the future shape of the relevant policies, as does the proposed national greenhouse gas (GHG) cap-and-trade system. These measures are likely to be accompanied by a national (US) Renewable Portfolio Standard (RPS) for electricity, new standards for vehicle emissions and/or carbon content of fuels, more stringent building standards, and a host of other measures.

Some commentators observe that as these policies begin to take shape, there is a risk that complementary policies will make GHG reductions more expensive by misdirecting funds to politically popular but higher-cost options (such as some abatement technologies or RPS mandates), thereby distorting the carbon market and raising the economy-wide cost of



achieving any given quantum of emission reductions. *The Economist* magazine recently argued that the main effect of the current mish-mash of policies unfolding in the United States will be to increase the overall cost of cutting emissions – something that can be avoided with a well-designed cap and trade system (or a national, broadly-applied carbon tax). The magazine cites a published assessment of the Obama administration’s stimulus bill which puts the cost of avoided GHG emissions under the legislation’s climate change and energy provisions at \$69 to \$137 per tonne. This contrasts with an estimate of the carbon price under Congress’ proposed cap and trade scheme in the range of \$13 per tonne.¹²

BC’s Role in the Green Economy

Government involvement in shaping the green economy can be beneficial, provided policy interventions are well-thought out, promote efficiency, and support commercially viable industries.¹³ The lessons BC can take from other jurisdictions include the following:

- Establish un-biased and conservatively categorised baseline data on the green economy and green jobs. Use rigorous metrics to determine what counts as a green industry/job.
- Carefully review the increasing array of climate change-related policies and programs already announced or in place in British Columbia, both from a cost-benefit perspective and with a view to minimising adverse impacts on the province’s competitiveness and the functioning of a future carbon market.
- Avoid picking winners (and therefore losers) among industries and technologies, but be realistic about those industries that have taken, or may soon take, root in a commercially viable sense in the province.
- Understand that to nurture the growth of emerging industries, particularly those with export potential, the most important requirement for any jurisdiction is to have favourable hosting conditions, including reasonably competitive taxes, efficient and well-designed regulatory processes, smart public sector procurement policies, and a well-educated work force. These factors are as relevant to green industries as to any other sector.

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¹² “Cap and binge,” *The Economist*. March 12, 2009, and “Sins of emission,” *The Economist*. March 12, 2009.

¹³ Utilising standards in such areas as energy efficiency allows the market to figure out how to achieve these standards in the lowest cost way. University of California at Berkeley research suggests energy efficiency measures are among the lowest marginal cost reduction opportunities available (for example insulation, HVAC and water heating have a negative marginal cost). Catherine Wolfram, *Policies to Address Climate Change: Opportunities and Challenges*. Presentation to CEA Annual Meeting, Vancouver, BC, June 7, 2008.