

Greater Victoria Regional GREEN ECONOMY INITIATIVE

January 2013



EXECUTIVE SUMMARY

The Greater Victoria area has the beginnings of a green economy that supports clean technology, markets local and sustainable businesses, helps businesses green their operations and generates good green jobs. There is far more to be done, however, to tap enormous global green economy opportunities. Indeed, the region is arguably at a cross-road, and can choose one of two quite distinct paths.

In a first *business as usual* scenario, economic development would continue with fairly limited support for green innovation, no common 'green economy' vision, and an approach largely dictated by international, federal, and provincial norms and regulations, both present and future. The region would have a compliance-based economy that largely follows the actions of other regions in its green economic development and imports ideas from elsewhere.

In a second scenario of *deliberately building a green economy*, the Greater Victoria Region would actively and strategically build on what is already working well, focus on developing its green economy using applicable examples and models from Portland, Vancouver, Seattle and elsewhere, and innovate at the small city scale and in the areas unique to this region's resources.

The research underpinning this document identifies barriers and opportunities related to the possible development of a green economy in the region. Overall, the research supports the idea that there is strong local interest in, and possibilities for, developing the local green economy. Specifically, there is a chance to scale up existing efforts, develop a common vision, learn from other jurisdictions and build a resilient region that embraces green business clusters and an economy driven by innovation in environmental and social services, technologies, products, and processes. Practical results of doing so could include:

- ➡ Increased exports of green goods, services and processes from the region to meet a large and growing global demand – especially in China, India, and the US;
- ➡ More good, green jobs in the region;
- ➡ Increased business competitiveness in the region from the greening of business operations; and,
- ➡ Enhanced recognition for Greater Victoria's existing green success stories

In particular, the research found:

- ➡ *Summary of Barriers:* 13 municipalities, inertia of public employees, unnecessary bureaucracy, outdated regulations, high perceived business costs, unknowledgeable consumers, lack of tax incentives, small local market, and the local reputation.
- ➡ *Summary of Drivers:* Huge global market opportunities, federal and provincial funding available, changing regulations, niche local markets, competitive advantages, lower costs, food security and other vulnerabilities of being on an island, business leaders feel that it is the right thing to do, and 96% of the surveyed public support this.

And an analysis of the data suggested:

- ➡ *Summary of recommendations:* Changing procurement policies, greening organizational operations, engaging staff, reducing transportation and finding alternatives, engaging in research and investigation, and improving collaboration and communication.

The seeds of the second scenario have already been sown. Using initial findings from this research, a variety of public and private stakeholders have already been meeting regularly and undertaking a variety of activities to more consciously and deliberately build the local green economy. The opportunity now is to continue and enhance these efforts, using this document and other research and efforts as a basis.

This report is the result of a collaborative effort between the City of Victoria, Globe Foundation, MITACS, Uvic, and Vancity. The research and recommendations are intended to inform and support broad, inclusive and multi-stakeholder efforts across the region.

This report is the first of two sections. The second section, entitled “Green Economy, Good Jobs” and written by Kristi Fairholm Mader, looks at the socially inclusive aspects of the green economy. Because the social component of the green economy is necessary for a successful and thriving economy it merited its own study outside of the range of this study. This report should not be read in isolation from the second.

ACKNOWLEDGEMENTS

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*Support for this project does not necessarily imply Vancity's endorsement of the findings or contents of this report.

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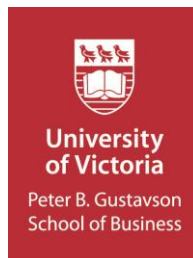
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Information Sources

The information contained in this document has been compiled using primary and secondary data. The secondary data has come from a myriad of sources including: GLOBE Foundation, City of Victoria, United Nations, World Bank, Victoria Foundation, the Community Social Planning Council, VIATeC, Chambers of Commerce, Provincial Ministries, Stats Can, Synergy, Royal Roads University, University of Victoria, and the Capital Region District



*The world looks
different from here.*



DRIVERS



STAKEHOLDERS



INITIATIVES

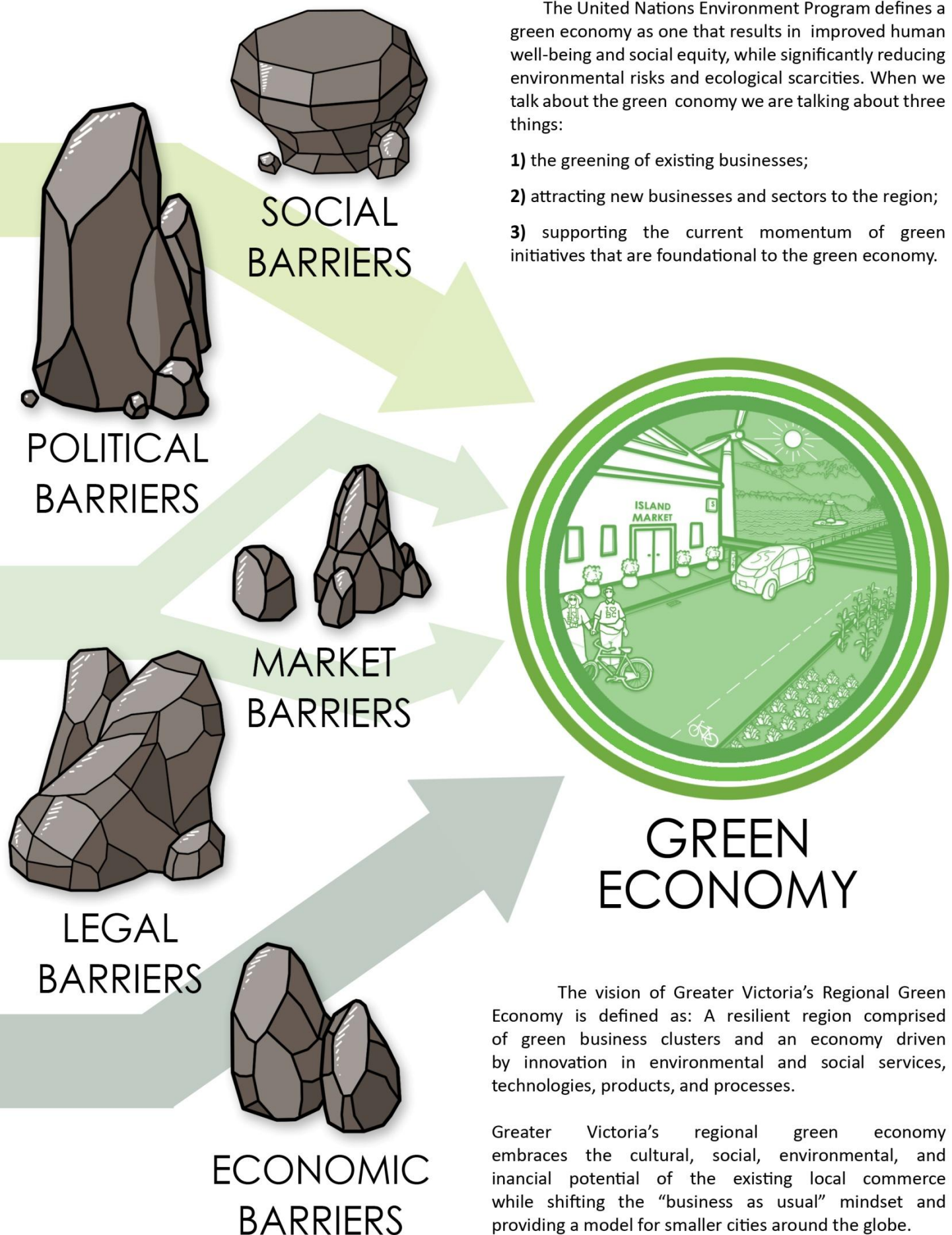


RESOURCES



CURRENT ECONOMY





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DEFINITIONS

Green Economy

The United Nations Environment Program defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities

Greening

Reducing the environmental impacts of business operations through processes that improve on areas of energy, water, fuel, waste, purchasing, transportation, and promotion

Greenhouse gases (GHG)

GHG emissions in Victoria must be reduced by 33%, from their 2007 levels, by 2020. However, between 2007 and 2010 GHG emissions increased 18%. GHG, from transportation, building, and waste are the highest contributors to climate change, which could cause catastrophic events as defined in the Intergovernmental Panel on Climate Change's Fourth Assessment Report.

Resiliency

Resiliency refers to the ability to positively respond (or adapt) to and cope with a stressful experience, such as economic crisis

Stakeholders

Stakeholders refer to any group or individual that is impacted by or part of the regional economy. These include community groups, governments and politicians, schools, businesses, community leaders, youth, unions, non-profit organizations, and citizens.

Sustainability and sustainable development

The most commonly used definition of sustainability and sustainable development comes from the United Nations' Brundtland Commission in 1987:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

Eco - Industrial Park

An eco-industrial park is a community of manufacturing and service businesses located together on a common property. Members seek enhanced environmental, economic, and social performance through collaboration in managing environmental and resource issues.

METHODOLOGY

This roadmap was developed through an inclusive, collaborative process. A variety of stakeholders were consulted prior to starting the study, which formulated the research and methodology of the study itself.

Academic Research and Literature Review

Academic research focused on clusters, regional economic development, competitive advantages, sustainability, green economy, and clean technology literatures. Industry research focused on green economy white papers, consumer data, statistical data, industry analyses, and clean technology resources.

Interviews

In total, 97 semi-structured interviews were conducted for this study. 51 in-person interviews were conducted in Greater Victoria with key stakeholders from businesses, non-profits, government, and academics. 31% of which were not involved in or currently supporting green economic development initiatives. The other 69% had a vested interest in seeing the region develop an economy that was more environmentally aware and socially inclusive. Interviews lasted from 30 minutes to over 2 hours (the average was 95 minutes) and the questions focused on the needs of stakeholders, barriers confronting stakeholders, and their general input on how a regional green economy could be fomented.

22 interviews were conducted with people in Vancouver either in-person (59%) or over the phone (41%). 24 interviews were conducted with people in Portland, Waterloo, Seattle, Toronto, Austin, Cleveland, and Berkeley, either in-person (50%) or over the phone (50%). Venture capitalists, community leaders, green businesses, politicians, public employees, academics, union leaders, non-profits, and industry associations were all questioned. Interviews lasted from 25 minutes to over 2 hours (the average was 45 minutes) and the questions focused on the processes by which stakeholders in their respective jurisdictions developed their green economies. Interviewees in the Cascadia region (Vancouver, Seattle, Portland) were asked additional questions about investing in and collaborating with businesses in Greater Victoria.

Surveys

200 online surveys were successfully completed. The survey website was sent out via a variety of listserves (Westshore Chamber of Commerce, Victoria Chamber of Commerce, the Tourism Association, and the University of Victoria's Sustainability) and social media pages (City of Victoria and the CRD). Questions focused on the relative support for or opposition against the development of a regional green economy.

Milestones

May 25 – Project finalization meeting
July 19 – Funding approved
July 23 – Project begins

August 24 – Progress meeting
October 5 – Progress meeting
October 30 – Public presentation of findings.

RESOURCES



Human Capital

An estimated 360,000 people live in Greater Victoria. Because of the region's unique characteristics it has attracted certain populations that, in turn, add to Greater Victoria's uniqueness. With 1.27% of the population having PhDs, Greater Victoria is viewed as the 3rd smartest city in Canada. For those who have studied postsecondary education, the top three major fields of study are: Business and Management (19%), Architecture and Engineering (17.5%), and Health, Recreation and Fitness (16%). Greater Victoria has the highest proportion of the population of over 80 years of age (6.4%) in Canada, and 17.8% are older than 65, the country's third-highest concentration. This causes the region to have a disproportionately large retiree population, many of whom are former executives that can afford the higher living expenses. There are numerous First Nations reserves and, although the majority of the First Nations population live off-reserve, an estimated 11,000 people self-identify as aboriginal in the region. Also, there are an estimated 62,000 immigrants, representing 19.1% of the population, living in the Greater Victoria region. This ranks 9th highest percentage of immigrants in Canada's metropolitan areas. Although people have immigrated to the region from all over the globe, over 50% come from the top 3 places: the UK, the US, and China. Adding to the population are Canadians of all ages who are attracted to Greater Victoria because of the progressive and environmentally conscious civic culture and quality of life. These additions further strengthen the shared values of the population. For instance, 16% of the population either ride their bikes or walk to work and, more generally, the population is rated the most active people in the country.

Climate

The region's climate is the mildest in Canada. In fact, many Januarys in Greater Victoria never register temperatures below 0°C. In summer, the warmest days usually achieve a maximum of 28–33°C. However, the rain shadow effect of the island's and neighbouring mountains create wide variation in precipitation. At the driest recording station in Greater Victoria, average annual precipitation is 640mm. This is in sharp contrast to the island's west coast area of Henderson Lake, the wettest place in North America, which averages annual precipitation of 6,650mm. Precipitation is heaviest in the autumn and winter. Snow is rare at low altitudes but is common on the island's mountaintops during winter. Greater Victoria's mild climate is not only a draw for tourists and retirees to come to the region but also reduces business costs of heating during winter and cooling during summer, relative to other places in Canada.

R&D Capabilities

There are three post-secondary institutions in the region: The University of Victoria; Royal Roads University; and Camosun College. Together these three schools graduate over 5000 students every year. There are 8 federal research labs located on the island with which to engage: Herzberg Institute for Astrophysics; Dockyard Lab Pacific; Pacific Geoscience Centre; Institute of Ocean Sciences; Pacific Biological Station; Pacific Forestry Centre; Centre for Plant Health; and the BC Cancer Agency. In terms of environmental, technologic and civic research centers there are 17 in the Greater Victoria region: Centre for Social & Sustainable Innovation; Centre for Co-operative & Community-Based Economy; Water & Climate Impacts Research Centre; Innovation & Development Corporation; Centre for Forest Biology; Centre for Global Studies; Climate Modelling Group; Environmental Law Centre; Integrated Energy Systems Victoria; NEPTUNE Canada; VENUS; Pacific Institute for Climate Solutions; Office of Community-Based Research; POLIS; Pacific Climate Impacts Consortium; Vancouver Island Tech Park; and Victoria Advanced Technology Council (VIATeC).

Natural Resources

Located at the southern tip of Vancouver Island, a temperate rainforest zone characterized by Douglas-Fir, Western Red Cedar, Arbutus and other indigenous trees, the Greater Victoria Region has unbridled access to the Pacific Ocean, natural harbours and coastline, rivers, lakes, old-growth and 2nd growth forests, rainwater, wind, sun, marble and slate quarries, coal basins, sand and gravel pits, and fertile agricultural land that make up the island's ecosystem. Vancouver Island is estimated to be 3.35 million hectares in size, 31% of which is general management land for timber, forage, recreation and biodiversity, 24% enhanced forestry for higher volumes and values of timber production, 18% privately managed forest land, 13% designated protected area, 8% special management land that must incorporate environmental, recreational, and cultural/heritage values, 3% agricultural land, and 3% areas of human settlement. Many of the inland waters possess fisheries that support commercial and sport fishing, as well as aboriginal sustenance fishing. Coastal resources augment inland waters with a greater diversity of larger fish and mammals, as well as seafood.

Provincial Capital

Victoria is the capital city, and this is reflected in the relative importance of public sector employment in the region. Nearly a third of all federal, provincial, and local government employees in BC are located on Vancouver Island, most of which are located in the Greater Victoria region. The provincial government is by far the biggest employer in the area and the size of the government, and its purchasing power, are a strong force in the Greater Victoria market, especially when it occupies between 50-60% of office space. Another advantage of Ministers and their Ministries being located in the region is that it allows for easier access to potential meetings, especially those about necessary changes in regulations and procurement policies.

Waste

Greater Victoria discharges 129 million litres of screened but untreated sewage into the ocean every day. The Hartland Landfill receives 140,000 tonnes of municipal waste each year. Of which, 30.4% are organic wastes, 16.5% are paper products, 13.1% are plastics, 9.9% are wood and wood products, 6.1% are construction materials, 5.5% are textiles, 5.2% are composite products, and 13.3% are other materials (metal, glass, rubber, electronics). Because the Greater Victoria region is heavily reliant on imports and the region does not export the wastes and packaging that come with those imports, the region is left to send those to landfill or, alternatively, look at those wastes as possible resources. Organic wastes and sewage, for example, can be used in biomass energy production. An estimated 1500 burlap coffee bean sacs that are used by the various roasters each month that go to landfill because they are not returned to the bean producing countries and not reused for other purposes. Industrial waste is also a source of potential supply to other businesses or products. When wastes are used as inputs to new businesses or products, symbiotic relationship or symbiotic supply chain innovations are created.

“I am glad Hartland isn’t going to allow any more organic waste. All of that raw material can be used for compost or for energy production.”

“Waste in general has been seen as just that – waste. We need to refocus our attention and look at waste as a resource; an often very inexpensive resource at that!”

Location

The Greater Victoria Region is situated in close proximity to two large markets - Vancouver (95km) and Seattle (117km). Located on the Pacific Rim, Greater Victoria is also Canada’s closest port to the huge markets of China and Japan. Calling for greater bi-national and regional cooperation within the Cascadia Region, the Mayors of Victoria, Vancouver, Seattle, and Portland have signed an agreement to work together. The region is also served by several cooperative organizations and interstate or international agencies, especially since 2008 with the signing of the Pacific Coast Collaborative (Alaska, BC, Washington, Oregon, and California) which places new emphasis on bio-regionally coordinated policies on the environmental, forestry and fishery management, emergency preparedness and critical infrastructure, regional high speed rail and road transportation as well as tourism.

CURRENT ECONOMY



The region has a diverse economy dominated by retail and service sectors. However, what makes Greater Victoria unique is the economic importance of government, tourism, technology and traditional resource extraction. Greater Victoria makes up Canada's 15th largest city, with a population of approximately 350,000. The region has grown 7% in the past 5 years, lagging behind the growth rate of other Canadian cities such as Calgary, Saskatoon and Vancouver. Currently the economy is struggling in areas of financial sustainability, housing, livable wages, and reducing greenhouse gas emissions. Although 98.5% of the businesses in the region are small businesses, the region currently has a low entrepreneurial index rating.

Government

As the provincial capital and with 13 municipalities, public administration employment is significantly higher in the region than in the rest of the province. In the region, approximately 30,000 individuals are employed in government; this includes all levels of government as well as First Nations administration. As such, government makes up the largest tenant of office space in Victoria and the largest purchaser of goods and services in the region.

Tourism

Blessed with natural beauty and cultural heritage, tourism is an important sector for the region. Ogden Point is Canada's largest port-of-call for the cruise ship industry; the 2012 cruise season expected a record 229 cruise ship calls and 475,000 passengers. In 2009, the region had 805,388 customs entries, 4.5% of BC's total and a 14.4% increase from the year before. Room revenues for the region were \$302,876,000, a 9.2% increase from 2008. There were approximately 3,000 tourism-related businesses in the region as of 2010. Interest in sustainable tourism, driven by the region's diverse flora and fauna, local restaurants, and adventure sports has been increasing; however, the majority of tourism is through traditional means – hotel stays and cruise ship visits.

Technology

Technology is one of the fastest growing sectors in the region, with the Greater Victoria tech sector growing to over 800 companies, employing 13,000 people, and generating of \$1.95 billion in revenues annually. This figure surpasses tourism as the the highest grossing private sector in the region and can be contributed to VIATeC and the Vancouver Island Tech Park, which are key resources for entrepreneurship incubation. Almost all growth in the sector is in technology services as the technology manufacturing sub-sector is shrinking and both these trends are expected to continue.

Construction

31,700 people were employed in construction in 2011, which includes building construction, heavy construction, and trades contractors. The total value of building permits – an indicator of construction activity - issued in the Greater Victoria region for 2011 was \$640,787,000, down significantly from the 2007 peak of \$914,383,000 and paralleling the decline in the province as a whole. Recent years have seen increased demand for more environmentally friendly construction, highlighted by LEED-certified projects such as the Vancouver Island Technology Park, Dockside Green, and the Atrium; however, this sub-sector remains a small part of the whole.

Forestry

The forestry sector has enjoyed over two centuries of exporting success. Although the region is home to lumber, pulp and paper, and plywood mills, much of the region's timber is exported as raw logs. This trend is expected to continue, with demand in East Asia fueling a doubling of BC raw log exports over the past two years, even while local mills go without saw logs. Employing approximately 3,900 people in primary forestry industries, 3,300 in paper manufacturing and 3,700 in wood product manufacturing, forestry accounts for 10,900 jobs – approximately 3% of regional employment. Despite this small number, forestry carries a heavier weight in the regional economy due to its importance to BC's export economy and high economic spinoffs in local communities.

Agriculture

Agricultural production on the island meets less than 10% of local food needs (whereas 50 years ago it met over 50%, and some estimates are over 80%) and 45% of ALR lands are not being fully utilized. This causes food security issues, as there is only 3 days of fresh food on the island at any one time. The average farm size of 17 hectares is indicative of small-scale agriculture and hobby farming. The vast majority of cropland is devoted to field crop production, with small amounts of fruit, berries, and nuts; poultry and cattle are the most common livestock. Agriculture reports question the long-term economic viability of the sector, even though local markets and restaurants are increasingly supporting local grown supplies.

“There are only 3 days of fresh food on the island at any one time. We now produce less than 10% of our food, whereas 50 years ago we were producing 85%. That is scary! I remember the snow storm 15 years ago, there were almost riots.”

Education

This sector includes primary, secondary, and tertiary, as well as other specialized education. 24,400 people are employed in education in the region. University of Victoria, Royal Roads University and Camosun College are the main academic research centers in the area. While siloed, these institutions offer the region a highly educated and skilled population, with a combined 5,000 graduates every year.

GREEN ECONOMY VISION



There exists a grassroots, piecemeal green economy in the Greater Victoria region, but it lacks a core and the support for it to flourish. Existing businesses like Red Fish Blue Fish (restaurant), Jawl Properties (construction), Monk Office (retail), Archipelago Marine Research (research), Synergy Enterprises (service), among others have begun to build the foundations of a green economy. However, a unified effort with a common vision is needed. After interviews and surveys, we can offer a vision of a regional green economy as: A resilient region comprised of green business clusters and an economy driven by innovation in environmental and social services, technologies, products, and processes. Greater Victoria's regional green economy embraces the cultural, social, environmental, and financial potential of the existing local commerce while shifting the “business as usual” mindset and providing a model for smaller cities around the globe. When we talk about a green economy we are talking about the greening of existing businesses and attracting new businesses and sectors to the region, while supporting the current momentum of foundational green businesses.

The Greening of Existing Business

The business case for greening the operations of a business and changing decision-making practices is a combination of both risk mitigation and capitalizing on opportunities in the following areas:

Regulation and Legal

Environmental issues are increasingly becoming regulated, which increases the organizational risk in the form of fines, user fees, clean-up costs and government legislation and lawsuits. Companies who take the lead in areas of future regulation frequently are consulted by governments and have the opportunity to shape those regulations — in addition to the reduced costs of implementing compliance procedures on the company's own schedule and not the regulator's.

Operational Efficiencies

Organizations face higher operational costs due to rising demand for scarce resources, which will increase prices of everything from paper for photocopiers to the energy required to run them. Through the implementation of a corporate sustainability program, an organization can realize cost savings by implementing strategies that increase the efficiency of operations, Lean operations consume less resources and therefore, save the businesses money and time. Focus areas include waste management, energy usage, procurement, transportation and infrastructure. There are many supportive government incentives to facilitate these upgrades and workplace changes.

Access to Funding

Leading financial institutions around the world now practice “responsible lending” whereby they earmark funds for sustainable companies and undertake a high level of due diligence to identify, assess and help mitigate the environmental risks associated with their financing. Vancity is a Canadian leader in this area, with its strong financial support for green and greening businesses. Furthermore, Municipal, Provincial, and Federal Governments also provide opportunities to gain financial resources through seed funding, research grants, capital improvement funds, and rebates.

Market Differentiation

Organizational reputation for responsible business practices is of importance to stakeholders including customers, clients, members, donors, suppliers, lenders, regulators and employees. Organizations that work hard to earn and maintain a reputation as a sustainability leader will be rewarded with many benefits including increased customer and employee loyalty and potentially brand value. Smart companies will view their stakeholders as allies, partnering with them to help define their sustainability goals and even assess how effectively they are meeting them. Highly competitive markets such as hospitality and tourism are largely driven by this benefit.

Employee Engagement

Companies can expect an increase in productivity as a result of a comprehensive sustainability program, largely because employees want to see their own values reflected in their place of work. This factor contributes directly to the bottom line because of reduced costs associated with recruitment and attrition. Local case studies have shown that employees take on more responsibility and remain in companies longer after a sustainability program is put into place. It is imperative that these programs have strong communications in order to capitalize on benefits of employee engagement.

Ethics

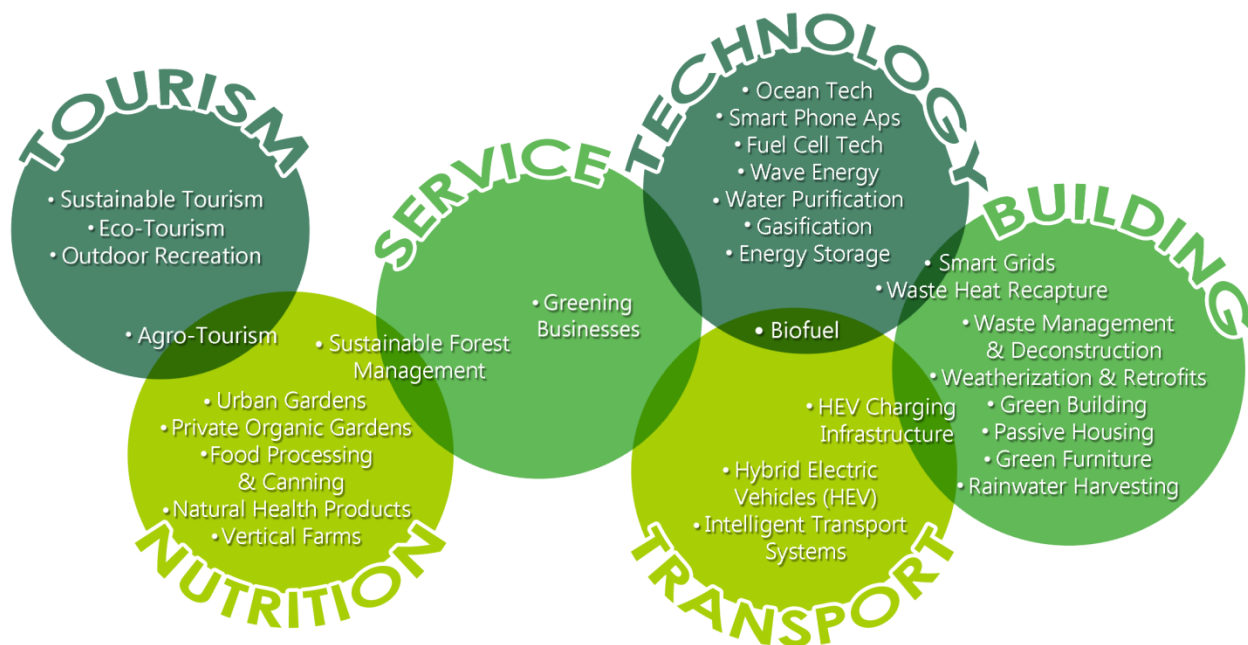
Many small business owners report that they are engaging in sustainability simply because “it is the right thing to do”. It is important to acknowledge this as a significant driver because it implies that the culture of the region impacts businesses at its core decision maker.

Innovation

Sustainability inherently requires innovation because, by and large, organizations must shift their perspective to utilize a triple-bottom-line approach in decision making. Organizations at the forefront of sustainability are not merely adding green products or services, they are fundamentally changing the way they do business. Finding sustainable alternatives to everyday business requires tapping into corporate creativity. Many businesses find that in the process of innovating towards sustainable business practices, they find opportunities for new markets or sources of revenue. Creative problem solving is a skill that businesses will have to employ in order to find solutions and opportunities in the green economy.

Possible Green Economy Sectors

Attracting new green businesses is imperative to the development of a regional green economy. The following sectors are possibilities for the Greater Victoria region because of existing resources and infrastructure or incredible market opportunity.



Ocean Clean Technology

Capitalizing on world-class, local innovation, such as the NEPTUNE and VENUS projects, oceanography expertise can be increased for sea-state modelling, soil mechanics modelling, climate forecasting, remote monitoring, among other applications. These new areas of research have implications for off-shore wind and wave energy generation, among others that have not yet been defined because projects like NEPTUNE and VENUS are the first of their kind.

Water purification

Thousands of communities across Canada are on “boil water” advisories each year. Chlorination, which used to be the preferred method in the industrialized world, has been banned by many countries and other jurisdictions because of the harmful damage of the chemical. Ballast water treatment on ships is necessary to avoid threats to the environment and local economy. These are just a few of the reasons that technology in water is now a \$40 billion industry, making it an attractive opportunity for research and development. With access to supplies for desalination, brine treatment, and imperative applications for extractive industries, especially with all the mining activities planned in the province, make the region a great area to start exploring these technologies.

Sustainable Tourism

Sustainable tourism is tourism attempting to make as low impact on the environment and local culture as possible, while helping to generate future employment for local people. The aim of sustainable tourism is to ensure that development brings a positive experience for local people, tourism companies and the tourists themselves. Sustainable tourism supports the integrity of local cultures by favoring businesses which conserve cultural heritage and traditional values, supports local economies by purchasing local goods and participating with local businesses, and conserves resources by seeking out businesses that are environmentally conscious, and by using the least possible amount of non-renewable resources.

Agro-tourism

An initiative which can eventually complement the local food programs is agro-tourism. Currently, agro-tourism is mainly centered in farms or agriculture at urban fringe areas, where tourists visit specifically to involve themselves in the food production process (through fruit picking, for example). If the region realizes a critical mass of individual and urban gardens, then there is the potential for the region to position itself as a niche destination. Tourists to Vancouver Island would be able to engage in the process of planting or harvesting produce in communal gardens, which would offer a significantly different experience from private agricultural properties. As such, sustainable agriculture offers the possibility of increasing tourism to the area.

Ecotourism

Ecotourism is a form of tourism involving visiting fragile, pristine, and relatively undisturbed natural areas, intended as a low-impact and often small scale alternative to standard commercial (mass) tourism. Its purpose may be to educate the traveller, to provide funds for ecological conservation, to directly benefit the economic development and political empowerment of local communities, or to foster respect for different cultures and for human rights. Ecotourism is intended to offer tourists insight into the impact of human beings on the environment, and to foster a greater appreciation of the region's natural habitats.

Outdoor Recreation

Outdoor recreation or outdoor activity is leisure pursuits engaged in outside, especially in (but not limited to) natural or semi-natural settings out of town. Examples include adventure racing, backpacking, bicycling, camping, canoeing, caving, fishing, hiking, horseback riding, hunting, kayaking, mountaineering, photography, adventure park, rock climbing, running, sailing, and surfing. Aimed more at locals to increase being a tourist in their own backyard and exploring that natural beauty that Vancouver Island has to offer.

Private Organic Gardening

Private organic gardening encourages residents to cultivate fruit and vegetables in their own backyards, which has a two-fold impact: It reduces household expenditure on fresh produce, and reduces overall the region's dependence on outside sources. Given the environmental sensibility of Greater Victoria, it is unsurprising that these initiatives have already attained a foothold in the area. As such, the objective of VIRGO is to further enhance these efforts and make them common practice across the region. For example, within the CRD, The Greater Victoria Compost Education Centre has been established as a non-profit platform for promoting practices such as composting and organic gardening within households. The centre currently operates a compost hotline in addition to workshops and seminars on sustainable agriculture. Most notably, the centre targets elementary and high schools so that this behaviour becomes instilled at an early age. This effort is supplemented by an initiative called SLUGS (Sustainable Living and Urban Gardening Skills) that offers a workshop series on organic gardening to youth between 13-30 years of age. VIRGO aims to expand these efforts to more schools and communities, so that in the short term, the benefits of sustainable agriculture can be communicated to a broad audience. Over the long-term, the objective is to normalize this mindset so that it becomes ingrained in the culture of the region.

Urban Gardens

Supplementing the private initiatives are more communal programs such as urban gardens. As with the private initiatives, the intent of urban gardens is to have the sources of food production located within a community to increase food safety and security. However, there are two additional advantages to this approach. The first is that it inherently includes the ability to cultivate a wider variety of produce (through urban horticulture) as compared to personal gardens, with the potential of including animal husbandry as an activity. As such, meat and dairy products are feasible given a sufficient amount of space. The second advantage relates to the communal nature of urban gardens; the group effort required to sustain this initiative encourages social interaction amongst neighbourhood households, allowing the community to develop a stronger sense of identity. However, as with the private initiatives, this approach would be primarily driven by the communities themselves. VIRGO would be responsible for educating the communities on the benefits of the community gardens, and facilitating the development of these gardens in their initial phases.

Food Processing and Canning

In conjunction with local agricultural production, there is less of a necessity to add preservatives or excessive packaging during the food processing phase, for food that it is consumed locally and ideally within a short period following harvesting. With respect to local gardens, there is no need for any processing to occur since the consumption is private/communal. This not only saves on costs but also provides for healthier agricultural outputs that are free from chemical additives.

Sustainable agriculture principles are also pertinent to the operations of larger food producers in the region. For example, the emphasis on conservation means that greenhouse gas (GHG) contributions should enter into consideration in when developing food packaging. According to the Institute for Environmental Research and Education, canning vegetables produces approximately 39% less greenhouse gases than freezing them. This also implies reduced energy costs for packaging through canning rather than freezing.

Natural Health Products

Natural health products include vitamins, minerals, homeopathic medicines, herbal remedies, traditional medicines such as traditional Chinese medicine, probiotics, and other products such as amino acids and essential fatty acids. Nationwide, nearly 400 natural health product companies had nearly \$3 billion in revenues in 2004, and exported \$545 million of products abroad in 2007. A 2010 survey showed that 73% of Canadians regularly take natural health products, and with a population that is both health-conscious and aging, the Greater Victoria and Vancouver Island regions provide a convenient market for locally developed and manufactured product.

Greening Businesses

Greening or reducing the environmental impacts of business operations is a highly specialized job that requires a lot of knowledge that businesses simply do not possess nor have time to attain. Service companies that can audit and drastically improve areas such as Energy, Water, Fuel, Waste, Purchasing, and Transportation are essential to developing a Green Economy.

Smartphone Apps

Smartphone Apps reached over \$475 million in sales in 2011 and the two biggest app retailers, Apple and Android, have almost reached their 2011 revenues by the end of the 2nd quarter of 2012. By 2016, it is estimated that 1 billion people will have smartphones and the Apps market will reach \$60 billion, not counting the advertising revenues from free Apps. There are many Apps that promote the green economy and new innovations are coming out daily. Apps that can control your thermostats at home, communicate to your appliances, dim the lights, tell you how much energy your are currently using, tell you where to find fruits to forage, which trees are on your block, where the nearest carshare car is parked, which buildings are the most energy efficient, how to live without oil, and more. The region, with its rapidly growing tech sector and strong research capabilities at local universities, is well situated to capitalize on this projected growth.

Rainwater Harvesting

Because impervious surfaces (parking lots, roads, buildings, compacted soil) do not allow rain to infiltrate into the ground, more runoff is generated than in the undeveloped condition. This additional runoff can erode watercourses (streams and rivers) as well as cause flooding after the stormwater collection system is overwhelmed by the additional flow. The biggest issue, however, is with the pollution caused by daily human activities that deposits on roads, lawns, roofs, parking lots, etc. When it rains, water runs off the polluted surface and ultimately makes its way to a river, lake, or the ocean. While there is some attenuation of these pollutants before entering the receiving waters, the quantity of human activity results in large enough quantities of pollutants to impair these receiving waters. Rainwater harvesting is a way to minimize this effect while decreasing the use of water from reservoirs, thereby lessening the chance of draught. Rainwater can be used as drinking water, water for livestock, water for irrigation, to flush toilets, etc. The Greater Victoria region is an excellent place for research and development of new technologies for rainwater harvesting because of its climate.

Fuel Cells

Fuel cells convert the chemical energy from fuel into electricity through a chemical reaction with oxygen or another oxidizing agent. Hydrogen is the most common fuel, but hydrocarbons such as natural gas and alcohols like methanol are sometimes used. Since fuel cell systems do not store fuel, but rather rely on external storage units, they can be successfully applied in large-scale energy storage, rural areas being one example. At UVic, researchers are currently looking at the computational modelling of fuel cells, flow in porous media in fuel cells and carbon geo-sequestration, fuel cell diagnostics, fuel cell technology, and microfluidic and nanofluidic fuel cells. Stationary fuel cells are used for commercial, industrial and residential primary and backup power generation or power sources in remote locations, such as spacecraft, remote weather stations, large parks, communications centers, rural locations including research stations, and in certain military applications. Currently, fuel cells power cars, buses, forklifts, boats and submarines, airplanes, motorcycles, and spacecrafts. Fuel cell systems can be compact and lightweight, and because they have no major moving parts and do not involve combustion, in ideal conditions they can achieve up to 99.9999% reliability. With large companies, like Ballard Power, and the Automotive Fuel Cell Co-op in the Lower Mainland, the Greater Victoria region can access the existing network and form research and development collaborations for fuel cells or even the supply chains of these established companies. In fact, UVic has already formed an alliance with Mercedes Benz to provide research and development for their Burnaby Fuel Cell plant.

Weatherization & Retrofits

Weatherization or weather proofing is the practice of protecting a building and its interior from the elements, particularly from sunlight, precipitation, and wind, and of retrofitting a building to reduce energy consumption and optimize energy efficiency. It is estimated that weatherization returns \$2.69 for each dollar spent, realized in energy and non-energy benefits. Character homes, located throughout the Greater Victoria region and adding to its charm, are most often energy inefficient because of the out-dated building standards. This creates a great market for contracting companies to both add value and improve the well-being of the residents.

Waste Management & Deconstruction

The construction, renovation, and demolition of buildings continue to generate an enormous amount of materials that end up in landfills. In the Greater Victoria region it is estimated to be over 8,500 tonnes per year. This opens the opportunity of deconstruction to take waste streams from the construction industry and turn them into profit streams. The City of Vancouver recently introduced an advanced permit for deconstruction in order to encourage contractors to deconstruct and salvage at least 75% of materials from single-family homes. In Portland there is an entire industrial neighbourhood that is dedicated to deconstruction companies, where do-it-yourself type people can find low-cost alternatives to outfit their residences.

Wave Energy

There are two basic types of wave technology: fixed onshore and floating offshore. Up to very recently most of the research and development has been focused on fixed devices onshore or in shallow waters. Now, however, there is increasing interest in the much greater offshore resource with a variety of floating devices being developed. The greatest wave energy resource is in the mid-latitudes, between 40 and 60 degrees N & S, perfect for Canada. The Green Energy Study of BC stated that 8.25 GW of wave power is available on western Vancouver Island, and Winter Harbour and Ucluelet were identified as suitable sites for installations, each with a potential of 200 MW. The 2001 study estimated that if demonstration projects were started in the near future, that by 2009/10, Vancouver Island could have 75 MW of installed wave capacity, generating 156 GWhrs/year, and by 2019/20 there could be 225 MW generating 468 GWhrs/year. All of it would be at less than 7 cents/kWhr. Although behind the curve compared with the UK or Nova Scotia, because BC Hydro pulled funding on wave technologies, there is still an untapped source of power off the coast and new innovations can bring down the cost even more. Current UVic research is looking at performance of wave energy converters, specifically of the point-absorber class.

Smart Grids & Micro-Grids

Smart Grids are electrical systems that emphasize usage of information and communications to monitor production, distribution and consumption of energy. This monitoring is used to determine the efficiency of an electric grid, and to isolate areas that are wasteful in energy usage. Such a system also inherently includes redundancies and flexibility, making blackouts and total disruptions far less likely. Microgrids are modern, small-scale versions of the centralized electricity system. They achieve specific local goals, such as reliability, carbon emission reduction, diversification of energy sources, and cost reduction, established by the community being served. Like the bulk power grid, smart microgrids generate, distribute, and regulate the flow of electricity to consumers, but do so locally. Smart microgrids are an ideal way to integrate renewable resources on the community level and allow for customer participation in the electricity enterprise. This is an emerging area with great potential especially for remote communities or new communities and subdivisions that do not want to be reliant on large utility companies. Furthermore, the installation of smart grid technologies provides opportunities for great employment.

Gasification

Vancouver based Nexterra Energy Corp. has already demonstrated their gasification technology at the Dockside Green biomass plant. This system currently generates heat and hot water for 2,500 residents in the area, and is fueled by locally sourced urban wood residue. The 100 tons of ash residue remaining at the end of the year is then used in compost recycling. Such systems could be applied for heat and hot water provision in other areas on Vancouver Island. In fact, an RFP for such a facility has been issued by University of Victoria, to provide for their heating needs in the near future as well as cut down on the operating costs. This will also provide opportunities for students to gain access to new research areas to further explore innovations in these technologies that can be exported to countries with much higher costs of power. Hummingbird Urban Biomass and International Composting Corporation, both located in Greater Victoria, are currently innovating in this area and collaboration opportunities for research and development can be exploited - both for the technology itself or to support their supply chain.

Energy Storage

Hydro dams are not the only way to store renewable energy. Pumped hydro, flow batteries, compressed air, dynamic demand, modulated cold storage, batteries, super-capacitors, hydrogen, super-conductors, and flywheels are all ways in which energy can be stored. Energy storage has been the hot topic for future innovations and called the next big market opportunity at the last two GLOBE conferences as it solves the issues of intermittency for wind, solar, and other renewable energy sources. Energy storage through electric vehicles is another emerging opportunity. For example, Richmond-based Corvus Energy has recently expanded their facilities as a result of the increase in demand for their product solutions. Research and development in these areas will not only allow the region to tap into an ever-expanding new market, but also to look at how to support their supply chain.

“Restaurants in Portland capture the heat from the ovens to heat their restaurants. Victoria can do this too – it makes sense.”

Waste-Heat Recapture

The majority of energy production from conventional and renewable resources are lost to the atmosphere due to on-site (equipment inefficiency and losses due to waste heat) and off-site (cable and transformers losses) losses, which equate to about 66% loss in electricity value. Waste heat of different degrees can be found in final products of a certain process or as a by-product in any industry. Technologies are used to capture waste heat of low temperature range (0-120°C), which could be used for the production of biofuel or heating greenhouses, and waste heat of medium (120-650°C) and high (>650°C) temperature, which could be used for the generation of electricity or mechanical work. The heat generated from the mainframes at Hewlett Packard, for instance, heat the entire building during winter. Restaurants with big ovens for pizzas or bread can do similar innovations to reduce their utility expenses.

Intelligent Transportation Systems

Intelligent transport systems (ITS) are advanced applications which aim to provide innovative services relating to different modes of transport and traffic management and enable various users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks. Although ITS may refer to all modes of transport, technologies are currently being applied in the field of road transport, including infrastructure, vehicles and users, and in traffic management and mobility management, as well as for interfaces with other modes of transport. Some areas of new technology for ITS includes computational technologies, inductive loop detection, emergency vehicle notification systems, collision avoidance systems and sensing technologies. This is an emergent field that, because of relative isolation of the region, can be an ideal test site for such innovations.

Biofuel

In 2010 worldwide biofuel production reached 105 billion litres, up 17% from 2009, and biofuels provided 2.7% of the world's fuels for road transport, a contribution largely made up of ethanol and biodiesel (made from vegetable oils and animal fats). According to the International Energy Association, biofuels have the potential to meet more than a quarter of world demand for transportation fuels by 2050. Although Greater Victoria does not have the resources for large scale production of corn, palm or soy, through innovations cellulosic ethanol and biodiesel can be made from algae, or other sources, but the feasibility of large scale production has not been proven.

Hybrid Electric Vehicles

More than 5.2 million hybrid electric vehicles (HEVs) have been sold worldwide, 2.5 million in the US alone. Dominated by Toyota with 4 million HEVs sold, this is an opportunity for other car companies to innovate to gain market share. UVic is the only school in Western Canada to participate in the EcoCar Challenge put on by the US Department of Energy and General Motors, where 15 universities are challenged to build their own mechanical parts, electrical parts, and controls of a hybrid electrical vehicle over a 3 year period. In 2011, UVic students and faculty won various awards for their HEV, including 1st Place MathWorks Award for Optimal Powertrain Design and Control, 1st Place dSPACE Award for Vehicle Dynamics Modeling, Fastest 0-60mph Acceleration, Fastest 50-70mph Acceleration, Best Engineering Workmanship Award, and even Best Website - since bringing these innovations to possible commercialization is part of the challenge. Opportunities exist for the research and development of such innovations, which ultimately can be commercialized to the automobile industry as part of the supply chain.

Hybrid Electric Vehicle Charging Infrastructure

PowerUp Systems in Victoria is already doing some of this work but it can be leveraged on municipal leadership and incentive programs to purchase such infrastructure. Innovations around the design, roll-out, and maintenance of such infrastructure will be key for the future.

Green Building

Green building (also known as green construction or sustainable building) refers to using a process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. Although new technologies are constantly being developed to complement current practices in creating greener structures, the common objective is that green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by efficiently using energy, water and other resources, protecting occupant health and improving employee productivity, and reducing waste, pollution and environmental degradation. LEED is a certification system for green buildings and the region has many LEED buildings, including the highest LEED certified building in the world, Dockside Green, due to the provincial mandate to only lease from LEED certified buildings. This has created a highly-skilled workforce, from architects to contractors to builders, here in Greater Victoria that can be accessed. Moreover, there are opportunities tied to Carmanah Technologies, Johnson Controls, Schneider Electric and others in the region for different innovations in LED lighting, controls, building automation systems, and integration with other technologies.

“Dockside Green was able to get mass amounts of tourism just to see how green a building could be. T’Sou-ke Nation has been successful at getting ecotourism to see their green infrastructure.”

Passive Housing

Passive housing follows strict building standards and sets limits on total energy consumption and peak heating and cooling demand. A heat exchanger circulates fresh air throughout the house and reuses warmth from the inside air. The result is a house that typically uses 90% less energy for heating than conventional houses. Some differences include double-wall systems for exterior walls that are about 3 times the thickness of a conventional house, concrete flooring that sits on a 15-inch layer of foam insulation, and triple glazing coated glass windows that are designed to have shade in the summer and sun rays penetrating them in the winter.

Sustainable Forest Management

Sustainable Forest Management (SFM) entails the management of forests to maintain their full range of environmental, social and economic values. As the understanding of forest ecology has increased and community attitudes have changed, management practices have also changed to meet sustainable timber yields and maintain and protect other forest values. These practices are ongoing and research and development are needed to improve them, so that other clusters can build up from the resources sustainable forests provide. Moreover, continuous local employment is created in forestry harvesting, management, and wood product production, and the increased biodiversity has a positive effect on tourism and related services. Sustainable forests also function as an effective carbon sink, helping mitigate the effects of climate change.

High Value-Added Wood Products

High value-added wood products include treated lumber, engineered wood products, shakes and shingles, posts, poles, log and timber-frame homes, mouldings, pallets, boxes, cabinets, furniture, art and other finished or semi-finished goods. These products generate more economic value per unit, but their manufacture is typically marked by much lower volumes of output compared to commodity forestry manufacturers in the lumber, pulp and paper, and panel board industries. Opportunities also exist in the creation of bio-chemicals, bio-energy alternatives, and electricity cogeneration.

Vertical Farms

A compelling long-term project for the region is to establish a vertical farm in the most densely populated area of Greater Victoria. A vertical farm is a high-rise building where the floors are comprised of orchards and fields, in order to produce crops all year around. In addition to creating more farmable land in the centre of the city, it also dramatically reduces transport costs and carbon-dioxide emissions associated with moving food over long distances. Although vertical farms are typically targeted towards major cities where space in the downtown area is a premium, the region offers a context that would make vertical farms an appealing prospect. First, given the novelty of the concept, it would provide a setting for the post-secondary institutions and research labs to conduct cutting edge research in areas like hydroponics or aeroponics. While local or communal initiatives are generally low tech projects operated by citizens, vertical farms offer an opportunity for Greater Victoria to advance the current state of knowledge regarding urban agricultural technology and practice. This is conducive with the green economy vision of constructing an identity of Vancouver Island as a repository of sustainable knowledge. In this sense, such a project also has a significant symbolic aspect associated with it. It visibly demonstrates to visitors and residents alike that the region is making a commitment to food security in the future.

“We need to start being innovative with our lands and farming. Food security is a harsh reality on the island. Vertical farming is the way of the future, and the universities can help us get there!”

Green Furniture

Although furniture is one of the value-added wood products mentioned above, green furniture goes beyond simply using wood from sustainable forests. Materials used in the manufacture of green furniture are natural, durable and recyclable, and include recycled and reappportioned wood, recycled glass and metals, organic fabrics such as cotton, wool and linen, natural latex foams, recycled fibre cushions, composites constructed from wood waste, and organic and non-toxic dyes, paints, and adhesives. Green furniture can easily be taken apart and repaired, and recycled at the end of its lifespan. Local manufacturing is a hallmark of green furniture, and shipping requires a minimal amount of packaging.

Supporting the Green Economy

The Greater Victoria region is exposed to high economic and environmental risks. Fomenting a greener economy would institute greater economic diversity and help mitigate risks attributed to climate change and food insecurity. Moreover, we can reasonably expect changes in government policies and regulations at the international, federal, and provincial levels; moving towards a greener economy would place the region ahead of the curve and enable it to assist in the formation of revolutionary policies and regulations, products and services, thus being proactive rather than reactively and expensively adopting innovations from other jurisdictions in the future.

The citizens of the region overwhelmingly support a greener economy, which presents an opportunity for the Greater Victoria region to walk the talk and enhance its reputation. Not only are 96% of survey respondents in favour of the regional governments changing their current economic development plans to one that is more environmentally focused and socially inclusive, but their level of support is extremely high at 9.2/10. Lastly, adopting a vision of a green economy would help create a large market opportunity for existing business in Greater Victoria, spawn opportunities for new businesses to form to meet market demand, and improve the conditions of the region for people and the environment.

The SymbioCity Initiative

SymbioCity is a sustainable network platform, jointly created by a number of Swedish businesses, government agencies and other organizations. It is administered by the Swedish Trade Council and operates in over 60 countries, offering solutions for integrating systems such as waste management and energy production.

The platform has grown exponentially since its launch in 2008. This growing attractiveness is built on the following elements:

- 1) The notion of scalable “packages”, from low-tech and small scale up to sophisticated high-tech solutions. Combined with a “starter kit” that offers basic recommendations, the network significantly reduces the obstacle of dealing with multiple agencies and jurisdictions. This is something that is imitated with a green economy hub that this report recommends, as it would be a source of knowledge that helps navigate through the complexity of 13 municipalities.
- 2) The “hub” function, linking together sustainability projects with local businesses that offer green solutions. As a result, there is a “virtuous cycle” that results from registering with the hub: Prospective projects get access to an increasingly wide range of suppliers, and local companies benefit by marketing their products/services through a legitimate channel. This also has the advantage of discouraging competition, as other start-up hubs cannot build a critical mass of prospects and suppliers to compete effectively with SymbioCity.
- 3) Presentation of expertise based upon “50 years of sustainable urban development”. Given that the Vancouver Island generally enjoys a similar reputation of being environmentally conscious, this is a reputation that could be mimicked with the VIRGO hub as well.

DRIVERS OF THE GREEN ECONOMY



Market Drivers

A number of market drivers have been identified that are propelling the shift towards a green economy. Primary among these is the high demand for eco-friendly products and services that is emerging from a diverse array of sources. As an example, the US Department of Defense has a number of green initiatives, ranging from the Army's \$7 billion renewable energy proposal to the Navy's "Great Green Fleet" program to shift vessels to biofuel. Other, more broader examples include the demand for Electric Vehicles (EVs), which is expected to grow to 2.9 million vehicles by 2017, and biomass plants, of which 48 are expected to be built between 2011-2016 in the US alone. Already, Canada has established itself as the largest exporter of biomass wood pellets to Europe. The technology and services associated with such market segments are thus highly attractive business opportunities in the medium and long-term future.

However, increased demand has also led to increased competition, especially from countries like India and China where green technology (particularly with respect to energy generation) is being developed at a rapid pace. These regions are competing to be market leaders in the area of sustainable products and services, especially with respect to clean technology. For example, China's spending in 2012 on energy conservation, emission reduction and renewable energy development has so far amounted to \$27 billion, \$15 billion of which has been provided by the state. Nevertheless, given that the scope of environmental technology is so broad, there are a number of other niche markets that are still at a relatively undeveloped phase (for example, IT applications related to monitoring consumption). By exploiting these markets through the development of initiatives such as the cleantech cluster, Greater Victoria reduces the need to import technology and expertise from other areas, and in fact becomes an exporter of niche knowledge in the process. As such, the desire to capitalize on these new market opportunities provides a strong driver for the creation of a green economy.

Environmental

Another driver for a green economic shift is the current vulnerability of the region to environmental hazards. Although there is general uncertainty of how climate change will ultimately affect Vancouver Island in the long-run, phenomena such as droughts and earthquakes already pose a significant hazard to the region. Combined with the island's relative isolation from mainland Canada, there is a strong incentive for the region to develop more resilient systems and infrastructure, as a risk and redundancy of systems, thus limiting the vulnerability of the region to environmental catastrophe. As such, a green economy also promises to be a more resilient economy with respect to environmental risk.

Political

Closely tied to the market drivers are the political drivers. Recognizing the need for a green economy (for environmental, social and economic reasons), officials at the provincial and federal level have developed a number of initiatives, regulations and subsidies aimed at catalyzing the shift. In addition to broad programs such as the Federal Sustainable Development Strategy and the BC Climate Action Plan, a number of more specific regulations have been launched that provide more immediate incentives for a green economic shift. For example, former B.C. premier Gordon Campbell implemented a policy to lease government office space only from LEED Gold buildings. Given that the B.C. government leases between 50-60% of the office space in Victoria, this policy provides a major incentive for developers to construct new eco-friendly buildings and improve the environmental profile of existing structures. Other incentives have also been developed in the form of subsidies, as illustrated by the Green Municipal Fund (GMF). Sponsored by the federal government, this \$550 million fund has been provided to the FCM (Federation of Canadian Municipalities) in order to provide financing and expertise to municipal governments and their partners for municipal environmental projects. The aim is to incubate environmental solutions that can be replicated in other communities, providing a potential green “package” that can be exported. As such, the political drivers at the national level align significantly with the aforementioned market drivers.

In addition, there has been a variety of global initiatives that have trickled down to influence policies at the national, provincial and municipal levels. These include programs such as the Kyoto Protocol, (which had significant influence on policy-making until Canada’s withdrawal in 2011), in addition to the United Nations Environmental Program (UNEP) Agenda 21 principles, which have been widely adopted by a number of municipalities across the world. Other organizations such as the Green Building Council have been similarly effective in promoting the need for green infrastructure in the region. These associations and supranational bodies have a cumulative political effect that is driving the global economy towards a greener form.

Competitive

Apart from the more general market forces that are driving the shift to a greener economy, ecologically-oriented products, services and processes offer a number of inherent competitive advantages that can appeal to traditional businesses. As such, the potential to realize these benefits can incentivize businesses to become greener, thus facilitating the economic shift at the level of organizations. Firstly, green businesses are perceived as having goals that take into account social and economic criteria, which enhances their reputation in the local community. This not only improves the status of the organization with customers, but also provides certain spin-off benefits such as better employee satisfaction and retention. Furthermore, green infrastructure and practices save costs over the life-cycle of a business, despite the fact that there is an initial premium associated with making such investments. The savings realized in terms of energy and water usage, for example, significantly reduce operational costs over the long-run.

Intrinsic

A final driver has been identified that is derived from the culture of Greater Victoria itself. Separate from the drivers listed above that are based on external forces, the intrinsic drivers stem from the moral belief that a green economic shift is “the right thing to do”. Given the geographic, environmental and demographic characteristics of the area, the population enjoys a strong mitigation strategy. As an example of the current level of vulnerability, fresh food supplies on Vancouver Island are only sufficient to last for three days. A green economy would focus on development of local agriculture, indigenous waste and water treatment, and domestic production of energy. These programs not only reduce dependence on the mainland, but also offer sufficient geographic dispersion ecological sensibility when compared to other foreign (and even Canadian) cities. This is evident in the high adoption rate of cycling as a primary means of transport, in addition to well established eco-friendly practices such as recycling and composting. This driver acts as complementary aspect to the other drivers listed above. For example, businesses offering green products and services in the region would not only find a receptive client base, but would also potentially enjoy the benefits associated with hiring staff that have similar values to the organization.

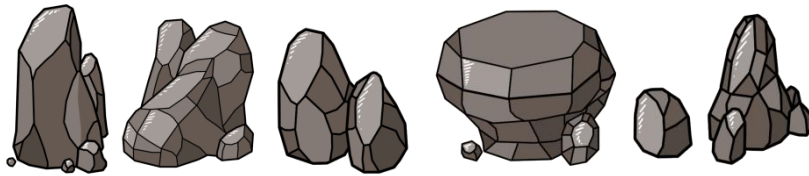
Stockholm’s Local Investment Program

If there is coordinated intent by the municipalities to provide incentives for green businesses to enter the region (through procurement for example), a model that provides inspiration is the LIP (Local Investment Program) of Stockholm. The LIP was a government initiative proposed in 1997 aimed at integrating environmental considerations from the 1996 UN conference on Human Settlements into local land development. The most successful outcome of the program has been the development of Hammarby Sjöstad, a world-renowned sustainable district in Stockholm inhabited by 17,000 residents. This project has also spurred a number of technological innovations related to energy, water and waste.

Three reasons can be cited for the success of the LIP:

- 1) While the core of the program was built on environmental issues, it was framed as a means to achieve the government’s objective of halving unemployment in Sweden. Consequently, it was presented as an “infrastructure development subsidy” that also happened to include environmental requirements. This made it easier to generate political consensus on the necessity of the LIP.
- 2) By setting overall goals without specifying desired technological innovation, the initiative pushed entrepreneurs towards a number of diverse creative developments at Hammarby Sjöstad. Apart from technical advancements (e.g. in waste water treatment), the project also generated social innovations (e.g. GlashusEtt seminars on waste disposal and energy usage). These elements are now being packaged as best practices in the SymbioCity platform.
- 3) The complexity required from the proposals meant that successful initiatives would be inclusive of a number of external parties, in particular coordinating among public utilities. The resulting “integrated model” of Hammarby Sjöstad (incorporating energy, water and waste) has since been cited as the key export of sustainability in Stockholm.

BARRIERS TO THE GREEN ECONOMY



Despite the drivers pushing Greater Victoria towards a greener economy, there are a number of barriers that are slowing down the process of transformation. These obstacles are as follows:

Political

According to interviewees, the biggest obstacle preventing the development of a green economy is the lack of political coordination. This is especially evident in light of the fact that, for a population of 344,000 residents, there are 13 municipalities. The local governments are commonly referred to as “fiefdoms”, implying territoriality within - as well as competition between - the municipalities. As a result of this division, each local government has differing tax codes and regulations which make it complex for incoming businesses to choose a location. However, a more crucial problem associated with 13 municipalities is the high taxes required to support duplicate administrative functions and basic services. Each municipality has to support its own infrastructure such as the town hall, fire department, emergency services, etc., which create high administration costs that translate into high tax rates, both residential and commercial. These tax rates act as a significant impediment for companies to establish themselves in the area.

“Could you imagine if city council began to think about their ecological footprint in every decision they made? The region would be as green as its citizens are demanding. Instead, they put up red tape that stifles innovation and makes it harder for businesses to go green, all in the name of archaic building codes and bureaucracy.”

Additionally, within each municipality, it is commonly perceived that individual departments are not willing to adapt to a green economy. Public administration agencies are often cited as only being concerned with maintaining the boundaries of their own functions, creating a diversity of competing interests that prevents the development of a unified economic vision. Furthermore, the limited business orientation that exists is targeted more towards large corporations that have influence. As such, the perception among entrepreneurs is that the region as a whole lacks a business mindset that makes it easy for small companies (especially green ones) to establish themselves in the region.

Economic

A number of significant economic barriers to a green economy can be subsumed under the category of “cost”. First, there is a general perception that Greater Victoria has a high cost of living in relation to other cities in Canada. Coupled with the relatively high skilled workforce on the island, it is ostensibly more expensive to hire staff. The issue of expense is further exacerbated by the extra transportation costs incurred by Vancouver Island’s isolation and lack of access to the mainland. As such, businesses are reluctant to establish a presence in the region given the expenses (whether real or perceived). Furthermore, given the limited population on the island, there is an insufficiently dense customer base to justify these extra costs.

The second component of cost relates to the perceived expense of greening a business. In general, the higher the sophistication of green initiatives, the more initial investment is required. Entrepreneurs cite these high upfront costs as hurting the cash flow of their business. Although the savings realized from such an investment often far exceed the initial expense over the long run, businesses generally require a short to medium payback period for their projects. This is especially the case with photo-voltaic (PV) cells and other renewable forms of energy, because low cost energy in BC prolongs the payback period extensively, making such initiatives unappealing. In this sense, a significant barrier facing the green economy is based on how businesses account for costs. Sustainability projects require the incorporation of a life-cycle perspective, which in turn necessitates a significant shift in how businesses account for costs.

A related barrier is the tax structure that inhibits the development of greener businesses. For example, in the 13 municipalities, property tax is based on the value of the building. Given that sustainable initiatives are more expensive in terms of upfront cost, such investments increase the value of the building, thus increasing the amount of property tax paid. Such a policy prevents investing in green initiatives, as any savings are potentially nullified by the increased taxes. In this sense, an obsolete tax structure that does not account for green investments serves as a notable barrier. A third economic barrier is the lack of financing available for engaging in green initiatives. While there are some incentives offered at the federal and provincial levels (including the GMF), such funds are often directed towards groups of initiatives rather than individual organizations. This makes it more difficult for businesses (especially small ones) to accumulate sufficient capital to absorb the initial extra costs associated with green investments.

Legal/Regulatory

Closely tied to the political barriers are the legal ones, especially as they pertain to the multiplicity of regulations across the 13 municipalities. Apart from this “unnecessary bureaucracy”, there are a number of out-dated regulations that are in place across Greater Victoria that hinder economic development in the area. This is an issue that is especially prevalent when it comes to re-zoning regulations, where long wait times (generally around 6 months) act as a major deterrent. The notable exception has been Langford, which is experiencing significant economic and population growth as a result of a streamlined re-zoning process which, on average, takes six weeks to process from application to approval.

Social

A more fundamental barrier to the greening of the economy is behavioural in nature. This stems from misconceptions about the green economy (and the concept of sustainability more generally), in particular the idea that “green” and “economy” are mutually exclusive terms that cannot be reconciled.

On one hand, there is a vocal group of actors who are skeptical of green initiatives, arguing that climate change is not a real issue, and that environmentalism is simply a “hippie-dippie” fad that will fade over time. This undermines the movement towards a greener economy by framing it as something trendy rather than as a solution to real and long-lasting problems. Typically, the business community (particularly senior decision makers in corporations) put forward the argument that additional costs incurred through this green “fad” damage the competitiveness of businesses. Greening is framed simply as an additional cost rather than as a cost-saving measure in the long run. This is further exacerbated when considering that impacts of climate change are diffused, long-term and sporadic, which generally fosters a general sense of apathy and lack of urgency.

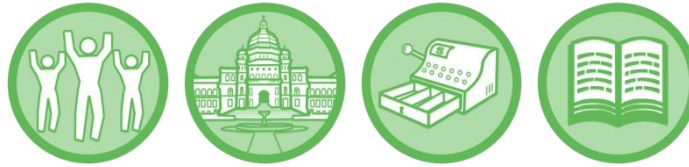
On the other hand, there are an equally vocal environmentalist sub-groups that view economic growth itself as problematic, even those forms of growth that minimize the negative impact on the environment. Within this perspective, there is no trade-off possible between economy and environment; any type of negative ecological impact is to be avoided regardless of the economic benefits. As such, this belief acts as a barrier in that it disregards greening initiatives that improve efficiency and minimize negative environmental impact.

These two groups are disconnected from each other, creating an obstacle to mainstreaming green initiatives. Interviewees often cite the lack of credible spokespeople that can engage in both communities and demonstrate the benefits of a green economy to both parties. Compounding the problem is the siloed nature of Greater Victoria’s society. Municipalities are siloed from each other. Not only are the academic institutions siloed, but within the university, the departments are siloed. Businesses are siloed. Non-profits are siloed from other non-profits. There is no sense of collaboration or communication of efforts, sustainable or otherwise. Furthermore, a lack of widespread, demonstrative technologies that can provide solid examples of how these initiatives can be “win-win” solutions. As such, the process of creating a critical mass of support for a green economy is hampered by these social divisions.

Local reputation

A final barrier to note relates to the image of Greater Victoria, which naturally affects the status of surrounding municipalities. The city is seen as a small town where people settle down to start families or retire, as evidenced by the reputation of the city as a location for “newlyweds and nearly dead”. Interestingly enough, the beauty of the city and the surrounding location also seems to work against it, as the area is perceived to be comprised of nothing else but “tea cups and butterflies”. As such, there is a lack of understanding of the entrepreneurial potential in Greater Victoria. It is commonly overlooked that there are three degree granting institutions, a number of research labs and a highly skilled retired population looking to contribute skills and resources to the development of the area. The “quaint” reputation of the area overshadows the capabilities present in the region.

FRAMEWORK FOR ACTION



The Greater Victoria region is at a crossroads. The economy can continue as usual, with minimal support of green innovation, while waiting and watching international, federal, and provincial regulations dictate the future. In this capacity the region would have a compliance-based, retroactive economy that follows the greater region of Cascadia in its green economic development and imports ideas from other municipalities. Or, the Greater Victoria region can actively engage in the development of its green economy, using the foundations that Portland, Vancouver, and Seattle have set, and proactively lead innovation at the small-city scale and in the areas unique to the region's resources. With appropriate stakeholder support and a common vision, current capacities could be elevated to a much higher market potential, which could then be exported around the world.

In this report, we choose the second option – for the region to be environmentally and socially progressive, innovative, and at the forefront of the new economy. In order to do so, we have outlined the major focus areas for action that will support and foment green economic development. To begin, stakeholders need to examine their current operations and assess how they could support existing green activities and develop new initiatives.

Changing Procurement Policies

Sustainable Procurement is now a priority for organizations globally, with 81% of corporate procurement directors identifying this as one of their strategic objectives. Some of the benefits of implementing sustainable procurement are:

- Reduced risk of supply chain disruption
- Reputation protection (85% of sustainable development issues attracting media interest are linked to suppliers).
- Lower costs through collaborative actions with suppliers, e.g. recycling, reduced packaging.
- Facilitates access to capital and potentially increase company valuation: sustainable procurement is one of the factors taken into account by sustainability rating agencies and ethical funds.
- Provides a marketing advantage when end consumers explicitly require a green and socially responsible supply chain.

By changing procurement policies and buying more sustainable products and services an increase in market demand is immediately created. As the capital city, Victoria is unique in that it has few, very large, buyers that can be the catalyst for this movement. In fact, it is already being done by the City of Victoria, Saanich, and UVic.

Act Now!

- Require 80% of your purchasing to be from local and/or sustainable sources
- Review your purchasing lists and cut unnecessary items
- Repair and purchase repairable items
- Change RFP language to include a section on sustainability performance
- Change RFP weighting so that sustainability is equal to or more valued than cost
- Train your purchasing officers in sustainability performance
- Ask your current suppliers for their sustainability performance indicators
- Collaborate with your suppliers to find sustainable alternatives to packaging and products

Greening Operations

Plenty of resources exist already in green products and services to support any business operations. Some of the benefits of greening your operations are:

- Reduce utility costs
- Increase staff retention and engagement
- Increase brand reputation and customer loyalty
- Have leaner operations
- Improve air quality and work environment

By greening your operations you are spurring entrepreneurial activity and innovation, while helping to decrease GHG emissions for the region. Furthermore you are contributing to the reputation of Greater Victoria as a green economic leader and would be eligible to supply products and services to organizations practicing sustainable procurement.

Act Now!

- Register for a free energy audit with CityGreen
- Register for a free water audit with the CRD
- Measure your carbon footprint on your own through ClimateSmart or with a Synergy consultant
- Install recycling and composting stations for soft plastics, Styrofoam, organics, etc.
- Make an action plan to reduce energy, water, and fuel consumption

Staff Engagement

Often the missing piece of many sustainability programs, staff engagement is critical to the success of your sustainability program. Creating an organizational culture of sustainability has many benefits, including:

- Higher staff retention rates
- Attract top talent
- Higher application rates for new jobs
- Matching the values of the organization to those of the employees
- Behavioural changes reduce both waste and costs

Often the sustainability practices of the organization impacts the practices of employees at home and their families. Business can therefore act as a catalyst for broader change in the community and receive recognition for it.

Act Now!

- Designate a green champion or green team
- Register for bike to work week
- Create a green ideas board and give recognition to those who provide ideas
- Train staff in sustainability in house or through the Green Workshop Series
- Communicate sustainability values in the hiring process and orientation

Transportation Reductions and Alternatives

Organizational transportation includes the movement of both people and product. Benefits of reducing transportation or finding alternatives include:

- Reduce travel time
- Reduce GHG emissions
- Improve employee health and wellness
- Reduce regional traffic congestion and infrastructure costs
- Realize efficiency gains through new technology
- Decrease costs

In the Greater Victoria region on road transportation accounts for 57% of GHG emissions. This does not include flights or ferries, which is a major expense item for many businesses. Finding alternatives to current methods and reducing overall transportation of products and people will have a major impact on the region as a whole.

Act Now!

- Offset travel emissions
- Install secure bike infrastructure for staff
- Incentive sustainable staff commuting (carpooling, biking, bus) through bonuses
- Adapt meetings to utilize video conferencing technology
- Utilize bike couriers for local deliveries
- Identify and minimize unnecessary shipping

Engaging in Research and Investigation

Green economic development has massive value for local academic institutions which can then be used as a source of reputation-building for the Greater Victoria region. Although Portland and Seattle do not have the most advanced green economies compared to Europe, European cities that are more advanced still quote Portland and Seattle for their metrics. This is because of the reports that were generated through the data gathered in the process of green economic development. Benefits of engaging in research and investigations with universities include:

- Improved international awareness and branding of Greater Victoria
- Better measures of success
- Access to knowledge and university students
- Increase the capacities and practical skills of university students
- Access to robust data analyses
- Enhanced reputation to the student market
- Increase knowledge capital and innovation in the region

It is imperative that the process of green economic development is documented in order to increase the reputation of the region. With three major academic institutions and keen students looking for projects that create real value, this is a massive opportunity that leverages existing capacities to benefit all stakeholders.

Act Now!

- Contact the academic institutions and introduce your organization
- Consider the research potential of current and future projects
- Hire co-op students, student interns, or provide capable students with relevant projects
- Participate in current research projects
- Allow students access to data or the possibility to collect data themselves

Collaborate and Communicate

One of the biggest barriers mentioned in the research was how siloed organizations were in the region. Increased collaboration and communication are critical to breaking down these silos, and create benefits such as:

- Reduce duplication of efforts
- Reduce costs
- Increase inclusion
- Increase awareness
- Increase project capacity and knowledge for innovation
- Engage with a diversity of perspectives

Immediate results can be seen when collaboration and communication occur. For example, the duplication of programs and initiatives by the 13 municipalities is unnecessary and a waste of taxpayer money. By making the green economy initiative a cohesive regional effort, all stakeholders can partake in an exemplary movement to break down these silos.

Act Now!

- Communicate your green efforts online where they can easily be found
- Actively engage other organizations to coordinate sustainable purchasing
- Participate on inter or intra-sector committees related to the green economy
- Petition your industry association to be part of the green economy
- Attend monthly Resilient Region Breakfast networking events
- Participate in new or existing green economy initiatives

The necessity of follow-up

Although there have been a number of successful spin-offs from the Hammarby Sjöstad project, the novelty of the “integrated model” meant that evaluation and follow-up procedures were weakly defined from the outset. As such, upon disbanding the project office in 2004, there were no systematic evaluations conducted with respect to achievement of the environmental and social goals. In 2008, the department of Industrial Ecology at The Royal Institute of Technology (KTH) initiated a study of the district, based on literature reviews, in-depth interviews and focus groups. The group evaluated the profile of the Hammarby Sjöstad project, and determined that a number of key goals were not achieved, especially in terms energy usage per square meter (110 kWh compared to the projected 80 kWh). They also determined that many “social” criteria were noticeably absent in the original master plan. However, the technological solutions and novelty of the integrated model meant that the project had achieved an almost “mythical” status, which overshadowed these deficiencies.

Two important lessons can be learned from these evaluation challenges. First, if an initiative does not have sufficient size or novelty, evaluation becomes an essential tool to promote the credibility of the program. Secondly, the case highlights the role that post-secondary institutions can play in the development of the green economy.

GREEN ECONOMY INITIATIVES



Once stakeholders have begun have recognized the operational value of greening their practices, there is an opportunity to participate in the green economy on a broader scale. The below initiatives are catalyzing the green economy, and those involved are shaping the future of Greater Victoria. These initiatives are examples of how diverse stakeholders have come together to break down the barriers and form the building blocks of a regional green economy.

Green Economy HUB

Our research has identified the urgent need of a Green Economy Hub. Both a physical and online space is required for people, from the region and abroad, to access information about the green economy. The functions of a Green Economy Hub would include:

- ➔ Knowledge & Information Sharing
- ➔ Collaboration & Facilitation of Meetings
- ➔ Materials exchange
- ➔ Central networking facility
- ➔ Lobbying
- ➔ Attract new green businesses to the region
- ➔ Support existing initiatives
- ➔ Grow new initiatives

Although a multi-stakeholder approach was said to be very necessary, Sarah Webb of the CRD is currently spearheading a feasibility study for the CRD to host this space. A Green Economy Hub would be the keystone in supporting and developing all green economy initiatives.

“The most important thing that is needed is a central hub where people can get the appropriate information. It cannot be under the bureaucratic regime of any one government, it would need to involve more stakeholders, especially businesses, if it is going to be successful. Also, it will need to have different functions, providing information, attracting investment from outside the region, promoting local innovations, and lobbying government for better policies.”

Food Security

Food production is a major opportunity, even a necessity, for the region. Food security is a major concern globally and for Vancouver Island this is particularly salient because (1) agricultural production on the island meets less than 10% of local food needs (whereas 50 years ago it met over 50%, and some estimates are over 80%); (2) there is only 3 days of fresh food on the island at any one time; and (3) as energy costs for transportation increase, the food prices on imported goods will also increase. Re-localization of agricultural activity is expected to increase, and with 45% of ALR lands being not fully utilized there is an immediate economic opportunity. Areas of particular interest include:

- ➡ Marketing and training campaign for citizens to develop organic gardening practices
- ➡ Development of communal urban gardens, roof top and vertical gardens
- ➡ Encouraging local food processors to use more sustainable packaging methods
- ➡ Innovating mechanisms to make farmland secure and affordable with new farmers
- ➡ Retail and export high end local food products
- ➡ Sustainable agriculture practices and processes

The Community Orchard Pilot Program, Haliburton Community Organic Farm, Lifecycles Society, and Sea Cider are all examples of local initiatives dedicated to food security. Social enterprises can be particularly beneficial to food security initiatives, but again, a cohesive vision, collaboration, and network is seen as imperative for success.

Green Certification Program

The purpose of a regional green certification program would be to promote and recognize green business practices. Smaller cities, such as Portland, have had success in creating change through a certification process, whereas larger cities, like Vancouver, have failed to realize substantive gains from similar programs. A regional certification would have the following benefits:

- ➡ Marketing for local businesses
- ➡ Consumer education
- ➡ Purchasing guidelines for organizations
- ➡ Creating a network of businesses
- ➡ Provides a measure of standard practice
- ➡ Combat greenwashing

Three separate groups of businesses, representing over 1300 local firms, have identified the need for certification. These groups have pooled resources to develop a regional green certification. Still in its initial feasibility study, Jill Doucette of Synergy is leading the research, which has accumulated resources from many existing certification systems and is adapting them to the Greater Victoria regional context. The success of a regional green certification system will be dependent on the collaboration with a broader group of stakeholders and the ability to tie the system to procurement policies of local organizations.

Sustainable Tourism Cluster

Through our research, we have identified that Greater Victoria has the foundation to become a world-class sustainable tourism destination. The critical components of a sustainable tourism cluster, although currently disconnected, are coming together to form a regional vision that goes beyond “tea cups and butterflies” and takes advantage of the creative capacities of the second most creative city in Canada.

Building upon current infrastructure (including: 2 carbon neutral airlines, the Galloping Goose, sustainable hotels and restaurants, and green architecture), the region can become a bustling hub for agri-tourism, adventure tourism, ecotourism, cultural tourism, and green architecture tours. A group of local business owners have come together to form the Vancouver Island Sustainable Tourism Alliance (VISTA). Tourism Victoria has identified sustainable tourism as a key opportunity for the region. The Victoria Airport, the Harbour Authority, the City of Victoria, among other organizations are looking to develop sustainable tourism opportunities. Fisherman’s Wharf Park Rain Garden, for example, cleans runoff from 14,250 square meters of area before entering the harbour, while beautifying the once desolate site.

Championing the sustainable tourism cluster for the region is Deirdre Campbell of the Tartan Group and Tourism Victoria. However, other projects are being initiated, like the Green Restaurant District, by various stakeholders. In isolation, these projects have less potential than if they were connected to a regional vision that was supported by the cluster framework.

Clusters

Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g. universities, standards agencies, trade associations) in a particular field that compete but also cooperate. Some well-known examples include the California wine industry, the Italian leather industry, and Silicon Valley. Clusters affect the local business environment – and thus competition – in three ways: by increasing the productivity of companies in the area, by driving the direction and pace of innovation, and by stimulating the formation of new businesses. A cluster allows each member to benefit as if it had greater economies of scale or as if it had formally joined with others, without requiring it to sacrifice its flexibility.

In practice, cluster formation necessarily varies across regions and sectors. However, there are standard combinations of features to cluster promotion:

- Strategies are designed to build upon existing potential in terms of some regional concentration of firms, other organizations and linkages in target sectors.

Ocean Technology Cluster

Our research has identified a second source of world-class reputation building for the region. Under the umbrella term of Clean Technology, which is too broad for a cluster framework to function, the ocean technology cluster involves knowledge based companies that invent, develop and produce technological products for specific use in or on the ocean, or provide knowledge-intensive, technology-based services, unique to the ocean.

Capitalizing on world-class, local innovation (such as the NEPTUNE and VENUS projects, Reefsafe Fish, Archipelago Marine Research, Jasco, Triton Logging, Race Rocks,), oceanography expertise can be increased for sea-state modelling, soil mechanics modelling, climate forecasting, remote monitoring, biofuel from algae, among other applications. These new areas of research have implications for off-shore wind and wave energy generation, among others that have not yet been defined because projects like NEPTUNE and VENUS are the first of their kind.

An Ocean Tech Cluster, although not yet defined within the region, is founded on the basis of ocean tech knowledge flowing from Greater Victoria's academic institutions and can easily be supported by massive local organizations like the Navy and BC Ferries. The Vancouver Island Tech Park is the existing incubator, which has elevated home-grown knowledge and entrepreneurship to international levels.

- Instead of applying 'hard' measures of concrete financial support for individual firms, the focus is set on 'soft' activities of community building, consulting and moderation that address entire groups of actors, aiming to improve the overall efficiency of regional systemic interaction in target sectors
- Activities facilitate the firms' access to previously insufficiently used public and private assets in the region that support competitiveness and innovativeness.

Very few clusters successfully develop from purely an explicit top-down or an implicit bottom-up approach. Due to its organic, systemic and participative nature, cluster promotion usually requires significant involvement from private industry, not only in entrepreneurial activity but also in activating, designing, and implementing public efforts. Similarly, private industry efforts are rarely implemented without some public sector participation.

Building Manager Accreditation

We advocate developing a Building Manager Accreditation program for all building managers and strata presidents in the region, focusing on greening buildings and increasing energy efficiency. Similar to Food Safe for restaurants or Serving it Right for alcohol servers, we envision a financially self-sustaining program similar to Climate Smart. Topical areas could include:

- ➔ energy efficiency
- ➔ water efficiency
- ➔ integrated pest management
- ➔ indoor air quality
- ➔ green operations and maintenance
- ➔ green site landscaping and composting
- ➔ green building systems
- ➔ alternative energy sources
- ➔ EnerGuide
- ➔ recycling and waste reduction
- ➔ resident green education
- ➔ green retrofits and renovations

Although some building managers are championing green building performance (The Bay Centre is looking to be the first energy self-sufficient mall in Canada, Jawl Properties has several LEED certified buildings), a Building Manager Accreditation could be initiated at the CRD level as a pilot project and then scaled up by the province. Although building managers are currently seen as a barrier to green operations, they could become enablers with such an innovative program. Moreover, the accreditation program would act as a demonstration of green infrastructure, propelling Greater Victoria's reputation of being a leader in the green economy.

UVic Gasification Plant

Vancouver-based Nexterra Energy Corp. has already demonstrated their gasification technology at the Dockside Green biomass plant. This system currently generates heat and hot water for 2,500 residents in the area, and is fueled by locally sourced urban wood residue. The 100 tons of ash residue remaining at the end of the year is then used in compost recycling. Such systems could be applied for heat and hot water provision in other areas on Vancouver Island.

In fact, an RFP for such a facility has been issued by University of Victoria, to provide for their heating needs in the near future as well as cut down on the operating costs. This will also provide opportunities for students to gain access to new research areas to further explore innovations in these technologies that can be exported to countries with much higher costs of power.

Hummingbird Urban Biomass and International Composting Corporation, both located in Greater Victoria, are currently innovating in this area and collaboration opportunities for research and development can be exploited - both for the technology itself or to support their supply chain.

Oaklands' Community Engagement

Growing a greener and more resilient region requires grassroots action. Significant opportunities exist throughout the region to bring people together, become greener, and create healthier, happier communities. An excellent example of grassroots community building is the Oaklands Community Centre. Kristi Rivait and her team have begun implementing many promising initiatives, including:

- ➡ A Kid's Garden - teaching children how to grow food, a first step towards food security
- ➡ Youth Leaders in Training - developing the community leaders of today and tomorrow
- ➡ Markets - highlighting local artisans, crafts people, and culinary providers, as well as live music, dance performers, and art displays, all while supporting a resilient local economy
- ➡ Outdoor Educator Program - fun, hands-on adventure exploring and learning about nature around the Greater Victoria area
- ➡ Natural Park - a safe, natural backyard for kids and their families to play in and use their imaginations
- ➡ Energy Efficiency Retrofit - helping neighbourhood families become more energy efficient at home

Other communities, in the region and out, can follow this example. Community is the best resource to effect change in a neighbourhood. People are invested emotionally and financially in the well-being of the area where they live, and want to be given the opportunity to do so. Community relationships are a big component in developing a green economy and creating a resilient neighbourhood.

Deconstruction

The construction, renovation, and demolition of buildings continue to generate an enormous amount of materials that end up in landfills. In the Greater Victoria region it is estimated to be over 8,500 tonnes per year. Deconstruction is an environmentally friendly alternative to demolition. Deconstruction involves systematically disassembling a building in order to maximize reuse, recycling and recovery of the building materials.

Portland has multiple small businesses that operate within the deconstruction sector. Salvaged construction materials are bought and sold through warehouses, which add to the unique reputation of the city, its architecture, and culture. Vancouver, among other cities like Portland and Seattle, issues deconstruction permits and for committing to divert at least 75% of waste materials away from landfills, deconstruction permit holders receive several benefits.

Alan Hall is a local salvager who deconstructs local homes and sells/installs doors, windows, fixtures and flooring for new projects. These products are also repurposed by local craftsman, creating yet another market opportunity. Our research shows that Greater Victoria could easily incentivize a deconstruction permit program. This would not only significantly reduce landfill waste in the region, but also create significant business opportunities for the resale of construction materials.

Victoria Eco-House

Weatherization and retrofitting has been identified in our research as a high priority sector for short-term green economic development. Older homes throughout the region were constructed using out-dated building standards and are therefore energy inefficient, costing owners fortunes in heating.

Using existing eco-home projects, in Waterloo and Vancouver, as an inspiration, a group of stakeholders have begun to investigate the possibility of retrofitting a house in Greater Victoria that would showcase the ease and cost savings of weatherization and retrofitting. Although a different economic model is being explored, the Victoria Eco-House would:

- ➡ Showcase weatherization and retrofitting to improve efficiencies
- ➡ Offer open tours for demonstration
- ➡ Emphasize social inclusiveness through provision of housing for low-income individuals, employment, and possibly entrepreneurship opportunities.
- ➡ Emphasize design that integrates with local community

The region already has many examples of new LEED buildings and construction. There is a lack of knowledge, however, about ways to upgrade the existing infrastructure in a financially responsible way. JC Scott, of JC Scott Eco Design, is championing this effort and with the group of stakeholders, they are soliciting BC Hydro to provide innovative financing opportunities through a payback system on the savings of their BC Hydro bills.

Green Workshop Series

Educating the business community on how to green operations and participate in the green economy is essential. Our research found that many businesses do not have sufficient knowledge to implement green initiatives. Workshops provide practical tips and case studies to these businesses. In addition, businesses find that the networking within or between sectors a major value-add to these workshops.

The City of Victoria, the Capital Regional District, and Synergy Enterprises are collaborating to put on a series of green workshops, which started in Nov 2012. Jill Doucette, founder of Synergy Enterprises will provide a framework for a successful sustainability program and practical solutions to reduce environmental impact and operational costs.

Sectors that will be targeted for these workshops include:

- ➡ Restaurants
- ➡ Food Processing & Distribution
- ➡ Retail
- ➡ Offices

Educating the business community will raise the bar and help facilitate connections within and between sectors. It also provides different programs, such as Livesmart, with access to the small business community to increase program participation.

DEFINING SUCCESS



Integral to the success of each initiative will be, upon deciding to adopt an initiative, to have the actors involved delineate what success will look like. Success should be defined in terms of action and outcome indicators - here are some examples:

Action Indicators

- ➔ Number of organizations that completed the framework for action
- ➔ Amount of cluster activity in chosen cluster
- ➔ Number of initiatives and # of participants in them

Outcome Indicators

- ➔ Number of initiatives completed
- ➔ Number of organizations using HUB
- ➔ Cluster co-marketing number of hits and contacts

At the regional level, objectives should be tied to specific performance indicators set out by each of the 13 municipalities and the CRD as a whole. Examples of Regional Green Economy Performance Indicators include:

- ➔ Regional greenhouse gas emissions
- ➔ Entrepreneurship Index Rating
- ➔ Hartland landfill waste diversion rate
- ➔ Number of Certified Green Businesses
- ➔ Number of businesses attending workshops (and what action was taken thereafter)
- ➔ Emission reductions of businesses that have completed Climate Smart
- ➔ Number of businesses participating in green economy clusters
- ➔ Total news articles regarding Greater Victoria's regional green economy
- ➔ Funds allocating toward the development of the green economy

PATH FORWARD

Short term (~ 1 year)

- ➔ Attend the Green Economy Resilient Regent Breakfast Conference on January 18th at the Victoria Conference Centre or any of the Resilient Region Breakfast Series thereafter.
- ➔ A signed commitment by the 13 municipalities and the CRD prioritizing the Green Economy.
- ➔ Sign MOUs, if necessary, with diverse stakeholders to facilitate collaboration
- ➔ Attend a major stakeholder meeting once a month.
- ➔ Collaborate with universities to begin research and data collection.
- ➔ Develop individual and organizational frameworks for action.
- ➔ Create a virtual and physical green economy hub for the region
- ➔ Develop a green certification system

Medium term (~ 5 year)

- ➔ Establish benchmarking with other regions
- ➔ Writing of academic papers and industry white papers that are promoted to an international audience
- ➔ Foment the development of sustainable tourism and ocean technology clusters
- ➔ Facilitate entrepreneurship and investment in green economy sectors
- ➔ Educate the public on green economy development, green products, and their effects on the region

Long term (~ beyond 10 years)

- ➔ Creation of a portfolio with initiatives that have been successful, thus establishing a proven track record for Greater Victoria.
- ➔ Have a fully developed framework for sustainable tourism and ocean technology clusters
- ➔ Comprehensive exportation of greening know-how (comprehensive programs rather than piecemeal technology)
- ➔ Have an international reputation for the regional green economy.
- ➔ Become a regional incubator for green economy start-ups.