

Clean Technology and the Renewable Energy Sector in Canada

Issue

Much of the recent energy dialogue has focused on the price of oil and the impact this is having on federal and provincial budgets. This misses the fact that a more fundamental shift is occurring in the global economy. For the first time in more than a century, multiple signs suggest that the dominance of fossil fuels is beginning to decline. We are seeing the beginning of a new technology revolution that will provide huge economic benefit for those able to place themselves at the forefront of this revolution. One only need to look at countries such as Germany to appreciate how taking a leadership approach to this new green economy can benefit an entire country both economically and environmentally. ¹ Unfortunately, while some Canadian provinces have a strong international reputation for innovation on climate change we, as a country, are not leveraging this reputation to be at the forefront of the growing green technology economy.

The scope of the clean technology and renewable energy opportunities are poorly understood. While investments in renewable energy are well underway in many jurisdictions, the scope of change required will be well beyond electricity generation. Innovation in terms of new technologies and new practices will be required in a range of other areas.

Sector	Examples of Technology
Electricity Access	Upgraded Power Grids Off-grid technologies
Water Management	Wastewater Treatment
Waste Management	Recycling Energy capture from landfills
Climate Change/Reducing Emissions	Mitigation technologies Upgraded power grids Renewable energy, wind, solar, geothermal, geoexchange, tidal, biomass, hydro, etc. Electric and hybrid vehicles Carbon Capture and storage Adaption technologies New cultivation practices Climate resistant infrastructure: sea walls, drainage capacity, water, forest and biodiversity management, etc.
Transport	Rapid Transit systems Low emission vehicles and fuels, biogas, natural gas and plug in electric
Building Energy Efficiency	Thermal Insulation Energy efficiency programs Best practice building codes

¹ <http://theyee.ca/News/2014/10/20/German-Clean-Energy-Revolution/>

It should be recognized that some Canadian and international governments have already begun placing a direct focus on the green economy. “Technology and Green Economy” forms a part of the BC Jobs Plan. In addition the British Columbia Provincial Government has also developed “BC’s Green Economy – Growing Green Jobs”. Nova Scotia has created a rebate programs for a variety of solar and energy efficient green products for consumers through Efficiency Nova Scotia.² “Sustainable Development Technology Canada” (SDTC) has established a role that fills the gap in government funding for Canadian renewable energy and cleantech projects. In addition, they provide consultation for small and medium-sized enterprises (SMEs) wishing to engage in clean technology and renewable energy projects.³ While the creation of SDTC is a welcome initiative, it is insufficient for the scale of the challenge facing Canada. While this program needs to be highlighted, expanded and encouraged, there are other successful programs in other jurisdiction that should be replicated here in Canada; perhaps the best examples can be found in Germany.

In conjunction with their National Action Plan on Energy Efficiency (NAPE), Germany has implemented a number of investment and incentive programs to foster the shift to renewable energy generation and clean technology⁴. Some of these include, but are not limited to, premium funding to strengthen the establishment of the renewable technologies in the heat market, special promotions of offshore wind energy projects, low-interest loans, high volume loans for large-scale investment projects. The [SME Energy Consulting programme](#) in Germany which is run by KfW and the Federal Ministry for Economic Affairs and Energy helps unleash energy saving in SMEs. Consultations may qualify for subsidies of up to 80 per cent of the consultation costs. Around 17,000 companies received consultations under this program from 2008 to 2013. All told, the consultations led to EUR 0.7 to 1.4 billion of investment and 1.5 to 2.7 terawatt-hours of energy savings. Every publicly financed euro generated EUR 16 to 29 in private investment.⁵

Canada needs to move beyond the limited focus on Canada’s traditional industries and make Canada a global leader in all aspects of the new emerging global green economy. As an example, the Canadian government needs to make clean technology, including renewable energy production and the manufacture of renewable energy producing products (like solar panels, wind turbines, etc.), a high priority in Canada in an effort to grow a diversified 21st century economy.

This strategy should be broad and to be successful would have to address the following challenges:

- build a stronger industrial structure, i.e. larger SMEs and more large firms entirely dedicated to the environment and green technology;
- develop and accelerate the marketing of homegrown technologies;
- capitalize on local markets to stimulate growth in the environmental and green technology industry;
- increase exports and acquire a strong position in buoyant niches in international markets;
- achieve the convergence of the efforts of all players in the sector

While market forces will be a key determinant of successful new technologies, governments have a critical role to play in setting the scene for this societal shift. We have seen a number of instances where government has been successful in initiating programs that have resulted in positive outcomes. As already referenced the carbon tax has been a resounding success in reducing BC’s greenhouse gas emissions while having no negative impact on the rate of growth in the BC economy. In addition, we have seen the Efficiency Nova Scotia programs result in a significant reduction in electricity consumption through a range of programs, including targeted incentive and rebate programs. We have just seen the election of a provincial government in Alberta that is committed to a boost for renewable energy and a green retrofitting loan program.

To ensure that Canada is able to move quickly to establish ourselves as a global leader government, we should look to best practices globally to identify programs that encourage the production, sale and purchase of renewable energy and green products. Canada has a unique opportunity. Canada has an undeniable advantage to be at the vanguard of

² <http://www.energyns.ca/energy-solutions/solar/>

³ <https://www.sdte.ca/en>

⁴ <http://www.kpmg.com/global/en/issuesandinsights/articlespublications/taxes-and-incentives-for-renewable-energy/pages/germany.aspx>

⁵ <http://www.bmwi.de/EN/Topics/Energy/Energy-Efficiency/energy-consulting-and-funding.did=687122.html>

addressing the challenges raised by today's industrial and environmental issues. This will require consultation and a focused effort by government to play a leadership role in partnership with the private sector.

These technologies are in demand worldwide and will be a catalyst in driving a diverse 21st century economy in Canada. Jurisdictions around the world are looking to lead. Without a coordinated plan we will quickly see Canada overtaken and left behind in the new global economy, missing huge economic opportunities.

Recommendations

That the federal government:

1. Develop, expand and implement plans to make Canada a global leader in the sustainable technology and energy sectors
2. Work with the business community, provinces/territories and international institutions and governments to ensure that individual jurisdiction carbon pricing programs work toward a common target for emissions reductions.