
TOWARDS A
CLEAN
ENERGY
ACCORD

*How and Why a Canadian Energy Strategy
Can Accelerate the Nation's Transition to a
Low-Carbon Economy*

CONTENTS

PREFACE	3
1. THE TIME IS RIGHT FOR LEADERSHIP	4
2. CANADA'S CLEAN ENERGY IMPERATIVE	5
2.1 <i>A \$3 Trillion Opportunity</i>	5
2.2 <i>A Paycheque That Pays Back</i>	7
2.3 <i>Not a Moment to Lose</i>	8
2.4 <i>Case Studies</i>	9
3. PROPOSED GUIDING PRINCIPLES AND PRIORITIES FOR CANADIAN ENERGY STRATEGY	10
3.1 <i>Principles for A Canadian Energy Strategy</i>	11
3.2 <i>Framework for a Canadian Energy Strategy</i>	11
<i>Jobs and Low-Carbon Prosperity</i>	11
<i>Eliminating Energy Waste</i>	12
<i>Unleashing New Energy Innovation</i>	12
<i>Our Energy Supply</i>	14
<i>Fostering Livable Communities</i>	14
<i>Forward Motion on Transportation</i>	14
<i>Funding the Energy Transition</i>	16
4. CONCLUSION: TOWARDS A CLEAN ENERGY ACCORD	14
ENDNOTES	16

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PREFACE

This document is a collaborative, solutions-focused call for Canadian provincial leaders and aboriginal governments to embrace the responsibility and opportunity of developing a bold new energy strategy for Canada.

In the spring of 2012, in an effort to make a positive contribution to ongoing national conversations on the shape and scope of such a strategy, Tides Canada hosted a series of workshops across the country. Thought leaders representing a wide variety of business, academic, labour, and non-government organization sectors came together to contribute to a framework for Canada's transition to a clean energy economy.

This document outlines the opportunities and imperative of the energy transition, and reiterates the principles that any Canadian energy strategy must embrace. It also outlines the high-level policy priorities that a majority of leaders told us any energy plan should address.

In summary, participants from across sectors agree that Canada should bet on a 21st century energy model, backed by significant gains in energy efficiency. They said that a global transition to clean and renewable

CANADA SHOULD BET ON A 21ST CENTURY ENERGY MODEL

energy represents a significant opportunity for the nation. They stressed that any plan to strengthen cooperation between provinces on energy issues must address greenhouse gases—which in Canada are often excluded from energy policy conversations—and prepare the nation to remain competitive through and beyond the necessary global transition to low-carbon energy sources.

Towards A Clean Energy Accord builds upon *A New Energy Vision for Canada*—a collaboratively developed portrait of Canadian prosperity, endorsed in 2011 by more than 150 companies, organizations, and local governments representing the interests of more than five million Canadians.¹



THE TIME IS RIGHT FOR LEADERSHIP

Developing a bold new energy strategy is not only a Canadian leadership responsibility; it is a national economic opportunity.

Over the past two years, a number of traditional energy industry associations, think tanks, thought leaders, academics, and civil society organizations have thrown their weight behind the idea of strengthened cooperation and coordination between provinces on energy issues. Recent public opinion research suggests that they aren't alone. In a national survey of more than 1,400 Canadians, 92 percent of respondents agreed that a national energy strategy should be a public priority. Further, more than seven out of 10 of those surveyed agreed that any such strategy should seek to reduce our reliance on non-renewable energy.²

We expect a Canadian energy strategy will be on the agenda at this July's Conference of the Federation meeting of provincial premiers, in Halifax, Nova Scotia. It may also be discussed at a subsequent meeting of energy ministers in Charlottetown, Prince Edward Island.

We are asking federal, provincial, and aboriginal leaders to seize the day. A strategic energy accord between the provinces, if developed properly, could become:

- A path forward that could resolve a number of divisive energy conflicts while recognizing the constitutional authorities of federal, provincial, and aboriginal governments;
- The blueprint for how and when Canada transitions from its current energy mix to a low-carbon energy future;
- The plan that the Office of the Auditor General of Canada recently suggested we need to ensure Canada will prosper and create jobs while meeting its greenhouse gas commitments;
- A powerful opportunity for business, government, and civil society to collaborate on one of the most exciting challenges of our age: diversifying and strengthening our economy for long term prosperity while tackling major environmental challenges.

IT IS TIME TO STAND UP AND SHOW OTHERS HOW CANADA CAN LEAD

We agree with Alberta Premier Alison Redford, who recently addressed the Economic Club of Canada in Toronto: "It is time to stand up and show others how Canada can lead globally on all fronts, including energy supply, innovation and efficiency, as well as clean energy and addressing climate change."³

We also agree with David Emerson, former federal Minister of International Trade. Last year, he said "we must plan for the eventuality that oil sands production will almost certainly be displaced at some point in the future by lower cost and/or lower-emission alternatives. We may have heavy oil to sell, but few or no profitable markets wishing to buy."⁴

2. CANADA'S CLEAN ENERGY IMPERATIVE



2.1 A \$3 TRILLION OPPORTUNITY

The world is undergoing an energy transformation. It is the start of a necessary shift away from the fossil fuels we depend upon today for mobility, heat, and other services, and towards clean, safe, renewable, and locally available sources that will meet the majority of our energy needs indefinitely. This clean energy transition won't happen overnight, but it is also closer than many of us believe. In the coming few decades it will unleash profound changes in how

citizens live, work, and move. Compared to many European countries and communities, we do not see a great deal of evidence of the energy transition in Canada. Coal and oil still keep the lights on across much of the Maritimes, while in the western provinces petroleum resources dominate the economy, enabling mobility, home comfort, and hot water for millions both in Canada and abroad.

But look beyond our borders and the signals are clear that a change is underway—one that could have profound implications for our nation:

- In 2010, worldwide private capital investments in renewable energy (\$187 billion) surpassed electricity

investments using natural gas, oil, and coal (\$157 billion).⁵

- Last year, the global market for clean technologies reached \$1 trillion.⁶
- All told, more than 3.5 million people are now employed in the global renewables sector. China already counts over half a million renewable energy jobs, while in Germany the sector employs more than 370,000.⁷ The U.S. solar industry now employs more than 100,000 people.⁸
- Though China's energy demand is growing, it is steadily working to reduce its petroleum dependence. According to one recent Chinese

government estimate, the nation will spend \$313 billion in the coming five years to grow a low-carbon economy.⁹ The nation expects to spend \$27 billion this year alone to promote energy conservation, emission reductions and renewable energy.¹⁰

- Demand for gasoline remains flat and data suggests younger Americans appear to be losing interest in driving. From 2001 and 2009, the average annual number of vehicle-miles traveled by young Americans dropped 23 percent.¹¹ The country is even questioning its interest in further reliance on heavy crude oils.¹²
- In the third quarter of 2011, U.S. companies secured 599 patents for technologies in solar, wind, hybrid/electric vehicles, fuel cells, hydroelectric, tidal/wave, geothermal, biomass/biofuels and other clean and renewable energy technologies—the highest total since 2002. (In the same period, Canadian companies secured 10 patents.)¹³
- In spite of the debt crisis troubling parts of the European economy, Europe continues to invest in clean energy. The region met its 2010 renewable energy targets, and is on track to exceed its 2020 targets by 20 percent.¹⁴ Almost 70 percent of new electricity generation installed in Europe last year was renewable.
- Australia, South Korea, Mexico, California, and a variety of other

jurisdictions and regions have either implemented or are poised to introduce economy-wide carbon pricing regimens or comprehensive climate laws.

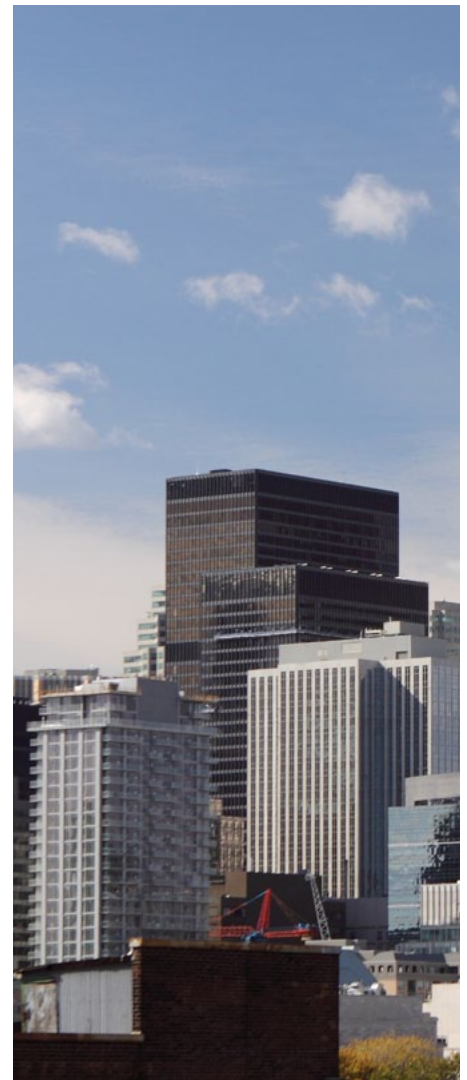
According to Bloomberg New Energy Finance, annual global investment in renewable energy projects is expected to reach USD\$395 billion by 2020, and USD\$460 billion by 2030.¹⁵

Looking beyond renewable energy technology and infrastructure, and considering the broader opportunities of sustainable transportation, efficiency, resource recovery and more—a market for low-carbon goods and services known collectively as the “clean tech sector”—the opportunity grows much larger.

According to the Canadian Clean Technology Coalition, Canada’s current share of the global clean tech market is \$9 billion, or just under one percent of the market, while Canada’s share of global GDP is closer to 2 percent.¹⁶ Canada is failing to keep pace with the new global shift to clean technology. Meanwhile, the global clean-technology market could reach \$3 trillion by 2020.

A recent National Round Table on the Environment and the Economy (NRT) discussion paper, *Planning for Prosperity: Building Canada’s Low-Carbon Growth Plan*,¹⁷ identifies a range of upstream and downstream sectors in the low-carbon goods and services market. This includes wind, solar, hydro, geothermal, sustainable biomass, advanced biofuels, industrial

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processes, buildings, efficient vehicles, and more. In particular, the NRT research highlighted the efficient vehicles sector as the one with the greatest growth potential. With focused policy support targeting this sector, Canadian manufacturing could once again be a high-tech industrial success story.

The preliminary research identifies a global market for low carbon goods and services in the range of \$2 trillion, and estimates Canada's present share of this market at \$10 billion—in the same range as the Canadian Clean Technology Coalition estimate. This portion represents only 0.5 percent of the global total market and is significantly below Canada's relative share of the world economy of 1.8 percent.

The NRT analysis also estimates that even under a business-as-usual scenario, significant growth will occur in Canada's low-carbon goods and services market between today and 2050, with the sector's growth rate



roughly doubling that of the overall economy.

The question is: How will we respond?

We suggest that Canada can and must secure a larger share of the global market for low carbon goods and services. We can and must leverage the economy Canada has today to create the new-energy economy that citizens and customers want and will need tomorrow. Canada has a strong entrepreneurial spirit, a history of innovation, a wealth of renewable resources including wind, solar, and hydropower, a stable financial system, an established clean-tech sector, and excellent research orientated universities. Canada also has a number of

established clean-tech hubs and renewable-energy manufacturing capacity in several provinces, enabled

by supportive policy environments.

Canada also has globally significant oil and gas reserves. Today, the fossil fuel sector employs hundreds of thousands, and helps fund schools, hospitals, and more, across the country.

Fossil fuels will likely remain at the center of our energy system for some years to come. However, we suggest that the traditional energy sector has an unbeatable opportunity to help ensure the nation competes and prospers in a world that, through innovation and regulation, will have sharply reduced its appetite for carbon-based energy commodities. Canada needs to invest in policies and programs to move these low-carbon new energy opportunities forward.

2.2 A PAYCHEQUE THAT PAYS BACK

The fossil fuel sector is currently drawing resource workers from every province and territory—generating financial stability for many Canadians and their families. However, a growing body of evidence underscores that the renewable energy and clean technology sectors can create abundant jobs that are less vulnerable to the boom-and-bust cycle typical to commodity-based economies. Strong potential also exists to boost employment within the near term by creating more value-added opportunities with our existing energy systems.

According to research undertaken by the Brookings Institution, jobs in the clean sectors of the economy tend to be more manufacturing- and export intensive. The study concluded that such jobs pay better wages, and offer more opportunities for low- and medium-skilled workers.¹⁸

Further, a 2009 BlueGreen Alliance study examined the U.S. market and found that 70 to 75 percent of total labour for a typical wind turbine or solar panel stems from manufacturing the component parts.¹⁹ With the right policies in place, this supply chain could be built up domestically within Canadian provinces—as we are now witnessing in Ontario. Since the 2009 passage

of the that provinces Green Energy and Economy Act, more than 20 clean energy manufacturers have announced plans to set up to expand operations. In part due to that legislation's domestic-content requirements, Canadian Solar, one of the 10 largest solar panel manufacturers in the world, opened up a large solar panel manufacturing plant in Guelph, Ontario, employing 500 workers. Germany, an early leader in clean energy, already employs more than 380,000 workers in the renewable energy sector.

The evidence basis for clean technology and strong jobs growth stretches back many years. In 2006, a

benchmark University of California at Berkeley survey found that renewable energy technologies created more jobs per average megawatt of power generated and per dollar invested than did natural gas and coal.²⁰

We must find ways to support Canadians—for example, by providing training and retraining opportunities—so they can thrive in the new jobs associated with the new energy future. With the right provincial leadership and policies today, Canada could one day prove a global success story for how a resource-based economy largely transitioned its workforce to embrace a 21st century energy model.



2.3 NOT A MOMENT TO LOSE

These recommendations embrace both near- and long-term thinking. Though the low-carbon transition will unfold over the course of decades—renewable energy and emissions targets frequently extend to 2050—our call to leadership focuses on short-term actions intended to move the nation more quickly down the path to a clean energy economy.

The risks of delaying these investments and policies are greater than simply missing an opportunity. We could find ourselves not only sidelined in the clean energy economy of tomorrow, but also scrambling to find a way to replace and pay for the jobs and social services that fossil fuels presently provide.

We will also threaten Canadian livelihoods by largely ignoring the

well-documented impacts of climate change. Recent economic modeling by the NRT concludes that climate change could cost the country \$5 billion per year by 2020, and \$21 to \$43 billion by 2050. Impacts will be felt on timber supply in B.C., increased coastal flooding in Atlantic Canada, and spiraling public health costs in Toronto, Montréal, Vancouver and Calgary as the result of heat waves.²¹

In its annual report released in April 2012, the deputy executive director of the normally conservative International Energy Agency lauded the increased deployment of renewables, but also cautioned that the change is not coming fast enough:

Energy-related CO₂ emissions are at historic highs; under current policies, we estimate that energy use and CO₂ emissions would increase by a third by 2020, and almost double by 2050. This would likely send global temperatures at least 6°C higher. Such an outcome would confront future generations with significant economic,

*environmental and energy security hardships—a legacy that I know none of us wishes to leave behind.*²²

The agency affirmed that, in the absence of major investments and policy decisions, the opportunity to limit global warming to two degrees would slip away by 2017.²³

Canada is amongst the top ten absolute contributors to greenhouse gas emissions, responsible for 1.8 percent of direct global emissions. Unless we diversify our economy, we could be deeply impacted by a dramatic shift in global climate and energy policy. As outlined above, a myriad of indicators suggest the rest of the world is aggressively pushing forward energy policies to define and lead in the next energy era—policies that cultivate local, clean, and unlimited sources. In Canada, we need to do the same, reduce our risk exposure, and immediately begin to focus on policies that move Canada more swiftly along the path of the clean energy transition.



2.4 CASE STUDIES

Some observers consider Canada a unique situation, because we happen to have an enormous geologic endowment of fossil fuel resources—commodities that today are critical to the global economy. However, other nations with significant carbon assets are making substantial investments to diversify their energy system and prepare for the low-carbon future.

Saudi Arabia, for example, will be investing up to \$100 billion in renewables over the next two decades—with the goal of generating 53 gigawatts—one

third of its electricity needs—with clean power by 2032. The kingdom primarily intends to use the energy to reduce dependence on oil-powered desalination plants. These investments are part of a larger strategy to place a greater focus on renewable energy generation, to promote job creation and technological innovation.²⁴

Norway offers another example. In 1990, following the discovery of extensive offshore petroleum reserves, Norway created The Norwegian Government Pension Fund Global to manage revenues from the resource. The Ministry of Finance regularly transfers petroleum revenue to the fund and determines its investment strategy. The fund presently has a market value of approximately CDN\$590 billion.^{25, 26}

Further, China, the world's largest coal consumer, is currently creating a series of Low Carbon Development Zones. The zones will be based on the nations' past success with special economic zones—geographic regions with more liberal economic laws than the rest of the country. The model is credited with jump-starting China's high-growth economy. The new zones are intended to act as testing grounds for the large scale economic transformation required for a low carbon future.²⁷ China's transition is expected to be a net job creator. For example, a recent report concluded that 800,000 workers in small coal power plants in China will likely lose their jobs due to climate mitigation actions. However, some 2.5 million jobs could be created by 2020 in the wind energy sector alone.²⁸



3. PROPOSED GUIDING PRINCIPLES AND PRIORITIES FOR A CANADIAN ENERGY STRATEGY



Some Canadian jurisdictions have shown leadership on the low-carbon transition. For example, British Columbia, Quebec, and Alberta have carbon-pricing regimens, Ontario has the Green Energy and Economy Act, and Nova Scotia has a community feed-in-tariff program. Meanwhile, Manitoba and New Brunswick have been recognized as national leaders on energy efficiency.

However, Canada as a whole must do more to accelerate the transition from the economy we have today to the economy we want and need tomorrow. To this end, a Canadian energy strategy, if moved forward

with the right objectives, principles and priorities, could be an effective tool to accelerate Canada's energy transition.

The millions of Canadians who collectively endorsed the *New Energy Vision for Canada* agreed that any such strategy or framework must meet a series of guiding principles. Following consultations over the past year with a number of organizations working toward a national energy framework for Canada, we have updated these principles, as below:

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PRINCIPLES FOR A CANADIAN ENERGY STRATEGY

We believe that any energy framework intended to ensure the nation will prosper and remain competitive into the clean energy future must:



ENERGY SECURITY

Provide affordable, accessible, reliable, sustainable, and efficient energy services to citizens with minimal risk to future generations;

JOBS AND PROSPERITY

Leverage Canada's considerable renewable and non-renewable resources to increase our share of the global market for low-carbon goods and services, spurring new jobs, investment, and innovation;

CLIMATE CHANGE AND ENVIRONMENT

Reduce the impacts of climate change by lowering carbon emissions at a pace and at a scale recommended by Canadian and international climate scientists. Protect and restore air, land, and water resources by ensuring rigorous environmental assessments and setting hard limits on cumulative ecosystem impacts.²⁹

In addition, leaders are calling for a comprehensive framework for a Canadian energy strategy to ensure that we address all critical and relevant issues, including jobs and prosperity, ecosystem protection—including protection of the boreal forest as a globally significant carbon sink—greenhouse gas reductions, and reducing our energy consumption.

3.2

FRAMEWORK FOR A CANADIAN ENERGY STRATEGY

JOBS AND LOW-CARBON PROSPERITY

The low carbon economy is the fastest growing employment sector in the developed world.

The right policies can enable a successful transition for workers and communities to long-term sustainable jobs and rewarding careers in the low carbon sector. These opportunities will also reduce vulnerability of our workforce to the boom-and-bust cycle that characterizes Canada's present resource economy. Economic modeling has demonstrated strong continued job growth in Canada under a moderate carbon-pricing regimen. We can and must finally end the myth that jobs and the environment are mutually exclusive.

Federal, provincial, and aboriginal governments might direct more resources to workforce development, training, retraining, and education. With focused policy action, Canada can capture a larger share of the growing trillion-dollar-per-year global market for low-carbon goods and services.

ELIMINATING ENERGY WASTE

Canada enjoys tremendous

opportunities to reduce waste and find efficiencies in our energy system. The federal government could serve as a leader and coordinator between other governments on efficiency by setting targets, accelerating product performance standards for efficiency, and stimulating the efficiency market through procurement. Improved performance standards can significantly advance the energy technologies we use in our housing, buildings, communities, industry, electronics, appliances, and transportation systems.

UNLEASHING NEW ENERGY INNOVATION

Drawing from our history and national experience, every major established Canadian sector—oil

sands, uranium, auto, aerospace, and communications, among others—reached a globally competitive scale with the significant support of government. The low carbon goods and services sector is no different.

Governments must support innovation in this sector through a variety of policy mechanisms. These might include a strengthened commitment to Sustainable Development Technology Canada, bridge financing at the pre-commercialization phase, specifying made-in-Canada low-carbon goods and services in procurement policies, and strengthening early- and mid-stage support for startups, among other actions.





GREENING OUR ENERGY SUPPLY

Any Canadian energy strategy must place us on a path to the low-carbon future, but must also seek to steadily reduce greenhouse gas emissions and other pollutants associated with electricity and fossil-fuel production.

Beyond market mechanisms, regulation can be an effective tool to reduce pollutants. Currently proposed federal coal regulations will not result in reaching the government's stated goal of 90 percent of all generation being non-emitting by 2020. Provincial actions such as Ontario's feed-in-tariff presently account for a much larger share of the sector's projected reductions.³⁰ This highlights to the opportunity for provinces to play an active role in cleaning up electricity production.

Abundant opportunities exist to use regulations to improve environmental performance of unconventional petroleum extraction, such as oil sands and gas extraction, by, for example, minimizing tailings and routine flaring, and pricing and reducing process emissions, and

setting hard caps on pollutants.

Before any decision is made to approve or deny a proposed pipeline, the project must be assessed with a thorough and objective accounting of social, ecological, and economic risks—including the long-term economic risks presented by the ongoing global shift to clean energy sources.

Canada is blessed with abundant sources of renewable power—hydro, wind, solar, geothermal, tidal and wave—but not all of these contribute 24/7 to our grid systems. There is a critical need to lower and remove such barriers to the adoption of more renewable energy. One solution would be to increase interprovincial transmission capacity. This would, for example, allow Manitoba hydropower to support intermittent wind energy in Saskatchewan, or B.C. hydropower to backstop wind power in Alberta, or Quebec to supply low-carbon power to the Atlantic provinces. Embarking on a national scheme to build an interprovincial grid—a 21st century equivalent to the Canadian Pacific

Railway—would allow Canada to dramatically increase the proportion of its electricity supplied by zero-emissions sources.

FOSTERING LIVABLE COMMUNITIES

The clean energy transition becomes most tangible as it arrives in Canada's streets and neighborhoods. Integrated community energy planning can realize efficiencies across the full range of municipal services while lowering carbon emissions. Through progressive land-use, building, and transportation policies, governments can create complete, compact, resilient, and highly livable communities that are more competitive in the clean energy economy. This is made possible by planning for the needs of transit users, cyclists, and pedestrians, strengthening building codes, setting targets for retrofits and providing financing support, implementing urban agriculture strategies, using renewable and sustainable fuels, developing district energy systems, and actively promoting and financing sustainable mobility.

FORWARD MOTION ON TRANSPORTATION

Canada is a vast nation, and transportation is the source of approximately 27 percent of our greenhouse gas emissions. As Canada moves to a low-carbon future, new opportunities will emerge in the business of cleanly and efficiently moving people and cargo to their destinations via land or marine routes.

Through progressive land-use planning, cities can be densified and planned for sustainable transportation modes such as transit and cycling. Electric vehicles, powered by low-impact renewable resources, either privately owned or shared, will help many—especially those in communities beyond the reach of transit.

Further, opportunities abound for advanced biofuels made from sustainably produced Canadian biomass to provide renewable transportation fuels for inter-city freight and eventually aviation. High-speed rail could connect urban cores along heavily trafficked corridors such as Quebec to Toronto and Edmonton to Calgary.

The National Round Table recently identified efficient and low carbon vehicles—including all types passenger and freight vehicles—as a sector with tremendous growth potential for domestic manufacturing. Policy action will help unleash this opportunity.

FUNDING THE ENERGY TRANSITION

If Canada is to truly capture the benefits of the clean energy transition, significant public investments will be required. Canada should leverage its wealth of public resources to ensure the nation prospers into a future where leading economies have sharply reduced their dependence on oil.

Pollution has a real cost on our lives, but most polluters are not required to pay a fee for what they put in our atmosphere. Putting an appropriate price on this pollution, or placing a royalty on oil, could help fund the necessary energy transition in Canada while advancing the public good. A carbon price—already in place in B.C. and Alberta—is a highly effective policy tool to reduce climate change pollution and progressively shift electricity and fuel production toward cleaner alternatives. Canada's provinces and territories must enact or strengthen carbon-pricing policies in a way that minimizes impacts upon vulnerable Canadians, and directs a portion of revenue toward investments in low-carbon infrastructure or retrofits.

Further, Canada should eliminate any unnecessary public support, subsidy or tax-break for the oil and gas sector, and redirect that support to low-carbon renewable energy innovation and generation.



4. CONCLUSION: TOWARDS A CLEAN ENERGY ACCORD



A Canadian energy strategy, encompassing the objectives, principles and priorities outlined above, could be an effective tool to accelerate Canada's necessary transition to a low-carbon energy economy.

In lieu of a “top-down” style strategy, one first step might be to develop an agreement in principle between Canada's governments—we might think of it as a Clean Energy Accord. With the involvement of business, labour, municipal governments, and civil society organizations, such a Clean Energy Accord would allow all governments and regions to identify and leverage their unique assets and

resources to strengthen, diversify, and ultimately transform their economies. By working together more effectively, the regions will advance the national interest and build a stronger Canada.

These are lofty goals. It won't be easy to work through a series of entrenched political and economic interests. But such cooperation and coordination will be critical to our success.

Indeed, we will not likely make the needed changes to compete as a nation unless each government sees itself as part of a larger effort to do so. We can and must capture a greater share of the jobs and

opportunities presented by the energy transition. We can also follow through on our international commitments to reduce our carbon emissions.

The nation is ready, and time is not on our side. Let's get it right.

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ENDNOTES

1. "A New Energy Vision for Canada," Tides Canada Energy Initiative, March 2011. Available at <http://www.tidescanada.org/energy/newenergy>
2. "Energy is Increasingly a National Issue, Poll Reveals," *Alberta Oil*, May 1, 2012. Available from <http://www.albertaoilmagazine.com/2012/05/an-exclusive-national-survey-shows-energy-matters-to-canadians/>
3. "We Rise Together or We Fall Together," excerpt from an address by Premier Alison Redford to the Economic Club of Canada, Policy Options, February 2012. Available from <http://www.earnscliffe.ca/insights/wp-content/uploads/Premier-Redford-We-Rise-Together-or-We-Fall-Together.pdf>
4. "Shaping Alberta's Future: Report of the Premier's Council for Economic Strategy," Report of the Premier's Council for Economic Strategy. Available from http://alberta.ca/acn/201105/RPCE_ShapingABFuture_Report_web2.pdf
5. "Renewable power trumps fossil fuels for first time," Bloomberg News, Los Angeles Times, November 25, 2011. Available at <http://articles.latimes.com/2011/nov/25/business/la-fi-renewables-20111125>.
6. Analytica Advisors, "Spotlight on Cleantech No. 3," January 2012.
7. *Renewables 2011 Global Status Report*. Available at: http://bit.ly/REN21_GSR2011
8. The Solar Foundation. National Solar Jobs Census 2011. Available at <http://thesolarfoundation.org/research/national-solar-jobs-census-2011>
9. "China to Boost Green Investment," Li Xiang and Rong Xiaozheng, *China Daily*, September 25, 2011. Available at http://www.chinadaily.com.cn/sunday/2011-09/25/content_13786436.htm.
10. "China to Spend \$27 Billion on Energy Efficiency and Renewables," The Guardian, May 25, 2012. Available at <http://www.guardian.co.uk/environment/2012/may/25/china-renewable-energy-carbon-emissions>
11. "Transportation and the New Generation: Why Young People Are Driving Less and What It Means for Transportation Policy," Benjamin Davis and Tony Dutzik, Frontier Group; Phineas Baxandall, U.S. PIRG Education Fund, March 2012. Available from <http://www.frontiergroup.org/reports/fg/transportation-and-new-generation>
12. See analysis in "Driving Drops Again, but What's the Big Picture?" Adie Tomer, *The New Republic*, December 12, 2011. Available at <http://www.tnr.com/blog/the-avenue/98415/driving-drops-again-what%E2%80%99s-the-big-picture>
13. Clean Energy Patent Growth Index, 3rd Quarter 2011, Heslin Rothenberg Farley & Mesiti P.C., available from <http://www.cleanenergypatentgrowthindex.com/>
14. "EU will exceed renewable energy goal of 20 percent by 2020," European Wind Energy Association, Analysis of 27 National Renewable Energy Action Plans, submitted by the EU Member States to the European Commission, February 6, 2012. Available at <http://www.ewea.org>.
15. "Clean Energy Investment May Double To \$395 Billion By 2020," Louise Downing, Bloomberg News, November 16, 2011. Available from <http://www.bloomberg.com/news/2011-11-16/clean-energy-investment-may-double-to-395-billion-by-2020.html>
16. Canadian Clean Technology Coalition, The 2011 Canadian Clean Technology Industry Report. Available from <http://www.analytica-advisors.com/download-2011-highlights>
17. "Planning for Prosperity: Building Canada's Low-Carbon Growth Plan," National Round Table on the Environment and the Economy and the Canada West Foundation, December 2012. Available from <http://nrtee-trnee.ca/wp-content/uploads/2011/12/CP6-Western-Discussion-Paper-eng.pdf>
18. "Sizing the Clean Economy: A National and Regional Green Jobs Assessment," The Brookings Institution, 2011. Available from <http://www.brookings.edu/events/2011/07/13-clean-economy>
19. "Building the Clean Energy Assembly Line," BlueGreen Alliance, 2009. Available at <http://www.bluegreenalliance.org/news/publications/building-a-clean-energy-assembly-line>

ENDNOTES

20. Daniel Kammen, Kamal Kapadia, and Matthias Fripp, "Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Create?" UC Berkeley: Renewable and Appropriate Energy Laboratory (RAEL), April 2004 (updated January 2006), 12, <http://rael.berkeley.edu/files/2004/Kammen-Renewable-Jobs-2004.pdf>
21. "Paying the Price: The Economic Impacts of Climate Change for Canada," National Round Table on the Environment and the Economy, September 2011. Available from <http://nrtee-trnee.ca/wp-content/uploads/2011/09/paying-the-price.pdf>.
22. "Tracking Clean Energy Progress: Energy Technology Perspectives 2012," International Energy Agency, April 2012, available from http://www.cleanenergyministerial.org/pdfs/Tracking_Clean_Energy_Progress.pdf.
23. "World Energy Outlook 2011," International Energy Agency, November 2011. Available from <http://www.worldenergyoutlook.org>.
24. "Saudi Arabia Launches Massive Renewable Program with Hybrid FITs," Paul Gipe, Wind Works, <http://www.wind-works.org/FeedLaws/Saudi%20Arabia/SaudiArabiaLaunchesMassiveRenewableProgramwithHybridFITs.html>
25. <http://www.nbim.no/en/About-us/Government-Pension-Fund-Global/>
26. <http://www.nbim.no/en/Investments/Market-Value>
27. <http://www.greenlawchina.org/tag/low-carbon-development-zone>
28. "Study on Low Carbon Development and Green Jobs in China," Institute for Urban and Environmental Studies (IUE), Chinese Academy of Social Sciences (CASS), ILO office for China and Mongolia April 2010. Available at http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-beijing/documents/publication/wcms_155390.pdf
29. At present, many nations, including Canada, have agreed to take steps to limit global average surface temperature rise to 2° C above the pre-industrial period. We recognize that this target is political in nature. Targets should be driven by science, not politics. We expect this commitment will be strengthened to reflect the growing scientific certainty with respect to the impacts of climate change
30. "Pembina Institute Comments on Canada's Proposed Reduction of Carbon Dioxide from Coal-fired Generation of Electricity Regulations," The Pembina Institute, October 26, 2011. Available from <http://www.pembina.org/pub/2280>.

CREDITS

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