GREEN, DECENT AND PUBLIC

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EXECUTIVE SUMMARY

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GREEN, DECENT AND PUBLIC: EXECUTIVE SUMMARY

Canada and the world must address the climate crisis – the most urgent issue of our time. There is a desperate need to stop the average global temperature from rising any more than 2°C. We are also faced with a serious global economic crisis that requires decisive action. There is a broad-based, growing movement to recognize opportunity in crises. This movement is identifying reducing emissions and addressing the climate crisis as an engine for decent green job creation. There are three core sectors within which green jobs can be created: energy efficiency and conservation, transit and high-speed rail, and renewable energy, reflecting both electricity generation and primary energy.

Green, Decent and Public focuses on the distinct opportunities of the public sector to play a prominent role in generating decent green jobs. This begins with a discussion of the economic growth potential of green jobs and the shovel-ready capacity of the public sector. This is followed by a closer examination of energy efficiency opportunities in the electricity sector and beyond. Focus is then shifted to the electricity sector and the tremendous potential for green job creation associated with renewable power generation. Departing from the historical pattern of public power systems, today there is a trend towards market liberalization in Canadian electricity sectors. This is problematic for a number of reasons including decreased accountability, higher electricity prices and concerns with limited reliability. Public and community ownership of renewable power generation is offered as an alternate path to further market liberalization that has distinct advantages. These advantages include retaining economic revenues, maximizing social benefits, prioritizing conservation and ensuring energy security.

PART 1 - GREEN JOB POTENTIAL, THE PUBLIC SECTOR AND ENERGY EFFICIENCY

Shovel-ready capacity and procurement

Given the current economic crisis and the credit collapse, the public sector has increased "shovel-ready" capacity. The credit collapse has hurt the private sector's ability to raise capital for major projects, taking away from the needed rapid expansion in the renewable energy sector and energy efficiency. Meanwhile, government interest rates are very low and many parts of the economy, including construction, are slowing down, so needed investments can be undertaken at a low cost. This not to suggest that there are not private companies ready to establish renewable energy projects, but rather, that public utilities are more likely to be able to access the large amount of credit needed for such projects.

The shovel ready capacity of the public sector tied to made-in-Canada procurement policies, have the potential to create hundreds of thousands of green jobs and create major new markets for Canadian industries. "Buy Canadian" procurement requirements generate greater rates of return associated with the investments supporting new manufacturing jobs. For example, "Buy Canadian" procurement requirements can generate jobs associated with steel or wind turbines manufacturing.[1]

Faced with the economic crisis, the economy is also in need of medium-term investment from the public sector, creating new opportunities for an industrial sector in deep crisis. This includes action to address the huge and long-standing deficit in investment in basic municipal infrastructure, rebuilding urban and inter-city transportation systems, investing in energy conservation through retrofits and other means, dramatically expanding renewable energy, and expanding basic public services. It is not a matter of public or private investment so much as public investment-led growth for the economy.

Green jobs: economic growth potential

As many as 18,000 jobs are created for every $1 billion of investment in energy conservation and renewable energy systems.[2] The average renewable energy investment creates four times as many jobs as the same investment in the fossil fuel economy.[3] If the wind energy target of 20 per cent of Canada's electricity were to be realized, it would create more than 50,000 direct jobs.[4] Energy efficiency is the most attractive sector for the intersection of job creation and greenhouse gas (GHG) emission reduction. The money saved on reducing energy consumption often covers the full costs of the investment. The federal government should provide an economic stimulus of at least $10 billion over each of the next two years. Such a program, mainly directed to energy efficiency and renewable energy projects including building retrofits and public transit, would create at least 200,000 jobs.[5]

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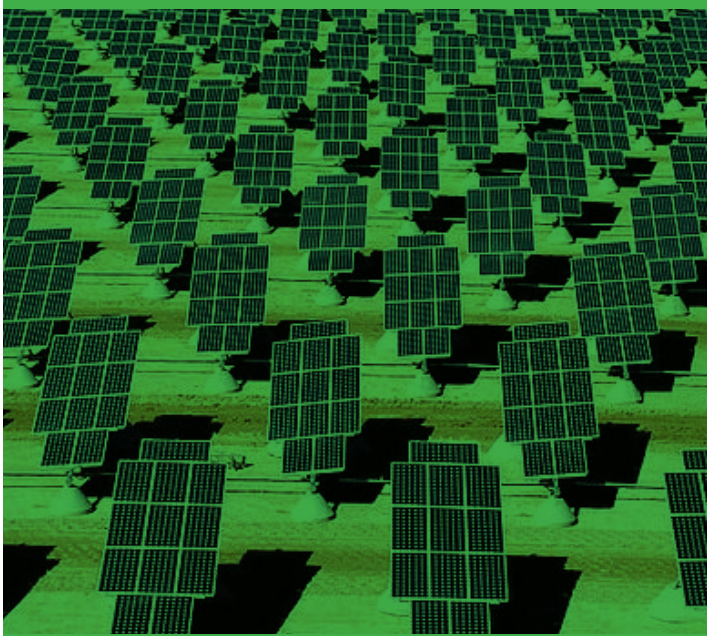

The potential of energy efficiency measures

Energy efficiency is the cheapest source of energy available, as every dollar spent using less electricity saves US$2 in investment in increasing electricity supply.[6] Energy efficiency improvements are also a greater source of net job creation dollar-for-dollar than investments in traditional fossil fuel industries, tax cuts or investments to boost consumer spending. The initial cost of investment in retrofitting (or construction of new high-performance buildings) is quickly recouped as savings on energy bills surpass the cost of the initial investment. It is for these reasons, among others, that public spending on improved energy efficiency can play a vital role in the creation of green jobs and economic recovery.

One billion dollars in additional spending on basic infrastructure, including home retrofits and energy efficiency improvements, creates 11,500 jobs, half in construction and half in other sectors. Every $1billion of investment in energy efficiency creates as many as 18,000 jobs. Implementing a national Canadian municipal retrofitting program would result in 5,600 to 7,840 person-years of employment at the local level. This works out to 20 jobs for every $1 million invested, or 1 job for every $50,000. Further, a potential investment of $280 to $392 million dollars invested in energy efficiency improvements could reduce greenhouse gases by 800 kilotonnes per year. After the initial payback of five to seven years, this would save the government $56 million dollars per year.[7]

PART 2 - THE CANADIAN CONTEXT FOR EXPANDING RENEWABLE POWER GENERATION

There are tremendous opportunities to expand renewable energy and create thousands of jobs in Canada. Renewable energy is energy that comes from renewable sources; thus it includes hydroelectric power, wind power, solar power, tidal power and geothermal power. The expansion of renewable power generation, (regulated in the public interest to minimize adverse environmental and social impacts), the focus of this report, will play an important role in reducing emissions and generate manufacturing, construction and renewable power operation green jobs. In focussing on power generation, this report refers mainly to hydroelectric, wind and solar power, with additional reference to tidal power and biomass.[8] If we made a concerted effort, by 2050 the majority of Canada's electricity could be provided by renewable energy sources.[9]

The Canadian electricity sector

It is through the long history of public power that Canadians and Canadian communities have viewed a secure supply of electricity, with stable, fair and affordable power, as a right. A public power system is regulated in the public interest with public ownership of the transmission and distribution system as a whole, and predominantly public ownership of power generation. Currently 80 per cent of electricity produced is in the public sector in Canada, compared with only 12 per cent in the United States. Electricity is an essential service and has characteristics amenable to being natural monopoly. By vertically integrating our electrical system through the public sector, we have been better able to provide affordable and reliable electricity, provide more investment capital and better governance.

Currently, 60 per cent of electricity generation in Canada is from hydroelectricity, approximately 16 per cent is from nuclear fuel, 22 per cent is from fossil fuels, and the remainder comes from renewable sources.[10] Details vary greatly from province to province in terms of the mix of power generation sources and the extent of public ownership and regulation.

Market liberalization in the electricity sector

There is a trend towards market liberalization in the Canadian electricity sector. A first step in enhancing competition is typically unbundling the generation, transmission and delivery functions of previously vertically integrated electric utilities with monopoly rights (often Crown corporations in Canada) into separate organizations. Market liberalization involves a shift in understanding electricity as a public good and service or "commons," to electricity as a commodity traded and sold for private commercial profit.[11]

Currently Alberta has a private open-market electricity system. Nova Scotia has a regulated private monopoly, PEI is served by Martime Electric which is a wholly-owned subsidiary of Fortis Inc. (imports most of electricity supplied from NB Power) and Ontario has a hybrid system. British Columbia, Saskatchewan, Manitoba, Quebec, the Northwest Territories, New Brunswick, and Newfoundland and Labrador all have Crown corporations but are, to varying degrees, incorporating more electricity generation by the private sector and unbundling previously vertically integrated electricity systems. Most, but not all, provinces traditionally have allowed only a small role for private power generators. Deregulation and privatization are increasing this role.

This shift is problematic for a number of reasons including decreased accountability, higher electricity prices and concerns with limited reliability. These results have been experienced in a number of jurisdictions that have liberalized their electricity sectors including Great Britain,[12] U.S. states[13] as well as in Canada. From June to October 2000 the price of electricity rose from 5 cents to 25 cents per kWh after market liberalization, jumping to the third most expensive jurisdiction in North America.[14] Albertans have also been forced to compete with the California market, paying California prices and competing for power generated in the province. There has also been an increase in brown-outs.

Ontario's power market was opened to competition in May 2001leading to an increase in prices and threats of power shortages.[15] Average industrial electricity prices rose sharply from May 2002 which devastated certain industries, and has made a huge impact on overall competitiveness and jobs.[16] Ultimately, the plan to privatize Hydro One failed after the Canadian Energy and Paperworkers Union and Canadian Union of Public Employees successfully brought the Ontario government to court over their lack of legal authority to privatize the public utility. Ontario now operates as a hybrid system, with elements of regulation and competitive markets.

The future of renewable power: Heading down the path of market liberalization

Increasing renewable power generation is becoming a social and political priority; all provinces have some form of policy intended to increase "green" power and green jobs.[17] This is taking place in the context of a trend towards

market liberalization in Canadian electricity sectors. Unbundling of electric utilities operations into separate organizations, increasing provincial wholesale and retail access to electricity sectors, and establishing competitive markets in Alberta and Ontario are creating opportunities for the expansion of private power generation. Provincial policies, to varying degrees, are encouraging this pattern.[18]

Creating a market for private renewable power generation shifts away from predominantly public ownership. While the extent to which this is accompanied by other features of market liberalization differs based on provincial regulatory and policy context, it indicates a shift to the market liberalization path away from public power systems. While increasing renewable power is an undeniable priority, it does not have to be accompanied by further market liberalization in the electricity sector.

The B.C. case: Experiences with market liberalization and renewable power

B.C. Hydro is now required to buy almost all of its future needs from private investor-owned power producers (often referred to as independent power producers, IPPs).[19] Licences for water and wind resources are being sold at minimal costs, helping to create what some have referred to as a private power gold rush, particularly with "run-of-the-river" projects

The IPP approach raises concerns about price volatility and the capacity of the B.C. government to ensure long-term energy security. Contracts are being signed at a high cost to B.C. ratepayers and will result in an upward pressure on electricity prices.[20] While the government claims that IPPs will help achieve electricity "self-sufficiency," run-of-the-river projects will produce power most reliably during the spring freshet when public hydroelectric generating stations are also producing their maximum. When contracts expire, private power producers will continue to profit from provincial resources and will have significant rights under NAFTA to export power to the highest bidder.[21]Private run-of-the-river projects are being actively opposed on several grounds by a coalition involving social justice, labour, indigenous groups and communities, environmental activists and municipalities. The coalition is concerned with the environmental and social impacts of IPPs.[22]

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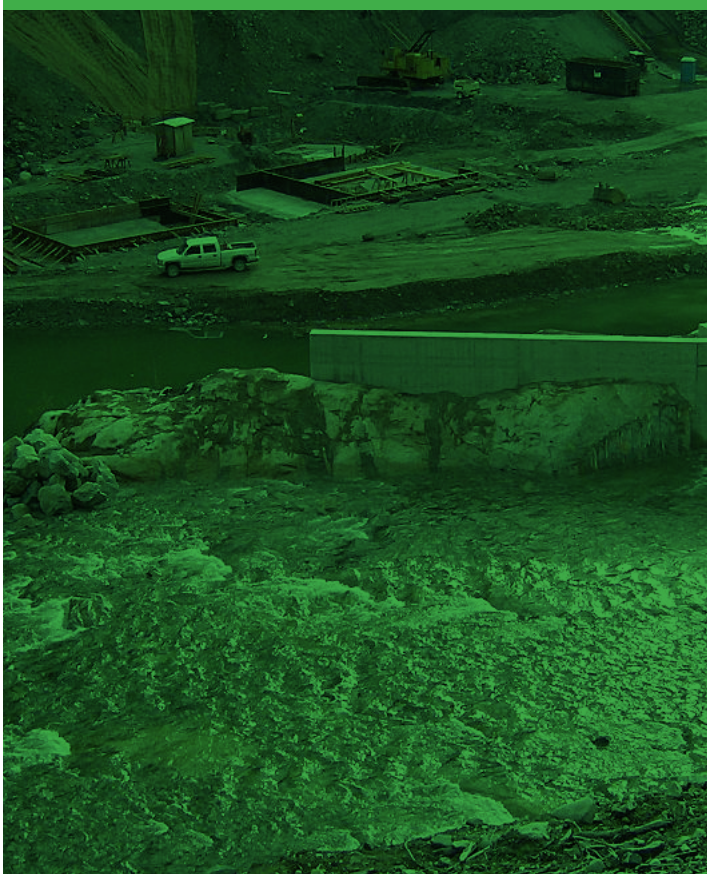

PART 3 - PUBLIC AND COMMUNITY-OWNED POWER

Public and community ownership potential for renewable power

Public power and community power (CP) can be an alternative path to the market liberalization path. Public and community power include prominent roles for public utilities generating renewable power as well as roles for local ownership (community power). CP typically includes power producers such as public institutions, co-operatives, farmers and individual landowners.[23] Public and community power can include both large renewable power projects (such as wind and solar farms, tidal power facilities) and smaller-scale projects (such as single wind turbines and biomass projects).[24] Decentralized energy (DE, such as on-site renewable applications and cogeneration) offer roles for public power models, CP and private generation by industry and small producers.

While it is difficult to provide a conclusive definition of public and community power, three essential central characteristics are identified. These three characteristics are key reasons for why we established public power and are essential to achieving the advantages of public and community ownership discussed in this report. These characteristics are: ownership structures that are democratically accountable; not profit-driven; focused on meeting local electricity needs or electricity for the provincial grid.

Public power examples: Crown corporations and public utilities

Provincially owned utilities such as Crown corporations and municipally owned utilities can and should play an important role in power generated from renewable sources. Sask Power is doing exactly this, running the 150-megawatt Centennial wind power facility, currently Canada's second largest wind farm. While most public utilities' experiences are in producing power from non-renewable resources, outside of hydroelectricity, government policy can support investment in research and training helping to build knowledge and expand renewable power ownership potential.

Community power examples: Local public ownership

There are a considerable number of opportunities for democratic ownership and control at a local level. Existing municipal electric utilities (local distribution companies) are well positioned to own renewable power generation, integrating this into their existing distribution networks.[25]

There are also a number of municipalities and First Nations that own power generation facilities that can work with companies to build a renewable power facility, which they then own and operate. Public-public partnerships between local ownership examples and provincially owned utilities, such as the Columbia Basic Trust model in B.C., can blend local accountability with experience in the generation and delivery of electricity and capacity to borrow capital. Municipalities also have unique opportunities to produce low emission power such as owning plants that convert landfill methane emissions into electricity.[26]

Community power examples: Co-operatives and green power

The co-operative model engages members as owners that, after operating costs are considered, benefit from the economic revenues generated.[27] Co-operatives are meant to have multiple "bottom lines" outside of profit. All co-operatives are guided by seven principles, including voluntary and open membership, democratic member control and economic participation, autonomy and independence, emphasis on education and training, and concern for community.[28]

Renewable power projects can be consumer or member-owned co-operatives.[29] Members typically include local residents and potentially businesses in the community where the project is located, although membership can be broader. Given the nature of provincial power systems, most renewable energy co-operatives will sell power to the provincial grid. While often associated with smaller-scale projects, co-operatives can also be involved in large-scale projects where, because of barriers in knowledge and technical expertise, they are likely to partner with other institutions (such as public utilities). An example of a partnership between a co-operative and a public utility is the Windshare project between the Toronto Renewable Energy Cooperative (TREC) and Toronto Hydro.[30] Worker co-operatives are another possible model. For example, the Vancouver Renewable Energy Co-operative designs, sells and installs grid-tied solar electricity systems for buildings for organizations, homeowners and other co-operatives.[31] Co-operatives have proven a successful means to expand renewable power. In Denmark, co-operatives represent 24 per cent of the wind generating capacity, in Germany, citizen-owned companies account for nearly 40 per cent of wind capacity.[32]

Decentralized Energy: Cogeneration and on-site renewable power applications

CP is also associated with smaller distributed or decentralized energy (DE). Simply defined, DE is energy

generated at or near the point of its use. It includes on-site renewable power applications such as solar panels and solar thermal technology for water and space heating as well as cogeneration. Cogeneration is the simultaneous production of electricity and heat (also referred to as combined heat and power) that makes use of wasted heat to supply nearby heat needs and provide useful electricity.[33] Cogeneration can be used on a small scale, such as in homes or institutions like hospitals, hockey rinks or shopping malls, and in larger-scale applications for industry and power generation.[34] Cogeneration can meet electricity needs in a specific building, contribute to nearby electricity needs or surplus can be sold to the grid. Waste heat can be used for heating on-site and nearby spaces.

Utilities can use cogeneration at power plants as well as own and operate a portfolio of decentralized smaller scale energy systems such as solar panels, small wind turbines and solar water heaters used at local homes and institutions such as schools, hospitals and arenas.[35] Governments can demonstrate leadership through action by "greening" public institutions such as municipal buildings, hospitals, public arenas, and federal and provincial buildings.[36]

Although this report argues for renewable electricity generation in public hands, DE raises a number of exceptions. DE includes a wide range of applications, such as small wind turbines and solar panels on individual homes, to much larger scale generating capacity by rural residents and farmers, to large-scale industry. When surplus power is produced, this can be sold to the provincial grid.[37] By having a large number and variety of smaller generators – each close to where the power is needed and delivered through the electricity grid – we are rapidly expanding renewable electricity generation, using our electricity much more efficiently and keeping control in public hands.

Two policy mechanisms meant to reduce barriers to connecting "green power" to the grid are feed-in tariffs and Renewable Energy Portfolios (REPs).[38] With feed-in-tariffs, utilities are required to buy electricity generated from renewable sources at guaranteed, long-term prices. 39 Feed-in tariff policies have proven successful in both Denmark and Germany in expanding renewable energy. Since public funds are being used to support renewable power projects, it is logical and fair for the public to benefit from the eventual economic revenues that the projects produce through public and community ownership (including private DE applications).

One of the most challenging obstacles to DE and CP is the pressure on transmission lines. Existing infrastructure capacity is not sufficient to handle the new electricity inputs. Increased infrastructure and capacity needed places an added cost and burden on the public sector which remains responsible for needed transmission lines. We must ensure the public infrastructure is significantly funded.

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PART 4 - ADVANTAGES OF PUBLIC AND COMMUNITY-OWNED POWER

The need for renewable power expansion is a given in the current climate crisis. There are distinct advantages in having public and community ownership create green jobs in renewable power generation: retention of economic rents, prioritizing conservation, ensuring energy security, and expanded social benefits.

Economic revenue for public purposes

When ownership is in public hands, if revenues are forthcoming they stay in public hands for the public good and can be redistributed. Traditional pricing dissipates these revenues by selling power to consumers at the average cost of producing it. Marginal-cost pricing would allow suppliers to retain the revenues. If the supplier is a public utility, revenues can be used for public purposes, including the further expansion of renewables and conservation as well as other social priorities. Keeping the economic revenues in public hands also ensures that the existing infrastructure capacity and transmission lines are able to keep pace with any increased pressure on transmission lines by means of new inputs of decentralized renewable electricity generation. Conversely, if power generation is owned commercially by corporations, these economic revenues go to CEOs and shareholders, with profits potentially leaving the country.

Community power ownership models also provide opportunities for revenues to benefit the public. CP typically keeps economic revenue in the community and generates local economic growth.[40] One U.S. based study indicates that locally owned, small wind projects produce nearly ten times as much economic activity as out-of-state companies.[41] Another study found that "community-owned distributed generation can add as many as 150 jobs and from $.7 to $4.3 million compared to the traditional ownership model utilized in centralized generation. Overall local economies see far greater benefits in the form of the revenues generated by CP projects that are retained and reinvested by members of the community."[42]

Social benefits of public and community power

Public and community ownership also provide opportunities to ensure that the expansion of renewable power generation is accountable to the public interest and contributes to decent job creation and reduced inequality. It is easier to regulate public agencies in the public interest. Being publicly owned, Crown corporations and public utilities are accountable to elected politicians (who are in turn accountable to provincial residents). With expanded private power generation and market liberalization, accountability is restricted by profit-driven interests and the need to answer to shareholders. In privatized systems, corporate secrecy is introduced in the delivery of an essential service making regulating industries (including reliability of services, health and safety, and the achievement of environmental and social goals) much more challenging.[43]

Decent green job creation is an important social benefit. Workers in the public sector are far more likely to be represented by a union, paid higher wages and offered better benefits than those in the private sector. Internationally, research has not supported the claim that, on average, wages are higher in the public sector, rather average wages are higher in the private sector. However, the private sector has the greatest range between minimum and maximum pay levels within enterprises.[44]For example, the salary increases of the 13 members of the board of directors of British Telecom jumped from 489,000 pounds annually to a staggering 3,487,000 pounds annually as a result of deregulation and privatization.[45] Similarly, upon privatization the salaries of the 12 members of the board of directors of British Gas jumped from 495,000 pounds to 3,413,000 pounds.[46] Meanwhile other workers in the same enterprises experienced lay-offs, increased instances of casual work, and increased wage disparities within firms. Unionization is an important part of ensuring that public and community power green jobs are decent jobs.

Government action through public employment programs is far more likely than the market to provide job opportunities that help reduce poverty and improve equity, building a just, green energy economy. Expanded renewable energy in the public sector is more capable than privatized power to provide training for laid-off workers and provide access to "green jobs" being created through public investment programs in the electricity sector.

Prioritizing conservation

The cleanest energy is the energy we don't have to use. Lowering overall demand for electricity involves both energy efficiency measures and reducing consumption – simply using less. Alongside the rapid expansion of renewable power, conservation must play a prominent role in reducing emissions.

Public power generation in regulated systems where power prices are based on the long-term costs of producing power, provides incentives for utilities to consider conservation on equal footing with building new power generation. Here the high costs of building new facilities

can be measured against "finding power" through Demand Side Management (DSM) at a cheaper cost.[47] In the case of vertically integrated public power systems with Crown corporations being the single or predominant generator of power, Crown corporations can capture the benefit of savings through effective DSM programs,[48] designed to encourage consumers to reduce their level of demand as well as modify their patterns of power use.[49]

Further, in being held accountable and measuring success not only through profitability but also through achieving social, economic and political objectives, public and community-owned power models provide the means to prioritize increased conservation.

While there are incentives for power generators to emphasize conservation in regulated public power systems, this dynamic changes with market liberalization. There is a tension between conservation and private power generators maximizing market opportunities to increase profits. Reducing consumption can lead to profit loss.[50] During the 1990s, as unbundling was taking place in a number of Canadian electricity sectors, DSM programs suffered. This was in part because of reduced incentives for utilities to invest in DSM, as well as lower-priced power supplies from competing resources available to large energy users.[51] Deregulation in California's electricity market initially saw similar results.[52]

This disincentive for utilities to invest in DSM in a market based system is real. However, DSM and conservation can continue with market liberalization in the electricity sector. Some have argued that higher electricity costs (a likely outcome of liberalization) can encourage greater conservation on the part of consumers. However, there is evidence of a weak correlation between electricity prices and use.[53] Increases in electricity prices come at significant cost particularly to low income Canadians and to energy intensive and trade vulnerable industries. Further, while regulations and market-based incentives for conservation can be implemented, they come at a public cost and are in tension with the overarching objective of market liberalization in seeking less government intervention.

Ensuring energy security

Energy security is necessary for the well-being of individuals and society. If renewable power rapidly expands, the capacity to ensure electricity supply security from these new sources will become increasingly pertinent to meeting Canadians' overall electricity security needs. Directed by government, the primary mandate of government-owned utilities has been to provide reliable electricity within provincial boundaries at affordable prices and ensuring adequate supply is available.[54]

The ability of governments to ensure supply security is curtailed by greater participation of the private sector and market liberalization. Private energy producers focus on revenues and cost in response to market signals and typically sell to the highest bidder. This includes profit-driven electricity trading with the U.S. Under NAFTA there are significant rights accorded to private power producers that must be considered. Canada's obligations under NAFTA are not contingent on questions such as whether exports could negatively affect supply in our country.[55]

NAFTA imposes constraints on the capacity of governments to intervene in energy trade. It also accords foreign investors from member countries (U.S. and Mexico) rights with respect to their investments and their ability to export outside of provincial boundaries. NAFTA's Chapter 6 prohibits the use of charges or taxes on energy exports and imposes constraints on energy import and export controls, effectively preventing a two-priced system with lower prices for domestic consumers. While Chapter 6 is subject to certain safeguards,[56] it is questionable whether they can be relied on given the narrow interpretations trade dispute bodies have accorded them.[57] These safeguards are not exempted from the proportionality clause, which requires Canada to maintain the proportion of exports to the U.S.

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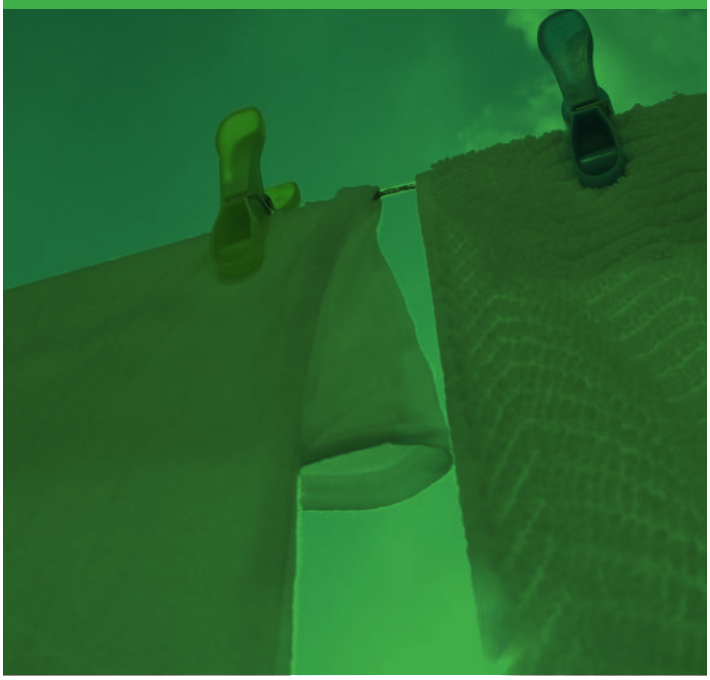

of the total supply prevailing over the previous three years. This means that restrictions reducing the amount of electricity exported to the U.S. must also apply to domestic consumers, whose supply of electricity needs to be proportionally reduced.[58] Public and community ownership and control of generation and transmission assets are the best option for insulating public policy choices from NAFTA challenges.

Canada has some of the lowest electricity prices in the world.[59] Electricity prices in the U.S. are consistently higher making private electricity exports attractive. In responding to the climate crisis, a number of U.S. jurisdictions have targets for increasing the share of renewable power in their energy mix. This creates an attractive market for Canadian "green" electricity in the U.S. potentially undermining energy security and prioritizing renewable electricity supply in Canadian jurisdictions.[60]

PART 5: CONCLUSIONS

On a grassroots, movement level, there are growing efforts and examples of alliances calling for "green jobs" and a more equitable "green energy economy." Although there are a myriad of definitions for what a green job is, the key detail is that through targeted investments, we can create thousands of decent family-supporting jobs by investing in, but not limiting ourselves to, renewable energy and energy efficiency. Given the fact that the U.S. is currently out-spending Canada six to one per capita on "green" investments, Canada needs to quickly catch up or the economic opportunity will be lost, making Canada a branch-plant economy while GHGs continue to grow.

In the coming decades Canada's electricity mix and electricity consumption will evolve tremendously. Canada's electricity will increasingly be more distributed, smaller scale and more diverse. Steps should be taken to ensure that it is consistent with science-based greenhouse gas emission reduction targets and maximizes decent job creation.

Alongside public sector investments in improving energy efficiency, the favoured path forward is a power system regulated in the public interest, combined with a public distribution system and the expansion of public and community owned renewable power. Given the economic crisis and the credit crunch, the public sector has the capacity to expand energy efficiency and renewable energy more rapidly; a pace desperately required when faced with the current climate crisis. Public and community renewable power offers an alternative path to further market liberalization in the electricity sector with distinct opportunities and advantages. This includes the retention of economic revenues, increased social benefits, prioritized conservation and increased energy security.

We can improve energy efficiency and expand renewable power in a way with significant advantages, and create green jobs strong enough to lift people out of poverty. Simply put, we should reduce and use our energy more efficiently while ensuring that Canada's electricity is green, provides decent work, and remains public.

Note: For a copy of a comprehensive list of policy recommendations for a secure, just and prosperous energy future, please refer to the full report.

NOTES

1. However, the Buy American negotiations and the Canada-European Union trade agreement talks currently taking place may pose risks to this flexibility.
2. "Green Infrastructure Investment," Canadian Labour Congress (2008), 2.
3. Ibid.
4. "Wind Vision 2025, Powering Canada's Future," Canadian Wind Energy Association (2008), http://www.canwea.ca/images/uploads/File/Windvision_summary_e.pdf, 3. Representative jobs in the renewable energy sector would include iron and steel workers, welders, metal fabricators, sheet metal workers, electrical equipment technicians, construction workers, electricians, computer software engineers, machinists, construction labourers, operating engineers, and electrical power line installers and repairers. David Thompson, "Green Jobs: It's time to build Alberta's future," Sierra Club Prairie, Greenpeace and the Alberta Federation of Labour (2009), 4.
5. Representative jobs in this sector include electricians, heating/air conditioning installers, carpenters, construction equipment operators, roofers, insulation workers, carpenter helpers, industrial truck drivers, construction managers, building inspectors, and sheet metal workers. David Thompson, Green Jobs: It's time to build Alberta's future, Sierra Club Prairie, Greenpeace and the Alberta Federation of Labour (2009), 3-4.
6. Joan Fitzgerald, "Cities, Climate Change and Urban Economic Development," 2nd Annual Meeting of the OECD Roundtable Strategy for Urban Development (Milan: OECD, 2008), http://www.oecd.org/dataoecd/23/45/41440162.pdf, 8.
7. Federation of Canadian Municipalities, "Municipal Buildings Retrofits: The Business Case,"

   http://www.sustainablecommunities.fcm.ca/files/Capacity_Building_-_MBRG/MBRG_thebusiness_case_En.pdf
8. Nuclear power cannot be rapidly deployed and carries a significant up-front public investment, making it less able to address the urgent action required by the climate crisis. It is arguably green but not renewable, given its dependency on uranium, a plentiful but non-renewable resource. There are also significant risks associated with the storage of nuclear waste and potential water impacts. Nuclear power expansion, therefore, is not considered a renewable power source in this report.
9. Sven Teske and Dave Marin, Energy [R]evolution: A Sustainable Canada Energy Outlook, ed. Greenpeace and European Renewable Energy Council (December 2008), http://www.greenpeace.org/canada/en/documents-and-links/publications/energy-revolution-report-2009, 21.
10. "Canada's Greenhouse Gas Emissions: Understanding the Trends, 1990-2006," Environment Canada (November 2008), http://www.ec.gc.ca/pdb/ghg/inventory_report/2008_trends/2008_trends_eng.pdf, 1.
11. The "commons" is a term used to describe a resource held in common to ensure its use to meet collective needs. Electricity is considered a "common" resource because of the essential needs electricity services meet. Marjorie Griffin Cohen, "Electricity Restructuring's Dirty Secret," in Nature's Revenge: Reclaiming Sustainability in an Age of Corporation Globalization, ed. Josée Johnston, Michael Gismodi and James Goodman (Peterborough: Broadview Press, 2006).
12. Steve Thomas, «The British Model in Britain: Failing slowly,» Energy Policy, Volume 34, Issue 5, (March 2006).
13. For a discussion of U.S. experiences with electricity market liberalization, please refer to page 14 of Green Decent and Public as well as; Tyson Slocum, "The Failure of Electricity Deregulation: History, Status and Needed Reforms," Public Citizen's Energy Program (October 2008),
14. Canadian Union of Public Employees, "Deregulation, Privatization and the Ontario Power Failure," September 2003, http://cupe.ca/PrivatizationUtilities/ART3f719b0a8bd00 and Marjorie Griffin Cohen, From Public Good to Private Exploitation: Electricity Deregulation, Privatization and Continental Integration, Canadian Centre for Policy Alternatives – Nova Scotia (July 2002), 27.
15. Canadian Union of Public Employees, "Deregulation, Privatization and the Ontario Power Failure," September 2003, http://cupe.ca/PrivatizationUtilities/ART3f719b0a8bd00 and "Energy Policy," Canadian Energy and Paperworkers Union, 18.
16. "Ontario Electricity Rates and Industrial Competitiveness," Navigant Consulting (March 2006), http://www.ampco.org/assets/AMPCO%20Navigant%20Final%20Report%2020060323.pdf, 1-14.
17. Pembina Institute, "Policies and Programs," http://re.pembina.org/canada/policies.
18. In provinces across the country large scale, investor-owned wind farms are emerging. In a number of provinces, such as B.C. and Quebec, there are policies to explicitly encourage privately owned renewable power generation while simultaneously preventing or discouraging Crown corporations from owning renewable power generation facilities. In Quebec, corporations have been encouraged to dominate new wind power projects, not Hydro-Québec or locally based projects. B.C. Hydro is effectively being transformed from a producer of electricity to a distributor of energy. Ontario's new Green Energy Act (GEA) uses feed-in tariffs to encourage green power projects. The GEA includes positive incentives for expanding community power and decentralized power (described below). While the rules had not been finalized at the time of writing this report, it appears that commercial renewable power generators such as investor-owned wind farms will also qualify for contracts with the Ontario Power Authority. This will lead to an increased role for private, for-profit power production in the province. Legislative Assembly of Ontario, "Bill 150, Green Energy and Green Economy Act, 2009," http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&BillID=2145 and Ontario Power Authority, "Revised FIT Program Rules, Standard Definitions and Price Schedule – Draft July 10, 2009," http://www.powerauthority.on.ca/FIT/Page.asp?PageID=122&ContentID=10181&SiteNodeID=1039&BL_ExpandID=, The B.C. Energy Plan: A Vision for Clean Energy Leadership, "Electricity Policies," http://energyplan.gov.bc.ca/PDF/BC_Energy_Plan_Alternative_Energy.pdf, 8; John Calvert, ed., Liquid Gold: Energy Privatization in British Columbia (Halifax and Winnipeg: Fernwood Publishing, 2007)., Canadian Wind Energy Association, "List of Canadian wind farms," http://www.canwea.ca/farms/wind-farms_e.php, "Energy Policy," Canadian Energy and Paperworkers Union, 18, and John Calvert, ed., Liquid Gold: Energy Privatization in British Columbia (Halifax and Winnipeg: Fernwood Publishing, 2007), 19-51.
19. This includes hydro, waste heat, wind and biomass. This is being facilitated by the new B.C. Transmission Corporation (BCTC, the

product of the unbundling B.C. Hydro's previously integrated services) which allows wholesale access and supports efforts to coordinate greater grid connection with the Pacific Northwest. John Calvert, "Sticker Shock: The Impending Cost of BC Hydro's Shift to Private Power Developers," Policy Brief, Canadian Centre for Policy Alternatives, BC Office (April 2007), 7.

20. The average bid price of 2006 contracts was about $74 per MWh for large projects – the market price for energy in 2005 was close to $50-$55 per MWh. Ibid., 9.
21. John Calvert, ed., Liquid Gold: Energy Privatization in British Columbia (Halifax and Winnipeg: Fernwood Publishing, 2007), 99-105.
22. Concerns about the projects include the pace at which licences and approvals are moving forward, driven by the interests of private developers, without a framework that effectively engages communities and First Nations and considers the cumulative impacts of multiple projects on B.C.'s rivers and streams. There are significant concerns about the environmental impacts of the proposed projects, the privatization of renewable power, as well as concerns over electricity price increases and the potential for private exports to U.S. markets to undermine provincial energy security. "More than 50 grassroots organizations reject energy privatization policy," Press Release (May 2009), http://www.canadians.org/media/energy/2009/07-May-09.html.
23. As will be argued, individual landowners producing on-site renewable power is an acceptable example of the private generation of power.
24. There are important distinctions between biomass projects that use waste products to produce electricity and some that may deliberately grow plants or trees in order to convert into electricity, which are problematic.
25. William A.S. McDowall, Community Energy Association, "Utilities & Financing: Renewable Energy Guide for Local Governments in British Columbia," (February 2008), 13.
26. For example, as of April 2005, a subsidiary of Guelph Hydro Inc., Ecotricity, produces around 2.5 MW of electricity annually from a landfill gas-to-electricity plant. Guelph Hydro Inc., "Ecotricity Guelph Inc.," http://www.guelphhydroinc.com/ecotricity.html.
27. In most cases, members (a.k.a. owners) also use the services or purchase the products the co-op produces, which can serve a range of sectors, including housing, food, worker, agriculture, service, financial, youth, Aboriginal and community. Co-operatives can be managed on both a for-profit and a not-for profit basis. Canadian Co-operative Association, "What is a Co-operative?" http://www.coopscanada.coop/en/about_co-operative/about_co-ops.
28. Ibid.
29. BC Institute for Co-operative Studies, "Energy Co-operatives: What Is an Energy Co-operative" (2003), http://web.uvic.ca/bcics/research/energy/whatis.htm.
30. Toronto Renewable Energy Co-operative, "WindShare," http://www.trec.on.ca/projects/windshare.html.
31. Vancouver Renewable Energy, http://www.vanrenewable.org/.
32. Canadian Renewable Energy Alliance, "Community Power: The ways forward" (August 2006) http://www.canrea.ca/pdf/CanREACPpaper.pdf. Paul Gripe, "Comments on New Brunswick's Community Wind Initiative" (April 2008), http://www.windworks.org/coopwind/New%20Brunswick%20Community%20Wind%20Comments.pdf.
33. World Alliance for Decentralized Energy, "Distributed Energy Technologies," http://www.localpower.org/deb_technologies.html#chp.
34. Ibid.
35. Here, the local utility could pay the start up costs including installation. While the utility owns the systems, consumers would pay an energy bill based on use of these systems.William A.S. McDowall, Community Energy Association, "Utilities & Financing: Renewable Energy Guide for Local Governments in British Columbia," (February 2008), 14.
36. When public institutions use on-site renewable and cogeneration, it is ideal if the institution owns the generation. While a private firm may be contracted to build, install or maintain the technology, public ownership maximizes benefits to the institution.
37. In the case of smaller-scale decentralized private production, if the supplier requires more than the electricity they produce, they can buy it from the grid. If a surplus is produced, meters can be reversed so that DE producers can be paid to supply the grid. DE can also supply nearby needs through local distribution network systems (sometimes referred to as microgrids), which can be connected to provincial grids.
38. ARTs establish premium tariffs guaranteed by government for renewable power generators. REPs set renewable power use goals for electric retailers that increase over time, with penalties for non-compliance. The Pembina Institute, "Supportive Policies," http://re.pembina.org/global/support.
39. Paul Gipe, "Evolution of Feed-in Tariffs," Wind-Works.org (March 18, 2009), http://www.wind-works.org/FeedLaws/EvolutionofFeed-inTariffs.html.
40. "Distributed Generation in Canada – Maximizing the Benefits of Renewable Resources," Canadian Renewable Energy Alliance (August 2006), http://www.canrea.ca/pdf/CanREADGpaper.pdf.
41. Community-owned renewable projects here includes landowners (can be organized in a co-operative) or public institutions (such as a school) owning a wind turbine while commercial projects include farmers leasing their land to private developers Teresa Welsh, "Small Packages, Big Benefits: Economic Advantages of Local Wind Projects," Policy Brief (April 2005), http://www.cpfund.ca/pdf/iowa-policy-project.pdf.
42. This study was conducted by Minnesota's Southwest Regional Development Commission. Ibid.
43. For example, a number of black-outs have occurred in deregulated electricity markets: Auckland, New Zealand (1998); New York; New Jersey; Pennsylvania; Illinois; Arkansas; Louisiana (1999); California (2001-2002); northeastern U.S. and Ontario (2003); and London, England (2003). Disruptions in reliability are often associated with large-volume, long-distance trading of power as well as market manipulation. Canadian Union of Public Employees, "Deregulation, Privatization and the Ontario Power Failure," September 2003, http://cupe.ca/PrivatizationUtilities/ART3f719b0a8bd00 and Lester B. Lave, Jay Apt and Seth Blumsack, "Rethinking Electricity Deregulation," The Electricity Journal, Volume 17, Issue 8. (September 2004). Ibid.
44. L. de Luca, ed., Labour and social dimensions of privatization and restructuring (public utilities: water, gas, electricity, ILO, Geneva (1998), 139.
45. Table 3.7 in Report for Discussion at the Tripartite Meeting on Managing the Privatization and Restructuring of Public Utilities: The Impact of Privatization and Restructuring on Remuneration and other Working Conditions, International Labour Organization

(Geneva, 1999). Structural and Regulatory Changes and Globalization in Postal and Telecommunications Services: The Human Resources Dimension, International Labour Organization (Geneva, 1998), 78-80.

46. Ibid.
47. Marjorie Griffin Cohen, "Electricity Restructuring's Dirty Secret," in Nature's Revenge: Reclaiming Sustainability in the Age of Corporate Globalism (Peterborough, ON: Broadview Press, 2006), 87-89.
48. John Calvert, ed., Liquid Gold: Energy Privatization in British Columbia (Halifax and Winnipeg: Fernwood Publishing, 2007), 214-216.
49. DSMcan involve a range of actions, including public conservation awareness campaigns, incentives for measures that increase efficient power use and variable pricing to reduce demand at peak use periods. "Energy Efficiency and Conservation: The Cornerstone of a Sustainable Energy Future," Canadian Renewable Energy Alliance (August 2006), http://www.canrea.ca/pdf/CanREAEEPaper.pdf.
50. Marjorie Griffin Cohen, "Electricity Restructuring's Dirty Secret," in Nature's Revenge: Reclaiming Sustainability in the Age of Corporate Globalism (Peterborough, ON: Broadview Press, 2006), 88.
51. "Energy Efficiency and Conservation: The Cornerstone of a Sustainable Energy Future," Canadian Renewable Energy Alliance (August 2006), http://www.canrea.ca/pdf/CanREAEEPaper.pdf.
52. Jamie Swift and Keith Stewart, Hydro: The Decline and Fall of Ontario's Electric Empire (Toronto: Between the Lines, 2004), 106-110.
53. "The Power to Choose: Demand Response in Liberalized Electricity Markets," Organisation for Economic Co-operation and Development (OECD), International Energy Agency (2003), 21.
54. This is also the case with regulated, vertically integrated private monopolies, such as Nova Scotia's power system. While exports have been an important source of revenue to a number of public power systems, they have typically been limited to the sale of surplus electricity through long-term contracts with guaranteed pricing. Marjorie Griffin Cohen, "From Public Good to Private Exploitation: Electricity Deregulation, Privatization and Continental Integration," Canadian Centre for Policy Alternatives – Nova Scotia (July 2002), 3.
55. As noted by the NAFTA Commission for Environmental Cooperation (CEC), energy rules under the trade agreement broadly seek to reduce the capacity of government regulators to intervene in cross-border energy sales both in removing restrictions to exports and in preventing the creation of new restrictions. "International Forces Driving Electricity Deregulation in the Semi-Periphery: The Case of Canada," in Marjorie Griffin Cohen and Stephen Clarkson, eds., Governing under Stress: Middle Powers and the Challenge of Globalization (London: Zed Books, 2004).
56. These exceptions are "preventing or relieving critical shortages on a temporary basis . . . conserving exhaustible natural resources." It is questionable whether these "safeguards" could indeed provide security in the event of supply shortages. For more information, refer to the discussion of these exceptions, pages 9-22 of Scott Sinclair's overview of international trade law and the Ontario electricity system. Scott Sinclair, "International Trade Law and the Ontario Electricity Sector," in Council of Canadians Evidence for the Ontario Energy Board (August 2008), http://canadians.org/energy/documents/OEBEvidence-CoC.pdf, 9-22.
57. John Calvert and Marjorie Griffin Cohen, "The Impacts of International Trade Law and US Regulation on the Integrated Power System Plan," in The Council of Canadians Evidence for the Ontario Energy Board (August 2008), http://canadians.org/energy/documents/OEBEvidence-CoC.pdf
58. Ibid., 10-11.
59. National Energy Board, "Frequently Asked Questions," http://www.neb.gc.ca/clf-nsi/rnrgynfmtn/prcng/lctrct/frqntlskdqstn-eng.html.
60. John Calvert and Marjorie Griffin Cohen, "The Impacts of International Trade Law and US Regulation on the Integrated Power System Plan," in The Council of Canadians Evidence for the Ontario Energy Board (August 2008), http://canadians.org/energy/documents/OEBEvidence-CoC.pdf, 33.

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