



**CCPA**  
CANADIAN CENTRE  
for POLICY ALTERNATIVES  
BC Office

# Envisioning a Good, Green Life in BC: Lessons from the Climate Justice Project

SUBMISSION TO THE BC CLIMATE LEADERSHIP TEAM

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## Introduction

This submission highlights key findings and directions from six years of research, spanning 30 publications, by the Climate Justice Project (CJP), a collaboration among researchers in academia, environmental NGOs, trade unions and a wide range of other community and advocacy organizations.<sup>1</sup> The CJP's research agenda has aimed to better understand the linkages between climate action and social justice, primarily using British Columbia as a case study, and with a view towards developing more inclusive and effective policies.

The CJP views extreme and growing inequality as the other “inconvenient truth.” For example, in 2012, the top 10 per cent of British Columbians owned more than half (56 per cent) of the province's wealth.<sup>2</sup> Conversely, the bottom half (50 per cent) of households own a combined 3 per cent of BC's wealth. Inequality also shows up in who benefits from consuming fossil fuels in BC. The carbon footprint of the richest 20 per cent of British

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<sup>1</sup> All publications available at: <https://www.policyalternatives.ca/publications/reports/climate-justice-project>. Full list of partners and collaborators at: <https://www.policyalternatives.ca/projects/climate-justice-project/about/partners>

<sup>2</sup> Broadbent Institute, *Have And Have-Nots: Deep and Persistent Wealth Inequality in Canada*, September 2014, <https://www.broadbentinstitute.ca/sites/default/files/have-havenots.pdf>

Columbians is almost double that of the poorest 20 per cent, due to bigger houses, more cars, travel, and general consumption.<sup>3</sup>

If climate policies don't take into account inequalities and differing resources, they will likely make things worse for vulnerable people — those who have done the least to contribute to the problem. Instead, a climate justice approach seeks win-win outcomes spanning employment, health and well-being, and systemic changes that reduce emissions across society. In contrast, many “green” solutions only emphasize changes in individual consumption.

The CJP concludes that a just and sustainable 21st century BC economy is technically possible, and could lead to widespread improvements in quality of life. The key challenges are political in nature, in particular the power and influence of fossil fuel corporations. Below we sketch out the linkages between climate, industrial and labour market policies in a comprehensive program aimed at achieving broad-based gains and a “green industrial revolution.”

## BC's Carbon Crossroads

BC's *Greenhouse Gas Reduction Targets Act*, passed in 2007, requires a 33 per cent reduction (from 2007 levels) in GHG emissions by 2020, and an 80 per cent reduction by 2050. The BC government has also established interim targets of 6 per cent below 2007 levels by 2012 and 18 per cent by 2016. To meet those targets the BC government has launched a number of major initiatives, including BC's carbon tax, the Carbon Neutral Government initiative, a clean energy mandate for BC Hydro, and some housing retrofit subsidies.

Unfortunately, BC is not on track to meet its legislated targets. Indeed, meeting those targets is in direct conflict with the province's desire to launch a liquefied natural gas (LNG) industry. It's time to revisit the urgency that came with BC's *Greenhouse Gas Reduction Targets Act*. The province can still meet its 2020 target of a one-third reduction below 2007 levels — if we say no to LNG and new fossil fuel infrastructure.

Figure 1 (on page 3) shows data on BC's emissions from Canada's most recent National Inventory Report (NIR).<sup>4</sup> Over a longer time span, BC's emissions are down somewhat from levels in the early 2000s. However, the trend in recent years is in the wrong direction: BC's emissions have been rising every year since 2010; as of 2013 they are up 4.3 per cent

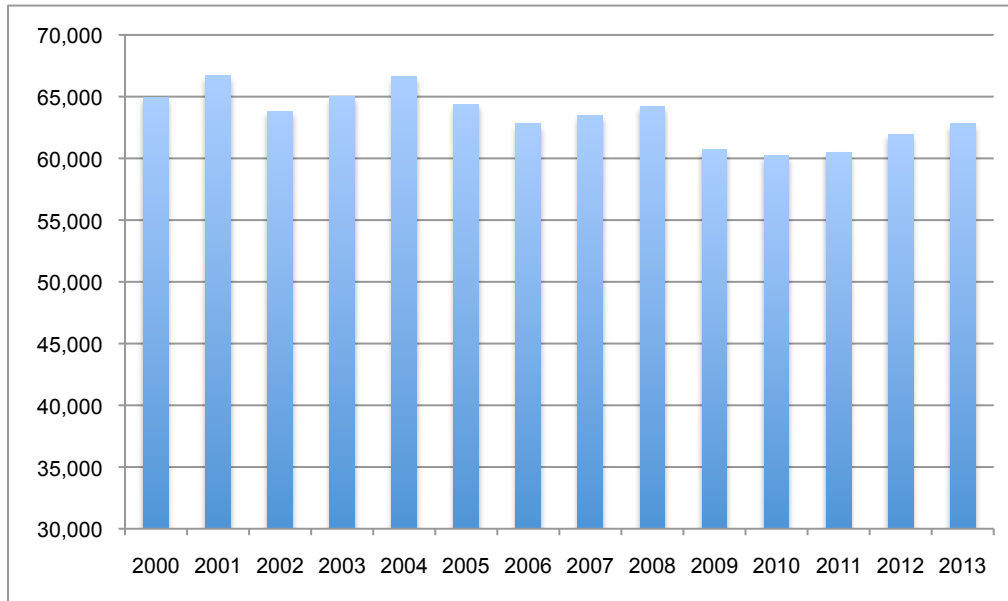
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<sup>3</sup> M Lee, *By Our Own Emissions: The Distribution of GHGs in BC*, Vancouver: Canadian Centre for Policy Alternatives, 2010.

<sup>4</sup> Part 3, Table A10-20,  
[http://unfccc.int/files/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/application/zip/can-2015-nir-17apr.zip](http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/can-2015-nir-17apr.zip)

above 2010 levels. More than two-thirds of this increase is attributable to the growth of BC's natural gas industry (up 1.8 million tonnes).

**Figure 1: BC GHG Emissions, 2000–2013 (kilotonnes of carbon dioxide equivalent)**



Source: National and Provincial/Territorial Greenhouse Gas Emission Tables, annex to “National Inventory Report: Greenhouse Gas Sources and Sinks, 1990-2013” (NIR), [http://donnees.ec.gc.ca/data/substances/monitor/national-and-provincial-territorial-greenhouse-gas-emission-tables/EN\\_2015NIR\\_A10-Tables\\_ProvincesAndTerritories1990-2013.xlsx](http://donnees.ec.gc.ca/data/substances/monitor/national-and-provincial-territorial-greenhouse-gas-emission-tables/EN_2015NIR_A10-Tables_ProvincesAndTerritories1990-2013.xlsx)

A notable 5.5 per cent drop in emissions occurred between 2008 and 2009 (equivalent to 3.5 million tonnes), plus a modest drop between 2009 and 2010. This was primarily due to global economic factors (the financial crisis and subsequent global downturn) rather than provincial policy changes. While high fuel prices and BC's carbon tax may be factors contributing to these reductions, the impact of the carbon tax is sometimes overstated. Upon introduction in July 2008, the carbon tax only amounted to 2.3 cents per litre at the gas pump. Even at the current 6.67 cents per litre, this represents a very small percentage of market price for gasoline. Other provincial fuel taxes are more substantial, ranging from 14.50 cents per litre in most of the province to 25.50 cents in the South Coast.<sup>5</sup>

The base year for BC's legislated GHG reduction targets is 2007, and the BC government claims to have met their interim GHG reduction target for 2012 of 6 per cent below 2007 levels. Based on the NIR data, however, BC's emissions were down only 2.5 per cent from

<sup>5</sup> Ministry of Finance, Tax Rates on Fuels: Motor Fuel Tax Act and Carbon Tax Act, Tax Bulletin, Revised July 2015, Bulletin MFT-CT 005, [http://www.sbr.gov.bc.ca/documents\\_library/bulletins/mft-ct\\_005.pdf](http://www.sbr.gov.bc.ca/documents_library/bulletins/mft-ct_005.pdf)

2007 to 2012. And as of 2013, BC's emissions are lower by only 1.1 per cent, with much of this due to the one-time drop between 2008 and 2009. The claim of a 6 per cent reduction includes the purchase of carbon credits (or offsets) through the (now disbanded) Pacific Carbon Trust (PCT), but there has been no detailed public reporting on how offsets were applied. This is particularly important in the face of a scathing Auditor-General's report in 2013, which examined two projects accounting for 70 per cent of PCT offsets in 2010, and found that projects could not demonstrate that they would not have otherwise happened (called "additionality").

Looking forward, BC's ambition to launch a liquefied natural gas industry would drive massive increases in carbon emissions. In the case of LNG, it would make it impossible for BC to meet its legislated GHG targets — and this only considers emissions in BC associated with extraction, processing and transportation.<sup>6</sup> Moreover, by accounting convention, emissions from the combustion of BC fossil fuels abroad are not counted in BC's totals, but in those of the importing jurisdiction. What really matters is the total amount of carbon we are taking out of the ground and putting into the atmosphere. For example, including BC gas burned in Asia, a large LNG industry would be like adding 24 million cars to the roads of the world.<sup>7</sup>

The BC government's discussion paper repeats an unsupported claim that "LNG could reduce global emissions by replacing the use of coal in fast growing economies such as China and India." This claim is based on the fact that gas produces fewer emissions than coal when combusted. However, even small leakages of methane (a more potent greenhouse gas and the principal component of natural gas) from wellhead to final consumption (or the whole lifecycle) can wipe out any GHG advantage. In addition, LNG is very energy-intensive, requiring some 20 per cent of gas to be consumed in the liquefaction, transport and regasification processes.<sup>8</sup>

The BC government needs to take a stronger role in preparing the province for increased restrictions on fossil fuels, rather than digging deeper through LNG. Based on the concept of a *carbon budget* — a finite amount of fossil fuels we can combust before we push beyond 2°C of global warming — a large share of BC's reserves may need to be left undeveloped. How large that global carbon budget is depends on one's appetite for risk, with estimates

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<sup>6</sup> In October 2014, the BC government introduced some rules to incent lower carbon emissions from LNG, although these are limited and only apply to liquefaction facilities, not upstream fracking and processing of natural gas. See M Lee, "A BC framework for LNG, part one: the carbon benchmark" in Policy Note blog, October 21, 2014, <http://www.policynote.ca/a-bc-framework-for-lng-part-one-the-carbon-benchmark/>

<sup>7</sup> M Lee, *BC's Legislated Greenhouse Gas Targets vs Natural Gas Development: The Good, The Bad and the Ugly*, Vancouver: CCPA, 2012.

<sup>8</sup> D Hughes, *A Clear Look at LNG: Energy Security, Environmental Implications and Economic Potential*, Vancouver: CCPA, <https://www.policyalternatives.ca/publications/reports/clear-look-bc-lng>

ranging between 66-80 per cent of reserves globally that are “unburnable carbon.”<sup>9</sup> This translates into a central economic problem for the 21st century: to establish a global carbon budget, and divide it up fairly, for a transition to a zero-carbon economy.

If not LNG, then what does economic development look like for BC? It is widely agreed that advanced countries need an energy transition to a low/zero carbon economy over the coming decades. Such a shift is technologically possible,<sup>10</sup> and there is evidence of public support for climate action,<sup>11</sup> but progress has been slow in the political realm. However, with renewed political will the shift to a zero-carbon economy promises gains in employment that are far greater than LNG, and additional health and quality of life benefits. The next sections outline the broad directions needed for BC to reclaim its status as a climate action leader.

## Fair and Effective Carbon Pricing

A well-designed carbon tax can be the engine of a green industrial revolution — it can propel climate action from public and private sectors because it raises the cost of emitting carbon dioxide and other greenhouse gases, and provides the revenues needed to make public investments that reinforce climate action. A challenge in moving away from fossil fuels is that companies are putting billions of dollars on the table for their investments. The carbon tax is an ideal source of revenues to support alternative investments in needed services and infrastructure.

BC’s carbon tax already raises over \$1.2 billion dollars per year but none of it goes towards funding green infrastructure or other climate action. Indeed, the carbon tax and recycling regime is *revenue negative* — tax cuts made in the name of revenue neutrality are estimated

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<sup>9</sup> Lower number from International Energy Agency. *World Energy Outlook 2012*. <http://www.iea.org/publications/freepublications/publication/English.pdf>. Higher number from C McGlade and P Ekins, “The Geographical distribution of fossil fuels unused when limiting global warming to 2°C” in *Nature*, vol 517: 187-190, January 2015.

<sup>10</sup> Jacobson, M and Delucci, M. (2010). “Providing all global energy with wind, water, and solar power, Part I: Technologies, energy resources, quantities and areas of infrastructure, and materials” in *Energy Policy*, doi:10.1016/j.enpol.2010.11.040; Wiseman, J, Edwards, T, and Luckins, K. *Post Carbon Pathways: Towards A Just And Resilient Post Carbon Future. Learning from leading international post-carbon economy researchers and policy makers*. Melbourne Sustainable Society Institute, University of Melbourne CPD Discussion Paper April 2013; Trottier Energy Futures Project. *An Inventory of Low-Carbon Energy for Canada*. <http://www.trottierenergyfutures.ca/an-inventory-of-low-carbon-energy-for-canada-2/>

<sup>11</sup> Leiserowitz, A., Maibach, E., Roser-Renouf, C., Feinberg, G. & Howe, P. (2013). *Global Warming’s Six Americas*, September 2012. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication. <http://environment.yale.edu/climate/publications/Six-Americas-September-2012>; Environics Institute (2012). *Focus Canada 2012: Public Opinion Research on the Record*. Retrieved February 15, 2013 from <http://www.environicsinstitute.org>; T Pederson, M Horne and K Sauve, *British Columbians’ Perspectives on Global Warming and the Carbon Tax*, Pacific Institute for Climate Solutions and the Pembina Institute, October 2012, <http://www.pembina.org/pub/2376>.

to cost \$1.6 billion, with 2/3rds in the form of tax cuts for corporations, 17 per cent to personal income tax cuts, and 12 per cent to a credit for low-income households.<sup>12</sup>

In order to shift marketplace incentives, the carbon tax needs to be higher, more like \$200 per tonne. The tax should also be expanded to cover industrial GHG emissions, including much of the oil and gas sector, currently exempted from the tax. The tax could also be applied to the carbon content of exported fossil fuels (at least up to a point where importing jurisdictions have a comparable carbon pricing regime in place).

For a fair and effective carbon tax in BC, however, some reforms are needed before we continue to increase the tax. First, the carbon tax is a regressive tax, meaning low-income households pay a bigger portion of their income to the tax than do high-income households. To address this problem, we argue that half of carbon tax revenues should be used to fund a broad-based credit that would flow to low- to middle-income households (instead of personal or corporate income tax cuts). Specifically, we model a system (based on the Canada Child Tax Benefit model) that would provide a carbon credit to the bottom 80 per cent of households, with the bottom half of households receiving more in credits, on average, than they would pay in carbon tax.<sup>13</sup> Under such an approach, the heavy lifting would be accomplished by households with higher incomes — those who already have the largest carbon footprints.

Second, we need to abandon revenue neutrality, and use carbon tax revenues to support complementary climate action. Assuming BC met its 2020 GHG target, the carbon tax would raise almost \$8 billion per year, which should be used to finance major new public investments that accelerate climate action and create abundant new green jobs: public transit, retrofit programs for buildings, green jobs training and just transition programs, zero waste, forest conservation and stewardship.

Finally, carbon pricing should be applied equally to public and private sectors. BC's Carbon Neutral Government initiative is financed by a \$25 per tonne CO<sub>2</sub>e offset fee (above and beyond BC's carbon tax) paid by public sector organizations. Initially these funds were paid to the Pacific Carbon Trust (PCT), a Crown corporation whose mandate was to invest in BC-based offsets. The PCT was dissolved in 2014/15 due to controversy over its projects, but the \$25 per tonne offset fee paid by public sector organizations remains. This fee should be first reduced then eliminated as a rising carbon tax catches up; that is, within a

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<sup>12</sup> BC Budget and Fiscal Plan, 2015/16 to 2017/18, Table 2: Revenue Neutral Carbon Tax Plan, p 62, [http://bcbudget.gov.bc.ca/2015/bfp/2015\\_budget\\_and\\_fiscal\\_plan.pdf](http://bcbudget.gov.bc.ca/2015/bfp/2015_budget_and_fiscal_plan.pdf)

<sup>13</sup> M Lee, *Fair and Effective Carbon Pricing: Lessons from BC*. Vancouver: Canadian Centre for Policy Alternatives, February 2011, <https://www.policyalternatives.ca/publications/reports/fair-and-effective-carbon-pricing>. While BC has a low-income credit as part of its revenue-recycling regime, it accounts for only a small portion of revenues and is not sufficient to compensate for the regressive impacts of the tax on low-income households.

few years both public and private sectors should face the same economy-wide carbon price. In the interim, funds raised by the fee should support GHG mitigation projects in the public sector.

## Shifting to 100% Clean Energy

Conservation and energy efficiency are generally accepted as the least expensive, lowest impact way to meet new energy demand. Savings from demand-side management, and improvements in energy efficiency of buildings, lighting and appliances, are likely sufficient to offset increased demand arising from population increase and economic growth. The central planning challenge comes from two areas of demand on the system: residential and commercial buildings using fossil fuels for space and water heating; and transportation of people and goods.

This implies two choices. First, the province would need to invest in new electricity generation, such as the proposed Site C dam. Even though large hydropower is relatively clean energy, Site C would still come with environmental costs, additional GHG emissions from construction, and loss of farmland. In addition, the project is widely opposed by BC First Nations. Alternatively, BC could aspire to live within existing supply, meaning real reductions in electricity consumption need to be on the table — in particular, the current appetite from dirty industries like mining and oil and gas. Our modeling shows that the latter path is feasible, and thus Site C is unnecessary.<sup>14</sup>

Like carbon taxes, electricity pricing must take into account the adverse impact of BC Hydro price hikes on low- to middle-income earners. Low-income households already pay a greater share of their income in energy/electricity costs, and are far more likely to rent their housing and to live in poorer quality housing. As tenants, they typically are not in a position to make decisions with respect to energy efficiency improvements in their homes. Most home energy retrofit programs are geared toward homeowners, and so benefit the most affluent. There is potential for emission reductions from a revived BC LiveSmart program targeting energy efficiency in rental units, multi-unit buildings and older housing stock.<sup>15</sup>

Complementary initiatives that can reduce demand for electricity from BC Hydro include small and neighbourhood-scale energy projects. District energy (centralized production of thermal energy for heating and hot water) has a long history in urban areas, and should have a greater profile in the transition. Modern, hydronic (water-based) systems offer a

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<sup>14</sup> J Calvert and M Lee, *Clean Electricity, Conservation and Climate Justice in BC: Meeting our energy needs in a zero-carbon future*, Vancouver: CCPA, 2012, <https://www.policyalternatives.ca/electricity-justice>.

<sup>15</sup> M Lee, E Kung, and J Owen, *Fighting Energy Poverty in the Transition to Zero-Emission Housing: A Framework for BC*. Vancouver: Canadian Centre for Policy Alternatives, 2011, <http://www.policyalternatives.ca/energy-poverty>

green infrastructure platform to reduce carbon emissions from buildings. The City of Vancouver's Neighbourhood Energy Utility is a leading example, providing heating and hot water to new buildings in Southeast False Creek, with 70 per cent of energy demand met through recapture of waste heat from the sewer system.<sup>16</sup>

## Transportation and Complete Communities

Getting to a low- or possibly zero-emission transportation system will primarily mean powering transportation with clean electricity (with some niche applications for biofuels or hydrogen). Charging stations in both urban and rural areas, for example, could replace gas stations and enable private electric vehicles to have ranges similar to those of existing vehicles. However, shifting from internal combustion engines to electric ones is only part of the picture for mitigating GHGs.

With population growth in urban areas, public transit expansion is a necessity. More efficient and higher-capacity transit networks could be built within a decade if dedicated funding was made available, and accompanied by measures to repurpose available road and parking space. As the 2010 Olympics demonstrated, a substantial increase in transit service can change how people choose to get around, with minimal disturbance or public outcry.

Our long-term vision is of “complete communities,” which emphasize walking, biking and transit, supplemented by car-sharing, with homes much closer to work, shops, entertainment, parks and public services.<sup>17</sup> Such a shift is already evident in some Canadian cities, with the City of Vancouver recently reporting that half of all trips are now by bike, walking or transit.<sup>18</sup> Complete communities level the playing field for seniors, youth, people with disabilities, and low-income families so they can live and move easily — even if they are not able to drive or cannot afford a car.

Affordable housing must be integrated into complete communities, including minimum affordable housing percentages in new developments and purpose-built rental.<sup>19</sup> The need

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<sup>16</sup> M Lee, *Innovative Approaches to Low-Carbon Urban Systems: A Case Study of Vancouver's Neighbourhood Energy Utility*, Future Economy Project, EcoTrust and E3 Network, February 2015.

<sup>17</sup> P Condon, E Doherty, K Dow, M Lee and G Price, *Transportation Transformation: Building complete communities and a zero-emission transportation system in BC*. Vancouver: Canadian Centre for Policy Alternatives, 2010, <https://www.policyalternatives.ca/transportationtransformation>

<sup>18</sup> Lee, J (2015), “Transit, cycling, walking together rival the car for Vancouver travel: The ‘alternative’ forms of travel have hit a combined 50% of all trips in the city” in *The Vancouver Sun*, May 13, <http://www.vancouversun.com/news/Transit+cycling+walking+together+rival+Vancouver+travel/11050346/story.html - ixzz3a3T58rYa>

<sup>19</sup> M Lee, E Villagomez, P Gurstein, D Eby, and E Wyly. *Affordable EcoDensity: Making Affordable Housing a Core Principle of Vancouver's EcoDensity Charter*, CCPA submission to City of Vancouver, 2009, <https://www.policyalternatives.ca/publications/reports/affordable-ecodensity>



for new housing for a growing and aging population provides an opportunity for redevelopment plans that reinforce complete communities. For our growing ranks of seniors, a range of smaller homes and supported care units, close to community health centres, would reduce mobility challenges. Public sector investments can help anchor redevelopment through libraries, child care, and community health centres.

In addition to carbon emissions, several other external costs are present in transportation: air and noise pollution, time lost due to congestion, accidents leading to injury and death, other environmental costs of extracting and processing fuel, and opportunity costs of parking spaces.<sup>20</sup> This suggests that well-designed transportation investments could improve quality of life in many ways, with direct relevance to British Columbians, while also reducing GHG emissions.

## Closing the Loop

“Closing the loop” refers to the shift from a linear economic model — where materials are extracted, produced into consumer goods, then trashed — towards a resource recovery model where materials cycle through the economy. Upstream, proactive solutions include aggressive materials reduction, re-design, and re-use *before* recycling and composting. The object is dramatic reductions in the volume of materials that flow through the economy, with corresponding reductions in the amount of energy used and carbon emissions from resource extraction, processing and transportation.

In Metro Vancouver, incineration is promoted (as waste-to-energy) as a way of generating heat and electricity, and gives the perception of making waste disappear. However, incineration only transforms materials into different forms, releasing GHGs and other toxic compounds like dioxins and furans into the air, while still leaving solid waste (toxic ash) that must be landfilled. Incineration also wastes the embodied energy in products that result from resource extraction and processing, product manufacture and transportation.

A wide range of innovative economic activity is possible with well-designed zero waste policies, including dematerialization, support of sharing economies, and new leasing models for various services. Re-use policies could apply “beer bottle” deposit-and-return systems to all beverage containers, containers from the grocery store, packaging from consumer electronics, etc. This would help eliminate the single-use plastics that comprise half of all the plastic produced. We estimate that aggressive zero waste policies could lead

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<sup>20</sup> These external costs are estimated to be three times vehicle operating costs by Litman, T (2010), *Evaluating Transportation Economic Development Impacts Understanding How Transport Policy and Planning Decisions Affect Employment, Incomes, Productivity, Competitiveness, Property Values and Tax Revenues*, Victoria Transport Policy Institute.

to 5-6 million tonnes of CO<sub>2</sub> savings by displacing organics from landfills and reducing the need for energy-intensive upstream extraction and processing activities.<sup>21</sup>

Well-designed re-use policies can support local economic development and the creation of new green jobs by increasing local capacity to manage and add value to recovered materials. We estimate gains of approximately 7,000 new direct jobs would result from 100 per cent recycling of BC's waste. The BC government can help build this capacity through their procurement policies and by setting minimum recycled content standards for the marketplace.

A provincial Crown corporation should be examined for areas where market barriers are persistent and not meeting broader waste reduction and recycling objectives. Such an entity could be used to overcome the ebbs and flows of global commodity market prices for recycled materials, play a “middle man” role connecting supply to purchasing agreements in the public sector, engage in value-added processing and re-manufacturing for BC markets, and serve to gain market power where materials are exported.

Forestry merits special attention, as an industry deeply rooted in BC's economic history. Because wood is carbon, managing for healthy forests and diversifying BC's forest product mix to include a greater number and array of higher value, solid wood products is also part of climate justice. CJP research has highlighted a new approach to forest management that includes more forest conservation, a different way of calculating what forests are logged when, and a renewed emphasis on forest industry jobs focused on making long-lasting solid wood products.<sup>22</sup>

This means reversing direction on forestry policies that have gutted the industry and its connection to supporting communities. In particular, provincial policy used to require that logs be processed in local mills, a measure that supported forestry communities. In recent years, BC has seen a massive increase in raw log exports: 6.5 million cubic metres in 2013, up from 2.5 million in 2009 and less than 200,000 in 1997.<sup>23</sup>

Forestry has seen significant declines in overall employment in the past decade, but it is still a significant contributor to BC's economy: 18,700 jobs in forestry and logging; 28,000

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<sup>21</sup> M Lee, R Legg, S Maxwell, and W Rees, *Closing the Loop: Reducing Greenhouse Gas Emissions Through Zero Waste in BC*. Vancouver, BC: CCPA, 2013, <http://www.policyalternatives.ca/publications/reports/closing-loop>. Note that carbon dioxide is BC's single largest waste by weight—more than 49 million tonnes in 2010, compared to 5 million tonnes of solid waste generated — even though carbon pollution goes into the atmosphere not a landfill.

<sup>22</sup> B Parfitt, *Making the Case for a Carbon Focus and Green Jobs in BC's Forestry Sector*, CCPA, August 2011, <https://www.policyalternatives.ca/greenforests>

<sup>23</sup> T Coste, “Raw Log Exports: A Made-in-BC Problem that's Only Getting Worse” in *The Tyee*, February 4, 2015, <http://thetyee.ca/Opinion/2015/02/04/BC-Raw-Log-Exports/>

in wood products manufacturing; and 11,500 in paper manufacturing (not including any related transportation jobs) in 2013. With a view towards stewardship and sustainability, while adding greater value, CCPA's Ben Parfitt estimates that forestry in BC could support an additional 20,000 jobs.

## Shifting to Green Jobs

As can be seen above, climate action entails a great deal of work, and this should be embraced as a national project. We advocate divestment from fossil fuels and re-investment in green infrastructure and services. Importantly, green investments tend to be more labour-intensive, and so yield anywhere from 3 to 30 times more direct jobs than equivalent investments in fossil fuel infrastructure.<sup>24</sup> Thus, a well-designed transition plan should have a net positive impact on employment. This should include enhanced apprenticeship and training opportunities for traditionally disadvantaged populations.

A green jobs agenda should also support investments in local and sustainable food systems, which will be needed in the face of climate impacts on other parts of the world, such as California's drought.<sup>25</sup> To scale up the local food sector of farmers' markets and community-shared agriculture projects, we can link local food to the purchasing power of large public and non-profit institutions like schools, hospitals, universities and social housing units. Supporting sustainable agriculture and local farmers would reduce GHG emissions associated with production and long distance transport of food.

In addition to these areas are investments in low-carbon services. Almost 3/4 of the jobs in BC are service jobs, although this broad category includes some of the most marginalized jobs, making it hard to raise a family or save for retirement. After two decades of austerity, we can and should invest more in public services and social infrastructure. Key areas include early learning and child care, which would benefit children and families. In Quebec, this model has been shown to pay for itself, as higher labour force participation for women leads to increased taxes in excess of public program costs.<sup>26</sup> Another area of caring work, predominantly done by women (who are often ignored when it comes to "green jobs"), is seniors' care, including home and residential care. And as noted in discussion above, new investments in these areas can also help drive design changes towards more complete communities.

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<sup>24</sup> M Lee and A Card, *A Green Industrial Revolution: Climate Justice, Green Jobs and Sustainable Production in Canada*, Ottawa: Canadian Centre for Policy Alternatives, 2012, <https://www.policyalternatives.ca/publications/reports/green-industrial-revolution>

<sup>25</sup> M Lee, H Barbolet, T Adams and M Thomson, *Every Bite Counts: Climate Justice and BC's Food System*, CCPA, November 2010, <https://www.policyalternatives.ca/everybitecounts>

<sup>26</sup> P Fortin, L Godbout and S St-Cerny, *Impact of Quebec's universal low fee childcare program on female labour force participation, domestic income, and government budgets*, Working Paper 2012/02, University of Sherbrooke.

We will also need to ensure a “just transition” strategy for resource industry workers. The costs of adjustment should not be shouldered by those most impacted by them. In past resource busts, families have faced extreme instability due to lost incomes, including drug and alcohol addiction, increased domestic violence, and divorce.<sup>27</sup> Active public management should seek to stabilize production levels in the transition period, averting the boom and bust dynamics that plague resource communities in Canada. Over the course of three decades a smooth transition away from fossil fuels that is also fair to workers is not unreasonable.

Stable management of fossil fuel industries over a two- to three-decade wind-down period would better serve workers and communities. This should include averting the boom and bust of commodity markets, with strategic use of limited fossil fuels in the transition to a zero-carbon economy. Alternative models could include new Crown corporations, worker ownership, and partnerships with First Nations.

## Conclusion

It is time for a new wave of bold climate action, including a reinvigorated carbon tax as a key driver of change, supported by more stringent regulations and standards, and public investments to reshape our communities. Rather than being a burden, climate action should be seen as a new economic agenda and industrial strategy. Shifting to a zero-carbon BC is both technologically possible and will create far more employment opportunities than expansion of fossil fuel production.

CJP research has emphasized structural changes and collective action to lower carbon footprints rather than individual behavioural change. It also makes the case that effective and fair climate action is also good industrial and employment policy. The theme of rethinking the “good life”, including additional co-benefits in terms of health and well-being, has been at the heart of the CJP since its inception.

A growing body of research on human well-being is broadly consistent with the notion of climate action and climate justice. As the 2012 *World Happiness Report* comments:

*The environmental debate could be importantly recast by changing the fundamental objectives from economic growth to building and sustaining the quality of lives, as assessed by those whose lives they are. This will depend crucially on the human capacity for cooperation ... people gain in happiness by working together for a higher purpose. There can*

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<sup>27</sup> K Cooling, M Lee, S Daub and J Singer, *Just Transition: Creating a green social contract for BC's resource workers*, CCPA, 2015, <https://www.policyalternatives.ca/publications/reports/just-transition>

*be no higher purpose than promoting the Earth's environmental balance, the well-being of future generations, and the survival and thriving of other species as well. Sustainability is an instrumental goal, because without it, our health and prosperity are bound to collapse. But environmental sustainability is also an end goal: we care about nature, we care about other species, and we care about future generations.<sup>28</sup>*

## ABOUT THE AUTHOR

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<sup>28</sup> Helliwell, J. F., Layard, R., and Sachs, J., 2012. *The World Happiness Report*. [online] New York: The Earth Institute, Columbia University. Available at: <http://issuu.com/earthinstitute/docs/world-happiness-report>. p.97.