

Making decarbonization work for workers

Policies for a just transition
to a zero-carbon economy in Canada

Hadrian Mertins-Kirkwood





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Executive summary

THE TRANSITION TO a zero-carbon economy will create significant opportunities for Canada, but the process of decarbonization may also cause hardship for certain workers and their communities. To ensure no one is left behind in the zero-carbon transition, governments must pursue an environmental policy agenda that prioritizes the stability of communities in vulnerable regions and the well-being of workers across the country. A transition to a zero-carbon economy that is equitable and productive for workers and their communities is a *just* transition.

This report distinguishes between reactive just transition policies, which are intended to minimize the harm to workers of decarbonization, and proactive just transition policies, which are intended to maximize the benefits. If the broad goal of a just transition is to ensure an equitable, productive outcome for all workers in the zero-carbon economy, a mix of reactive and proactive elements is necessary.

Canada's specific need for reactive just transition policies varies by region. The industries most directly impacted by decarbonization policies (i.e., oil, gas and coal production) employ only 1% of the national workforce (about 200,000 people), but those jobs are concentrated in Alberta, Saskatchewan, and Newfoundland and Labrador. At the extreme, one in every three workers in Fort McMurray, Alberta is directly employed in the oil industry. So, while much of the country will be largely unaffected by decarbonization policies, many fossil fuel communities face an existential threat and will require government support.

The need for proactive just transition policies, on the other hand, is widely shared nationally. Billions of dollars in new green infrastructure investment will create tens or hundreds of thousands of jobs across the country, but many regions already face shortages of skilled labour. Moreover, women, immigrants and other marginalized groups are significantly under-represented in the sectors poised for growth in the zero-carbon economy. Government policies are needed to grow the pool of skilled labour and increase diversity in the workforce.

Existing social security and workforce development policies go some way toward meeting these needs. For example, employment insurance provides income security and training to unemployed workers while new infrastructure funds are poised to create green jobs. However, these policies are insufficient given the scope of the decarbonization challenge. Canada needs to invest much more in job creation, social security, and workforce development policies to ensure a successful and just transition to a zero-carbon economy.

This report makes the following recommendations to Canadian governments to ensure the transition to a zero-carbon economy is equitable, productive and just:

1. Develop a national economic strategy, in partnership with labour and industrial stakeholders, that co-ordinates public spending on the zero-carbon economy with workforce (re)development initiatives.
2. Promote growth and equity in the workforce by strategically investing in apprenticeships and vocational training for the zero-carbon economy.
3. Enhance social security programs to better support workers in any industry facing job loss and retraining costs.
4. Provide targeted just transition policy packages to fossil fuel communities.

Introduction

CLIMATE CHANGE POSES existential threats to ecosystems and human health, not to mention infrastructure and political stability. Without extraordinary efforts to reduce our emissions of greenhouse gases (GHGs), which come mostly from the production and consumption of fossil fuels, the world risks potentially catastrophic global warming by the end of the century.¹

Governments around the world are starting to catch up to climate scientists in recognizing the urgent need for climate action. Plans and policies to mitigate and adapt to climate change are now prevalent and increasingly high-profile. Notably, the Paris Agreement, which commits the international community to a global warming limit of 2°C, has been signed by 195 countries.² In Canada the federal and provincial governments agreed to a *Pan-Canadian Framework on Clean Growth and Climate Change* to guide their efforts to reduce GHG emissions.³

So far, government climate policies do not go far enough to “decarbonize” the global economy, i.e., to reduce our net greenhouse gas emissions to zero. Canada’s emissions are not falling fast enough to meet even our modest medium-term climate targets and forthcoming policies aren’t ambitious enough to close the gap.⁴ Nevertheless, the GHG emission reduction policies currently on the table will have real economic consequences. Once more ambitious climate policies are implemented—as they must be for Canada to do its part in meeting global emissions targets—the economic impacts will be truly transformational.⁵

Whole new industries will be created and others phased out as Canada shifts to a zero-carbon economy in the coming decades. In turn, new jobs will be created and others lost for hundreds of thousands of workers across the country. Whether this shift is an equitable and productive one for all workers and communities—what is commonly referred to as a *just transition*—or a driver of hardship and inequality will depend on the social security and workforce development policies (transition policies) put in place by governments.

With a view to ensuring an inclusive, prosperous shift to a zero-carbon economy, this report presents an overview of the current just transition policy discussion in Canada. Part one defines just transition and summarizes the range of policies encompassed by the term. Part two assesses the need for just transition policies in Canada based on the economic risks and opportunities posed by decarbonization, including the number of workers whose jobs are threatened by the phase-out of fossil fuels. Part three reviews the social security and workforce transition policies already in place in Canada to determine the adequacy of the existing transition policy framework. Finally, part four summarizes the report’s findings and makes recommendations for governments.

Although provincial governments are addressed in this report, the analysis focuses on the role of the federal government in encouraging and facilitating the zero-carbon transition in a way that works for workers.

Elements of a just transition

THE “JUST TRANSITION” concept is a social justice framework for facilitating the shift to a zero-carbon economy in a way that ensures productive, equitable outcomes for workers. The phrase was coined more than a decade ago by the North American labour movement to draw attention to the needs of workers when designing environmental policies.⁶ The concept is now attracting serious political consideration. The Paris Agreement contains an explicit acknowledgement of the “imperatives of a just transition of the workforce and the creation of decent work and quality jobs.”⁷ In Canada the Pan-Canadian Framework makes a commitment to “provide Canadian workers with a just and fair transition to opportunities in Canada’s clean growth economy.”⁸

For the most part, governments have yet to provide details on what a just transition looks like to them. The federal government only recently struck a task force on the issue, but dozens of just transition policy proposals have been advanced by workers and labour advocates over the years.⁹ Often, proposals differ based on the organization’s starting assumptions or priorities.¹⁰ However, in reviewing the just transition literature, predominantly from labour organizations and civil society groups, we identify a number of common policy recommendations that form the core of a just transition strategy. These common demands can be divided into *reactive* and *proactive* policies.

Reactive just transition policies

Reactive (i.e., defensive) just transition policies are focused on the workers and communities negatively affected by the shift to a zero-carbon economy. They include direct financial support to the individuals and communities most affected by decarbonization policies, as well as programs to help affected workers find new jobs. Reactive policies are intended to minimize the costs of transition.

The following policies form a common platform for advocates of a reactive just transition:

Income support: Governments should subsidize the incomes of displaced workers and affected communities as they transition to new industries. Adequately filling income gaps will likely require an expansion of existing social security programs (e.g. a top-up to employment insurance benefits) as well as the creation of entirely new programs (e.g. backstop funds for public services and facilities in vulnerable communities).¹¹

Retraining and career support: Governments should fund retraining and educational programs for displaced workers, including not just skills development but also career counselling. Short term training programs that address specific skill gaps for otherwise highly skilled workers can expedite their transition into similar jobs in other industries.¹²

Job transfers: Governments should establish programs or facilitate efforts by the private sector to preferentially hire displaced workers into new jobs within the same firm and/or within the same community.¹³

Pension bridging: Governments should provide funding to “bridge” older workers to retirement. Bridging is easier and more cost-effective than training workers for jobs they will only briefly perform before retiring. A common set of criteria to qualify for bridging should be developed in partnership with employers, unions and government stakeholders. Existing pension plans should be audited to ensure they are adequately funded—for both income and benefits—if the underlying firm or industry disappears.¹⁴

Workforce transition plans: Governments should produce (or mandate employers to develop) clear timelines and plans for the wind-down of fossil fuel projects and facilities, including a strategy for employee attrition. Workers and communities can better prepare for the loss of income when layoffs are planned well in advance and designed to cause the smallest possible disruption to the local economy.¹⁵

Crucially, advocates for a reactive just transition call for cooperation between employers, governments, labour organizations and affected communities when designing and implementing these policies.¹⁶ A robust social dialogue is necessary to resolve social and economic conflicts, encourage good governance, promote economic growth, and maintain social and industrial stability.

Proactive just transition policies

Proactive (i.e., offensive) just transition policies are intended to maximize the long-term benefits of the shift to a zero-carbon economy. They include programs to train new workers (not just displaced workers) for jobs in emerging zero-carbon industries and policies to create new jobs where skilled workers are available. Proactive just transition policies are also intended to redress inequities in the workforce, such as the historic underrepresentation of marginalized groups in certain industries.

The following policies form a common platform for advocates of a proactive just transition:

Labour market modelling: Governments should take the lead in studying and forecasting demand for specific skills and occupations in the zero-carbon economy. Designing effective, forward-looking transition policies requires a good understanding of what the labour market looks like now (including intersectional and demographic analysis) and what it will look like in the coming decades.¹⁷

Targeted skills training: Consistent with their labour market modelling, governments should invest in programs to train the workforce for new jobs in the zero-carbon economy. The massive job creation potential of decarbonization policies will only be realized if enough skilled workers are available to meet demand. Leveraging existing training and apprenticeship programs can help streamline the process; however, governments should also create dedicated coordinating bodies to certify and promote environmental professionals. These programs must be designed to promote the participation of underrepresented groups, including women, Indigenous peoples and racialized workers.¹⁸

Industrial transition support: Governments should support those firms attempting to transition to a zero-carbon economy. For example, many energy companies are well-positioned to shift from fossil fuels to renewable energy

sources without laying off workers. Government funding and incentives can encourage firms to be proactive in adopting cleaner technologies and upskilling their employees rather than firing and hiring to fill skills gaps.¹⁹

Geographically targeted public spending: Governments should target new spending programs in the communities most negatively impacted by the zero-carbon transition. Governments across the country are committing significant funding and financing to new zero-carbon infrastructure, including public transit, renewable energy, and electricity grid projects, but the decision about where to invest is often left to market actors. Geographically targeted investments can support the economic viability of otherwise vulnerable regions by creating good jobs where they're needed most. Governments can use preferential procurement practices to similar effect.²⁰

A forward-looking just transition plan is a “full employment strategy that accommodates climate mitigation.”²¹ Investments in renewable energy generation will fall flat without a skilled workforce to fill new jobs. Likewise, programs to train workers for energy-efficiency retrofits will be ineffective without programs to drive demand in the sector. An effective just transition requires a large-scale, coherent approach to investment, industrial transformation and workforce development. An effective just transition must also protect labour rights and standards to ensure new green jobs are good jobs.²²

Generally speaking, labour organizations tend to advocate for reactive policies. Their priority is to support the workers and communities at risk from decarbonization policies. On the other hand, academics and civil society organizations tend to push more proactive policies based on a vision of where the economy will end up in 20 or 30 years. If the broad goal of a just transition is to ensure an equitable, productive outcome for all workers in the zero-carbon economy, a combination of reactive and proactive elements will be necessary.

Getting the mix right is ultimately a political question, but data can inform the discussion. The next section breaks down the number of jobs at risk in Canada from decarbonization and where those jobs are located. It then compares those numbers to the estimated job creation potential of the transition to a zero-carbon economy.

Potential employment impacts of the zero-carbon transition

IN CANADA AND around the world, studies consistently conclude that the transition to a zero-carbon economy will create more jobs than it destroys in the long term.²³ However, as nearly every economic sector will be affected and in many cases transformed in the process, more specific outcomes are extremely difficult to predict. To keep things simple, researchers tend to focus on the two sectors at greatest risk of an absolute decline in employment: fossil fuel production (i.e., coal, oil and natural gas extraction, processing and transportation) and energy-intensive heavy industry (e.g., metal processing).²⁴ This paper does the same while acknowledging that the economic and employment impacts of decarbonization may also be significant in other sectors.

Almost all climate policies are intended to reduce fossil fuel consumption in one way or another. If those policies are successful, the result is a contraction in fossil fuel production and a corresponding loss of jobs and economic output in the sector. For example, jobs in coal plants will continue to disappear in Canada, as will associated coal mining jobs, as the provincial and federal phase-outs of coal-fired electricity generation come to fruition in the next few decades.

Oil and natural gas are far more economically important than coal in Canada, which may explain our governments' hesitation to phase them out.²⁵ Nevertheless, the oil and gas sectors are major emitters of greenhouse gases in Canada and must be wound down in the next few decades. Although coal is one of the most emissions-intensive energy sources, oil and natural gas are not far behind (both upstream during production and downstream when fuels are consumed). There is simply no feasible path for Canada to meet its long-term emission reduction targets while continuing to extract and burn these fossil fuels in any significant quantities.²⁶

On the industrial side, negative economic outcomes are possible but avoidable. Although heavy industry currently accounts for about 10% of Canada's greenhouse gas emissions, significant improvements in energy efficiency can be achieved without undue hardship for the workers and communities dependent on the sector.²⁷ In fact, the technical potential already exists for most heavy industry to rapidly decarbonize.²⁸ Improving industrial processes without shutting them down is essential because the continued production of steel, chemicals, glass, and other industrial products is necessary for a zero-carbon transition. Without them, the transformation of our built environment is simply not possible.

Consequently, a successful transition to a zero-carbon economy will predominantly impact workers in the fossil fuel sector. The negative impacts, in terms of lost jobs and economic activity, will vary based on the underlying importance of the fossil fuel industry in each region. Understanding the need for reactive just transition policies in Canada begins with a map of fossil fuel dependence.

Mapping fossil fuel dependence in Canada

Quantifying the contribution of oil, gas and coal production to an economy can be complicated and imprecise. To start with, the fossil fuel industry does not have clear boundaries. Does it include upstream actors such as the construction industry, which builds oil and gas-related infrastructure? Does it include downstream actors such as gas stations and other fossil fuel distributors that get refined petroleum products to market? Does it include the financial industry and other sectors that profit from or grow out of fossil fuel development?

In this analysis the fossil fuel industry is narrowly defined to exclude indirect and induced economic activities because those sectors do not face an

Jobs vs. workers

The term “job” refers to a position occupied by worker. Jobs data are usually collected from employers through surveys of the number of people they employ.

The term “worker” refers to any person in the workforce, even if they do not have a job. Worker data are usually collected directly from workers (e.g., in the census). The number of workers is usually higher than the number of jobs in any given region or industry because the number of workers includes unemployed individuals.

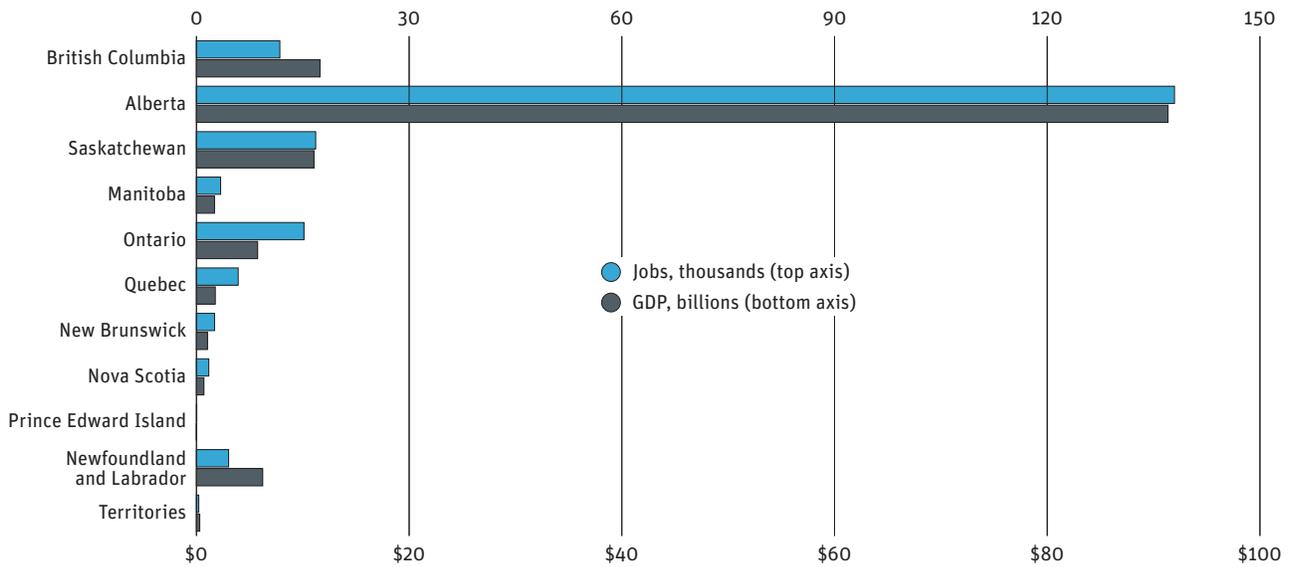
In general, the jobs and worker data are close enough to be used interchangeably, but we distinguish between the two terms in this report depending on which data source is being used. For example, we use “workers” when referring to data from the census but we use “jobs” when referring to data from Statistics Canada’s survey of employment, payrolls and hours.

existential threat from decarbonization. For example, even though significant construction activity is tied to fossil fuel development, the construction industry is not wholly dependent on fossil fuel projects. The transition to a zero-carbon economy will require extensive construction of new green infrastructure, so the construction industry, although it will be forced to adapt, will likely be a net beneficiary of decarbonization. Likewise, the financial sector, despite its historically heavy investments in fossil fuels, will undoubtedly shift capital to more profitable alternatives as they emerge.

In other words, unless a sector exists entirely for the purpose of extracting, processing, or transporting oil, gas or coal, we do not consider it part of the fossil fuel industry. Our definition is limited to economic activities that contribute directly and exclusively to the production and processing of fossil fuels, although again we recognize that there will be economic and employment impacts in other sectors.²⁹

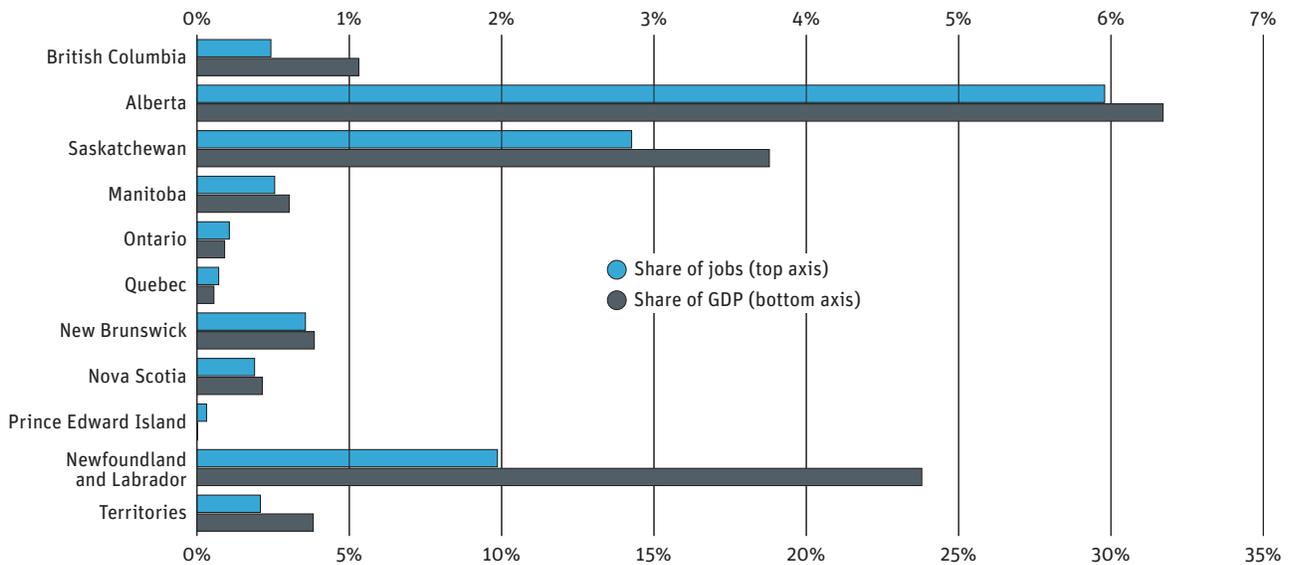
With this definition in mind, there are two basic measures of the fossil fuel industry’s contribution to the economy: the number of people the industry employs, and the amount of economic output the industry produces. The number of jobs is important because it represents the number of people whose livelihoods are put directly at risk by decarbonization. The level of economic output is important because it represents the economic contraction that will occur if the fossil fuel industry is phased out and other sectors of the economy do not expand to fill the gap, which affects all workers and communities in a given region. *Figure 1* presents outputs at the provincial level in Canada.

FIGURE 1 Total contribution of the fossil fuel industry to the economy, by province (2016)



Source Statistics Canada, "Table 383-0031: Labour statistics consistent with the System of National Accounts (SNA), by province and territory, job category and North American Industry Classification System (NAICS)," CANSIM, last updated May 18, 2017; and Statistics Canada, "Table 379-0030: Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS), provinces and territories," CANSIM, last updated November 7, 2017.

FIGURE 2 Relative contribution of the fossil fuel industry to the economy, by province (2016)



Source Statistics Canada, "Table 383-0031: Labour statistics consistent with the System of National Accounts (SNA), by province and territory, job category and North American Industry Classification System (NAICS)," CANSIM, last updated May 18, 2017; and Statistics Canada, "Table 379-0030: Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS), provinces and territories," CANSIM, last updated November 7, 2017.

FIGURE 3 Census agglomerations with the greatest share of workers in the fossil fuel industry (2016)

Region	Fossil fuel workers (rounded)	Share of workers
Wood Buffalo, Alberta	14,200	31.2%
Cold Lake, Alberta	1,500	16.7%
Lloydminster, Alberta/Saskatchewan	3,300	16.5%
Estevan, Saskatchewan	1,200	15.2%
Sylvan Lake, Alberta	1,200	14.2%
Grande Prairie, Alberta	4,500	12.0%
Weyburn, Saskatchewan	600	10.7%
Fort St. John, British Columbia	1,800	10.4%
Brooks, Alberta	1,300	10.0%
Red Deer, Alberta	4,300	7.5%

Source Statistics Canada, "2016 Census of Population," Statistics Canada Catalogue no. 98-400-X2016290, last modified November 22, 2017.

Overall, the Canadian fossil fuel industry accounts for around 200,000 jobs and \$131 billion in economic activity. Alberta leads the provinces with 138,000 jobs and \$91 billion in fossil fuel–related GDP. However, these figures do not necessarily indicate the level of fossil fuel dependence in each province. For example, although British Columbia has a larger fossil fuel industry than Newfoundland and Labrador in absolute terms, the latter is far more dependent on the fossil fuel industry as a share of the provincial economy. The fossil fuel industry’s relative contribution to jobs and output is presented in *Figure 2*.

In addition to having the largest fossil fuel sector in absolute terms, Alberta is also the province most dependent on fossil fuel production as a share of the economy. Nearly a third of the province’s GDP is directly tied to the fossil fuel industry as well as one in every 17 jobs. Saskatchewan has the second largest share of fossil fuel jobs in the economy (roughly one in 35) with the fossil fuel industry accounting for just under a fifth of the province’s GDP. Newfoundland and Labrador has the third greatest share of fossil fuel jobs (roughly one in 50) and the province depends on oil and gas production for nearly a quarter of economic output. No other province comes close to Alberta, Saskatchewan, or Newfoundland and Labrador in terms of overall fossil fuel dependence. Nationally, the fossil fuel industry accounts for only 1% of jobs and 8% of GDP.

At the community level, fossil fuel dependence is overwhelmingly concentrated in Alberta with a few hotspots in Saskatchewan and British Columbia

FIGURE 4 Census agglomeration with the greatest share of workers in the fossil fuel industry, in each province (2016)

Province	Region	Fossil fuel workers (rounded)	Share of workers
British Columbia	Fort St. John	1,800	10.4%
Alberta	Wood Buffalo	14,200	31.2%
Saskatchewan	Estevan	1,200	15.2%
Manitoba	Thompson	< 100	1.0%
Ontario	Sarnia	2,000	4.3%
Quebec	Sainte-Marie	< 100	0.7%
New Brunswick	Saint John	1,800	2.7%
Nova Scotia	Cape Breton	1,000	2.2%
Prince Edward Island	Summerside	< 100	0.4%
Newfoundland and Labrador	Bay Roberts	200	3.1%
Territories	Yellowknife, YK	< 100	0.4%

Source Statistics Canada, “2016 Census of Population,” Statistics Canada Catalogue no. 98-400-X2016290, last modified November 22, 2017.

(see *Figure 3*). The community most dependent on fossil fuel production for work is the Wood Buffalo region of Alberta, which includes Fort McMurray, where the oil industry accounts directly for one in every three workers.

Alberta also contains Canada’s largest fossil fuel communities in terms of total employment. The Calgary metropolitan area is home to 60,700 oil, gas and coal workers (26% of the national total) followed by Edmonton with 30,600 (13%).

At the other end of the spectrum, dozens of communities, most of them in Ontario and Quebec, have zero reported fossil fuel jobs (or workers). Nevertheless, there are pockets across the country where the share of fossil fuel jobs is relatively high. The regions in each province that are most dependent on fossil fuel production for work are summarized in *Figure 4*.

In some cases these regional data obscure the small communities at greatest risk of disruption. For example, although 3% of workers in the Bay Roberts region of Newfoundland and Labrador work in the fossil fuel industry, the figure is likely much higher for the village of Come By Chance (population: 228), which is home to an oil refinery described as the “life-blood” of the community.³⁰ Decarbonization policies have already triggered the layoffs of dozens of workers at the facility and its possible closure puts the entire town at risk.³¹

In addition, as discussed above, these data only identify direct employment in the fossil fuel industry. They do not include the number of indirect and induced jobs, which is typically two to three times greater than direct fossil fuel employment.

Job creation potential of the zero-carbon economy

Decarbonization will cost jobs. It will also create new ones, though not necessarily for the same people in the same places. Counting those future jobs is difficult, but reasonable estimates are possible. By combining the historical job creation rate for investments in particular sectors (e.g., 90 operations jobs per gigawatt of installed wind power)³² with the expected value of new zero-carbon investments, several organizations have attempted to model the overall job-creation potential of the shift to a zero-carbon Canadian economy.

A recent report from the Columbia Institute estimates the transition to a low-carbon economy will create 3.9 million direct jobs in Canada by 2050.³³ Most of these “green jobs” are connected to investments in energy efficiency improvements, followed by investments in solar and wind power projects. When indirect and induced jobs are included, the report claims, Canada could create 19.8 million new jobs by 2050. Although the authors assume significant new spending by governments—hundreds of billions of dollars in electricity transmission infrastructure alone—many of those jobs will be created based on infrastructure spending that has already been budgeted.

Working on a more ambitious timeline, the Green Economy Network estimates that one million green jobs could be created in just five years with aggressive public investments.³⁴ The network assumes \$80 billion in new spending on energy efficiency, renewable energy and public transit within five years. Maintaining that pace of investment over 10 years (\$186 billion cumulatively) would create an additional 1.5 million jobs.

There are, of course, limitations to job creation predictions like these. Among other caveats, most models assume ambitious new government spending and they typically count “job years” rather than permanent positions. Critics also challenge the term “green job” itself as inconsistent and political rather than objectively defined by a connection to the zero-carbon economy.³⁵ However, these estimates illustrate the massive potential of decarbonization to create employment. If even a fraction of these jobs are

created they will significantly outnumber any potential losses in the fossil fuel sector.

Equity considerations

In developing the case for a just transition, advocates have often overlooked or glossed over the equity impacts of different policies. If one of the goals of a just transition is to build a more inclusive economy, then an intersectional approach is necessary.

Fossil fuel workers are relatively privileged compared to other segments of Canadian society. Workers in the industry are overwhelmingly male (77%) and they tend to be very well paid.³⁶ In 2016, average total compensation in the fossil fuel industry was \$141,000 (\$68 per hour) compared to the Canadian average of \$59,900 (\$35 per hour).³⁷ Fossil fuel workers are also disproportionately Canadian-born. Only 12% of oil and gas workers are immigrants compared to 23% across all industries.³⁸

The disparities between fossil fuel workers and workers in other industries tend to be exaggerated within fossil fuel regions. In the Alberta oil sands, for example, women and racialized workers are “highly overrepresented in feminized and invisible service, retail and care work” with little security and poor compensation compared to the oil and gas workers they serve.³⁹ In Fort McMurray more than 40% of workers in accommodation and food services are immigrants and 62% are women whereas just 18% of oil and gas workers are immigrants and 20% are women.⁴⁰ Accommodation and food service workers make an average of \$30,300 per year, which is less than a quarter of what oil and gas workers receive on average.⁴¹

Because women are more likely to work in lower-paid, precarious service jobs and less likely to work in high-paid fossil fuel jobs, the gender pay gap in fossil fuel regions is even more extreme than the Canadian average. Across Alberta the gender pay gap is \$31,000 per year for full-time workers—the highest in Canada.⁴² In Edmonton women earn on average just 61% of what men are paid, which makes northern Alberta among the worst places in the country for women’s economic security.⁴³

Indigenous workers are well-represented in the Canadian fossil fuel industry compared with their share of the overall workforce. However, Indigenous workers tend to be relegated to lower-income and precarious positions. In northeastern British Columbia, for example, Indigenous workers often report being the “last hired, first fired” on extractive projects.⁴⁴

In sum, any policies designed specifically to support fossil fuel workers must consider the equity impacts of favouring a group of generally high-income, Canadian-born men over other workers and communities that may also be negatively impacted by the shift to a zero-carbon economy. If fossil fuel communities are put at risk by decarbonization but only the workers directly employed in the fossil fuel sector are supported with government policies, then the transition risks exacerbating the underlying inequities in these regions.

Similar patterns are evident in the context of clean economy job creation. For example, the Canadian construction industry, which will be among the biggest beneficiaries of investments in public transit, renewable energy and green infrastructure, is 88% male.⁴⁵ Even if “environmental professionals” are defined broadly to include any worker primarily engaged in environmental protection, resource management or environmental sustainability (in any industry) the picture hardly improves. Based on a recent national survey funded by the federal government, only 25% of environmental professionals in Canada are women, 6% are Indigenous and 3% are recent immigrants.⁴⁶ Indigenous workers are slightly overrepresented in environmental professions given their share of the overall workforce, but women and immigrants are significantly underrepresented. Racialized workers may be underrepresented as well, but the data that might confirm this are not available.

Any policies designed to create jobs and economic opportunities in the zero-carbon economy must consider the equity impacts of supporting industries dominated by Canadian-born men, potentially at the expense of racialized or feminized sectors. The transition to a zero-carbon economy cannot be called “just” if marginalized workers and communities do not share in the benefits.

Putting potential employment impacts in perspective

Completely phasing out the fossil fuel industry in Canada will have consequences, but the costs should not be overstated. Fossil fuel production today accounts for just 1% of employment and 8% of GDP. Indeed, Canada is fortunate that our prosperity is not more contingent on oil, gas and coal development. Whereas fossil fuels account for 18% of Canada’s exports, the figure is 53% for Norway, 63% for Russia, 94% for Algeria and nearly 100% for Iraq.⁴⁷

Furthermore, even the most aggressive proponents of decarbonization foresee a gradual, planned phase-out of fossil fuel production—not an overnight shut-down. The Canadian economy can absorb a managed decline in the fossil fuel sector through strategic growth in alternative industries. Once the potential benefits of decarbonization are accounted for, in terms of new jobs and economic activity in zero-carbon sectors, then phasing out the fossil fuel industry may very well be net positive for the economy.

Individual provinces and resource communities, on the other hand, are vulnerable to disruption. Of the 200,000 people working in Canada’s fossil fuel industry the majority are located in Alberta, followed by Saskatchewan and Newfoundland and Labrador. In some communities, such as Fort McMurray, Alberta, the oil, gas and coal industries are by far the largest employers. As fossil fuels are phased out over the next few decades, many or most of those workers will lose their jobs and need to find new ones in new industries.

There is clearly a need for some reactive just transition policies to support affected workers and communities during the zero-carbon transition. The preceding analysis suggests those policies can afford to be modest and targeted rather than ambitious and national in scope (although to secure political buy-in more generous policies may be required). Whatever their scope, supports for fossil fuel workers must recognize the underlying inequities in the industry and the potential consequences of providing targeted financial support to high-income white men at the expense of other groups.

With this context in mind, we now turn to an evaluation of the federal and provincial policies already in place to support displaced workers in Canada.

Existing transition policies in Canada

OUR 2017 ANALYSIS of federal and provincial climate strategies concluded that “no jurisdiction has developed a plan to reduce greenhouse gas emissions that also includes income supports, workforce development, and job creation measures, especially for those workers and communities hit hardest by the low-carbon transition.”⁴⁸ With the notable exception of Alberta (discussed below), few governments in Canada have even discussed implementation of policies explicitly designed to ensure a just transition.

However, general social security and workforce development policies still apply in the context of the zero-carbon transition. If these policies are robust enough to support fossil fuel workers and their communities through a process of decarbonization then separate “just transition” policies may not be necessary. Consistent with our definition of just transition, existing government social security and workforce development measures can be divided into either reactive or proactive transition policies.

Reactive transition policies

A reactive (i.e., defensive) just transition requires income supports and retraining in the context of a planned phase-out of high-carbon industries.

In Canada the primary labour adjustment policy is employment insurance (EI), which is intended to provide “temporary income support to unemployed workers while they look for employment or to upgrade their skills.”⁴⁹ The stated goals of EI are closely aligned with those of a reactive just transition.

Employment insurance works by collecting mandatory premiums from workers’ paycheques, which are topped-up by their employer. If a worker loses their job through no fault of their own they can then apply for EI benefits through their provincial government. The provinces receive money from the federal government to deliver the program through a series of bilateral labour market development agreements, which are collectively worth \$2 billion per year.⁵⁰

In principle, EI is sufficient to support workers through a zero-carbon transition. In practice, the program has been gradually eroded over the past 75 years to the point where major deficiencies have emerged.⁵¹ Eligibility criteria are often too restrictive and benefits too low for EI to adequately support many workers today (precariously employed workers in particular have limited access to benefits).⁵² The current maximum payout is only \$543 per week for 45 weeks (depending on previous insurable earnings and the regional unemployment rate).⁵³

For fossil fuel workers facing the extinction of their industry, 45 weeks with an 80% reduction in income is likely insufficient for reskilling and/or relocation to find another job.⁵⁴ In comparison, in the 1970s, unemployment insurance offered “nearly universal coverage” and greater benefits for up to 51 weeks with a significant portion of program funding coming directly from the federal government.⁵⁵

In addition to EI, the federal government provides money to the provinces to support training for employed workers. A series of new workforce development agreements will consolidate programs previously in place for this purpose, including the Canada Job Grant. Currently, workers can receive up to \$15,000 for third-party training, which is paid two-thirds by the government and one-third by their employer. Related programs support older workers and workers with disabilities. In total, federal funding for these programs is about \$1 billion per year.

The workforce development agreements have the potential to support a just transition of fossil fuel workers by facilitating the transition of certain firms into new industries. For example, an energy firm trying to make the switch from oil rigs to wind farms can likely retain many or most of its electricians provided they receive some targeted skills training. However, there are clear limitations to this kind of support. Most importantly, train-

ing money is contingent on employer participation. If firms or projects are simply being wound down, there is little incentive for employers to train their workers for new jobs in other industries.

Alberta is the only province to take tangible steps toward a just transition policy package. (Others, such as Ontario, have promised but not yet implemented transition policies.) Using revenues from the province's carbon levy, Alberta created a Coal Workforce Transition Fund and a Coal Community Transition Fund specifically to support the workers and regions negatively impacted by the phase-out of coal-fired electricity generation in the province. The new funds include income supports, career counselling, labour market studies and backing for economic diversification projects.⁵⁶ In total, \$195 million is allocated to help coal communities (and Indigenous communities) transition to a zero-carbon economy. The 2017 federal budget provided an additional \$30 million to support workers in Alberta's resource sector, although the government cited low commodity prices rather than environmental policies as the justification for new spending.⁵⁷

Alberta's transition framework is reasonable, but short-sighted. Crucially, the province is focused on transitioning coal communities (and, for different reasons, Indigenous communities), but not oil and gas communities. Since the entire fossil fuel industry will be phased out in Canada's zero-carbon transition, policies to support a just transition must go beyond coal to include all fossil fuel communities.

In sum, the federal government already has social security and workforce development policies in place to facilitate a reactive just transition. Provincial measures provide additional targeted support. However, the scope of these programs is inadequate to prevent undue hardship in the areas most affected by decarbonization policies. Canadian governments also lack a coordinated plan for the transition of affected workers into new jobs and industries.

Proactive transition policies

A proactive (i.e., offensive) just transition requires job creation and workforce development measures in the context of a planned expansion of zero-carbon industries.

Generally speaking, job creation is a product of investment (public or private) and economic growth. To this end, the federal government has promised major spending on the zero-carbon economy. In its 2016 budget the federal government promised \$5 billion over five years for "green" infra-

structure and \$3.4 billion over three years for public transit infrastructure. It also created a dedicated low-carbon economy fund worth \$2 billion over two years (which was later spread out over five years).⁵⁸ In 2017, the federal government added \$21.9 billion over 11 years for green infrastructure and \$20.1 billion over 11 years for public transit infrastructure.⁵⁹ Both budgets also included hundreds of millions of dollars for energy efficiency, clean technology research and development, and alternative energy infrastructure.

Planned federal spending on the low-carbon economy—more than \$50 billion over the next decade—will certainly create jobs. Based on the Green Economy Network’s methodology, as many as half a million to a million job years may be generated (i.e., tens or possibly hundreds of thousands of permanent, full-time positions). However, given the scope of the zero-carbon transition, much more ambitious spending is necessary.

According to the Conference Board of Canada, the cost of reducing emissions by only 30% below 1990 levels by 2050 is an estimated \$2 trillion.⁶⁰ For a 60% reduction the cost rises to \$3.4 trillion in new investments. More than a trillion dollars will be spent on new infrastructure in the coming decades anyway (including half a trillion dollars in energy infrastructure alone),⁶¹ so some of that money can be reallocated to the zero-carbon economy, but significant new spending is still needed. The private sector has a key role to play in providing capital for new projects, but the public sector must be the driver for new investments commensurate with the scale of the challenge.

Furthermore, to ensure a just transition some of this spending must be targeted at the regions hit hardest by decarbonization. So far, it is unclear whether fossil fuel communities and other vulnerable regions will receive funds directly to support zero-carbon industries or whether investment decisions will be left entirely to market forces. Without co-ordination the greatest benefits from new investments may flow disproportionately to areas that are already ahead in the shift to a zero-carbon economy (e.g., Ontario and Quebec) at the expense of more vulnerable regions (e.g. Alberta and Saskatchewan).

In addition to job creation, a proactive just transition requires workforce development. Government support for workforce development ultimately includes the entire education system as well as the training supports discussed in the preceding section, but certain policies are especially pertinent here. For example, the federal government provides incentives (up to \$2,000), loans (up to \$4,000) and completion grants (up to \$2,000) for apprentices. Every province provides additional financial support to apprentices. Supporting and expanding apprenticeships and other vocational pro-

grams is crucial to the zero-carbon transition because so many of the jobs being created are in the skilled trades.

Government efforts to develop the workforce for the zero-carbon economy fall short in a few ways. First, fewer than half of apprenticeships in Canada are completed within 10 years.⁶² Compared to countries like Germany, Canada does a poor job of ensuring that trainees succeed in their vocational training programs and that young workers are transitioned into employment. Second, apprenticeships are overwhelmingly dominated by Canadian-born men: only 14% of apprentices are women and only 9% are immigrants.⁶³ Better supporting underrepresented groups is necessary to maximize the economic potential of the zero-carbon economy and to ensure those benefits are fairly shared. Third, apprenticeship registrations are generally the product of market forces and worker perceptions of the labour market. Governments have a role to play in co-ordinating training in strategic sectors with the demands of the zero-carbon transition.

The federal government recently promised to create a new organization to “support skill development and measurement in Canada,” which may help fill the need for improved labour market information.⁶⁴ Without it, Canada risks a misalignment between the supply and demand of crucial skills in the coming decades.

In sum, Canadian governments already have some job creation and workforce development policies in place to support a proactive just transition. The federal government is investing significantly in the zero-carbon economy, which will create a large number of jobs. The federal and provincial governments are investing in skills development for the kinds of workers the zero-carbon economy will need. However, in both cases, the scale of funding is inadequate given the scope of the challenge. Moreover, Canada lacks a comprehensive industrial strategy to tie these spending and training programs together. It is not at all clear that the workers being trained and the jobs being created will overlap with the jobs and industries being lost in certain parts of the country. A just transition ultimately requires coordination and strategic direction.

Employers also have a role to play in proactive workforce development. Over the past two decades, employer spending on training has declined by 40%.⁶⁵ Quebec’s training tax provides a potential model for other Canadian governments to adopt. In Quebec large employers are required to spend at least 1% of total payroll on training.⁶⁶ If the employer comes up short they must pay the difference into the province’s Workforce Skills Development and Recognition Fund. The WSDRF, or funds like it, could be directed toward just transition objectives.

Conclusion

CANADA'S TRANSITION TO a zero-carbon economy will have significant consequences, including a contraction of the fossil fuel industry and an expansion of lower-carbon alternatives. Whether this transition is inclusive and productive for workers will depend on the social security and workforce development policies put in place by governments. Decarbonization guarantees neither prosperity nor hardship.

In anticipation of disruptive economic changes, labour groups and civil society organizations have pushed for a “just transition” policy framework. This report divides the common policy platform of just transition advocates into reactive and proactive (i.e., defensive and offensive) policies. The former are designed to mitigate harm, such as measures to provide income support to displaced workers, and the latter are designed to capitalize on new opportunities, such as measures to create jobs in low-carbon industries.

The need for reactive just transition policies is limited in scope and varies by region. Only 1% of Canadian workers are employed by the fossil fuel industry and those workers tend to have relatively higher incomes, so a comprehensive national transition program is not imperative. However, some parts of the country are more vulnerable than others. In Fort McMurray, Alberta, for example, a third of the workforce is directly employed in the oil and gas industry. For many communities in Alberta, Saskatchewan, and Newfoundland and Labrador (and in smaller pockets around the country), there is or will soon be a need for transitional support from governments.

The need for proactive just transition policies, on the other hand, is widespread. Tens of billions of dollars have been promised for new green infrastructure and other elements of the zero-carbon economy over the coming decades. For Canada to align public spending with the ambition of our climate targets, hundreds of billions of dollars in additional investments will be needed. That spending will create hundreds of thousands of jobs, but if those jobs are mismatched with the available skilled workforce then workers and the broader economy will needlessly suffer. Moreover, if growth industries fail to include women, immigrants, racialized workers and Indigenous communities, the emerging zero-carbon economy will not be fair or just, or as productive as it could be.

Social security and workforce development policies already exist that, in principle, can facilitate the transition of the current workforce to the zero-carbon economy. For example, employment insurance is characteristic of a reactive just transition while green infrastructure funds are central to a proactive just transition. However, as this report has suggested, the scope of these policies does not live up to the challenge (or align with the opportunities) of the zero-carbon transition. Governments are not prepared for the scale of the change that will occur in the coming decades.

Recognizing that Canada needs limited reactive just transition policies to support workers and communities in certain regions, but widespread proactive just transition policies to ensure an equitable and productive zero-carbon economy, and that a de facto just transition framework is already in place, this report makes the following recommendations to Canadian governments.

Recommendations

Develop a national economic strategy, in partnership with labour and industrial stakeholders, that co-ordinates public spending on the zero-carbon economy with workforce (re)development initiatives

The zero-carbon transition is too big a task to be left to market forces. A just transition requires a clear, comprehensive plan for the economy. To date, federal plans to invest in renewable energy, public transit and green infrastructure ignore the need to phase out the fossil fuel industry and prepare workers for new jobs on the horizon. The federal and provincial governments need to collaborate to develop and implement a national strategy for decarbonization.

That plan should be developed in partnership with workers and other stakeholders. Recognizing the diversity of the Canadian economy, it should also provide for regional flexibility and autonomy in implementation.

Promote growth and equity in the workforce by strategically investing in apprenticeships and vocational training for the zero-carbon economy

The federal and provincial governments should provide additional funding for apprenticeships and other vocational training that aligns with the national economic strategy. Investments in the zero-carbon economy will create massive demand for skilled tradespeople (on top of existing shortages). Governments have a responsibility to identify those shortages in advance and proactively invest in workforce development to meet future needs.

New investments in training provide an opportunity to address the historic exclusion of women, immigrant and racialized communities, and Indigenous peoples from the skilled trades. Governments should promote equity in the green economy by proactively training workers from marginalized groups.⁶⁷

Enhance social security programs to better support workers in any industry facing job loss and retraining costs

As the recent mass layoffs of Target and Sears employees illustrate, there are many industries facing disruption whose workers require support. Enhancing social security and workforce development benefits for all workers in Canada will better prepare the economy for both planned changes and unexpected disruptions in the coming years, including the potentially transformative impact of automation. A robust social safety net significantly reduces the need for specific just transition policies targeted at fossil fuel workers.

To that end, eligibility criteria for employment insurance should be made more flexible and EI benefits should be extended so that workers can complete long-term training programs without fear of income loss. The funding formula for employment insurance should be adjusted by reinstating direct federal support and giving workers a greater say in how premiums are determined.

Provide targeted just transition policy packages to fossil fuel communities

For the communities hit hardest by decarbonization, enhanced social security will not be enough to maintain economic viability. In oil, gas and coal towns there are simply too few opportunities in other industries for people in need of work. A targeted just transition package, possibly modelled on Alberta's Coal Community Transition Fund, can go a long way toward supporting the economic viability of fossil fuel communities across the country by fostering growth in new, lower-carbon industries.

Respecting the uneven regional nature of fossil fuel production in Canada, the design and implementation of these just transition packages should be the responsibility of provincial governments. Revenue from provincial carbon pricing schemes can be used to fund the packages, which should be supplemented with federal transfers for this purpose.

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