



WORKERS CLIMATE PLAN

PRELIMINARY WORKERS' CLIMATE PLAN REPORT

September 2016

ABSTRACT: Iron & Earth, a Canadian non-profit organization led by skilled trades workers with experience in Canada's oil industry, is developing a Workers' Climate Plan. This preliminary report describes how Canada can become a leader in renewable energy, and a net exporter of renewable energy products, services and technology, by harnessing the industrial trade skills of current energy sector workers. A growing number of oil and gas tradespeople support a transition to renewable energy so long as it provides a just transition for current energy sector workers. By utilising Canada's existing energy sector workforce, organizations and infrastructure, Canada can accelerate the transition to renewable energy, decrease the cost, and make Canada's renewable energy sector globally competitive. Throughout September and October, Iron & Earth will continue to reach out to energy sector workers over the phone and in person to speak about the Workers' Climate Plan in more detail. Iron & Earth is consulting with a range of energy sector stakeholders in partnership with the Alberta-based Energy Futures Lab in order to devise a set of recommendations based on worker demands. This will inform an expanded Workers' Climate Plan which we will release in November 2016 ahead of The 22nd session of the Conference of the Parties (COP 22). In this preliminary, abridged version of the Workers' Climate Plan, we share insights from current energy sector workers for the consideration of the Working Group on Clean Technology, Innovation and Jobs, as they compile their reports for the ministerial tables in September 2016.





To the Working Group on Clean Technology, Innovation, and Jobs:

Thousands of oil and gas workers would love to get back to work, and upgrade their skills to work in clean industries with a strong growth potential. The industrial energy stakeholders who have contributed to the creation of this document are asking the Government of Canada for help now, during this rapid shift toward renewable energy, so industrial trades workers can ensure Canada thrives during the global transition to renewable energy sources.

We see a lack of long-term planning during this time that calls for bold strategic and visionary leadership. We are inspired by the recent ambitions of the federal and provincial governments to view the challenge of climate change as an opportunity to create jobs and grow our economy. It is our hope that this report can aid in the development of two planning documents – a comprehensive three-year term plan that focuses on aligning resources to enable a just transition for energy sector workers and a longer term plan detailing how Canada will surpass our goals for 2030 and reach net zero emissions by 2050.

At this crucial stage, we have developed a Workers' Climate Plan framework which we believe could put Canada on the path to becoming a leader in renewable energy, and a net exporter of renewable energy products, services and technology. Most importantly, we have a tremendous opportunity to improve the quality of life of trades people, their families and the nation. Through the reorientation of labour toward new and diverse forms of energy production and energy efficiency retrofitting of existing infrastructure, we can get there together.

We thank you sincerely for this opportunity to present our our vision and hope we can find a way to work together on our shared agenda.

Sincerely,

Liam Hildebrand, Executive Director, Iron & Earth



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Executive Summary

Addressing climate change while developing our energy industry doesn't have to divide and polarize our country. As we look ahead, one thing is certain: Canada needs to come together around a national climate strategy that unites people and drives growth in a new energy economy.

Many oil sands workers are concerned about the environmental impact of fossil fuel development – but we are also concerned about the jobs lost by not building these projects. We face a difficult situation, and don't want to be yet another example of a Canadian workforce which failed to proactively adapt to a changing world.

That challenge inspired us, a group of oil sands workers, to establish Iron & Earth. We want our voices heard in this debate. We want good-paying jobs that will allow us to care for our families. But we also want to feel pride in the work we do, and to know that our daily actions are not contributing to a climate crisis that could dramatically alter the world our children inherit.

This is why we have taken the time to develop the Workers' Climate Plan, a step toward finding common ground and preparing our country for the future.

Whether we build new pipelines or not, our industry faces increasing uncertainty. A report by Policy Horizons Canada, a federal government think-tank, describes the plummeting cost of renewable energy. It concludes that "it is increasingly plausible to foresee a future in which cheap renewable electricity becomes the world's primary power source and fossil fuels are relegated to a minority status."¹

As we face mounting job losses in the oil and gas sector – with 40,000 jobs lost in 2015 alone – and uncertain international markets, it is prudent to invest in the future by training existing industrial trades workers to capitalize on this global shift.

Siemens Canada has stated that new energy policies in Alberta and Saskatchewan will generate up to \$50 billion in renewable energy investments over the next 14 years in these two provinces alone. However, many of those dollars will flow to countries with

¹ Policy Horizons Canada. *Canada in a Changing Global Energy Landscape*. Draft for discussion, March 3, 2016, p.16.



more established renewable energy industries if Canada fails to expand our own. As Ontario and Quebec learned the hard way, these industries need to be developed proactively to ensure our manufacturing sector is competitive with overseas companies.

Large-scale renewable energy projects will not begin construction in Alberta and Saskatchewan until 2018. That gives us a brief window to build up our workforce and manufacturing sector in preparation for the next employment boom. Through fossil fuel development, Alberta has built a powerful workforce of industrial engineers, tradespeople, contractors and manufacturers – all of whom can adapt their skills to be competitive in emerging energy markets.

Under previous governments, Canada failed to develop a sufficient renewable energy industry. There is no more time to waste. If we move fast, we have the opportunity to position Canada as a leader in the new renewable energy market, while providing our skilled workers with jobs – now and for decades to come.

Through our Solar Skills renewable energy training program, Iron and Earth is already preparing to retrain 1,000 unemployed oil and gas workers to install solar panels, solar heating units, EV charging stations and conduct energy retrofits. But that is just the beginning.

The Workers' Climate Plan is shaped by ideas from workers and is focused on the question of how to address climate change without leaving energy-sector workers and their families to fend for themselves.

The future of energy is renewable. As energy-sector workers, we want Canada to lead this transition, not lag behind. We ask the federal government to listen to the voices of workers and include our concerns in their climate change strategies – so we can avoid divisive debates and get to work transforming Canada into a true energy superpower for the 21st century.



THE WORKERS' CLIMATE PLAN FRAMEWORK

Our Three Point Framework Plan:

1. **Build up Canada's renewable energy workforce capacity** by re-training and upskilling Canada's skilled workforce through public funding and support.
2. **Build up Canada's renewable energy manufacturing capacity** through research and development grants.
3. **Position existing energy sector developers, contractors and unions** within the renewable energy sector through incubator and innovation programs and grants.

Our Two Energy Development Priorities:

1. Energy development must **prioritize the health and equity** of workers, families, communities, the economy and the environment.
2. Energy development must be **aligned with global, national and regional climate commitments**.

IRON AND EARTH

Iron & Earth is led by oil sands workers committed to catalyzing Canada's renewable energy sector. It was created in 2015 when oil prices were falling, and job losses and energy diversification were dominating conversations on the job site.

Iron & Earth is committed to helping prepare workers today for the opportunities of tomorrow. We are developing programs and initiatives to create tangible opportunities for workers, and we are calling on government and industry to do the same.

Most importantly, Iron & Earth members are ready to work — today.

Pillars of the Workers' Climate Plan



Collaboration:

The core of innovation is collaboration. We are calling on government to support measures that further collaborative efforts between unlikely stakeholders.



Research:

We are calling for a continued process of visioning and strategy development, that will help ensure Canada can achieve not only 2030 goals, but ensure Canada reaches net-zero as a nation by 2050.



Training:

Canada has a specialized workforce of industrial trades people who are currently out of work, and would love to be put to work building Canada's new energy economy. They can't do so without the right skills, and need government support for renewable energy training programs.



Action:

In order to live up to our international promises as a country and put food on the tables of struggling energy workers and their families, we must leap into meaningful action now.



1. Context:

The State of the Canadian Economy and Environment

Right now workers in the traditional energy sector are dealing with some of the greatest struggles they'll face in their entire careers. Putting food on the table and providing stability for oneself or one's family should not be a challenge that so many face, but the reality affects more and more oil and gas workers every day.

One of the driving motivations behind everything we do and why we launched the Workers' Climate Plan is wanting to see workers and families thrive. We want the green energy revolution to bring us closer to financial security and our climate targets — all at the same time.

We hear a lot of misinformation about renewables, so we're working hard to help Canadians understand the power and efficiency of modern clean energy. Renewable energy is becoming increasingly cost effective as investments in wind and solar outpace that of coal and gas by two to one.² Iron & Earth believes the time has come for Canada to harness the renewable energy resources available to our country.

1.1 Employment in Canada's Oil and Gas Sector Today

Every Canadian uses oil in some form on a day-to-day basis and it's an essential resource for our country and citizens at this moment in time. The oil sands is a key industry for the Canadian economy and adds to the wealth of individuals, families and business owners. Members of Iron & Earth deeply value the jobs that oil sands development has created, and realize that many of us will rely on these jobs into the future.

² "Wind and Solar Are Crushing Fossil Fuels.:" *Bloomberg News*, April 6, 2016
<<http://www.bloomberg.com/news/articles/2016-04-06/wind-and-solar-are-crushing-fossil-fuels>>.



The future of this sector, however, faces great uncertainty. In Canada and Alberta, unemployment rates are ticking higher and higher. Last year, the oil slump triggered more than 40,000 layoffs in the oil and gas sector, making 2015 the worst year for job losses in Alberta since 1982.³ It marks the greatest decline in the total number of hours worked in over 30 years.⁴

In April 2016, the trend continued hard and fast. Alberta lost more jobs than the rest of Canada combined, totalling 20,800 new people without work.⁵ Coupling that with the Fort McMurray forest fires meant significant additional job losses in the oil patch. The number of people without work will likely rise by many more thousands before the year's end.⁶

In the province hit hardest by the downturn of oil and gas, 12 coal-fired generating units are also expected to retire before 2030. Under Alberta's new Climate Leadership Plan, there will be no pollution from coal-fired electricity generation by 2030.⁷ By that same time, two thirds of that power will be replaced by renewable energy. Under the Climate Leadership Plan the government of Alberta also promises that in transition, "workers, communities and affected companies" will be "treated fairly in this process." That must mean workers are given the tools and training they need to transition in line with government and industry as the face of Alberta's energy landscape evolves.

³ "2015 worst year for Alberta jobs losses since 1982," *Global News*, January 26, 2016 <<http://globalnews.ca/news/2478539/2015-worst-year-for-alberta-jobs-losses-since-1982>>.

⁴ "Alberta unemployment rate surges to 7.8% with largest decline in hours worked in 30 years," *CBC News*, June 10, 2016 <<http://www.cbc.ca/news/canada/calgary/alberta-job-losses-may-2016-1.3628424>>.

⁵ "Canada sheds 2,100 jobs in April," *CBC News*, May 2, 2016 <<http://www.cbc.ca/news/business/canada-jobs-march-employment-1.3569704>>.

⁶ Petroleum Labour Market Information (PetroLMI). *Labour Market Outlook 2016 to 2020: Canada's Oil and Gas Industry*. April 2016.

⁷ Government of Alberta. "Alberta takes next steps to phase-out coal pollution under Climate Leadership Plan." March 16, 2016; Government of Alberta. "Ending Coal Pollution," c. 2016 <<http://www.alberta.ca/climate-coal-electricity.aspx>>.



The impacts of uncertainty over the futures of both the petroleum and coal industries does not stop at Alberta's borders. Other oil producing regions are also feeling localized impacts of waning production. Canadian tradespeople from every corner of the country are heading home, with no expectation of going back to work any time soon.

1.2 Forecast for the Future of Work in the Energy Sector

Clean energy has already created more than 27,000 jobs in Canada and has the potential to create millions more.⁸ Fortunately for workers affected by the ongoing boom and bust cycles of the oil sands, renewable energy jobs require the same skills as used by tradespeople who are currently working in Canada's oil and gas industry.

There's lots of work to do to ensure the transition to renewable energy is fluid and does not neglect current energy workers. Skills-transfer programs should be streamlined to position existing energy sector workers in renewable energy. Initiatives like the Iron & Earth Solar Skills campaign (see p. 57) can aid this process. Employing existing energy sector workers would empower Canada to rapidly diversify its energy sector, while developing the oil sands at a sustainable pace.

Clean energy is already going mainstream across the globe. In 2015, more money flowed into renewable electricity than new investments in fossil fuels, with US \$325 billion being invested globally.⁹ Presently, investments in wind and solar outpace coal and

⁸ Clean Energy Canada. *Tracking the Energy Revolution: Canada 2015*. September 2015
<<http://cleanenergycanada.org/trackingtherevolution-canada/2015/>>.

⁹ Clean Energy Canada. *A Year for the Record Books: Tracking the Energy Revolution: Global 2016*. February 2016
<http://cleanenergycanada.org/wp-content/uploads/2016/02/A-Year-for-the-Record-Books_April.pdf>.



gas by two to one.¹⁰ Renewable energy jobs rose by 5% while traditional energy jobs fell in most countries.¹¹

At home in Alberta and across Canada, investors are excited at the massive market potential for renewable energy. Alberta is already on track to produce 2,000 megawatts of solar energy by 2025, with 385 megawatts in development right now.¹² Geothermal alone could put thousands from Alberta's oil and gas sector back to work as the number of orphaned oil wells increases daily out of the 400,000 that have been drilled.¹³ In the oil patch, industrial trades workers have the skills to harness the massive geothermal potential of existing wells – they just need support to make the switch.

Industry is well positioned to capitalize on this opportunity. The Canadian clean energy sector has already seen \$25 billion invested over the past 5 years, with a 37% growth in jobs.¹⁴ It is estimated there are 144,000 potential jobs in renewable energy just waiting for Alberta.¹⁵

¹⁰ "Wind and Solar Are Crushing Fossil Fuels.:" *Bloomberg News*, April 6, 2016
<<http://www.bloomberg.com/news/articles/2016-04-06/wind-and-solar-are-crushing-fossil-fuels>>.

¹¹ Clean Energy Canada. *A Year for the Record Books: Tracking the Energy Revolution: Global 2016* February 2016
<http://cleanenergycanada.org/wp-content/uploads/2016/02/A-Year-for-the-Record-Books_April.pdf>.

¹² "An Alberta solar boom is coming: Almost a billion dollars worth of projects are in development," *Progress Alberta*, March 23, 2016 <http://www.progressalberta.ca/alberta_solar_boom>.

¹³ "Geothermal Could Put Thousands from Alberta's Oil and Gas Sector Back to Work," *DeSmog*, May 3, 2016
<<http://www.desmog.ca/2016/05/03/geothermal-could-put-thousands-alberta-s-oil-and-gas-sector-back-work>>.

¹⁴ "Green energy sector jobs surpass total oil sands employment," *The Globe and Mail*, December 2, 2014
<<http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/green-energy-sector-jobs-surpass-oil-sand-employment-total/article21859169/>>.

¹⁵ "Jobs report shows Alberta's employment prospects could skyrocket through green economy investments" *Greenpeace*, April 22, 2016
<<http://www.greenpeace.org/canada/Global/canada/pr/2016/04/GreenJobsreport.pdf>>.



As renewable energy shifts into the mainstream, it becomes increasingly cost effective: solar energy prices have already come down 83% over the past six years.¹⁶ Iron & Earth's Solar Skills renewable energy training program seeks to get 100 hands-on solar training programs in communities across Alberta. We want 1,000 workers trained in renewable energy installations and retrofitting, and we are working to implement high school curriculum materials to get future workers excited about the trades.

1.3 Embracing the Transition

Today in Canada, thousands of unemployed energy sector workers face difficult financial realities. Meanwhile, local and global imperatives are driving our nation to develop a cleaner energy portfolio. To that end, the Workers' Climate Plan is a blueprint for the creation of thousands of renewable jobs for industrial energy sector workers over the next four years, as part of the National Climate Strategy.

The Workers' Climate Plan has been shaped by over 200 submissions by Canada's industrial energy sector workers, and is being developed collaboratively through the Energy Futures Lab. The consensus from these workers is that renewable energy development must ensure the health and equity of workers, their families and communities, as well as our shared economy and environment. This consensus is supported further by the additional 800+ survey submissions by fellow Canadians. At this juncture, given the economic realities of global oil markets, we believe it is prudent to invest in the future by retraining workers to be able to build and install infrastructure in the solar, wind, geothermal, biomass, biofuel, energy storage, and energy efficiency sectors.

¹⁶ Clean Energy Canada. *A Year for the Record Books: Tracking the Energy Revolution: Global 2016*. February 2016
<http://cleanenergycanada.org/wp-content/uploads/2016/02/A-Year-for-the-Record-Books_April.pdf>.



We see a small window of opportunity to build the workforce and manufacturing capacity of Canada to be able to build the renewable energy infrastructure required to meet our climate commitments. We also see an opportunity to learn from other countries who have already been aggressively pursuing renewable energy. If this is accomplished, Canada could meet its climate commitments, ensure renewable energy development puts oil and gas workers to work, along with helping existing industrial sector contractors and clients within the renewable energy sector.



2. Voices from the Oil Sands: *Survey Results*

2.1 Methodology of the Workers' Climate Plan

The Workers' Climate Plan was produced through a four-step research process. First, we conducted an extensive survey of energy sector workers and the general public to hear their opinions about action on climate change. Second, we are analyzing what we learned to identify key demands of Iron & Earth's core constituency: energy sector workers who believe in a just transition to renewable energy. This is ongoing. Third, we are reaching out to energy sector workers over the phone and in person to discuss the Workers' Climate Plan in more detail. Fourth, we are consulting a wide range of industry stakeholders to determine how we can best represent worker demands in practice.

The Workers' Climate Plan is still in production. An expanded version of the Workers' Climate Plan will be released on November 1, 2016 ahead of COP 22. We will take this document to representatives from government, industry, labour and environmental movement in an effort to build a just renewable energy future. In this preliminary version of the Workers' Climate Plan we share insights from current energy sector workers for the consideration of Working Group on Clean Technology, Innovation and Jobs as they compile their reports for the Ministerial tables in September 2016.



A. Workers' Climate Plan Survey

In June 2016, a comprehensive survey was launched to gauge the level and type of support from the public and energy sector workers for an ambitious National Climate Strategy. To date, there has been little research on the perspectives of Iron & Earth's worker-based membership, and little is known about the perceptions, needs and expectations of those that work in the energy sector. This survey obtained the necessary data and perspectives from this key cohort in order to shape the Workers' Climate Plan.

The survey, fielded from June 9 - August 15 2016, received responses from over a thousand respondents. The survey was emailed to the Iron & Earth membership and made available online for users of laptop or desktop computers, tablets and mobile devices. The survey was shared extensively on Facebook, Twitter, through online search and display advertisements. It was also shared by various allied organizations, businesses and unions.

Of over 1,000 responses, 217 were submitted by skilled trades workers primarily with experience in the energy industry and 824 were submitted by members of the public (hereafter referred to as worker and non-worker). Worker respondents included a number of different tradespeople in the energy sector including construction electricians (16.6%), industrial electricians (10.6%), carpenters (6.5%), welders (4.6), boilermakers (3.7%) and industrial mechanics (3.2%) (see Figure 1).

A significant minority of non-worker survey respondents (44.3%) have a close friend, direct family member or spouse who works as a trades worker in the fossil fuel energy sector. Of those, 8% have a spouse or significant other in the fossil fuel energy sector, 9% have a child in the sector, 16% people have a sibling, 7% have a parent, 64% know a friend and 35% know someone else working in the traditional energy sector. It was expected that we would receive a higher number of responses from non-skilled trades workers, as this is a much larger and more inclusive demographic. The survey responses



provide critical insights into what current energy sector workers and other members of the public are thinking about when it comes to relevant to action on climate change in Canada.

The survey was designed to capture a range of perspectives around:

- Community
- Environment and Education
- Barriers to transition into renewable energy jobs
- Long-term economic sustainability

Survey questions asked workers about a wide selection of topics, including their experiences working in the energy sector, their opinions about a range of policy positions, and concerns about the economy and climate change. The survey was curated to ensure that workers opinions were clearly stated. We consulted with survey specialists to ensure the survey enabled respondents to express a range of opinions and perspectives. Open questions allowed respondents to provide longer responses and tell us things we did not ask in the main survey questions. Long form answers provide greater detail into the lives and concerns of workers and their dependents.

It is important to note there is a potential selection bias in our data. Given budgetary limitations, we primarily promoted the survey through social media, existing supporter emails lists and word-of-mouth. Survey respondents are likely to have a direct or indirect connection to Iron & Earth prior to being presented with the survey. We do not claim that worker survey respondents are a representative sample of energy sector workers in general. We do claim that they represent a growing number of energy sector workers who realize that it is in our collective interest to proactively face the challenges of the future together. They are calling for ambitious action on climate change that prioritizes justice for workers. It's these tradespeople who Iron & Earth represent. It's their demands and the reasons behind them that we seek to fully understand. That is why we are going

beyond the survey results to build actual relationships by personally connecting with workers.

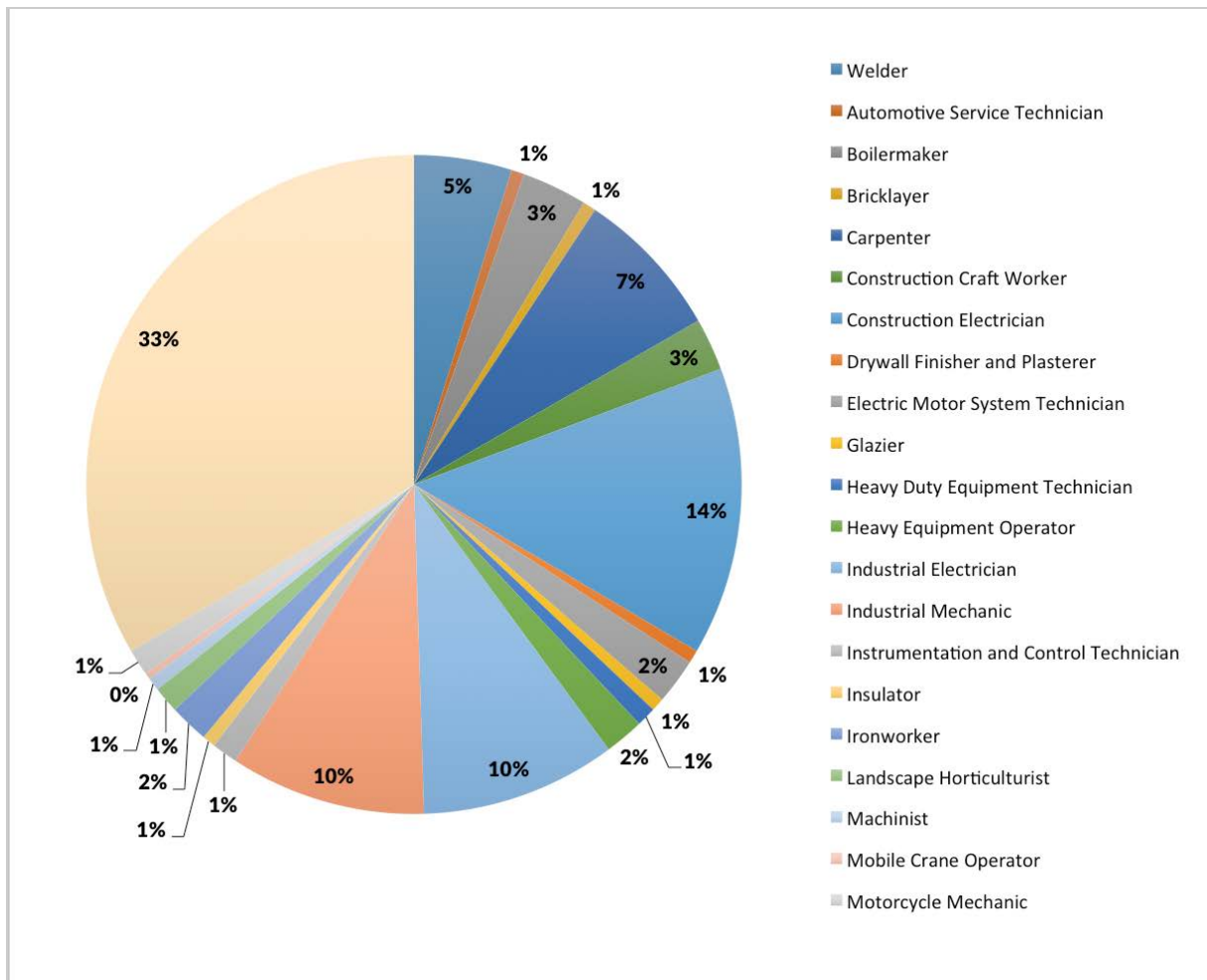


Figure 1. Occupation of Worker Survey Respondents



B. Oil Sands Worker Outreach

Over the next two months Iron & Earth team members will continue to reach out to current energy sector workers to discuss the Workers' Climate Plan in more detail. We are speaking with other energy sector workers in our own communities and across Alberta. Extended conversations in person and over the phone will help us identify the issues energy sector workers face. Together we will consider what is required to ensure a transition to renewable energy that is just for workers. We want workers to tell us what they would like Iron & Earth to do as we continue to speak up for energy sector workers. We hope to continue to learn about the many ways current energy sector workers can help Canada make a successful transition to renewable energy.

C. Data Analysis

Iron & Earth is analyzing an extensive set of data collected through the Workers' Climate Plan survey. We are comparing worker and non-worker responses to a variety of questions to identify the specific concerns, obstacles, and hopes of energy sector workers. Furthermore, we are comparing data from different professions within the broad demographic of skilled industrial trades people to consider in more detail the different roles a variety of skilled energy sector workers can play in an effective, just, and stable transition to renewable energy. We are creating tables and graphs from these data sets to illustrate relevant comparisons. We highlight, compare, and draw inferences from key points from the data in this chapter. This ongoing process of data analysis will inform our expanded Workers' Climate Plan.

D. Stakeholder Consultation

Over the next two months Iron & Earth will consult with a wide range of stakeholders – from industry, government, environmental organizations and the labour movement –



through a series of working group meetings. We will discuss what we learn from energy sector workers with these stakeholders to devise a set of recommendations to effectively transition to renewable energy in a way that is just for energy sector workers. We partnered with the Energy Futures Lab, a multi-interest collaboration committed to developing a “fit for the future” energy system. We will continue to read through key submissions in the letstalkclimateaction.ca portal, looking for groups who share our beliefs. We hope to identify potential alliances and collaborate.

2.2 Energy Sector Workers are Concerned about the Economy

I'm an out of work Journeyman Electrician. I believe we need to adopt these technologies faster and to diversify our economy much more than Oil & Gas to avoid such devastating downturns and keep Canadians working.

- Stephen Everett, Journeyman Electrician

Whether Canada takes action on climate change or not, energy sector workers are concerned about the economy. More than half of worker respondents to our Workers' Climate Plan survey have been negatively impacted by the low price of oil as illustrated in Figure 2. Many workers tell us stories of unemployment and hardship in the current economy. They are concerned about their personal financial well-being and the financial well-being of their families. One piping designer and drafter with experience in natural gas told us he has been unemployed since 2015 because his “line of work... has completely dried up and there are too many seeking employment for what little work there is, no matter the skill level.” He is the “single earner for a family of four”. Another carpenter who works “for a safety company that gets contracted out by the oil and gas industry in Fort St.



John” reports that “[t]he fall in ... prices has slowed the amount of work my company usually has for me and the other workers in my company.”

The recent layoffs following the downturn in the price of oil are not an isolated occurrence, as long term energy sector workers know. Rather, the history of the oil and gas economy has been plagued by successive boom-and-bust cycles, with devastating consequences for energy sector workers and their families. In our Workers' Climate Plan survey, the overwhelming majority of current energy sector workers tell us that high job security is either important (47%) or extremely important (27%). Many think having a job close to home is important (40%) or extremely important (25%). We cannot help but speculate that energy sector workers value job security and proximity to this pronounced extent because many have travelled across the country to work in notoriously insecure oil and gas industry jobs. It is revealing to note that of the non-worker survey respondents who have a spouse or significant other employed in the fossil fuel energy sector, over half report their spouse is away from home over 50% of the time or between 25% and 50% of the time. 68% of non-worker survey respondents who have a spouse or significant other employed in fossil fuels claim that family participation of their spouse or significant other in a mobile labour force has impacted their relationship, with 46% saying it has been difficult at times and 25% saying it has put a strain on their relationship.

Non Worker Quotes

My extended family operates an oil field services company in west central alberta. Two years ago I had to move to Calgary to find more work. My husband now works only part time in the company. We now live apart during the weeks and see each other on some weekends as we both have extra part time jobs. Our three young adult children are in university, college and working in BC outside of the family business. I wish we had economic opportunities here. I am wanting to start my own food processing business to provide us with income. Our income has decreased by 50%.

- Andrea Garnier

Layoffs have been threatening my husband and my job for about 18 months. So far we're lucky enough to have a job, but it definitely creates a lot of extra stress.

- Nathalie Verhulst

*I lost my work due to cutbacks and restructuring.
My wife lost her work due to cutbacks and restructuring.
My son lost his work because of restructuring.
All here in New Brunswick because of economics while the people who control the resources continue to evade paying taxes by putting their profits in foreign banks.*

- George Griffin

My son, a machinist, was laid off for approximately 7 months. Recently recalled but for how long – he isn't sure. He and his wife had a baby just prior to his layoff but luckily I am proud to say they are both very careful budgeters and had prepared for the chance that this might happen. But of course, now their savings are reduced significantly and they have to start over to replenish that in case of another layoff. He is thinking of trying to find another trade but that is difficult especially in Alberta.

- Patricia Brown

Energy sector workers are not only concerned about the current fossil fuel economy, they are also concerned about the potential economic consequences of a transition to renewable energy. An overhaul in Canada's energy system would affect energy sector workers through no fault of their own. Energy sector workers may not only lose their jobs, but their sector. It is no surprise then to learn that worker respondents to the Workers' Climate Plan survey are concerned about losing their job (32%), having their wages reduced (32%) or Canada's position in the global economy (35%), when considering a steady transition to renewable energy. Their well-being depends on Canada's energy sector, and they know that this is also true for all Canadians, to a greater or lesser extent.

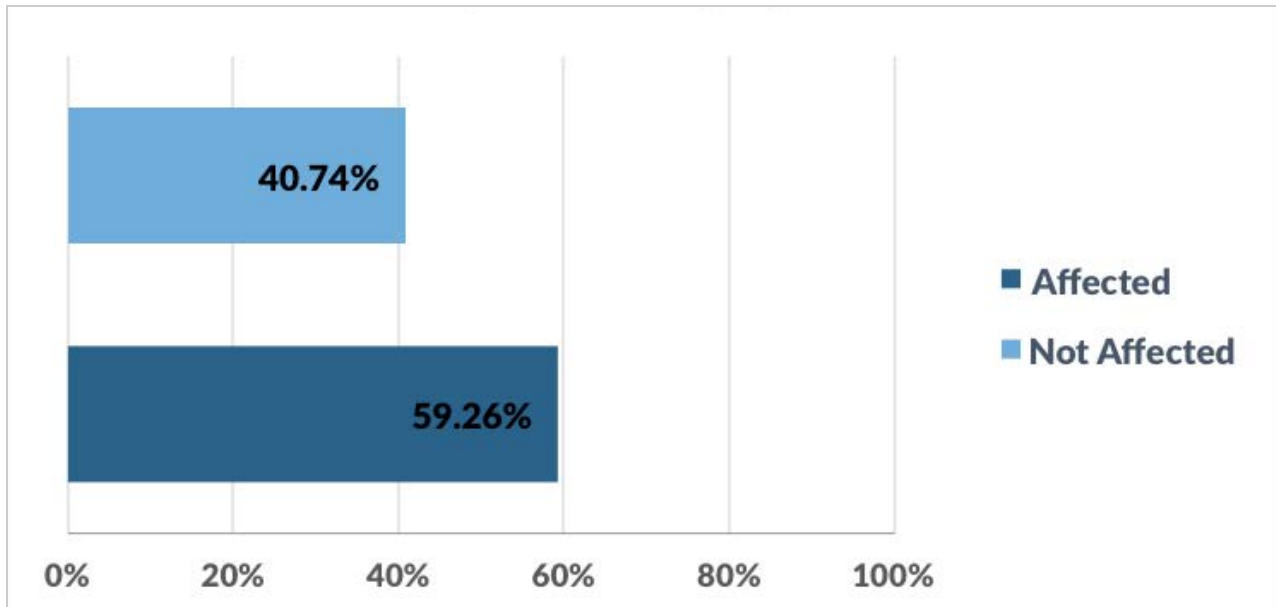


Figure 2. *Has the changing job market negatively affected you or your family?*

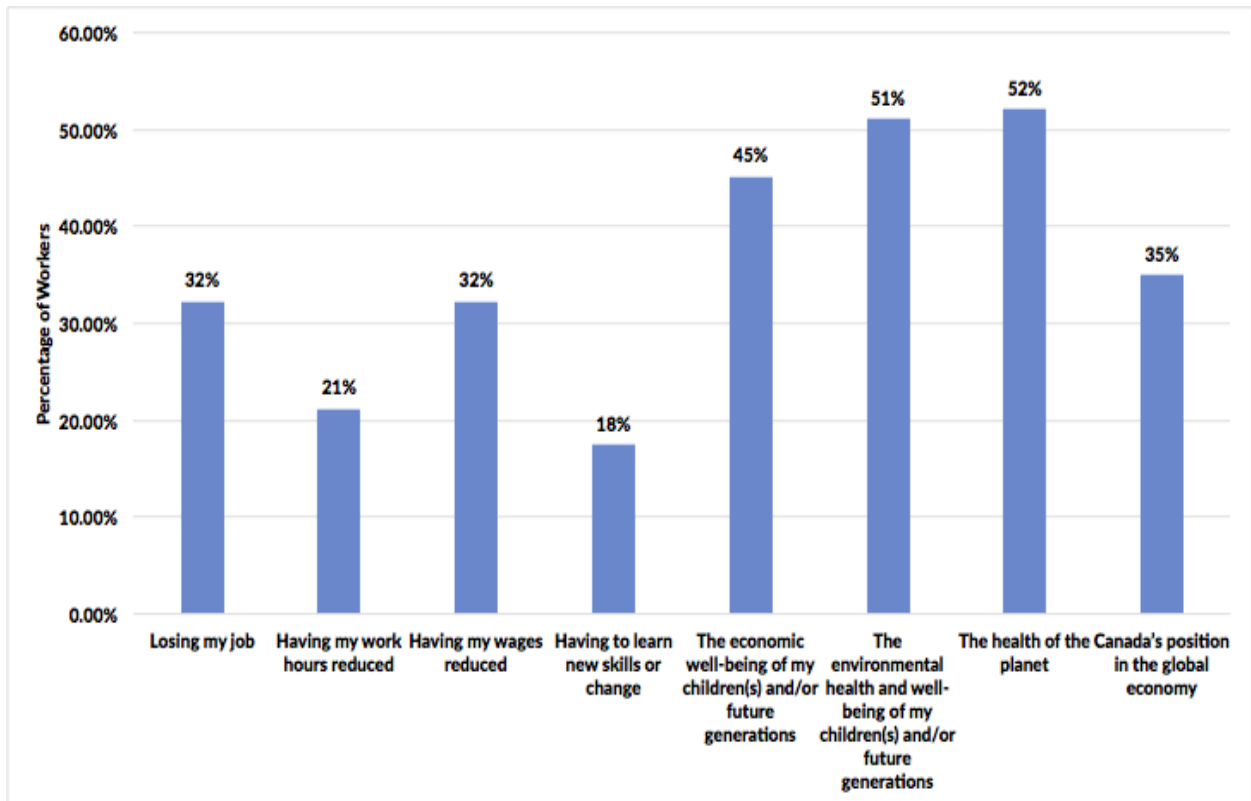


Figure 3. *In considering a steady transition to renewable energy, what worries you?*

Worker Quotes

I lost my job in the oil sands almost 2 years ago. I am now on the verge of bankruptcy and am struggling to pay the bills. I have been retraining in renewable energy, permaculture and natural buildings, but have not been able to make it into a career yet.

- Brian Lavoie, Industrial Mechanic

I was laid off for six months, never had I planned to be off for that long. I had to pull pretty much all my RRSPs just to cover my family's monthly expenses.¹⁷ I have three children and a wife who depend on me to work. Employment insurance barely paid my mortgage while I was unemployed.

- Jason Kane, Construction Electrician

I am not against development. I am against irresponsible, senseless or needless destruction of the environment when options have been presented but are not being considered. The environment is all that we have. If we do not care for it, we cannot maintain life on this planet.

- Leslie Gordon, Boilermaker

I've been working in the oil sector for years and am seeing my opportunities diminish. I would like to transition to alternative energy but don't know what to do.

- Obadiah Creek, Industrial Electrician

¹⁷ RRSP refers to the Registered Retirement Savings Plan.

2.3 Energy Sector Workers are Concerned about Climate Change

As a mechanical engineering technologist with a background as a journeyman welder, I want to use my skills to make things better, not just less bad. Battling climate change is no longer optional. It is no longer possible to continue on the path we have traveled ignoring the obvious impacts our actions have created. We have an incredible pool of innovators and self starters here in Alberta who have the ability to find and develop real solutions to the real problems we face. It's time to get down to business.

- Kerry Oxford, Mechanical Engineering Tech & Journeyman Welder

Our Workers' Climate Plan survey responses suggest many energy sector workers are concerned about climate change. In considering a steady transition to renewable energy, most worker respondents are concerned about the environmental health and well-being of their children and future generations (51%). Minimizing the negative impacts to the planet is a major reason most energy sector workers think Canada should transition to renewable energy (77%). Indeed, most energy sector workers are actually willing to take some kind of pay cut to transition to renewable energy (59%). Significantly, most worker respondents believe climate change is the biggest threat facing the global community and that we need to act now (71%).

Energy sector workers are already making plans to take action on climate change. Worker survey respondents tell us they plan to adjust their future energy consumption by reducing their fossil fuel consumption (61%), by renovating their homes to make them more efficient (53%), by advocating and helping others reduce their own energy consumption (50%), and by generating some of their own energy (55%). Most energy sector worker respondents think having an employer who takes climate change seriously is either important (45%) or extremely important (36%). The commonly held assumption



that oil and gas workers do not care about the environment needs to re-examined. Our evidence suggests that the opposite is the case for most industrial tradespeople employed in fossil fuels.

Worker Quotes

I am a Millwright by trade and live off the grid. I have built my own biodiesel system, solar power station, Earthship/Hempcrete house and permaculture site. I have about 10 years experience in personal clean energy projects. I have not worked in the industry, but I am ready to make the move now.

- Brian Lavoie, Industrial Mechanic

I am an Architectural Sheet Metal worker, Painter, Carpenter, and I hope to one day be a private land-owner and farmer. I hope to own a home that is self-sustaining, to grow my own food and generate my own energy. I want to raise my future children in an environment free of industrial and urban pollution, but also to remain close to the community I have grown up in. I care because I want the best for my future children.

- Joel Southwood, Sheet Metal Worker

I am an Industrial Electrical Graduate struggling to find work in my field at the moment. I would really like to see more of a movement towards green energy, not only for future generations but also for the entire planet. Action needs to be taken now in order restore the damage done by ourselves and previous generations. We must be the change!

- Angus Crighton, Industrial Electrician

2.4 Energy Sector Workers Support a Just Transition to Renewable Energy

I care deeply about the environment and feel that the future needs to be renewable energy. I also fundamentally believe in a just transition for oil sands workers.

- K. Lomack, Unionized Trade Worker

The Workers' Climate Plan survey data suggests that a just transition to renewable energy is a source of hope for many energy sector workers in Canada today. Energy sector workers actually look forward to the environmental and economic benefits a transition to renewable energy could bring for themselves, their families and all Canadians. In considering the idea of a steady transition to renewable energy in Canada's future, energy sector workers look forward to boosting the environmental health and well-being of their children and/or future generations (74%). Furthermore, energy sector workers are hopeful for an increase in new job opportunities (75%) and look forward to boosting the economic well-being of their children and/or future generations (61%). Most powerfully, most energy sector workers agree (26%) or strongly agree (43%) that Canada should make 100% transition to renewable energy by 2050.

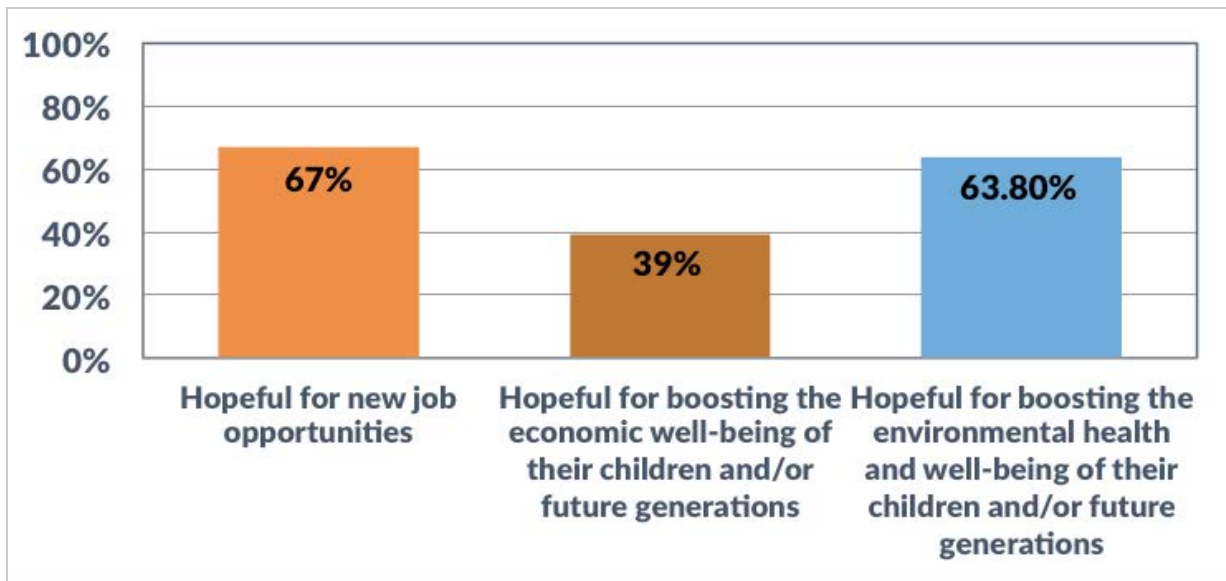


Figure 4. *How a steady transition to Canada's renewable energy future provides hope to workers*

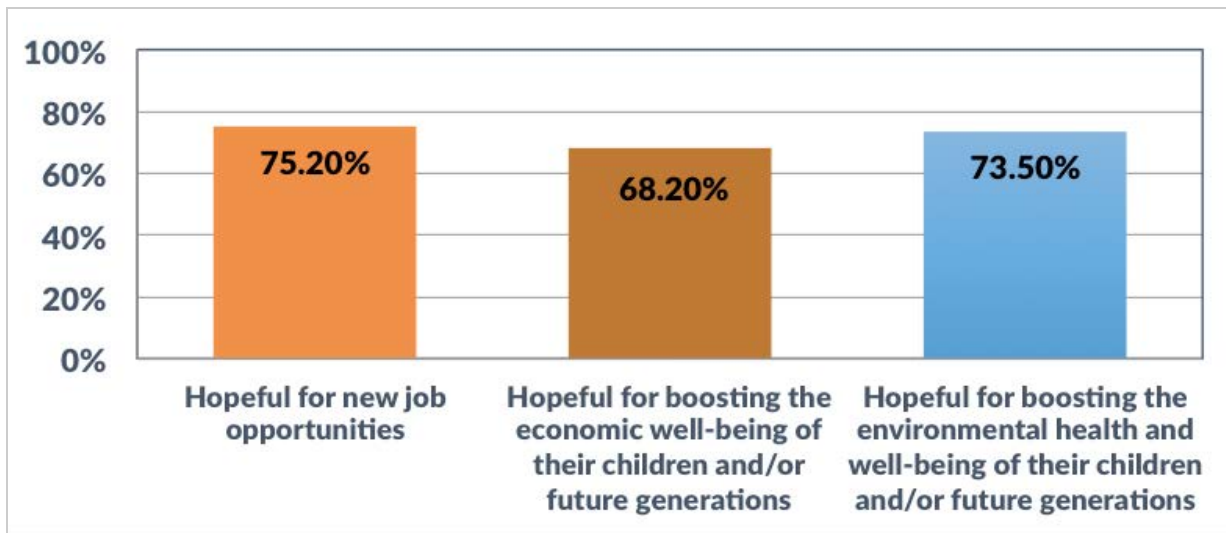


Figure 5. *How a steady transition to Canada's renewable energy future provides hope to non-workers*



Worker Quotes

I've been a Jman electrician since 1999, and have worked everywhere but Calgary... Looking to get into the PV industry in Calgary and work where I live and make a good living! I have been on many major projects on the tools and as supervision, I'm also a power system electrical 4th year apprentice. I believe that PV and wind are going to be the next big industry and we need to ensure this work is done by qualified union electrical workers and other building trades!

- O. Bliss, Journeyman Electrician

My plans had always been to pay my debt down and then save up enough money to be able to go to school full time and become a mechanical engineer or electrical engineer and move into renewable energy.

- Jordan Burkhart, Field Specialist

Electricity can be created by green means or by means with high carbon emissions. Canada needs to pivot away from all electricity generation with a high carbon footprint to green electricity. As an electrician I am prepared to be trained and work within the clean energy sector.

- Daniel Lee, Construction Electrician

2.5 Energy Sector Workers Can Help us Build a Sustainable Future

Welding is applicable to a very large variety of renewable infrastructure, including windmills, vessels and piping for geothermal and biofuel/biomass, and nuclear.

- Carson Toews, Natural Gas Trade-Worker

Energy sector workers have the industrial trade-skills Canada needs to to build a sustainable, green and prosperous future. Worker respondents to the Workers' Climate Plan survey believe their current skillset could be transferred to build and maintain a renewable energy future directly with some training (64%) or without any training (16%). If the federal government commits to minimizing climate jobs and sustaining growth, worker survey respondents are overwhelmingly interested in training and development in renewables: 86% in solar PV, 74% in solar heating, 71% in wind, 76% in geothermal, 53% in energy efficient retrofitting, and far less in nuclear (17%). In addition, worker respondents tell us that Canada should reuse existing industrial infrastructure, such as brown field sites with closed mine pits and concrete pads, for future renewable projects (86%).

The Workers' Climate Plan survey responses also suggests that members of the public (96%) overwhelmingly think Canada should retrain skilled workers to move into renewable energy: 84% strongly agree with this proposal and 12% of non-worker survey respondents agree. Furthermore, members of the public think Canada should make job opportunities more visible to an emerging workforce (79% strongly agree and 18% agree) and support the suggestion that Canada should reuse existing industrial infrastructure for future renewable projects (63% strongly agree and 25% agree).

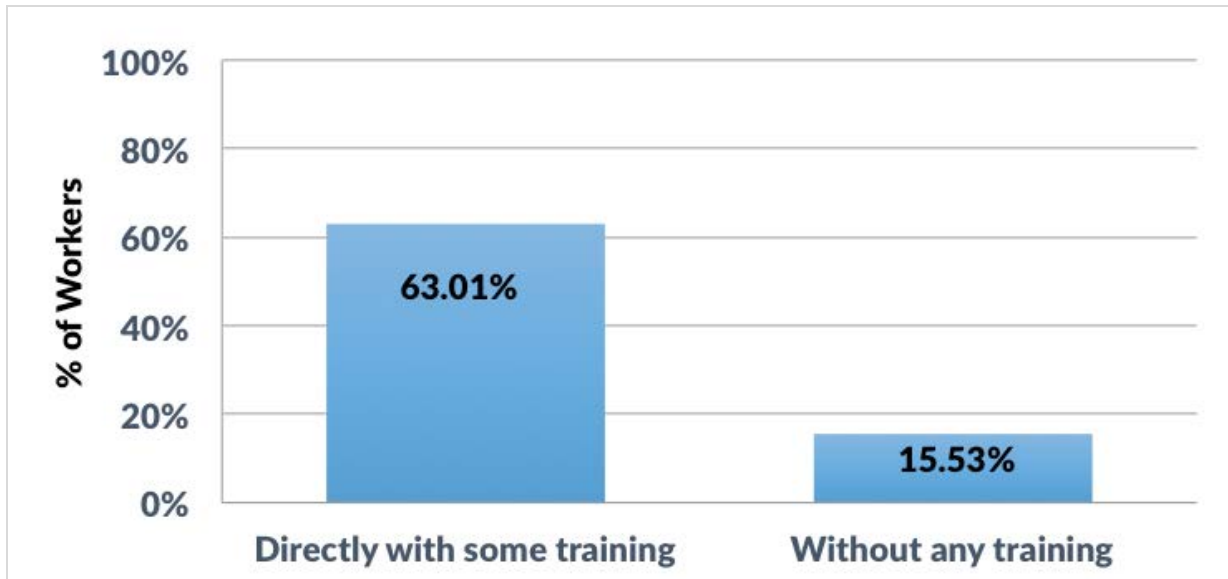


Figure 6. How well might your current skillset be applied to renewable energy?

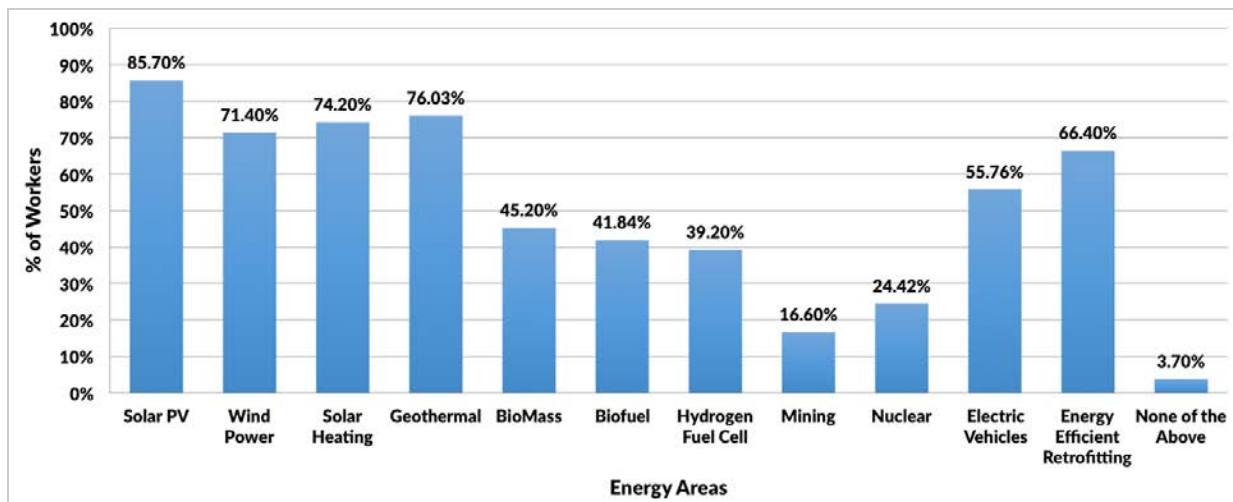


Figure 7. If the government commits to climate action, sustaining jobs, and economic growth, what percentage of workers are interested in the following skills training?

Worker Quotes

I have always had a strong desire to do my part for the sustainability of our planet. With the skills I've learned in my trade I know I can be an integral part of new green energy projects. It's also a great opportunity to get experience doing what I love and help Canada grow into a green energy leader.

- Justin Rovtar, Industrial Mechanic

I have been a boilermaker for over a decade and have proudly built a number of renewable energy projects with no retraining required. Give us the blueprints and steel and we will help Canada address climate change with our industrial trade skills!

- Lliam Hildebrand, Boilermaker

My work history involves field level oil extraction jobs on drilling rigs and other field services for those drilling rigs. I have become an electrician so that I can participate in the world's energy revolution.

- D. Lee, Unionized Trades Worker

I'm a landscaper and reasonably proficient in the operation of heavy equipment (excavators etc.) and some basic gardening/agricultural knowledge. My skills could be used to help in the reclamation of old industrial sites or mining pits and remaking those spaces into something suitable for green energy projects. I could, for example, be deployed as a part of a crew tasked with grading and leveling terrain to accommodate solar power infrastructure or excavating for geothermal projects.

- Jerik Brown, Heavy Equipment Operator

2.6 A Just Transition for Workers is in Everyone's Interest

A just transition to renewable energy is in the interest of energy sectors workers and the general public. The majority of current energy sector workers have been adversely affected by the downturn in the price of oil as Figure 2 illustrates. The development of Canada's renewable energy manufacturing capacity presents an opportunity for these workers if appropriate action is taken. The overwhelming majority (92%) of energy sector workers we surveyed value the opportunity to progress in their career and learn new skills: 46% of worker respondents claim this is important and another 46% claim this is very important. Why not provide these workers with the opportunity to learn new skills and develop their careers in renewable energy? Indeed, 90% of worker survey respondents believe Canada should make job opportunities more visible to an emerging workforce and 64% believe Canada should retrain skilled workers for renewable energy.

Members of the public support oil and gas workers in this. Nearly all non-worker survey respondents (96%) support retraining skilled workers to move into renewable energy as illustrated in Figure 9. It is no wonder why. Positioning existing energy sector workers would not only benefit our environment, it would also benefit the economy. In the short term it would employ an out-of-work labour force, boost the local economy, and save on Employment Insurance and other benefits. In the longer term, energy sector workers industrial trade skills could position Canada in becoming a global leader in renewable energy.

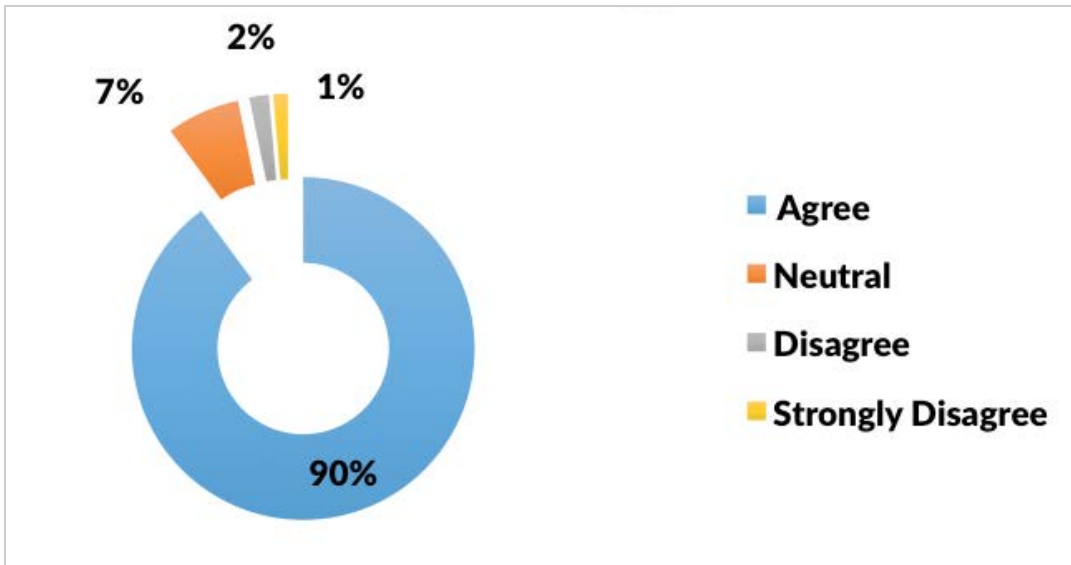


Figure 8. *Workers who support retraining the labour force for renewable energy sectors*

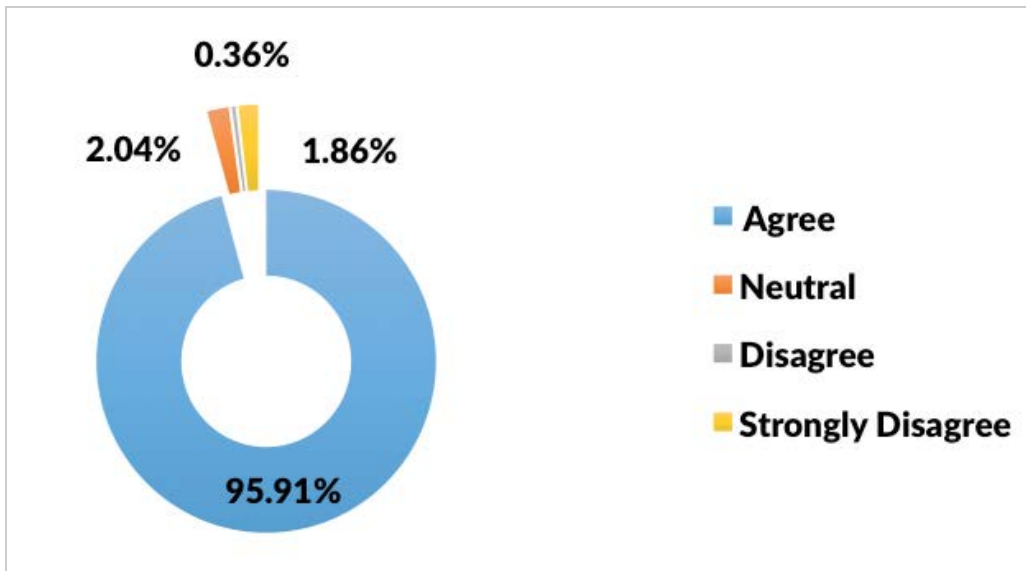


Figure 9. *Non-workers who support retraining the labour force for renewable energy sectors*



Worker Quotes

Renewable energy means jobs, jobs, jobs, and jobs you can feel good about doing knowing you're making a difference.

- Chris Colins, Architectural Sheet Metal Worker

I am an electrician in the forestry industry in BC, I went to school for wind turbine technician training in Alberta and had a rough time finding work in the sector. In fact most of my classmates found work as electrical apprentices instead of wind tech jobs. We as Canadian citizens turning into conscientious workers need the work available for us coming out of school.

- Joel Phillips, Industrial Electrician

I have two Journeyman Red Seal trade tickets, one being a Journeyman Millwright ticket and the other one being a Journeyman Welding ticket. I am presently working full time in the cement manufacturing industry for Lafarge Holcim. I feel renewable energy will be the major jobs creator in the next 10 years as the world economy transitions away from greenhouse gas emitting fossil fuels to help reduce the effects of climate change.

- K. Matthews, Journeyman Millwright & Journeyman Welder

I am a 30 year plus member of IBEW. We can build anything presented to us that is engineered properly. What is currently missing is the incentives for new energy source development on a scale that can make a real difference.

- Glen Wosnock, Master Electrician

2.7 Canada Should Take Action

Global warming is real and we need to act immediately. I am an electrician and am in the middle of starting my own solar business. Funding and training opportunities would be a great help. Solar initiatives and incentives from the federal and provincial government would be a great boost to business and help more home and business owners to make the change to solar power and a cleaner, brighter future for all.

- Cathy Calahoo, Construction Electrician

The message from worker and non-worker survey respondents is clear: Canada needs to take action to ensure a just transition to renewable energy. Respondents from the energy sector and members of the wider public agree on this point. They both believe Canada should make a 100% transition to renewable energy by 2050 (workers 69%; non-workers 92%) and retrain skilled workers to move into renewable energy (workers 90%; non-workers 96%). They both believe Canada should use tax credits, grants, or other incentives to help entrepreneurs innovate and develop the green jobs sector (workers 85%; non-workers 92%) and educate public on renewables to help transition toward a carbon-free future (workers 88%; non-workers 96%). Workers and non-workers agree: Canada should create more jobs manufacturing renewable energy components and technologies (workers 91%; non-workers 95%) and make job opportunities more visible to an emerging workforce (workers 90%; non-workers 97%).

Economic hardship following a transition to renewable energy is not inevitable, unless Canada fails to take urgent action to develop our renewable energy manufacturing capacity. Equally, if action on climate change does not prevent a rise above two degrees celsius, the cost to the global economy will be severe. As the cost of renewable technologies plummets and global demand for renewable energy grows spurred by international commitments to keep rising global temperatures below two degrees celsius above pre-industrial levels, Canada has the choice: will we become a leading producer or a



net importer of renewable energy? We need to harness the expertise of our skilled industrial workforce and quickly develop a competitive renewable energy industry in Canada with urgency, so that economic prospects of all Canadians does not diminish with the necessary transition to renewable energy,

An increasing number of energy sector workers are aware of these facts. A growing movement of energy sector workers are calling for a transition to renewable energy, because they realize if handled responsibly, it could be the answer to, and not a cause of, their concerns about the economy and the environment. A large number of these energy sector workers are ready to put their industrial trade-skills to the task of making Canada's renewable energy future a reality, starting today. Canada would be foolish to miss this opportunity.

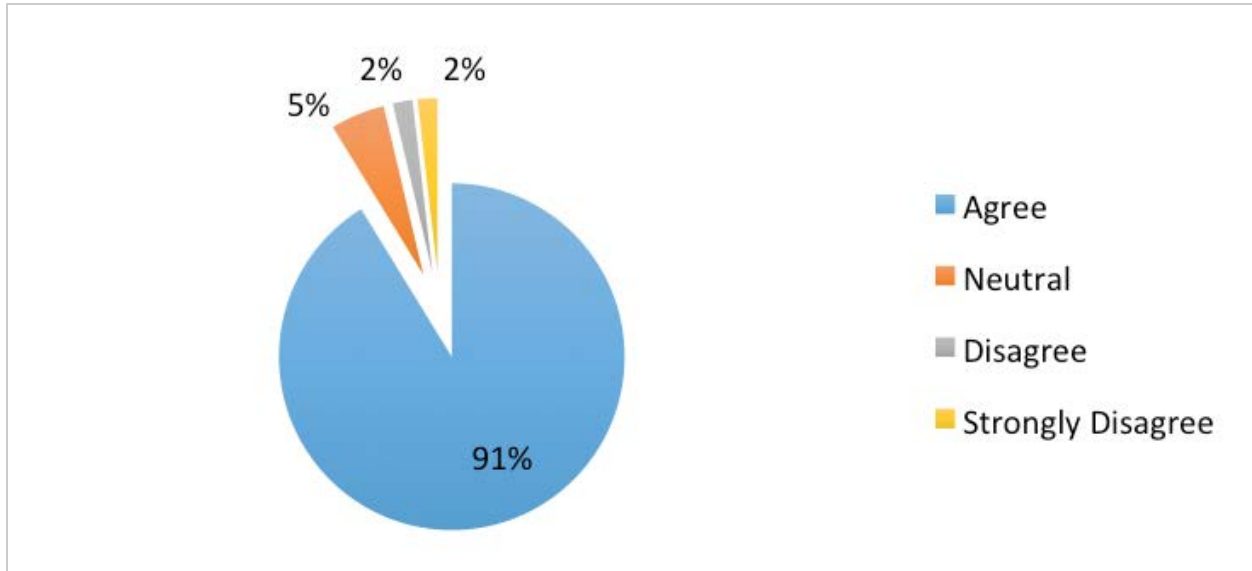


Figure 10. *Whether workers believe Canada should create more jobs manufacturing renewable energy components and technologies*

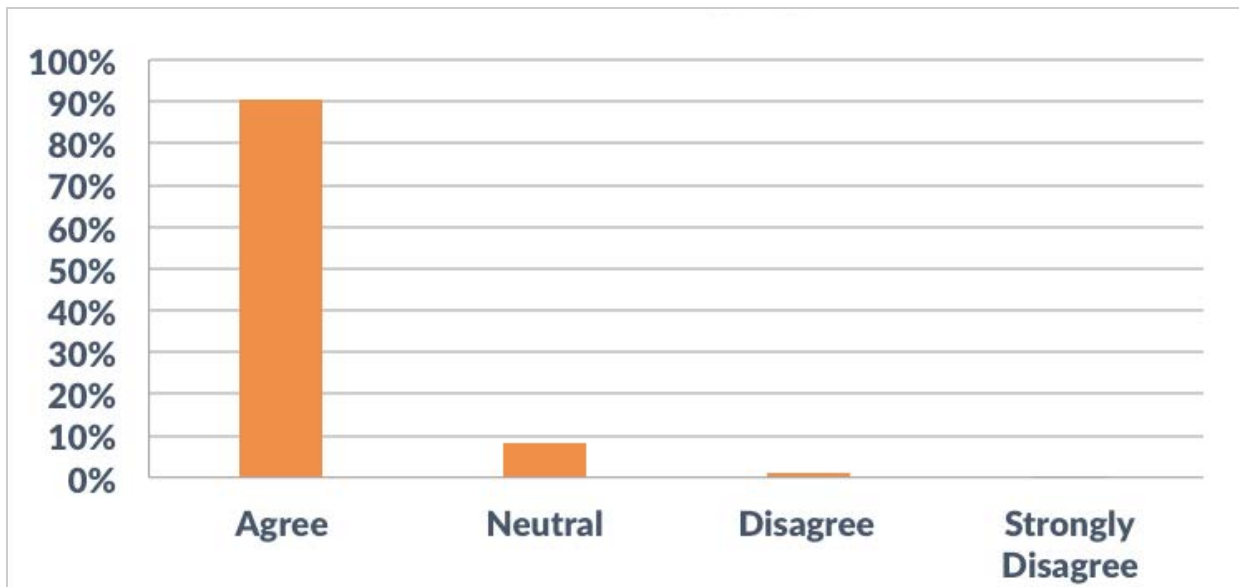


Figure 11. *Whether workers believe Canada should make job opportunities more visible to an emerging workforce*

Members of the Public	Agree	Neutral	Disagree
Canada should make a 100% transition to renewable energy by 2050	92%	3%	2%
Canada should retrain skilled workers to move into renewable energy	96%	2%	0%
Canada should educate public on renewables to help transition towards a carbon-free future	96%	1%	0%
Canada should make job opportunities more visible to an emerging workforce	97%	2%	0%
Canada should create more jobs manufacturing renewable energy components and technologies	95%	38%	0%
Canada should use tax credits, grants, or other incentives to help entrepreneurs innovate and develop the green jobs sector	92%	5%	1%

Figure 12. Non-worker opinions on actions Canada could take on climate change

Energy Sector Workers	Agree	Neutral	Disagree
Canada should make a 100% transition to renewable energy by 2050	69%	15%	7%
Canada should retrain skilled workers to move into renewable energy	90%	7%	2%
Canada should educate public on renewables to help transition towards a carbon-free future	88%	6%	1%
Canada should make job opportunities more visible to an emerging workforce	90%	8%	1%
Canada should create more jobs manufacturing renewable energy components and technologies	91%	5%	2%
Canada should use tax credits, grants, or other incentives to help entrepreneurs innovate and develop the green jobs sector	84%	10%	2%

Figure 13. Worker opinions on actions Canada could take on climate change



Adam Wilton

“I work for a safety company that gets contracted out by the oil and gas industry in Fort St. John. The fall in these prices has slowed the amount of work my company usually has for me and the other workers in my company. I am trying to get ahead in life financially so that I can live a modest life with some financial security in the future.”



Ron Owens

“Education is the biggest thing the government can do. The other step the government can take is funding of research and development. They have to prioritize because if we continue down the path we are going, it will be too late to effectively control or stop climate change. I teach courses in Environmental Studies. I am very concerned about climate change and the affect it will have on future generations. We have to switch to renewable resources for energy, away from oil, coal etc. to solar, wind, Biomass and other means of energy.”

3. Recommendations:

A Roadmap for Sustainable Jobs and Energy

It is time that governments, companies and decision makers include and listen to workers, and in particular to energy workers. There can be no successful, meaningful or viable energy policy for Canada that does not respect the views and interests of the working people who produce, distribute and process this country's energy resources.

- Canadian Energy and Paperworkers Union, Energy Policy 917¹⁸

At Iron & Earth, we believe current energy sector workers should drive Canada's transition to renewable energy. We are not alone. For over a decade, labour and environmental organizations, energy sector developers and contractors, and, crucially, industrial trades workers have promoted policy agendas that tackle fundamental challenges in Canada's energy system. The Canadian Energy and Paperworkers Union (CEP) originally drafted Energy Policy 917, quoted above, in 2002. This policy has been revised a number of times, before and after the CEP merged into Unifor. Yet the call on "decision makers" to "include and listen to workers, and in particular to energy workers" remains consistent.¹⁹ Successive governments have failed to heed such recommendations. The new federal government has an unique opportunity to collaborate with current energy workers, take unprecedented action to transform Canada's energy sector, and meet GHG reductions targets set at COP21. Co-ordinated action by a range of stakeholders is required. We commend the federal government on consulting Canadians about action on climate change. We hope this government will listen to energy sector workers, and take urgent and necessary action to transform Canada's energy system, for the sake of our environment and economy.

¹⁸ Canadian Energy and Paperworkers' Union. *Just Transition to a Sustainable Economy in Energy: Policy 917* <<http://cep.unifor.org/sites/cep.ca/files/docs/en/policy-917-e.pdf>>.

¹⁹ Canadian Energy and Paperworkers' Union. *Just Transition to a Sustainable Economy in Energy: Policy 917* <<http://cep.unifor.org/sites/cep.ca/files/docs/en/policy-917-e.pdf>>.



Based on our conversations with other energy sector workers, Iron & Earth sees two energy development priorities :

1. Energy development must prioritize the health and equity of workers, families, communities, the economy, and the environment.
2. Energy development must be aligned with global, national, and regional climate commitments.

It is critical that future energy policy and action on climate change in Canada takes these priorities into account at every stage of development. Both the economy and the environment are vital to any meaningful effort to build a sustainable future in Canada. Current energy sector workers can help Canada make sustainable employment in a green economy possible. Our industrial trade-skills can help Canada build a thriving and cost-effective renewable energy sector, starting now.

Iron & Earth is building our Workers' Climate Plan. We are consulting a wide range of stakeholders – from industry, government, environmental organizations and the labour movement – to determine how to realize energy sector workers' demands for a just transition to renewable energy most effectively. We partnered with the Energy Futures Lab, a multi-interest collaboration committed to developing a “fit for the future” energy system, for this purpose. The Energy Futures Lab fellowship comprises some 36 innovators and influencers in Alberta, including representatives from local First Nations, science and technology companies, municipal and provincial governments, and large oil and gas multinationals. In the future we hope to connect to additional organizations who share our belief in the crucial role for current energy sector workers in a just transition to renewable energy.

Over the coming two months we will draw upon the expertise of leaders in Canada's energy sector, from the Energy Futures Lab fellowship and beyond, to update and expand



our Workers' Climate Plan. Over a series of working group meetings, we will examine specific policy proposals in detail and refine a set of recommendations, addressed to a range of actors in government and beyond, so that everyone working to promote renewable energy realizes the crucial role for current energy sector workers in Canada's necessary transition to renewable energy.

In this preliminary Workers' Climate Plan we have already developed a three point plan, which we believe the Working Group on Clean Technology, Innovation and Jobs should consider before they report to the ministerial tables in September 2016. In what follows we discuss each of these three points in turn. Specific measures to realize each point will be recommended in the expanded November 2016 Workers' Climate Plan. All three objectives in our three point plan must be addressed. Iron & Earth cannot lend our full support to any efforts to take action on climate change or develop Canada's energy sector which fail to do so.

3.1. Build up Canada's renewable energy workforce

Action on climate change must build up Canada's renewable energy workforce. The oil and gas sector is the single largest emitter of greenhouse gases in Canada, accounting for 26% of all GHG emissions (192 Mt CO₂) in 2014.²⁰ Skilled industrial tradespeople are essential to an effective transformation of Canada's existing energy sector. As the Canadian Labour Congress, the Green Economy Network, Blue Green Canada and others note in their submissions to the letstalkclimateaction.ca portal, effective action on climate change will require new "green" jobs in renewables, as well as in indirect and induced industries.²¹ This

²⁰ Environment and Climate Change Canada. *Canadian Environmental Sustainability Indicators: Greenhouse Gas Emissions*. 2016
<www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=FBF8455E-1>.

²¹ See: Canadian Labour Congress. July 28, 2016. *Green Jobs for Tomorrow: Submission By the Canadian Labour Congress To the Working Group on Clean Technology, Innovation and Jobs*; Blue Green Canada. July 27, 2016. *Submission to the Government of Canada's Conversation on Climate Change*; Green Economy Network. July 2016. *One Million Climate Jobs: A Plan for a Sustainable and Equitable Economy: Green Economy Network Submission to the Working Group on Clean Technology, Innovation and Jobs*.



will benefit the economy and the environment, energy sector workers and other Canadians.

The economic consequences of not prioritizing the health and equity of current energy sector workers and families could be devastating. Look at Alberta today. The large energy worker layoffs following the recent downturn in the price of oil has ramifications for the economy as a whole. A report by TD Economics says Alberta's GDP is anticipated to have posted a 3% contraction in 2016, adding up to a 6.5% loss since the downturn started in 2014, making it one of the most severe recessions the province has ever endured.²² The significance of this shock pales in comparison to the economic shock that could result from the necessary overhaul in our energy sector — that is, if Canada does not position existing energy sector workers, developers, contractors and unions within the renewable energy sector. This is not inevitable.

Energy sector workers have a vital role in creating Canada's renewable energy future. In our Workers' Climate Plan Survey, most workers reported that they believed their current skillset could be applied to build and maintain a renewable energy future with some retraining (64%) or without any training at all (16%) (see Figure 6). In their submission to the letstalkclimateaction.ca portal, the Canadian Geothermal Energy Association (CanGEA) note that Canada's oil sands workforce are already skilled in subsurface resource development. This expertise could be deployed usefully in developing Canada's geothermal energy capacity. This is only one example. Many different energy sector workers have a range of transferable skills valuable to a variety of renewable energy sources. Electricians are needed to develop solar power just as welders are needed to develop wind turbines. Moreover, many energy trades workers actually want to re-train

²² "Alberta recession one of the most severe ever, TD Economics report finds," *CBC News*, July 18, 2016
<<http://www.cbc.ca/news/canada/calgary/td-economics-report-alberta-recession-gdp-forecast-1.3684056>>.



in renewables (see Figure 7). Given the opportunity, energy workers are ready to make the transition.

Harnessing the industrial trades-skills of Canada's energy sector workers, many of whom need work, could benefit the economy as well as the environment. In the short term, investment in renewable energy would create jobs for unemployed energy sector workers. Including indirect jobs, more than 110,000 people across Canada have lost employment as a result of the downturn in the oil and gas sector.²³ Renewable energy and other low carbon sectors generate more jobs than the fossil fuel sector per dollar invested.²⁴ Employed workers not only boost growth in general, they also reduce the burden on government finances by lessening the demand on Employment Insurance, as well as other benefits and forms of assistance. In the long term, energy sector workers' expertise, experience and trade skills could give Canada a competitive edge as a future net exporter of renewable energy, manufacturing and technologies.

To seize the opportunities our current energy workforce offers, Canada must take immediate action to build up Canada's renewable energy workforce. The Working Group on Clean Technology, Innovation and Jobs should consider actions to invest, re-train and upskill Canada's workforce. Specific measure should increase training opportunities for energy sector workers to position them in the renewable energy sector. For instance, training facilities should be available for apprenticeship (e.g. Southern Alberta Institute of Technology, Northern Alberta Institute of Technology, Lethbridge College). In their submission to the letstalkclimateaction.ca portal, the Canadian Labour Congress note that "when auto manufacturing plants suffer job losses, it is quite common to open Labour Adjustment Centres – paid half through Employment Insurance and half through the

²³ "Capital investment in Canada's oil and gas industry down 62% in 2 years," *Canadian Association of Petroleum Producers*, April 7, 2016
<<http://www.capp.ca/media/news-releases/capital-investment-in-canada-oil-and-gas-industry-down-62-per-cent-in-2-years>>.

²⁴ Blue Green Canada. *Submission to the Government of Canada's Conversation on Climate Change*. July 27, 2016, p.3.

province”.²⁵ We join them in asking, why are there no Labour Adjustment Centres in Alberta to assist workers who have lost their jobs in the oil sands? The Working Group on Clean Technology, Innovation and Jobs should explore possibilities to link new Labour Adjustment Centres in Alberta to renewable energy developers and contractors to position out-of-work industrial tradespeople in an expanding renewable energy workforce.

3.2 Build up Canada’s renewable energy manufacturing capacity

To meet our international climate objectives and to ensure Canada’s long term future prosperity, it is critical we build up Canada’s renewable energy manufacturing capacity. Iron & Earth stands with a range of organizations on this point. The Canadian Labour Congress has voiced its support for “a green jobs strategy and an environmental economic development strategy which places manufacturing and trade policies at the center of the climate change agenda.”²⁶ In their letstalkclimateaction.ca portal submission, the Canadian Geothermal Energy Association (CanGEA) note that battery manufacturing could offer Canada future opportunity as “no one country has cornered the market”.²⁷ Prime Minister Trudeau has stated himself that he seeks to encourage “investments in the research, development, and manufacturing of clean technology.”²⁸ Over the coming two months, Iron & Earth plans to reach out to a range of stakeholder organizations in a collaborative effort to push this urgent agenda.

Renewable energy has recently become competitive in the market. Despite the low price of oil, current market prices for energy and the performance and cost of technology

²⁵ Canadian Labour Congress. *Green Jobs for Tomorrow: Submission By the Canadian Labour Congress To the Working Group on Clean Technology, Innovation and Jobs*, July 28, 2016, p. 27.

²⁶ Canadian Labour Congress. *Green Jobs for Tomorrow: Submission By the Canadian Labour Congress To the Working Group on Clean Technology, Innovation and Jobs*, July 28, 2016, p.1.

²⁷ Canadian Geothermal Energy Association. *CanGEA’s position and recommendations for specific climate change mitigation strategies and carbon pricing*, June 21 2016, p.4.

²⁸ Rt. Hon. Justin Trudeau, P.C., M.P, Prime Minister of Canada. *Minister of Natural Resources Mandate Letter*, 2015 <<http://pm.gc.ca/eng/minister-natural-resources-mandate-letter>>.

have reached a point that supports investment in renewable energy generation.²⁹ Nonetheless, there are significant barriers to developing localized manufacturing in renewable energy technologies in Canada. As the Canadian Labour Congress along with other labour organizations have noted, international free trade agreements have continued to hollow out Canada's manufacturing base for years now.³⁰ This creates significant challenges for developing Canada's renewable energy manufacturing capacity.

The case is well illustrated by Ontario's *Green Energy and Green Economy Act, 2009*. The *Green Energy Act* permitted the minister to direct the Ontario Power Authority to develop a feed-in tariff program designed to promote the use of renewable energy sources. It also permitted the minister to encourage the use of domestically manufactured technologies. The *Green Energy Act* had mixed results. In December 2010, Siemens announced their plan to manufacture wind turbine blades in the town of Tillsonburg, Ontario. They were quickly swamped with local applicants, and the factory soon became the biggest employer in town.³¹ However, as a result of the domestic content requirements, the *Green Energy Act* was challenged under the North American Free Trade Agreement (NAFTA) by the Texas-based wind energy company Mesa Power and through the World Trade Organization's dispute resolution system by Japan.³² When devising future energy policy, decision makers in Canada will need to look beyond government silos to evaluate suitable policy solutions in light of previous attempts to stimulate domestic renewable energy manufacturing capacity in Canada and elsewhere. Whatever the specific policy framework, the trade-skills and industrial knowledge of current energy

²⁹ See for instance: "Lower oil prices but more renewables: What's going on?" McKinsey & Company, June 2015
<<http://www.mckinsey.com/industries/oil-and-gas/our-insights/lower-oil-prices-but-more-renewables-whats-going-on>>.

³⁰ Canadian Labour Congress. *Green Jobs for Tomorrow: Submission By the Canadian Labour Congress To the Working Group on Clean Technology, Innovation and Jobs*, July 28, 2016.

³¹ "116. Tillsonburg: From tobacco farming to building wind turbine blades," *Green Energy Futures*, July 13, 2015
<<http://www.greenenergyfutures.ca/episode/tillsonburg-wind-turbine-blade-manufacturing>>.

³² Meghan Cowan. *Ontario's Green Energy Act: Two Years Later*, July 2011
<<http://airdberlis.com/Templates/Articles/articleFiles/746/Ontario's%20Green%20Energy%20Act%20Two%20Years%20Later.pdf>>.



sector workers will be indispensable for a successful and just transition to renewable energy for Canada in today's competitive global environment.

One way to rapidly expand Canada's renewable manufacturing sector is to be ambitious about Canada's transition to renewable fuel-sources. Given the right policy framework, demand for renewable energy should drive growth in renewable manufacturing in Canada. For instance, government might set electricity requirements to ensure a certain percent comes from renewable energy sources. In Texas, policy makers set specific mandates through the Renewable Portfolio Standard (RPS) program to stimulate the expansion of certain renewable energy technologies. Texas now has more than 16,000 MW of installed wind as compared to its 2025 goal of 10,000 MW.³³ Germany took a different approach with a feed-in-tariff program, comparable to the feed-in-tariff program enabled by Ontario's Green Energy Act (2009). This program set tariffs at which certain renewable energy technologies will be compensated, guaranteed through long term contracts. The aim is to incentivize the development of a variety of renewable technologies, rather than secure the cheapest renewable energy possible, thereby developing Germany's renewable energy manufacturing capacity specifically. The program has resulted in more than 70,000 MW of new renewables since 2000.³⁴ The Go Solar program in California is equally ambitious. It dedicated US \$3 billion to install 3,000 MW of solar by 2017. California will have completed its goal by the end of 2015 and California's demand for solar continues to be robust, even after the expiration of incentive dollars.³⁵ Government needs to carefully consider unintended consequences (such as

³³ It should be noted this was also because West Texas has very good wind conditions. Furthermore, wind was also received two federal subsidies in Texas: the Federal Production Tax credit and the Investment Tax Credit. Different provinces in Canada should obviously consider geographic advantages when investing in renewable energy capacity. See: London Economics International LLC. *Case studies of policy options for reducing greenhouse gases and increasing renewable energy capacity*, September 29, 2015 <http://www.transalta.com/sites/default/files/TransAlta_submission_appendix2.pdf>

³⁴ See: London Economics International LLC. *Case studies of policy options for reducing greenhouse gases and increasing renewable energy capacity*, September 29, 2015 <http://www.transalta.com/sites/default/files/TransAlta_submission_appendix2.pdf>

³⁵ See: London Economics International LLC. *Case studies of policy options for reducing greenhouse gases and increasing renewable energy capacity*, September 29, 2015 <http://www.transalta.com/sites/default/files/TransAlta_submission_appendix2.pdf>.



sharply rising costs to consumers) where assessing policy options to ensure that a transition to renewable energy is just and equitable.

The Working Group on Clean Technology, Innovation and Jobs should consider actions to develop our renewable energy sector through research and development grants, as well as direct federal investment. For instance, universities in Alberta might install a Department of Renewable Energy into their establishment to increase research and development in this area. Incentives should be made available to bring in manufacturing of renewable technology. Homeowners & business should have red tape removed so things like solar panels can be encouraged and excess energy sold back to the grid. Iron & Earth will provide further recommendations detailing specific measures to build up Canada's renewable energy manufacturing capacity in our November 2016 Workers' Climate Plan.

3.3 Position existing energy sector developers, contractors and unions within the renewable energy sector

Canada already has a significant energy sector. In Alberta, we have an incredibly concentrated industrial sector specialized in developing, maintaining and exporting energy, and related products and services. This is an advantage when developing Canada's future renewable energy manufacturing capacity. Sunk investments in oil and gas resource extraction should not commit Canada to petroleum production indefinitely. Nor should Canada write off existing infrastructure as no longer useful, a relic of a past energy system. We should take advantage of existing infrastructure and expertise to catapult Canada successfully into a flourishing renewable energy future. If we start now, Canada can gain a competitive advantage. The oil sands were not economical at one point – but developers, contractors and union organizations got together with government to make it



economical.³⁶ With leadership and vision, the same thing can happen for renewable energy. There is power in cooperation and collaboration. The existing energy sector will play a pivotal role in this process.

In our expanded November 2016 Workers' Climate Plan, Iron & Earth will make specific recommendations to effectively position existing energy sector developers, contractors and unions within the renewable energy sector and maximise our competitive advantages. In what follows, we briefly discuss contributions contractors, developers and unions can make to action on climate change for the consideration of the Working Group on Clean Technology, Innovation and Jobs.

Contractors

It is critical for the energy sector's future success that contractors are positioned in renewable energy. Contractors connect developers to unions, suppliers, technologies and tools, to make it as easy as possible to access energy-related services. Jacobs, for example, will get a contract from Suncor to do a large scale project. They hire out of union halls to fill workforce demands. Contractors provide structure to the way projects are managed. They forecast and distribute tasks, order solicitations and implement tools and processes to ensure projects are delivered smoothly through an efficient and streamlined approach. Contractors work with clients on project planning, feasibility/studies, cost-estimation, engineering, procurement, construction, construction management, implementation and operations. Renewable energy operations, like oil and gas operations, will need to draw on the deep understanding and expertise of current energy sector contractors across a range of services to successfully design and manage renewable energy projects. Long term planning will be especially necessary when developing Canada's renewable energy capacity. A wide variety of technical, geographic, legislative, and environmental challenges

³⁶ See: Pembina Institute. *Renewable energy opportunities in the oil and gas sector*, January 8, 2013 <<https://www.pembina.org/pub/2411>>

will need to be taken into consideration. The global reach, technical knowledge and wide experience of current energy sector contractors can facilitate the planning and implementation of a renewable energy future in Canada.³⁷

The concentration of contractors in Alberta specialized in energy might help the province become a future leader in renewable energy. The combined local regional knowledge and international connections of existing energy sector contractors will be invaluable to Alberta when the province seeks to wholeheartedly transition to renewable energy. As experts on the region's topology and distinctive weather conditions, energy sector contractors in Alberta have managed projects located in remote areas and extreme environments. They have extensive experience working within provincial regulatory and legal frameworks. With pre-existing relationships in the area, they have intimate knowledge of local supply chains, available human and technical resources. This should help contractors plan and implement successful renewable energy projects in Alberta which maximise on the opportunity posed by the local geography, infrastructure and workforce. At the same time, their international connections should help kick-start Alberta's renewable energy sector. Many energy contractors have local offices at a number of locations around the world, enabling collaboration and communication across geographic and disciplinary areas. Contractors add further value to energy development projects by augmenting their own staff with quality suppliers, vendors and partners.

At present the lack of renewable energy sector contractors represents a major obstacle to the realization of Canada's renewable energy potential. Preliminary conversations with renewable energy developers has revealed that a major barrier to renewable energy development is the lack of contractors in renewable energy operations at present. At the same time, many contractors find it hard to operate financially sustainable businesses in renewables. This is why a multipronged approach is needed to

³⁷ Jacobs is one of many contractors who provide services to Canada's petroleum industry. You can learn more about there services at their website <<http://www.jacobs.com/>>.

transition Canada's existing energy sector to renewables. Action by a range of stakeholders, including government, is required to effectively position existing energy sector contractors in renewable energy.

Developers

Energy developers finance and oversee energy sector projects. They leverage capital, technology, and international trade contacts to maximise return on investment, develop resources, and provide energy sector jobs in the process. In Alberta, we are lucky to have a number of energy developers with an intimate knowledge of the province, its geography, people, infrastructure, and legal and regulatory frameworks. Suncor, the single largest synthetic crude oil producer in Alberta's oil sands, has operated in the region since commercial production of oil began in the oil sands in 1967. They are already diversifying their activities to include a range of renewable energy projects in their portfolio, including eight wind farms in Canada capable of generating nearly 200 megawatts.³⁸ They are not alone. Enbridge, an oil and gas pipeline company and proponent for the Northern Gateway Pipeline project, has invested nearly \$5 billion into renewable energy projects since 2002 including wind, solar, waste heat, and geothermal.³⁹ Chevron, a multinational oil industry company, is one of the largest providers of geothermal power internationally.⁴⁰ Iron & Earth commends energy developers for investing in renewable energy. Further action is required to position these companies fundamentally in renewable energy, making green resource development central rather than peripheral to each company's project portfolio.

³⁸ "Big Oil" Leads in Innovations and Renewable Energy," *Canada's Energy Citizens*, January 5, 2016 <http://www.energycitizens.ca/big_oil_leads_in_innovations_and_clean_energy>.

³⁹ "Big Oil" Leads in Innovations and Renewable Energy," *Canada's Energy Citizens*, January 5, 2016 <http://www.energycitizens.ca/big_oil_leads_in_innovations_and_clean_energy>.

⁴⁰ "How Traditional Energy Companies Are Building a Viable Future for Renewables," *Alberta Oil*, July 18, 2016 <<http://www.albertaoilmagazine.com/2016/07/oil-gas-companies-moving-towards-viable-renewable-energy-future/>>.

Renewable energy offers these companies opportunity. In the face of volatile energy markets and fast-changing input costs, developers can diversify energy products and services with renewable technologies. Energy sector developers' expertise in land acquisition, resource characterization, engineering, large-scale project management, and stakeholder engagement should help them successfully transition to renewable energy. Companies should explore opportunities in renewable energy from the perspective of their relative strengths. Companies with offshore platform expertise might take a lead in developing offshore wind farm capabilities, for instance.⁴¹ In Alberta, companies with experience in subsurface resource extraction might look to developing geothermal capacity, for example.⁴² Canada should work with existing energy sector developers to launch a propitious renewable energy industry in Canada.

Unions

Unions have always been at the forefront of contentious issues affecting their membership. Union organizations have engaged members in difficult questions concerning speed-ups, new technologies and sector reductions throughout their history. The necessary transition to renewable energy is no different. In 2003, energy sector unions actually prompted the Canadian Labour Congress (CLC) to develop a comprehensive policy statement to address the future of Canada's energy development in the context of global warming. In the words of Hussan Yussuf, president of the Canadian Labour Congress, "[t]his has been the tradition of our movement, it has been the history of our movement. We have never been fearful of the future. So it is critical for our members to see themselves as part of this process, as a necessary part of how we build a better world and a more sustainable world."⁴³

⁴¹ Pembina Institute. *Renewable energy opportunities in the oil and gas sector*, January 8, 2013 <<https://www.pembina.org/pub/2411>>.

⁴² See: Canadian Geothermal Energy Association. *CanGEA's position and recommendations for specific climate change mitigation strategies and carbon pricing*, June 21 2016.

⁴³ Canadian Labour Congress. *Climate Change: A Just Transition is Possible*, November 22, 2015 <<https://www.youtube.com/watch?v=pz3xWUKQQDY>>.



At Iron & Earth we think it is vital that existing energy sector unions are positioned within Canada’s developing renewable energy sector, and take a leading role in the design and implementation of Canada’s transition to renewable energy. The views of unions and associations such as IBEW, IBB, UA, Unifor, USWA, CLC, CUPE, and CAW, among others, on a wide range of issues, including sector regulations, training and employment legislation, will be key to develop a viable strategy to position existing energy sector workers in renewable energy. Union experience handling labour market data and forecasts can help keep Alberta’s labour market and skills training approaches on target, and ensure the success of the renewable energy sector as a whole.

Energy sector unions can also ensure that those currently dependent on the existing energy sector, or the poorest and most disadvantaged in society, are not unfairly burdened with the costs of transition. In their submission to the letstalkclimateaction.ca portal, the Canadian Labour Congress have already outlined a number of specific policy proposals to assure a transition to renewable energy does not entrench existing inequalities. These include government investment to “improve access to Employment Insurance training opportunities and employment supports” and the creation of Labour Market Partners Council to engage constructive discussion around key workforce development issues.⁴⁴ The Green Economy network, comprised of 24 member organizations including the United Steel Workers, Unifor, the International Association of Machinists & Aerospace Workers among others, has outlined a proposal to create 1 million climate jobs and “transition toward a more equitable and sustainable economy” in the process.⁴⁵ A renewal of our energy sector is an opportunity to engage wider societal transformations to further the sustainable long term prosperity of all Canadians. More

⁴⁴ Canadian Labour Congress. *Green Jobs for Tomorrow: Submission By the Canadian Labour Congress To the Working Group on Clean Technology, Innovation and Jobs*, July 28, 2016, p. 27.

⁴⁵ Green Economy Network. *One Million Climate Jobs: A Plan for a Sustainable and Equitable Economy: Green Economy Network Submission to the Working Group on Clean Technology, Innovation and Jobs*, July 2016, p.2.



than half (57%) of the worker respondents to the Workers' Climate Plan survey are actively hopeful for a new distribution of power and wealth when considering a steady transition to renewable energy.

The Working Group on Clean Technology, Innovation and Jobs should consider actions to position existing energy sector developers, contractors and unions within the renewable energy sector through incubator and innovation programs and grants, as well as the specific re-training of current energy workers so they are well prepared to work in renewable energy.

Iron & Earth will provide further recommendations detailing specific measures to position existing energy sector workers, developers, contractors and unions within the renewable energy sector in our November 2016 Workers' Climate Plan.

3.4 The Iron & Earth Solar Skills Campaign

Iron & Earth is already spearheading projects to further our three-point plan. As energy sector workers, we are well-positioned to develop Canada's new energy infrastructure. But we cannot do it alone.

Iron & Earth's Solar Skills campaign is designed to support the retraining of 1,000 Alberta tradespeople as solar design and installation professionals through the installation of solar PV, solar heat, energy efficiencies, and EV charging stations at 100 high schools across Alberta. Initially we intend to deliver 10 demonstration projects. A primary goal is to develop a model which can be easily scaled-up to complete a further 90 projects and ensure the rapid re-training of Alberta's skilled workforce. This replicable model will be designed to be adopted in other provinces with different energy regulations, portfolios, and demands.



Unlike existing programs, our training plan will be an on-the-job training experience, eliminating waste, and getting solar capacity installed at a reduced cost. By hosting these demonstrations in high schools, the Solar Skills campaign should introduce high school students to the opportunities in renewable energy trades and commerce, and increase energy literacy within the general public. It might even encourage the next generation of high school graduates to start their own business in the renewable energy sector. If you want to learn more about the Iron & Earth Solar Skills campaign, you can listen to a press conference here: http://www.ironandearth.org/solar_skills_press_conference_audio.

We have already engaged in in-depth conversations with a wide range of renewable energy developers, research and consulting institutes, First Nation community leaders, and representatives from energy stakeholders such as Suncor, EDF EN, and Enbridge – all of whom have communicated support and enthusiasm regarding our approach and Solar Skills renewable energy training program. Through high-profile membership engagement and educational campaigns, Iron and Earth will attract out-of-work tradespeople into available training programs. We have already begun these efforts, and our membership of over 450 energy sector workers includes more than 150 electricians who have expressed support for the Solar Skills program.

Initiatives like the Solar Skills program can rapidly train industrial energy sector workers to become employable in renewable energy projects. Canada's energy sector manufacturers, unions, and contractors have the opportunity to position themselves within the renewable energy industry. Local manufacturers can develop the capacity to build renewable energy products. Entrepreneurial tradespeople can start their own businesses. We all have a role to play in building a sustainable and prosperous future in Canada.

Government has significant influence over the future levels and volatility of energy prices. Market conditions have only recently begun supporting renewable projects locally.



For that reason, the current supply of entities that can do small projects is very low. When demand spikes because of coal phase out or other future policies, such as spending initiatives, the suppliers of projects will be able to demand exorbitant fees from early adopters. Low volatility in energy prices is in the interest of all levels of government. Government should support a variety of initiatives to develop renewable energy to prepare for Canada's future energy supply.

The federal government urgently needs to take proactive measures to help foster initiatives like the Solar Skills program. The government already provides subsidy to the oil sector in the form of low royalty rates.⁴⁶ Private industry and investment traditionally off-loads risk of early stage technology and economies. Now government must support re-training the renewable energy workforce to support an emergent niche in the power industry, for the sake of our future environment and economy.

3.5 Next Steps for Action

Iron & Earth commends the federal government for consulting Canadians as the government plans how to take action on climate change and meet our commitments made during COP21. Iron & Earth has spoken with a range of energy sector workers in a variety of skilled industrial professions. Their voice needs to be heard as part of this consultation. The evidence from our Workers' Plan Survey and ongoing worker outreach is clear. Energy sector workers support ambitious action on climate change that is just for workers.

Based on our conversations with fellow energy sector workers, we want to emphasise to the Working Group on Clean Technology, Innovation and Jobs our two energy development priorities:

⁴⁶ Yanick Touchette. G20 subsidies to oil, gas and coal production: Canada, November 2015 <<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9988.pdf>>



1. Energy development must **prioritize the health and equity** of workers, families, communities, the economy and the environment
2. Energy development must be **aligned with global, national, and regional climate commitments.**

To uphold these priorities, we suggest that the Working Group on Clean Technology, Innovation and Jobs put in place measures to enact our three-point plan:

1. **Build up Canada's renewable energy workforce capacity** by re-training and up-skilling Canada's skilled workforce through public funding and support.
2. **Build up Canada's renewable energy manufacturing capacity** through research and development grants.
3. **Position existing energy sector developers, contractors, and unions** within the renewable energy sector through incubator and innovation programs and grants.

Iron and Earth is an initiative led by oil sands workers. We are already working to make a just transition to renewable energy possible for current energy sector workers through programs like our Solar Skills renewable energy training program. We will continue to engage energy sector workers and consult a wide range of stakeholders to refine a set of specific recommendations. For the time being, the Working Group on Clean Technology, Innovation and Jobs should note our two development priorities and three point plan listed above so current energy sector workers can lend support – and industrial trade skills – to an ambitious strategy to take action on climate change.



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Appendix A: Detailed Survey Results

Worker Submissions:

<http://www.123contactform.com/sfnew2.php?redirect=true&action=showreports&s=1959804&rid=38953>

Non-worker Submissions:

<http://www.123contactform.com/sfnew2.php?redirect=true&action=showreports&s=2020038&rid=41326>