

A Net-Zero Future: What Happens to Petroleum and Coal Workers?

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There have been plenty of news stories about what a net-zero carbon emissions future may mean. In line with AWA's mandate to educate, communicate, and raise awareness, this newsletter takes a look at what a net-zero future may mean for workers in Canada's fossil fuel industries. The analysis rests on two important Statistics Canada studies from last September. Those studies asked a vital question: "How do workers displaced from traditional energy-producing sectors fare after job loss?"

But first, please consider taking action on two urgent items. The window to complete the Government of Alberta's Outdoor Recreation Survey closes tomorrow, January 15th. Here's the link to that [survey](#). Second, January 15th also is the last day to submit a comment to the Joint Review Panel about the Grassy Mountain Coal Project, the thin edge of the coal exploitation wedge

in your foothills. Here's the link to that [opportunity](#).

The question that Statistics Canada researchers posed is important because initiatives to “green” our province’s energy production likely will lead to job losses in the fossil fuel segments of the energy industry. As unsettling as this will be for some workers, it isn’t out of the ordinary. The history of industrialization has never seen an economic evolution, or revolution, that didn’t harm some workers and reward others. Reducing fossil fuel demand in the decades ahead will be no different.

But, the Statistics Canada data discussed below doesn’t suggest this transition will be the end of days for all petroleum and coal industry workers. On the one hand, it suggests a significant portion of those workers may face tough times. But, it also suggests that some of today’s fossil fuel workers will profit financially from a transition away from fossil fuels. Furthermore, I’ll suggest more workers could benefit from the transition if governments played a proactive role in offering assistance and incentives to workers and corporations to support this shift away from fossil fuel production.

More Ambitious Greenhouse Gas Emissions Reductions Targets

Net-zero is a term that, in the context of climate change, we are likely to run into more and more in the years ahead. Essentially, the phrase means not sending more greenhouse gas (GHG) emissions into the atmosphere than we remove. If a country is “net-zero” the nation will still produce GHG emissions but it will implement measures to take an equivalent tonnage of emissions out of the atmosphere.

A growing number of countries have committed to becoming net-zero by 2050. The European Union has made this [commitment](#); Justin Trudeau’s Liberal government has committed Canada to this goal [too](#). Leading multinational petroleum companies also have joined this parade. BP aspires to be a net-zero energy producer by 2050 as do Royal Dutch Shell and Total SA. S&P Global Platts puts both Shell and Total in the top ten of the world’s largest publicly traded energy companies in [2020](#).

On the coal side of the ledger, BHP Group, Vale SA, Anglo American PLC, South 32 all have committed to be net-zero emitters by 2050 or [earlier](#). Teck Resources, Canada’s leading producer of metallurgical coal, also aspires to be carbon neutral by [2050](#). Noticeably absent from this list is Hancock Prospecting Pty Ltd., the mothership responsible for the Grassy Mountain Coal Project. Also absent are any of the junior Australian coal mining companies hoping to decapitate the mountains along Alberta’s Eastern Slopes.

It’s clear from the ambitions of the oil & gas companies that their

anticipated futures are ones marked by less petroleum production. For example, by 2030 BP aims to reduce its oil and gas production by at least one million barrels per day (40%) from 2019 [levels](#). These plans are consistent with the future oil demand scenarios of organizations such as the International Energy Agency. The IEA's *World Energy Outlook 2020* predicted that, in its Net-Zero 2050 scenario, oil demand in 2030 will be 65 million barrels per day – that's 33 percent less than oil demand in 2019.

The IEA's net-zero scenario is even harsher for coal. Predicted global coal demand between 2019 and 2030 plummets by 60 percent. Most of that decline in demand (80 percent) will be for the thermal coal used in electricity generation. But, the remaining 20 percent reduction would reduce metallurgical demand as well.

Doomsday & Pollyanna Scenarios for Workers

Undoubtedly then, a serious commitment to net-zero will mean fewer employees in the petroleum industry. Given the phase-out of thermal coal production in Alberta, a phase-out subsidized by Alberta's taxpayers to the tune of \$1.36 [billion](#), there likely will be job losses in the thermal side of the sector. The provincial government's ambitions to turn Alberta into a strip mining Mecca for coking coal mining companies may add some jobs to the metallurgical side of the industry. But, coal mining in Alberta has been declining for the last 20 years and coal mine workers amount only to a fraction of miners in the oil patch. In 1998, there were 2,985 coal people employed in coal mining; in 2019 coal mining employed just 1,520 people. This picture is consistent with this graphic from Statistics Canada, one showing the dramatic decline in the coal mining sector over the last [generation](#).

What are people predicting for fossil fuel workers? What will happen to those workers as we try to create a net-zero world?

In some quarters, this structural change will be Doomsday for workers in the fossil-fuel sector. There is no healthy future for them outside of oil and gas, outside of coal. They will be doomed to a future either of permanent unemployment or low-wage employment. In other quarters, Pollyanna reigns. Petroleum industry workers and coal miners will fuel the workforce needed for the energy transition away from fossil fuels. They will pick up tools in renewable energy businesses and prosper.

Statistics Canada Suggests A More Nuanced Future

These are simple-minded or deterministic views of the future. In my experience, the world offers more nuance, more shades of grey, than the subscribers of either the Doomsday or Pollyanna scenarios are likely to admit.

If we assume a more-nuanced interpretation is likely to unfold then the extremes of Doomsday or Pollyanna are likely to be avoided as the structure of our society shifts away from its dependence on fossil fuels.

Two Statistics Canada studies released last fall speak to the importance of nuance in thinking about what a net-zero future will deliver for people who work in fossil fuel industries. The Chen and Morissette study [*How Do Workers Displaced from Energy-producing Sectors Fare after Job Loss? Evidence from the Oil and Gas Industry*](#) offers important, suggestive conclusions about what range of futures could await oil and gas workers who suffer permanent layoffs in the patch. The authors used Statistics Canada's Longitudinal Worker File, a data set covering virtually all employees in Canada, to focus on job losses over the 1995 to 2016 period. This rich data set allowed Chen and Morissette to examine what happened to petroleum sector employees in the aftermath of the 2008 Financial Crisis. That crisis was very tough on Alberta's oil and gas sector. From July 2008 to January 2009 the monthly average price for Western Canadian Select (the benchmark for tar sands crude) plummeted from U.S. \$114.95 to \$29.97 per barrel. More than 8,000 oil and gas workers lost their jobs in 2009; this constituted 7.5 percent of the workforce in Alberta's petroleum sector.

A Significant Downside for Many

What was the fate of the petroleum workers who lost their jobs because of the Financial Crisis? Somewhat positively, approximately 70 to 80 percent of the workers laid off between 2009 and 2011 were employed again in the year after they lost their jobs. But, now the bad news. When it came to wages, many of these re-employed workers made significantly less than they did before they were laid off. Oil and gas extraction workers were the hardest hit. While half of the workers in the support sector of the industry saw their earnings drop by at least \$7,364 in the first year after that job loss, half of the extraction workers suffered at least a \$19,497 loss of income from year to year (when these two activities are combined, half of oil and gas workers suffered an income loss over those two years of at least \$8,116) . For some, the passage of time was no less cruel. Five years after losing work, one quarter of the petroleum workforce was earning \$27,447 less than they were the year before they were laid off. For a significant proportion of the petroleum workforce, the aftermath of the Financial Crisis wasn't pretty and conformed closely to the Doomsday scenario.

A Significant Upside for Others

But that's not the only story in the Statistics Canada data. There is another more optimistic picture here. The first thing to note might be that,

between 2005 and 2015, nearly 80 percent of laid-off workers who found work in the year after losing their jobs went to work outside the petroleum industry. This demonstrates considerable mobility into other types of employment. A second noteworthy point concerns earnings in the short term (from the year before layoff until the year after layoff). Some workers actually made more in their new jobs than they were making when they were laid-off. One quarter of laid-off workers in the support sector of the industry made nearly \$15,441 more in the year after being laid off. A quarter of those laid-off in the extraction sector made \$5,965 more. Five years after losing their job in the oil patch, one quarter of the laid-off petroleum workers made \$32,453 more than they made in the year before job loss; one quarter of oil and gas extraction workers were making \$43,413 more five years after being laid off. Leaving the oil patch was financially beneficial in the short and medium term for at least one quarter of laid off workers.

A Very Similar Story in Coal

Chen and Morissette replicated this analysis in the coal mining sector and came to very similar [conclusions](#). Between 1995 and 2015, “on average 75% of workers laid-off from coal mining had paid employment in the year following job loss.” For coal, Chen and Morissette analyzed the income changes for workers laid-off between 1995/2003 and 2004/2011. I present the 2004 to 2011 layoff data here since it overlaps with the Financial Crisis years. From the year before job loss to the year after job loss, half of the affected coal workers lost at least \$14,769 in income (close to double the median income loss experienced by petroleum workers between 2009 and 2011). The severe ongoing financial pain felt by one-quarter of oil and gas workers five years after job loss was less pronounced for the same cohort of coal workers. Twenty-five percent of coal workers were making at least \$19,373 less five years after they had lost their position (versus \$27,447 for their oil and gas counterparts).

As in oil and gas, job loss delivered financial benefits for some coal workers. Twenty-five percent of the workers laid-off between 2004 and 2011 made \$4,108 more a year after they were terminated. Five years after their termination, a quarter of those workers made \$30,869 more. Again, leaving the coal mining industry delivered both short and medium term financial gains for some displaced workers.

Conclusion

The picture here is more nuanced than either the Doomsday or Pollyanna scenarios would predict. Certainly, for a significant portion of fossil fuel industry workers, losing their jobs delivered dramatic, serious hits to their

earnings. But the analyses of Chen and Morissette also “highlight the fact that the financial consequences of job loss are not uniform for all displaced workers. Whether they lose their job from oil and gas extraction or related support activities, not all displaced workers experience earnings declines.”

It’s naïve to believe that pursuing the net-zero objective will be good financially for all who were in either oil and gas or coal. But, it’s just as naïve to suggest it’s a path that ends at Doomsday. It should also be said that government took little positive action during the 2004 to 2011 period to help displaced workers find gainful, alternative employment. If governments intervened more actively with worker training programs and economic incentives for non-petroleum innovations, a transition to a net-zero economy may reduce the negative impacts on displaced workers. This is what government leadership for the future should look like.



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