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## The Employment Dividends of Renewables and Electrification

*By Jim Stanford*

The global energy transition continues to build momentum, despite (or perhaps because of) the disruptions in the world economy experienced over the past three years — including the COVID pandemic, shattered supply chains and now Russia's invasion of Ukraine. If anything, the vulnerability that nations face from sky-high petroleum prices and supply disruptions only reinforces the business case for rapid transitions to renewable, self-sufficient energy.

That's why the rollout of alternative energy systems is accelerating, and this will continue as the economy recovers from the pandemic. Key features of this real-time energy revolution include:

- Major expansion in renewable sources of electricity generation.
- Electrification of all sectors in the economy (including transportation).
- A growing emphasis by financial investors on decarbonizing portfolios — and positioning to capturing future profits from renewable energy.

As the energy transition picks up speed, fears about potential negative employment effects from renewable energy have become less compelling, with good reason. Jurisdictions around the world (including Canadian provinces) have proven that successful transitions from fossil fuels to sustainable, electrified power systems can be accomplished without negative impacts on employment and labour markets.

The new Clean Power Pathways report provides important new evidence regarding the net employment benefits from the coming electrification of Canada's economy. Far from undermining job prospects, even in petroleum-producing regions of Canada, accelerated electrification would open up very attractive new opportunities in a range of industries and occupations.

Several streams of employment benefits would be unleashed by an ambitious, accelerated electrification strategy. Jobs would be created up and down the entire energy supply chain:

- Jobs in developing and operating renewable generation systems (including solar, wind, geothermal and hydroelectric power). Construction of these projects will create hundreds of thousands of person-years, with thousands more ongoing jobs in operation and maintenance.
- New work in expanding and upgrading the electric grid. Major investments will be required to upgrade transmission facilities, install modern control and regulating equipment and prepare the grid for the more complex and variable power distribution requirements associated with dispersed renewable generation.
- Manufacturing of capital equipment and other material inputs to renewable generation projects. With appropriate value-added industrial strategies to enhance Canada's industrial footprint in these growing industries, thousands of permanent jobs would be created manufacturing wind turbines, solar power equipment, transmission equipment and materials, and other capital inputs to electrification.
- Installation and maintenance of new equipment that uses electricity in various industrial and consumer applications — everything from residential heating systems to electric vehicles to large industrial power systems.
- Jobs in new industries attracted to Canada by the availability of clean, reliable and competitive electricity. Canada's abundance of primary renewable electricity resources would position us at the forefront of the global transition to sustainable electric energy. That will stimulate interest and investment by industrial firms and financial investors around the world.

The "Clean Power Pathways" report presents a rigorous and credible roadmap, showing accelerated electrification of Canada's energy system is technically feasible and economically appealing. Investments in both generation capacity and transmission facilities ensure that a fossil-fuel-free electric network can reliably supply all of Canada, in all seasons. The Clean Power Pathways simulations indicate that 75,000 new jobs would be created by the rapid decarbonization of Canada's electricity grid over a roughly 15-year period — in wind and solar generation, new transmission facilities and storage. Thousands of other jobs will be spurred in installation, electrical upgrades and building retrofits. The biggest beneficiaries of this jobs boom are current fossil-fuel-producing regions (like Alberta and Saskatchewan), where the GDP and employment gains from electrification are even larger.

These positive employment forecasts have been verified by other Canadian research (including Clean Energy Canada, IRENA, Navius, the Ecology Action Centre and C40). This is no longer a hypothetical scenario: thousands of these jobs are already being created each year, as renewable power generation and applications expand throughout Canada's economy. An accelerated electrification strategy, however, would ensure those gains are captured more rapidly and fully.

Of course, the transition to a sustainable electrified power system is a complex, multi-faceted process. Some industries will shrink as this transition continues, and some jobs in those industries will disappear. It is important that this transition is managed proactively and fairly. But given the small number of jobs in Canadian fossil-fuel electricity production and distribution (less than 20,000 at present), lost jobs will certainly be more than offset by new jobs created.

In fact, this transition is *already occurring* without undue job loss or disruption. Canada's electricity system has already reduced its reliance on fossil fuel primary energy by one-third over the past two decades: from over 25 per cent at the turn of the century to 17 per cent by 2020. During that time, employment in the electricity generation and distribution sector *increased* — adding over 10,000 new jobs. Changing the primary source of power for electricity generation has no inherent negative impact on employment in this activity. Indeed, since renewable power sources are more labour-intensive than fossil fuel extraction, this transition will increase overall employment. Jobs in remediation and cleanup of previous fossil fuel facilities will further strengthen the net employment balance.

Concerns about job loss have been weaponized for years by vested corporate interests trying to deny or delay the transition to renewable energy sources. Their frightening predictions of job loss were never credible. But now the empirical evidence is clear: tens of thousands of new jobs are already being created as the energy revolution rolls on. The sooner and more fully we embrace it and accelerate electrification of Canada's economy, the faster those jobs will arrive.

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