



GREEN JOBS – RHETORIC OR REALITY?

A Brief Review of the Evidence

ABSTRACT

Will GHG reduction and climate change initiatives create green jobs and stimulate the economy? A review of the evidence.

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“GREEN JOBS” – REALITY OR RHETORIC?

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1 CLIMATE CHANGE INITIATIVES WILL CREATE GREEN JOBS

One of the persistent claims of those who advocate extensive government actions to reduce greenhouse gas emissions is that such actions will promote the economy as well as the environment by stimulating the creation of “green jobs”. On this basis, they justify truly massive subsidies to renewable energy production, stringent regulations and mandates either to suppress investment in hydrocarbon development or to force electrical utilities and consumers to use non-fossil energy, and intrusive regulations requiring manufacturers to produce and sell vehicles, residential buildings and appliances with lower energy consumption ratings. In theory, the jobs created in manufacturing and installing wind, solar and biomass plants and in installing newer energy technologies will be wonderful for the economy.

1.1 WHAT IS GREEN ENERGY?

To understand whether this is true, one first has to define what we mean by “green energy”. Environmentalists apply a very broad definition, including not just solar, wind and biomass energy used for electricity generation but also hydro-electric generation, ethanol, all the various industries that are associated with reducing energy consumption such as home insulation and high technology electric motors, and even companies that build bicycle paths. No doubt some of these industries have increased the number of people they employ with the large increase in public funding devoted to them. There are very few studies available that look at the question this broadly. It is possible, however, to examine specifically the claims that renewable energy (mainly wind, solar and biomass for electricity generation) has an overall positive effect.

Let’s start by reviewing the results of studies in Europe on the actual experience of countries there since they began major “green energy” programs starting in 1997.

2 SPAIN

In March 2009, researchers Gabriel Calzada Alvarez and his colleagues at the Universidad Rey Juan Carlos released a study examining the economic and employment effects of Spain's aggressive push into renewables. What they found undermines the usual green-job rhetoric:

- From 2000 to 2008, Spain spent 571,000 Euros (Cdn \$800,000) on each green job, including subsidies of more than one million Euros (Cdn \$1.4 million) per job in the wind industry.
- The programs creating these jobs destroyed nearly 110,500 jobs elsewhere in the Spanish economy (2.2 jobs for every green job created)
- The resulting high cost of electricity mainly affected production costs and levels of employment in metallurgy, nonmetallic mining, food processing and beverage and tobacco industries.

In addition, the subsidies proved an invitation to corruption. According to Bloomberg BusinessWeek reports, "An audit of solar-power generation from November 2009 to January 2010 found that some panel owners were paid for doing the impossible – producing electricity from sunlight at night." It appears that the solar power producers ran diesel-burning generators and sold the output as solar power, which earns several times more than electricity from fossil fuels.

3 ITALY

A study performed by Luciano Lavecchia and Carlo Stagnaro of Italy's Bruno Leoni Institute found a similar situation in Italy.

- Comparing the average stock of capital per worker in the renewable energy systems with the average stock of capital in industry and the entire economy, they found an average ratio of 6.9 and 4.8, respectively. To put it otherwise, the same amount of capital that creates one job in the green sector would create 6.9 jobs or 4.8 jobs if invested in other industries or in the economy in general.
- The vast majority of green jobs were temporary. Most of the jobs – at least 60% - were for installers or other temporary work that would disappear once a photovoltaic panel or wind tower was operative.

- The Mafia were involved in rampant corruption in the renewables sector. The so-called “eco-Mafia” has been fraudulently creaming off millions of euros from both the Italian government and the European Union.

4 GERMANY

Manuel Frondel of the Rheinisch-Westfälisches Institute conducted a study of the effects of Germany’s aggressive promotion of wind and solar power.

- Rather than bringing benefits in terms of lower-cost energy and a proliferation of green-energy jobs, the implementation of wind and solar programs raised household energy rates by 7.5%. The cost of this was “astonishingly high”: over \$1000 per ton per unit of CO2 equivalent for solar power and over \$80 per ton per unit of CO2 equivalent for wind power. This compares to the carbon price in the European Trading System of about \$19 per ton per unit of CO2 equivalent at the time, so this was not a great investment.
- In the case of photovoltaics, Germany’s subsidization regime has reached a level that by far exceeds average wages, with per-worker subsidies as high as 175,000 euros (Cdn \$245,000).
- He concluded, “We should regard the country’s experience as a cautionary tale of massively expensive environmental and energy policy that is devoid of economic and environmental benefits”.

5 DENMARK

CEPOS, a Danish think tank, issued a 2009 report entitled, *Wind Energy, the Case of Denmark*. Among other things, it found:

- Denmark’s electricity prices are the highest in the European Union.
- The greenhouse gas emissions benefits of a huge investment in wind energy were slim to none, as most of the production is exported to countries where it displaces hydropower, which does not produce significant greenhouse gas emissions.

- Regarding green jobs, the effect of the government subsidy has been to shift employment from more productive work in other sectors to less productive work in the wind industry. As a consequence, Danish GDP is approximately 1.8 billion DKK (Cdn \$300 million) lower than it would have been if the wind sector work force was employed elsewhere.

6 UNITED KINGDOM

A 2011 study by Verso Economics examined the green jobs experience in the UK and Scotland. Verso's conclusions were similar to those in Spain and Italy.

- For every job created in renewable energy in the UK, 3.7 jobs are lost.
- The Renewables Obligation, which effectively raises the market prices paid for electricity from renewable sources, cost electricity customers 1.1 billion pounds (\$Cdn \$2.1 billion) in 2009/10.
- The policy to promote renewable energy in the UK had an opportunity cost of 10,000 direct jobs in 2009/10.

7 WHY THESE RESULTS SHOULD HAVE BEEN EXPECTED

In terms of economic theory, it is not surprising that government programs to accelerate investment in certain industries might fail, either in stimulating new industries or creating economically sustainable employment opportunities. Indeed, it is highly questionable that a government campaign to spur "green jobs" would have net economic benefits. Government intrusion into energy markets amounts to little more than attempting to prematurely force businesses to abandon current generally well-known and proven production technologies for new and more expensive ones. These interventions impose negative consequences resulting from forcing higher-cost energy sources on the economy. Consumers pay more on a wide array of energy-intensive goods. GDP growth declines and jobs are lost.

8 COUNTING JOB CREATION BUT IGNORING JOB DESTRUCTION

The jobs that may be created as a direct result of renewable energy subsidies and mandates tend to be considered as manna from heaven; advocates do not consider the direct and indirect adverse effects (including job destruction) on a wide array of energy-intensive industries, and the effects of increased prices for consumers.

We do not need to look to Europe to see one of the most striking examples of this. Since 2009, Ontario has implemented its Green Energy Plan under which renewable energy sources are granted many advantages over conventional sources of electricity generation, including above market prices, guaranteed twenty-year contracts, first-to-the-grid rights, and exemption from local land use planning requirements. Collectively, these actions have sharply raised electricity prices to consumers, created a significant surplus of generation capacity over demand, reduced the reliability of the electricity supply system and reduced employment:

- By increasing the prices charged to Ontario businesses, this policy drives up business operating costs and makes it difficult for firms to employ more people; when the costs rise so much as to force companies to relocate to other jurisdictions, they eliminate jobs by the thousands;
- The Ontario government has increasingly shifted the cost of renewable energy away from industry and onto residential consumers, thus raising consumers' electricity bills and reducing the funds consumers have to spend;
- By giving renewable energy sources "first-to-the-grid" rights, the policy reduces the revenues that may be earned by other energy suppliers and their employees who would otherwise have been successful commercially; and
- By increasing the surplus of generation capacity over demand, the policy forces the Independent Electricity Systems Operator to curtail production from several generation sources (i.e. pay generators not to produce) and dump power at depressed prices into the export market. This raises electricity rates even more for Ontario business and residential consumers while lowering the electricity bills of industries in New York and Michigan that directly compete with Ontario firms. Ontario's net loss on electricity export sales in 2015 was \$1.3 billion.

Today, Ontario's electricity prices for industrial users are dangerously out of whack with those of neighbouring jurisdictions in the United States and Canada, who are using either low-cost hydro or cheap natural gas to produce power. The "Class A" average rate for large users, which includes commercial and institutional energy consumers as well as industry, has risen to 9.7 cents per kilowatt hour in five years, an increase of 14%. "Class B" industry, such as auto parts companies, sawmills and wood-product manufacturers, have fared even worse – the rate has increased to 12.1 cents a kilowatt

hour, an increase of 42%. This compares with 4.8 cents in Montreal, 5.45 cents in Chicago and 8.12 cents in Detroit. According to a 2015 study by the Ontario Chamber of Commerce, increasing electricity rates in Ontario are threatening businesses across the province, with one in 20 reporting that they expect to shut down in the next five years. The recent significant depreciation of the Canadian dollar has given some firms breathing space, but that may not last, while the increase in green power energy costs inexorably will.

9 GOVERNMENT PICKING OF WINNERS AND LOSERS IS A CLASSIC EXAMPLE OF UNSOUND ENERGY POLICY

Governments cannot direct capital and labour markets more efficiently than market wage and interest rates. In fact, history is replete with evidence that government lacks this ability. The U.S. synfuels program of the late 1970's is a classic example of labour and capital being pulled, by government decision, into lower-value uses than the industries into which market forces would have channeled them.

If a government makes a poor investment decision, or, worse still, makes a politically-motivated investment decision where the investment has little chance of succeeding (other than in generating regional votes), it does not risk going out of business. Politicians and bureaucrats aren't risking their own life savings. But their activities still have a large cost. Bad government investment decisions mean we all have to pay for the mishaps with higher taxes; and those higher taxes curtail investment spending by individuals and businesses.

Yet, much of "green energy policy" is based, at some level, on government officials making choices as to which technology areas to further subsidize and support (wind, solar, biomass, ethanol, energy storage, etc.). It is very unlikely that this will yield a more efficient and economically sustainable energy mix than what would be determined in the market absent government intervention.

The same thing applies to forcing by decree energy efficiency measures that "pay for themselves". If adding new insulation or buying a higher efficiency clothes dryer would save more money than the original cost (including interest), then it is unclear why governments need to direct or subsidize the improvements. Private business and households do not need to be aided in the process of furthering their own self-interest.

10 LABOUR-INTENSIVENESS SHOULD BE VIEWED IN THE CONTEXT OF OPEN TRADING ECONOMIES

Advocates of subsidies to renewable energy sometimes argue that renewables are far more labour-intensive than hydrocarbon industries and therefore if countries like Canada shift consumption to renewables we will naturally increase employment. This assumes that increased consumption of renewables would automatically reduce production of hydrocarbons. In fact, Canada and other countries will continue to produce hydrocarbons and market them internationally because it is economically attractive to do so. The goal, in any case, should be not to have the most labour-intensive energy sector, but to have the more productive and economically efficient mix of industries in the country.

11 CONCLUSION

Experience in other countries and in Canada shows policies that divert money from the general economy to subsidize renewable energy result in lower employment, higher costs and lower income. Green jobs mean fewer jobs.

REFERENCES

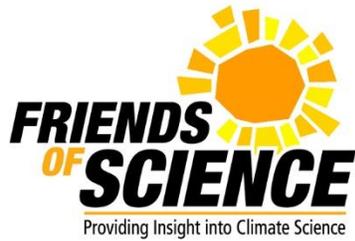
Gabriel Calzada Alvarez, Raquel Merino Jara, Juan Ramon Rallo Julian, and Jose Ignacio Garcia Bielsa, "Study of the Effects of Employment of Public Aid to Renewable Energy Sources". Universidad Rey Juan Carlos, March 2009 (www.juandemariana.org/pdf/090327-employment-public-aid-rebewable.pdf)

Luciano Lavecchia and Carl Stagnaro, *Are Green Jobs Real Jobs? The Case of Italy*. Milan, Italy: Instituto Bruno Leoni, May 2010 (http://brunoleonimedia.servingfreedom.net/WP/WP-Green_Jobs-May2010.pdf)

Manuel Frondel, Nolan Ritter, Christoph M. Schmidt, and Colin Vance, *Economic Impacts from the Promotion of Renewable Energies, the German Experience*. Germany: Rheinisch Westfalisches Institut fur Wirtschaft Sforchung, 2009

Hugh Sharmen, Henrik Meyer and Martin Agerup, *Wind Energy: The Case of Denmark*. Copenhagen, Denmark: Center for Politiske Studier, September 2009
(www.cepos.dk/fileadmin/user_upload/Arkiv/PDF/Wind_energy_the_case_of_Denmark.pdf)

Richard Marsh and Tom Miers, *Worth the Candle? The Economic Impact of Renewable Energy Policy in Scotland and the UK*. Kirkcady, Scotland: Verso Economics, March 2011
(www.versoeconomics.com/verso-0311B.pdf)



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About

Friends of Science Society has spent a decade reviewing a broad spectrum of literature on climate change and have concluded the sun is the main driver of climate change, not carbon dioxide (CO₂). Friends of Science is made up of a growing group of earth, atmospheric and solar scientists, engineers, and citizens.

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