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Green Jobs:

The European Experience

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Executive summary

Many politicians and activists in Canada champion the benefits of green technology and government spending on green job creation as a strategy for alleviating unemployment and spurring economic growth. These expectations clash with both economic theory and practical experience in Europe. Green programs in Spain destroyed 2.2 jobs for every green job created, while the capital needed for one green job in Italy could create almost five jobs in the general economy. Wind and solar power have raised household energy prices by 7.5 percent in Germany, and Denmark has the highest electricity prices in the European Union. Central planners in Canada trying to promote green industry will fare no better at creating jobs or stimulating the economy.

Key Findings:

- Many politicians and activists in Canada champion the benefits of green technology and the creation of green jobs to alleviate unemployment and boost economic growth.
- In fact, "green jobs"created by government spending and subsidies merely replace jobs in other sectors and actually contribute less to economic growth.
- Experiments with renewable energy in Europe have led to net job losses, higher energy prices, and widespread corruption.

Introduction

Green is the new black in Canada, the United States and Europe. Politicians and activists in Europe and North America have thrown on the green pants, green shirts and green cloaks of what we are assured is the future of life on Earth as we know it.

The theory that underlies the proposals to spend government money on developing a green economy is relatively straightforward to explain. A joint report by the Sierra Club, Greenpeace and the Alberta Federation of Labour describes green jobs as "jobs that are saved or created by policies that will shift our economy toward greater sustainability."[1] In other words, green jobs are jobs that are created when governments put environmental regulations, subsidies, and programs in place; these jobs would not be created in the absence of these policies. For example, if a government in Canada begins to heavily subsidize solar power generation, solar energy soon becomes a more attractive field for entrepreneurs, because it becomes easier to make a profit in it. If the subsidies are sufficiently large, the scale of solar energy production in Canada will increase, necessitating additional hiring to build solar panels, install those panels and perform other related tasks. In short, whenever a government heavily subsidizes an industry, it makes it profitable for firms in the industry to expand, and we can expect that there will be additional hiring within the industry. When the industry in question is involved in the production of renewable or clean energy, the additional jobs created in those industries are described as green jobs.

Those who support aggressive green jobs initiatives make the argument that there is an urgent need—because of the global warming threat—to move away from traditional energy sources and toward renewable sources.

"...green jobs are jobs that are created when governments put environmental regulations in place; these jobs would not be created in the absence of these regulations."

The hope is that this transition will not only mitigate the threat of global warming but that it will also be a significant source of jobs and economic growth, as millions of workers will be hired to build thousands of windmills, manufacture and deploy solar panels, harvest biofuel feedstock and so on.[2]

Politicians across the world have been touting green jobs plans for many years. Former British prime minister Gordon Brown claimed that his green job plan was going to create 400,000 green jobs over the next eight years.[3] Former U.S. vice-president Al Gore has approvingly cited a study claiming that a green jobs strategy in the United States could create 1.7 million jobs in that country.[4] President Barack Obama is even more ambitious, claiming that his plan for green jobs will actually create *five million* new green jobs.

Many Canadian politicians and activists have also loudly proclaimed the benefits of going green. For example, the leaders of The Suzuki Foundation and the environmentalist think tank Sustainable Prosperity spelled out an argument for an ambitious green jobs strategy in an op-ed written for the *Toronto Star* in January of 2009. Here, the authors describe their proposal for $15-billion worth of government spending on green jobs as a "green stimulus" program, and they argue that it is one of the best strategies for promoting economic development in the short and long term.

Here, the authors lament that Canada is "falling behind" its major trading partners such as the United States and China, which they argue are already investing heavily in "green stimulus" efforts that are creating thousands of green jobs.

The Suzuki-Sustainable Prosperity proposal for a "green stimulus" effort is just one of many examples of politicians and activists presenting plans for massive spending on green energy programs with the purpose of spurring economic growth and development in Canada. For example:

- The New Democratic Party of Canada presented a Green Collar Jobs plan that would have the government of Canada spend $8.2-billion over four years. The plan would include $4-billion to design and produce greener cars and trucks and $3-billion for training a "green collar workforce." The architects of the plan estimate it would create 40,000 jobs.[5]
- Greenpeace, the Sierra Club and the Alberta Federation of Labour presented a plan for $5-billion in green jobs spending in Alberta. They claim it would produce 20,000 jobs in the first year and 200,000 jobs over time.[6]
- The Conservative government of Canada dedicated $1-billion to the creation of a Green Infrastructure Fund as part of its economic stimulus package.
- Sustainable Prosperity presented a Green Economic Stimulus Package for Canada that would cost $15-billion and supposedly create 160,000 jobs in the first year alone.[7]
- The Liberal government of Ontario has pursued an aggressive green energy strategy that uses public funds to undertake green energy initiatives, which the government claims will create 50,000 jobs.[8]
- The government of Manitoba expressed a commitment to spending on green energy, describing green job creation as a component of its poverty-reduction strategy.[9]

These are just a few examples of ambitious proposals for spending on green jobs creation that have been suggested or enacted by prominent activists and politicians across Canada, but there are dozens of others.

The proliferation of these proposals and their implementation by governments might suggest that the science and economics behind green jobs proposals are sound and that the world's future is green: green energy powering green technologies and creating green houses, buildings, cars, and jobs, jobs, jobs. But is this thinking based on realistic economics? Is it a realistic understanding of green tech? And does it present realistic expectations of the growth potential of the green movement?

Fortunately, we now have a significant body of empirical evidence from Europe that sheds light on this question. Several European countries have been pursuing aggressive government spending on green energy development for many years, and the results of these efforts can help us understand whether such initiatives are likely to work in Canada. This study will examine the real-world evidence from the European experience with green energy and job creation. However, let us first examine the theoretical issues surrounding whether a government actually creates jobs through subsidies.

Green energy and green jobs

To understand the fallacy of governments creating green jobs through subsidies and regulations, we have to reach back to the writing of French economist Frédéric Bastiat. In 1850, Bastiat explained the fallacy that underlies such thinking in an essay about the unseen costs of such efforts. Bastiat explained it in terms of the broken window fallacy.

He explained the fallacy as follows: Imagine some shopkeepers have their windows broken by a rock-throwing child. People sympathize with the shopkeepers until someone claims that the broken windows are not that bad. After all, they create work for the glassmaker, who might then be able to buy more food, benefiting the grocer; or buy more clothes, benefiting the tailor. If enough windows are broken, the glassmaker might even hire an assistant, thereby creating a job.

Did the child therefore do a public service by breaking the windows? No. We must also consider what the shopkeepers would have done with the money they spent to fix their windows had those windows not been broken. Most likely, the shopkeepers would have plowed that money back into their stores. Perhaps they would have bought more stock from their suppliers or maybe they would have hired new employees. Before the windows were broken, the shopkeepers had intact windows and the money to purchase more goods or hire new workers. After the windows were broken, they had to use that money to repair the windows and thus were unable to expand their businesses.

Were the windows not broken, the town would still have had jobs created by the baker's spending, and the baker would still have the value of his original window. Since he does have to pay to have it fixed, he and the village as a whole have been made poorer.

Among economists, it is well understood that governments do not create jobs; the willingness of entrepreneurs to invest their capital, paired with consumer demand for goods and services does. All that governments can do is subsidize some industries while raising costs for others. In the green case, governments will destroy jobs in the conventional energy sector, and most likely in other industrial sectors, through taxes and subsidies given to new green companies that will use taxpayer dollars to undercut the competition. The subsidized jobs that will be "created" are, by definition, less efficient uses of capital than market-created jobs are. This means they are less economically productive than the jobs they displace and contribute less to economic growth. Finally, the good produced by government-favoured jobs is inherently a non-economic good that has to be maintained indefinitely, often without an economic revenue model, as in the case of roads, rail systems, mass transit, and probably windmills, solar powered installations, etc.

Now, let us explore how this has worked out in Spain, Italy, Germany, Denmark, the United Kingdom and the Netherlands. These six countries went hog-wild for renewables, while singing the praises of green jobs.

Spain

Spain has long been considered a leader in the drive to renewable power. Indeed, President Obama singled out Spain as an example. In a 2009 speech, the President said, "And so we have enormous commercial ties between our two countries and we pledged to work diligently to strengthen them, particularly around key issues like renewable energy and transportation, where Spain has been a worldwide leader and the United States I think has enormous potential to move forward."[10]

But the story of Spain's renewable/green jobs leadership took a series of hits shortly after the U.S. President's speech. In March 2009, researchers Gabriel Calzada Álvarez and colleagues at the Universidad Rey Juan Carlos released a study in which they examined the economic and employment impact of Spain's aggressive push into renewable energy. What they found confounds the usual green job rhetoric:[11]

- The study calculates that since 2000 Spain spent €571,138 [$791,597] to create each 'green job', including subsidies of more than €1-million [$1.38-million] per wind industry job.[12]
- The study calculates that the programs creating those jobs also resulted in the destruction of nearly 110,500 jobs elsewhere in the economy, or 2.2 jobs destroyed for every 'green job' created.
- Principally, the high cost of electricity affects costs of production and employment levels in metallurgy, non-metallic mining and food processing, beverage and tobacco industries.
- Each 'green' megawatt installed destroys 5.28 jobs on average elsewhere in the economy: 8.99 by photovoltaics, 4.27 by wind energy, 5.05 by mini-hydro.
- These costs do not appear to be unique to Spain's approach but instead are largely inherent in schemes to promote renewable energy sources.

Alvarez and his colleagues' study has come under criticism from some quarters.[13] However, other research and a recent policy retreat in this field on the part of the Spanish government suggest that Alvarez and his colleagues' finding that green energy spending has destroyed more jobs than it has created in Spain is correct. For example, a leaked Spanish government document confirmed that spending on green jobs has not been a net job creator.[14] The government of Spanish Prime Minister Zapatero has consistently been publicly bullish about its green jobs program, so the leak of an internal government document confirming the essential finding of Alvarez's independent study is an important development that strongly suggests these initiatives have failed.

In addition to research suggesting that Spain's green jobs initiatives are not generating economic development, the fact that Spain has quietly scaled back its once ambitious green energy projects strongly suggests that the expensive programs are not creating jobs or growth. Far from generating a new source of economic growth, job creation and government revenue, Spain has found its foray into renewable energy to be unsustainable and has cut spending in important areas. Bloomberg reports that Spain slashed subsidies for new solar power plants.[15] As analyst Andrew McKillop observes in the *Energy Tribune:*

> In Spain, where subsidies to the country's massive windfarms and their dependent industries is [sic] estimated to have attained as much as €12-billion [$16.5-billion] in 2009, either directly or

through 'feed-in tariff' subsidy for power sales, government proposals target at least a 30% cut in subsidies.

Major wind energy producer firms, such as Gamesa, have begun cutting their workforces, while trying to find sales outside Europe, helped by a weaker Euro. In addition and due to Spain's highly exposed deficit finance status, making it a target for market speculators betting its bond rates must rise, the Spanish government is also likely to cut financial backing to existing renewable energy power plants, built with an expectation of guaranteed prices and government subsidies for 25 years.

Then, there is the matter of corruption. As *Bloomberg Businessweek* reports:

An audit of solar-power generation from November 2009 to January 2010 found that some panel operators were paid for doing the 'impossible'—producing electricity from sunlight during the night, El Mundo reported today, citing a letter from Secretary of State for Energy Pedro Marin.[16]

Further, it appears that the solar power producers "may have run diesel-burning generators and sold the output as solar power, which earns several times more than electricity from fossil fuels…." Nineteen people were arrested in Spain's clean energy sector on charges ranging from bribery, to unsavory land deals, to issuing licences to friends and family, and simple construction fraud. As *The Guardian* reports, "When Spain's National Commission for Energy decided to inspect 30 solar gardens, it found only 13 of them had been built properly and were actually dumping electricity into the network."

Italy

A similar situation has played out in Italy, also a leader in wind and solar power deployment. A study conducted by Luciano Lavecchia and Carlo Stagnaro of Italy's Bruno Leoni Institute found an even worse situation:

Finally, we have compared the average stock of capital per worker in the RES [Renewable Energy Sources] with the average stock of capital per worker in the industry and the entire economy, finding 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 or 4.8 if invested in the industry [industrial sector] or the economy in general, respectively,—although differences exist between RES themselves, with wind power more likely to create jobs than PV [photovoltaic] power. This fact is particularly relevant because we did not even consider the non-trivial value of the renewable energy produced, but we focused on pure subsidies. If we had considered the energy value, the average stock of capital per worker would result even higher. Since subsidies are forcibly taken away from the economic cycle, and allocated for political purposes, it is especially important to have a clear vision of what consequences they beg.[17]

The researchers also found that the vast majority of the green jobs created were temporary:

Using what we see as inflated estimates, from various sources, of already-existing green jobs, we take between 9,000 and 26,000 jobs in wind power, and between 5,500 and 14,500 in photovoltaic energy, as our starting point. From there, we have calculated that thanks to the subsidies Rome has promised,

> the number of people working in the green economy will rise to an aggregate total of between 50,000 to 112,000 by 2020. However, most of those jobs—at least 60%—will be for installers or other temporary work that will disappear once a photovoltaic panel, or a wind tower, is operative.[18]

As with Spain, corruption runs rampant through the renewable energy sector. In Italy, however, rather than having numerous individuals defrauding the government, the Mafia is involved. As Nick Squires reported in *The Telegraph,* "Attracted by the prospect of generous grants designed to boost the use of alternative energies, the so-called 'eco Mafia' has begun fraudulently creaming off millions of euros from both the Italian government and the European Union."[19] Squires goes on to report:

> Eight people were arrested in Operation 'Eolo', named after Aeolus, the ancient Greek god of winds, on charges of bribing officials in the coastal town of Mazara del Vallo with gifts of luxury cars and individual bribes of €30,000-70,000 [$41,000-$96,000].
>
> Police wiretaps showed the extent of the Mafia's infiltration of the wind energy sector when they intercepted an alleged Mafioso telling his wife: 'Not one turbine blade will be built in Mazara unless I agree to it.'
>
> In another operation last November, code-named 'Gone With the Wind', 15 people were arrested on suspicion of trying to embezzle up to €30-million in EU funds [$41.4-million]. Among those arrested on fraud charges was the president of Italy's National Wind Energy Association, Oreste Vigorito.

Germany

Germany's foray in to renewable energy started in earnest in 1997, when the European Union adopted a goal of generating 12 percent of its electricity from renewable sources.[20] Germany's method for achieving such targets was the institution of a feed-in law that required utilities to purchase different kinds of renewable energy at different rates. In a study of the impact of Germany's aggressive promotion of wind and solar power, Dr. Manuel Frondel noted that the German feed-in law required utilities to buy solar power at a rate of $0.59 per kWh. This rate was far above the normal cost of conventional electricity, which was between 3 and 10 cents. Feed-in subsidies for wind power, he observed, were 300 per cent higher than conventional electricity costs.[21]

This massive subsidization of wind and solar power attracted many investors: After all, if the government is going to guarantee a market for several decades and set a price high enough for renewable producers to make a profit, capital will flow into the market. Germany became the largest producer of wind energy after the United States, and its investment in solar power was aggressive.

However, according to Frondel, things have not worked out as Germany's politicians and environmentalists said they would. Rather than bringing economic benefits in the form of lower cost energy and a proliferation of green energy jobs, the implementation of wind and solar power raised household energy rates by 7.5 per cent. Further, while greenhouse gas emissions abated, the cost was astonishingly high: over $1,000 per tonne for solar power and over $80 per tonne for wind power. Given that the carbon price in the European Trading system was about $19.00 per tonne at the time, greenhouse gas emissions from wind and solar were not great investments.

> ***Feed-in subsidies** for wind power, he observed, were 300 per cent higher than conventional electricity costs.*

Frondel says:

> German renewable energy policy, and in particular the adopted feed-in tariff scheme, has failed to harness the market incentives necessary to ensure a viable and cost-effective introduction of renewable energies into the country's energy portfolio. To the contrary, the government's support mechanisms have in many respects subverted these incentives, resulting in massive expenditures that show little long-term promise for stimulating the economy, protecting the environment, or increasing energy security. In the case of photovoltaics, Germany's subsidization regime has reached a level far exceeding average wages, with per-worker subsidies as high as €175,000 [$240,000].

He concludes:

> Although Germany's promotion of renewable energies is commonly portrayed in the media as setting a 'shining example in providing a harvest for the world' (*The Guardian,* 2007), we would instead regard the country's experience as a cautionary tale of massively expensive environmental and energy policy that is devoid of economic and environmental benefits.

As with Spain and Italy, Germany is finding it hard to continue to subsidize wind and solar power at existing levels. In May, the German parliament cut back the subsidy for domestic rooftop solar photovoltaic systems by 16 per cent, with free-standing systems cut by 15 per cent.[22]

Denmark

Denmark is yet another country that made wind power a hallmark of its energy policy. U.S. President Obama praised the Danes for their aggressive wind power program, telling an Earth Day audience in Iowa, "Today, America produces less than 3 percent of our electricity through renewable sources like wind and solar—less than 3 percent. Now, in comparison, Denmark produces almost 20 percent of their electricity through wind power."[23] The U.S. Energy Information Administration tells America's children, "Denmark ranks ninth in the world in wind power capacity, but generates about 20% of its electricity from wind."[24] That sounds impressive, but is it true?

Not according to CEPOS, a Danish think-tank that issued a 2009 report titled "Wind Energy, The Case of Denmark."[25] The CEPOS study found that rather than generating 20 per cent of its energy from wind,

> Denmark generates the equivalent of about 19% of its electricity demand with wind turbines, but wind power contributes far less than 19% of the nation's electricity demand. The claim that Denmark derives about 20% of its electricity from wind overstates matters. Being highly intermittent, wind power has recently (2006) met as little as 5% of Denmark's annual electricity consumption with an average over the last five years of 9.7%.

The CEPOS study revealed that Denmark can only produce and consume as much wind power as it does because of a convenient circumstance: Neighbouring countries have a lot of hydro power that can quickly and effectively balance the flow of electricity on its energy grid, allowing Denmark to export surplus wind capacity.

> Denmark manages to keep the electricity systems balanced given the benefit of its particular neighbors and their electricity

> mix. Norway and Sweden provide Denmark, Germany and Netherlands access to significant amounts of fast, short term balancing reserve, via interconnectors. They effectively act as Denmark's 'electricity storage batteries'. Norwegian and Swedish hydropower can be rapidly turned up and down, and Norway's lakes effectively 'store' some portion of Danish wind power. Over the last eight years West Denmark has exported (couldn't use), on average, 57% of the wind power it generated and East Denmark an average of 45%. The correlation between high wind output and net outflows makes the case that there is a large component of wind energy in the outflow indisputable.

Finally, the CEPOS study found that Danish consumers are the ones who take it on the chin. Denmark's electricity prices are the highest in the European Union. Their greenhouse gas reduction benefits are slim. Since the exported wind power replaces hydro power, it does not significantly reduce greenhouse gas emissions. The wind power consumed in Denmark does displace some fossil fuel emissions, but it does so at acost of $124.00 per tonne, which is nearly six times the price on the European Trading System.

With regard to green jobs, CEPOS concluded:

> [T]he effect of the government subsidy has been to shift employment from more productive employment in other sectors to less productive employment in the wind industry. As a consequence, Danish GDP is approximately 1.8-billion DKK [$270-million] lower than it would have been if the wind sector workforce was employed elsewhere.

Not surprisingly, Denmark, like other early adopters of renewable power, is finding it unsustainable and is backing away from the technology. As Andrew Gilligan reports in *The Telegraph,* the Danish state-owned power industry will no longer build onshore wind turbines, and consumers are complaining about high energy rates and environmental despoliation.

> Earlier this year, a new national anti-wind body, Neighbours of Large Wind Turbines, was created. More than 40 civic groups have become members.
>
> 'People are fed up with having their property devalued and sleep ruined by noise from large wind turbines,' says the association's president, Boye Jensen Odsherred. 'We receive constant calls from civic groups that want to join.'[26]

United Kingdom

Our Commonwealth cousins across the pond have also embraced the green power means green jobs theory. The United Kingdom has pursued an ambitious wind-power agenda.

Then prime minister Gordon Brown told a Labour Party conference in 2008:

> 'I am asking the climate change committee to report by October on the case for, by 2050 not a 60% reduction in our carbon emissions, but an 80% cut—and I want British companies and British workers to seize the opportunity and lead the world in the transformation to a low carbon economy and I believe that we can create in modern green manufacturing and service 1 million new jobs.'[27]

Ed Miliband, currently Leader of the Opposition, is also big on wind power, announcing:

> 'With strong government backing, the UK is consolidating its lead in offshore wind energy.
>
> We already have more offshore wind energy than any other country, we have the biggest wind farm in the world about to start construction, and now we'll see the biggest turbine blades in the world made here in Britain.' …'Our coastline means the offshore wind industry has the potential to employ tens of thousands of workers by 2020.'[28]

Party affiliation does not seem to be a factor in green-job boosting. The current British Prime Minister (and Conservative Party leader), David Cameron, while discussing a deal to work on wind turbines with India, said, "'[I]nnovation and creativity of business won't just help us save the planet, but is expected to create millions of jobs and billions of revenue in the green goods and services market.'"[29]

> ***…for every job created in the UK in renewable energy, 3.7 jobs are lost.***

Referring to offshore wind, Cameron is equally bullish:

> 'I want us to be a world leader in offshore wind energy,' he said, announcing a national infrastructure plan. 'We are making these investments so that major manufacturers will decide that this is the place they want to come and build their offshore wind turbines. This investment is good for jobs and growth, and good for ensuring we have clean energy.'"[30]

Alas, as a recent report by consultancy Verso Economics points out, the United Kingdom and Scotland have fared no better than the other countries discussed above in their pursuit of the new green energy/green jobs economy.[31]

The Verso Economics study is particularly interesting because its methodology is touted as superior to the methodology used in the Spanish and Italian studies. Verso uses what economists call input/output tables to estimate the number of jobs that were foregone in the United Kingdom general economy in favour of the green jobs that were created through governmental subsidization.

Verso's conclusion aligned neatly with those of the Spanish and Italian studies discussed above:

- The report's key finding is that for every job created in the UK in renewable energy, 3.7 jobs are lost. In Scotland there is no net benefit from government support for the sector, and probably a small net loss of jobs. …

- The main policy tool used to promote renewable energy generation is the Renewables Obligation, which effectively raises the market price paid for electricity from renewable sources. This scheme cost electricity consumers £1.1-billion [$1.75-billion] in the UK and around £100-million [$159-million] in Scotland in 2009/10.
- [Verso] uses the Scottish Government's own macroeconomic model for Scotland to assess the impact of identified costs on jobs. The Scottish Government used a similar model to measure the opportunity cost of the cut in VAT [value added tax] implemented in 2008-09. On this basis, policy to promote renewable energy in the UK has an opportunity cost of 10,000 direct jobs in 2009/10 and 1,200 jobs in Scotland. …
- In conclusion, policy to promote the renewable electricity sector in Scotland and the rest of the UK is economically damaging. Governments should not see this as an economic opportunity, therefore, but should focus debate instead on whether these costs, and the damage done to the environment, are worth the candle in terms of climate change mitigation.

While the United Kingdomand Scotland may have avoided the problems of corruption that afflicted Spain and Italy, they learned something that the warmer countries did not, and it is a lesson particularly relevant to Canada and the northern United States: Wind turbines freeze over in winter. Not only do they cease to put out power, they need to be heated. As reporter Richard Littlejohn points out in the United Kingdom's *Daily Mail:*

> Over the past three weeks, with demand for power at record levels because of the freezing weather, there have been days when the contribution of our forests of wind turbines has been precisely nothing. It gets better. As the temperature has plummeted, the turbines have had to be heated to prevent them seizing up. Consequently, they have been consuming more electricity than they generate. Even on a good day they rarely work above a quarter of their theoretical capacity. And in high winds they have to be switched off altogether to prevent damage.[32]

The frozen turbine problem has already been seen in Canada. As Greg Weston of the *Telegraph-Journal* points out in an article from February 2001:

> A $200-million wind farm in northern New Brunswick is frozen solid, cutting off a supply of renewable energy for NB Power. The 25-kilometre stretch of wind turbines, 70 kilometres northwest of Bathurst, has been shut down for several weeks due to heavy ice covering the blades. GDF Suez Energy, the company that owns and operates the site, is working to return the windmills to working order, a spokeswoman says.[33]

The Netherlands

The Netherlands is another country that went big for wind power, particularly offshore wind. The Netherlands is the world's third-largest producer of offshore wind power. While there is no data available about green jobs in the Netherlands, there is evidence that the Netherlands will not be producing many through its green power plans, because their new conservative government has radically reversed course and is slashing subsidies to wind and solar power.

According to the journal *Energy Debate,* the Dutch government has lost its faith in windmills. The new government in the Netherlands has taken exception to the massive subsidies required to build and operate wind farms and, in this case, to the expected export of $6.2-billion in subsidies to a German company (Bard Engineering) that would have built, owned, and operated the wind farms. The new Prime Minister of the Netherlands, Mark Rutte, is reported to have said, "Windmills turn on subsidies."

On November 30, 2010, the government unveiled its new renewables plan, slashing annual subsidies from $5.5-billion to $2-billion. In addition, not only are the subsidies cut back, what remains will be redirected well away from wind power. As *Energy Debate* explains:

> In the new system (somewhat misleadingly called SDE-plus), which will take effect halfway through 2011, the government will allocate subsidies in an entirely different, and rather complicated way. Subsidies are made available in four 'stages' (on the basis of first-come, first-served).
>
> 1) In the first stage, a government subsidy of 9 eurocents per kWh (or 79 eurocents per m3 for gas) is offered, but only to producers of technologies that have 'deficits' of less than 9 eurocents. Based on the figures from ECN, [Energy Research Center of the Netherlands] these are: biogas ('green gas'), hydropower, power from waste processing installations, and gas from fermentation processes.
>
> 2) If there is still money left after this first stage, the second stage will be opened up, in which a subsidy of 11 eurocents per kWh (or 97 eurocents per m3) will be offered. This stage will be open to producers of onshore wind power and fertilizer-based gas.
>
> 3) Again, if there is money left, there will be a third stage with subsidies of 13 eurocents per kWh or 114 cents per m3. This will be open to producers of hydropower and small-scale biomass.
>
> 4) The fourth and last stage (15 eurocents per kWh or 132 eurocents per m3) will be open to electricity produced from all-purpose fermentation processes.
>
> Not included in any of the four categories, because they are too expensive, are solar power, large-scale biomass and, indeed, offshore wind power.

"…their new conservative government has radically reversed course and is slashing subsidies to wind and solar power."

Another change in the Netherlands government's attitude toward renewables is how to pay for the subsidies. In the past, subsidies were paid for out of the general budget. Moving forward, consumers will see a surcharge on their energy bills.

According to reports, the new government was planning on a nuclear power renaissance to generate electricity, and one could certainly argue that such a plan would generate green jobs.[34] However, in the wake of the tragic Japanese earthquake and tsunami in March 2011, one has to assume that such a plan will also come in for a great deal of scrutiny.

The irony here is rich. The Dutch, who have been enamored of wind power for hundreds of years, may have finally had enough tilting at windmills. If even they cannot make it work, one has to wonder if anyone can.

Conclusion

Both economic theory and the experience of European countries that have attempted to build a green energy economy to create green jobs reveal that such thinking is deeply fallacious. Italy, Spain, Germany, the United Kingdom, Denmark and the Netherlands have all tried and failed to accomplish positive outcomes with renewable energy.

Some will suggest that Canada is different and that Canadian planners have the wisdom to make the green economy work. However, there is no getting around the fact that one does not improve one's economy or create jobs by breaking windows, and Canadian planners are no more omniscient than planners who tried the same programs in Europe.

Endnotes

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Further Reading

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