

## Green Energy Act Facts

1. The Green Energy Act (GEA) was passed into law on May 14, 2009 by the Ontario Liberal Government. The Ontario Ministry Energy web site provides the following with regards to its purpose:

- Spark growth in clean and renewable sources of energy such as wind, solar, hydro, biomass and biogas in Ontario.
- Create 50,000 jobs for Ontarians within 3 years of being passed. [1]

Unfortunately, "Although the Ministry consulted with stakeholders in developing the supply-mix directives, the LTEP and the GEA, billions of dollars were committed to renewable energy without fully evaluating the impact, the trade-offs, and alternatives. [2]

### **The backbone of the Green Energy Act is the Feed-in-Tariff (FIT) Program**

2. The FIT program is a policy mechanism designed to accelerate investment in renewable energy technologies **which would otherwise not be economically feasible**. It achieves this by offering long-term contracts and guaranteed rates to renewable energy producers. These contracts average 20 years. The guaranteed rates are typically **based on the cost of generation** of each different technology and not the eventual sale price of the electricity generated. **Some version of the FIT program has been used in every country that has attempted to promote a "Green Economy"** including Spain, Italy, Germany, Denmark, the United Kingdom (UK), the United States and the Netherlands.

3. While relatively new to Canada, the green experiment has been ongoing in Europe for about ten years.

4. There are 19 possible "categories" of renewable energy posted in the Ontario Power Authority FIT "price list". The prices range from 11.1 cents / kWh for Landfill Gas to 71.3 cent / kWh for Rooftop Solar PV. Wind, which is responsible for most of the renewable electricity generated in Ontario, comes in at 13.5 cents / kWh. [3] The FIT Program is presently undergoing its first biennial review and it is widely anticipated that the Liberal government will reduce the price it will pay for renewable energy.

5. The Green Energy Act requires Ontario utilities to buy electricity from the renewable sector at **above-market**, government-set wholesale prices regardless of the actual price for which the electricity can be sold.

6. **All** of the electricity generated by the renewable sector must be purchased by the Ontario utilities, **even if the electricity is not needed in Ontario**.

## Background Information – Ontario's Electricity Grid

1. The province's grid operator — the Independent Electricity System Operator (IESO) - balances the supply of, and demand for, electricity in Ontario and then directs its flow across the province's transmission lines. Ontario's high voltage grid is connected to Manitoba, Quebec, New York, Michigan and Minnesota.

2. **Renewable electricity cannot be stored in large quantities**. Therefore, renewables such as wind and solar have introduced greater volatility into the electricity grid because they are intermittent and unpredictable.

3. It is critically important to the stability of the grid that the electricity generated match the demand for electricity. If the amount of generated electricity is less than the electricity needed, brownouts or blackouts will occur. Clearly, a steady supply of electricity is directly related to our quality of life.

4. Supply and demand sets the wholesale prices in Ontario's electricity market. These prices are updated every five minutes but the **payments (subsidized by the Ontario taxpayer) made to renewable energy providers remain constant and inflated**.

5. **Connecting the renewables to the grid will cost the Ontario Taxpayer hundreds of millions of dollars**. According to a National Post article of 13 August 2011, the Ontario Liberals admit there is no practical

way to connect to the provincial power grid all the solar panels they **encouraged farmers and landowners** to erect. Much of the **tens of millions of dollars they spent subsidizing the building of solar collectors was wasted** — as were the tens of millions that private landowners invested with the promise of energy income.[4]

### **Renewable Energy, the Electricity Grid and Back Up Power Requirements**

1. According to the Independent Electricity System Operator (IESO) the 2011 energy production numbers for Ontario are:

- Hydro 22.2%
- Nuclear 56.9%
- Gas 14.7%
- Coal 2.7%
- Renewables 3.4%.

The renewables sector further breaks down into, Industrial Wind Turbines (IWT) 2.6 % and “other” for .8% (biofuels, solar, wood and “other”).

2. If the justification for spending billions of taxpayer dollars on “green energy” is the reduction of CO<sup>2</sup> emissions, expanding Ontario’s renewables portfolio is redundant. In 2011, 79.1% of Ontario’s electricity came from nuclear and hydro power, which do not generate emissions.

3. The nameplate capacity of an Industrial Wind Turbine is the maximum amount of power the turbine is able to produce. Because wind is intermittent the actual amount of power generated on an annual basis varies from 24% to 35% of the nameplate power. **Industrial Wind Turbines require a “back up” traditional power generator** in order to be able to provide power to the electricity grid when the IWT cannot. Just as the wind does not blow regularly, the sun does not shine every day, therefore these “back up” power requirements also plague the solar power industry.

4. E.ON Netz is the corporation that manages the transmission grid for approximately one third of Germany. Their “Wind Reports 2005” contains the following information:

- **Wind energy is only able to replace traditional power stations to a limited extent.** Their dependence on the prevailing wind conditions means that wind power has a limited load factor even when technically available. It is not possible to guarantee its use for the continual cover of electricity consumption. **Consequently, traditional power stations with capacities equal to 90% of the installed wind power capacity must be permanently online in order to guarantee power supply at all times.** [5]

5. The “back up” power for renewables must be able to ramp up or down (to match the wind or sun) with relative ease. Nuclear does not ramp up or down easily and runs pretty much at full power constantly, providing “base load”, capacity and therefore is the least preferred option. Ramping nuclear units up and down involves significant costs and can lead to equipment damage. If a nuclear unit is shut down, it typically takes 48 to 72 hours to restart it.

6. Hydropower resources ramp up and down more easily and could work as a possible back up. However, **the primary rationale for the hundreds of billions of taxpayer dollars spent on renewable energy worldwide is the perceived need to reduce CO<sup>2</sup> emissions. Electricity generated by hydro plants does not produce CO<sup>2</sup> emissions.** Therefore spending millions of dollars to bring on-line an IWT installation that reduces the grid’s reliance on hydro **does not reduce CO<sup>2</sup> emissions.**

7. No fossil fuel plant is capable of ramping up and down as quickly as the wind ramps up and down. For this reason, all systems operators (such as Ontario’s IESO) maintain a “spinning reserve” of generators that are kept in phase with the grid but not generating electricity at their full capacity. However, **when a fossil fuel generator is run below capacity its emissions go up, similar to a car in busy city traffic, starting and stopping frequently. This results in the CO<sup>2</sup> savings, that are generated by the IWT, being lost as the**

**fossil fuel plant generates more CO<sup>2</sup> in this scenario than it would if it was operating without the need to constantly ramp up and down.**

8. As of December 2011 there is **not a single study based on actual real world data produced from an operating electricity grid showing that wind power actually reduces carbon dioxide emissions.** All of the Wind Industry's claims of CO<sup>2</sup> reductions are based on computer models. That is a truly remarkable, and frankly rather suspicious fact, given that industry has had over a decade to come up with some hard numbers.

### **Coal**

1. In 2003, when the Liberal's came to power, coal fired plants were responsible for approximately 30% of Ontario's energy mix. IESO data indicates that in 2011, coal fired plants were responsible for 2.7% of our energy mix, a drop of 27.3%.

2. The Liberal party continues to insist that renewable energy is required in order to replace coal-fired generators. In the past decade there been approximately a 27.3% reduction in electricity generated from coal. The Liberal party infers that this reduction is directly attributable to renewable energy. However, in 2011 the total contribution of renewable energy to Ontario's energy mix was 3.4%. Clearly the numbers don't match, and just as clearly, despite Liberal claims, renewable energy is NOT replacing coal. Gas, hydro and nuclear generated electricity are replacing coal generated electricity.

### **Ontario's Electricity Exports**

1. In 2006 the Amaranth, Prince Wind, Port Burwell and Kingsbridge Industrial Wind Turbine Projects brought a total of additional 396 MW nameplate capacity into the system.

2. Since 2006 **Ontario has been a net exporter of electricity.**

3. Ontario continues to add new renewable energy supplies which **contribute to a large and ever growing electricity surplus.** According to the 24 Nov 2011 IESO 18 month outlook: [6]

- Ontario's generation resources will continue to grow with the anticipated return of two refurbished Bruce nuclear units, and the addition of approximately 400 megawatts (MW) of gas-fired generation and more than 800 MW of grid-connected renewable generation.
- Surplus baseload generation (SBG) is, and will remain, an ongoing concern for the IESO. To address this concern over the past year, a nuclear unit was taken off line on three separate occasions with nuclear maneuvers required five per cent of the time

Exports have played a significant role in managing Surplus Baseload Generation (SBG) conditions in 2011 as the next exports come in at 9.0 TW hours.

The surplus baseload generation referred to above is a power oversupply that occurs when the quantity of electricity from base-load generators is greater than the demand for electricity. This surplus electricity is then exported, frequently at fire-sale prices.

4. The surplus electricity means that the surplus power is exported out of Province. **Sometimes, Ontario has to pay other jurisdictions to take the surplus off its hands.**

5. A June 9, 2011 Ontario Ministry of Energy press release states, "Since 2006, the electricity market has generated \$1.5 billion through net exports." [7] Unfortunately the net result of the sales of the exported electricity was a loss. The electricity sold for \$1,615 million cost the Ontario taxpayer \$2,535 million in payments to energy producers. The difference is \$920 million.

**That means that since 2006 the Ontario taxpayer has paid over \$900 million to export power out of the Province.** Following is a table that graphically illustrates the numbers. [8]

## **ONTARIO POWER EXPORT LOSSES**

Year	Net exports (TWh)	Net revenues (\$millions)	Net expenses (\$millions)	Profit / loss on net exports (\$millions)
2006	5.2	\$184.59	\$207.54	-\$22.94
2007	5.1	\$189.12	\$207.89	-\$18.77
2008	10.9	\$503.29	\$574.50	-\$71.20
2009	10.3	\$298.03	\$602.73	-\$304.70
2010	8.8	\$301.42	\$555.72	-\$254.30
2011*	5.7	\$153.71	\$386.79	-\$233.08
<b>TOTAL</b>	<b>45.9</b>	<b>\$1,630.18</b>	<b>\$2,535.17</b>	<b>-\$904.99</b>

\* Year to date.  
SOURCE: IESO

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6. The December 2011 Auditor General Report analyzed net exports from 2005 to the end of 2011 and found that in that time **“Ontario received \$1.8 billion less for its electricity exports than what it actually cost electricity ratepayers of Ontario.”** [9]

### **Buried Costs of the Green Energy Act**

“Buried” costs of the Liberal Green Energy Act, funded by the Ontario taxpayer.

- In order to attract investment dollars, the Liberal government is providing direct subsidies to the renewable energy suppliers through various direct and indirect incentive programs.
- The Ontario Liberal Government has spent millions in the advertising, promotion and administration required to make every attempt to convince Ontario taxpayers that the GEA will spark growth in the renewable energy sector and that this “growth” will result in green jobs.
- Court costs that will ensue as the Liberal Green Energy Act is being challenged under NAFTA and by the World Trade Organization for promoting protectionist policy.
- The Ontario government funnels millions of dollars to organizations such as The Ontario Sustainable Energy Association, Environmental Defence, Canadian Association of Physicians for the Environment and the Pembina Foundation. These Ontario taxpayer funded lobbying syndicates then do what they are paid to do, lobby for the renewable energy sector.
- Ontario’s Long-Term Energy Plan of 2010 states that the Liberal Government has earmarked 2 billion dollars to be spent over the next seven years. This 2 billion will update or install transmission lines in order to allow 4,000 MW of renewable energy to connect to the grid.[10]
- The Ontario Auditor General Report states, “Given that demand growth for electricity is expected to remain modest at the same time as more renewable energy is being added to the system, electricity ratepayers may have to pay renewable energy generators under the FIT program between \$150 million and \$225 million a year not to generate electricity. [11]

### **Direct Costs to the Ontario Taxpayer**

1. In April 2010, the Ontario Energy Board completed an analysis predicting that a typical household’s annual electricity bill will increase by about \$570, or 46% from about \$1,250 in 2009 to more than \$1,820 by 2014. More than half of this increase would be because of renewable energy contracts. [12]
2. The IESO confirmed that consumers have to pay twice for intermittent renewable energy – one for the cost of constructing renewable energy generators and again for the cost of constructing backup generation facilities, which usually have to keep running at all times. The IESO confirmed that such backups add to ongoing operational costs, although no cost analysis has been done. [13]

### **“Green” Jobs**

1. There is a growing body of evidence that points to the inescapable fact, “Green Jobs” created through government subsidies and regulations are detrimental to the overall economy. **Many Green jobs merely replace jobs in other sectors.** For example, about 2,300 jobs would be lost if all coal-fired plants were closed.

2. The Ontario Liberal's have revised their initial claim of 50,000 "green jobs" and are now claiming the creation of 20,000 "green jobs" while providing no definition as to what a "green job" actually is. Therefore a green job, could be the trash collector, the clerk working for a corporation that builds IWT, or more logically, the person building solar panels. Until such point as a clear definition exists, the Liberals could just as easily claim the creation to 200,000 or even 2,000,000 "green jobs."

Due to this lack of definition there are no real statistics available for Ontario "green jobs". There are however, a large number of reports from countries that have been striving for a green economy for over a decade.

## Ontario

1. While **it is impossible to accurately quantify the creation of new green jobs without a clear definition**, it is possible to calculate (based upon known taxpayer subsidies) the costs associated with the creation of "green jobs". In a report published 31 May 2011 the C. D. Howe Institute stated:

**Each new job that the Ontario government projects the program will create will cost Ontario residents about \$179,000 in subsidies. [14]**

2. The Auditor General Report states, "The GEA was expected to support over 50,000 jobs, about 40,000 of which would be related to renewable energy. However, about 30,000, or 75% of these jobs were expected to be construction jobs lasting only from one to three years. We also noted that studies in other jurisdictions have shown that for each job created through renewable energy programs, about two to four jobs are often lost in other sectors of the economy because of higher electricity prices." [15]

3. On November 23, 2010 Mr. Whittaker, Vice President Policy, Canadian Wind Energy Association (CANWEA), testified before the Senate Standing Committee on Energy, the Environment and Natural Resources. Mr. Whittaker stated that, at that time, **just over 7,000 people worked in the wind industry in Canada.** [16] As the wind industry is responsible for the majority of the renewable sector, how can the Ontario government make claims of 20,000 to 50,000 jobs being created in Ontario alone?

## Spain

Spain has long been a leader in the push to renewable power. In March 2009, a study examining the economic and employment effects of Spain's stance on renewables was released. [17]

- Since 2000, Spain spent 571,138 euros on each green job, **including subsidies of more than 1 million euros per job in the wind industry.**
- The programs creating those jobs destroyed nearly 110,500 jobs elsewhere in the economy. This means that **green programs in Spain destroyed 2.2 jobs for every green job created**
- **These costs do not reflect Spain's particular approach but rather the nature of schemes to promote renewable energy sources.**

Furthermore, Spain found the costs associated with their renewable energy program to be unsustainable. As analyst Andrew McKillop details in the *Energy Tribune* (4 June 2010):

- In Spain, subsidies to the country's massive IWTs and their dependent industries is estimated to have cost as much as **12 billion Euros in 2009**, either directly or through "feed-in tariff" subsidy.
- 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.** [18]

## Italy

Italy, also a leader in wind power, has fared no better. A May 2010 study out of the Bruno Leoni Institute found:

- Based exclusively on Government subsidies, the same amount of capital that creates **one job in the "green" sector, would create 6.9 or 4.8 jobs if invested in the "non-green" sector.** [19]

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

- 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." [20]

## Germany

The implementation of wind and solar power did not result in the promised economic benefits (lower-cost energy and the creation of green-energy jobs). In fact, the implementation of wind and solar power served to **raise household energy rates by 7.5 percent**.

A 2009 Study out of the prestigious Rheinisch-Westfälisches Institut für Wirtschaft Sforschung concluded that Germany's support of renewable technologies has resulted in **high costs without any of the alleged positive impacts on emissions reductions, employment, energy security, or technological innovation**. [21]  
In May 2011, the **German parliament cut back the tariff** for domestic rooftop solar photovoltaic systems by 16 percent, and free-standing systems were cut by 15 percent. [22]

## Notes

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