

Auditor General's Report December 5, 2011 p. 87 - 120

http://www.auditor.on.ca/en/reports_en/en11/303en11.pdf

Selected excerpts

The government's renewable energy initiatives have been successful in rapidly increasing the amount of renewable power available over the next few years. At the same time, however, wind and solar renewable power will add significant additional costs to ratepayers' electricity bills. Renewable energy sources such as wind and solar are also not as reliable and require backup from alternative energy-supply methods such as gas-fired generation. P.89

Recent public announcements stated that the *Green Energy and Green Economy Act, 2009* 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. P.91

According to the study used by the Ministry and the OPA, 10,000 MW of electricity from wind would require an additional 47% of non-wind power, typically produced by natural-gas-fired generation plants, to ensure continuous supply. P.91

the OEB 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. P.95

Although the Ministry consulted with stakeholders in developing the supply-mix directives, the LTEP, and the *Green Energy and Green Economy Act*, billions of dollars were committed to renewable energy without fully evaluating the impact, the trade-offs, and the alternatives through a comprehensive business-case analysis. Specifically, the OPA, the OEB, and the IESO acknowledged that:

- no independent, objective, expert investigation had been done to examine the potential effects of renewable-energy policies on prices, job creation, and greenhouse gas emissions; and

- no thorough and professional cost/benefit analysis had been conducted to identify potentially cleaner, more economically productive, and cost-effective alternatives to renewable energy, such as energy imports and increased conservation. P. 97

According to the OPA, renewable energy sources are not always available during peak demand periods due to their intermittency and low effective capacity. P. 98

Prices for renewable energy, especially under the FIT program, have been between two and 10 times higher than those of conventional energy sources, such as nuclear, natural gas, and coal. P. 102

The power-generating capacity of current wind and solar technology is much lower than other energy sources, as illustrated in Figure 10. Wind generators operate at 28% capacity factor but have only 11% availability at peak demand due to lower wind output in the summer. P. 111

In 2010, 86% of wind power was produced on days when Ontario was already in a net export position. P. 112

The price Ontarians pay for electricity and the price Ontario charges its export customers—which are determined by the interaction of supply and demand in the electricity market—have in recent years been moving in opposite directions. Although export customers paid only about 3¢/kWh to 4¢/kWh for Ontario power, electricity ratepayers of Ontario paid more than 8¢/kWh for this power to be generated, as illustrated in Figure 11. P. 112

The IESO confirmed that consumers have to pay twice for intermittent renewable energy—once 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 to be able to quickly ramp up in cases of sudden declines in sunlight levels or in wind speed. P. 113

Our review of experiences in other jurisdictions showed that the original estimated reduction in greenhouse gases had not been reduced to take into account the continuing need to run fossil-fuel backup power-generating facilities.

A 2008 study in the United Kingdom found that power swings from intermittent wind generation need to be compensated for by natural-gas generation, which has meant less of a reduction in greenhouse gases than originally expected.

- A 2009 study in Denmark noted that although the country is the world's biggest user of wind energy, it has had to keep its coal-fired plants running to maintain system stability.
- The German government also had to build new coal-fired plants and refurbish old ones to cover electricity requirements that could not be met through intermittent wind generation. P.119