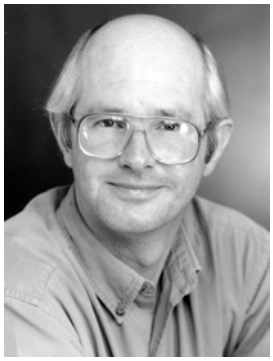
North America's First Electricity Feed Law: Standard Offer Contracts in Ontario, Canada



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On 21 March, 2006, the Premier of Ontario, Dalton McGuinty, announced the implementation of North America's first electricity feed law. The tariffs for wind, biomass, small hydro, and solar energy announced by Premier McGuinty were the highest in North America. The Ontario program has been called the most progressive renewable energy policy in North America in two decades.[3]

The announcement by the Premier and by the Minister of Energy Donna Cansfield culminated a two-year campaign by the Ontario Sustainable Energy Association to adapt Advanced Renewable Tariffs, or European feed laws, to the North American context.

Ontario is a bellwether for Canadian policy development on many issues. The province's experience with Advanced Renewable Tariffs, or what the provincial government calls Standard Offer Contracts, could portend policy changes elsewhere in Canada and possibly elsewhere in North America. The Ontario program is both the result of fortuitous circumstances and a bottom-up approach to policy development. There are early indications that as much as 2,400 MW of wind capacity may be awaiting contracts under the program.

Background

Ontario is Canada's most populous province. Nearly one-third of Canada's population lives in Ontario. The province, notably the "Golden Horseshoe," is also the industrial heartland of Canada. For example, Ontario builds more cars than Detroit, Michigan and employs 40,000 in the auto industry alone.

In the fall of 2003 a new provincial government came to power with a mandate to close, on public health grounds, Ontario's coal-fired power plants, the source for nearly 20% of the province's electricity.[4] The new government also had to confront the poor performance of provincially-owned nuclear plants. In response, the government committed Ontario to provide 10% of its electrical capacity from new sources of renewable energy by 2010.

Subsequently, the Ontario government launched a series of Requests for Proposals (RFPs). The tendering program was chosen without consideration of other competing policy mechanisms.

The Ontario Sustainable Energy Association (OSEA), a non-governmental organization, envisions replicating Danish and German success with community-owned renewable energy development. However, under Ontario's tendering system there was no way for community groups, farmers, and First Nations (the province's indigenous population) to participate.

Abb. 1: Ontario Premier Dalton McGuinty

OSEA's ARTs Campaign

To enable community participation in Ontario's renewable energy development, OSEA needed to promote not only the continental European concept of cooperative renewable ownership, but also the

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3 California's Standard Offer Contracts in the early 1980s resulted in more than 1,300 MW of wind capacity alone by 1987. No new contracts were awarded after 1985.
4 It is interesting to note the parallels with Germany's commitment to close its nuclear plants.

policy mechanism that made this possible: renewable tariffs. Consequently, OSEA launched a campaign for Advanced Renewable Tariffs in early 2004.

OSEA joined with the Ontario Federation of Agriculture (OFA), the province's principal farm group, and later a smaller farm organization, the National Farmers Union (NFU) in holding a series of workshops across southern Ontario on the merits of community-owned renewables. The workshops explained to farmers and OSEA supporters that they were being excluded from renewables development. Only those with the institutional power to bid into the RFPs would be permitted development rights. The message was simple: government policy must be changed and this requires political action. This message particularly resonated with Ontario farmers who wanted to use renewable energy as a new source of on-farm revenue. Consequently, farmers, with OSEA's guidance, began a letter-writing campaign urging government adoption of Renewable Tariffs. Soon farmers were lobbying their provincial parliamentarians without OSEA's direct involvement.

For its part, OSEA published a series of op-eds in the country's major newspapers and formed alliances with a myriad of other NGOs, both provincially and across Canada. One op-ed in the Toronto Star, resulted in OSEA's first direct contact with senior staff in the Premier's office.[5]

As part of its campaign, OSEA organized a one-day seminar on Advanced Renewable Tariffs in October. The future Minister of Energy, Donna Cansfield, attended as did a number of senior Ontario politicians and functionaries. Speakers were selected to emphasize the success of European feed laws and their adaptability to North America and included presentations by Hermann Scheer, MdB, one of the architects of Germany's EEG[6]; the economists Frede Hvelplund, Aalborg Universitet, and Olav Hohmeyer, Universität Flensburg; the David Susuki Foundation; and Prince Edward Island's Minister of Energy, Jamie Ballem.

In November 2004, Ontario's ruling Liberal party held a conference on policy proposals.[7] At the conference, the party formally endorsed Advanced Renewable Tariffs, in those specific terms, citing OSEA's talking points. This was the first endorsement of electricity feed laws by a major North American political party.

Standard Offer Contracts

In December, the Ministry of Energy hired OSEA to develop specific policy recommendations for what it termed "Standard Offer Contracts". The subtle change in terminology from Advanced Renewable Tariffs was overlooked by OSEA, to its later regret.

OSEA quickly scheduled a two-day pricing workshop with stakeholders. The workshop was led by ADEME's Bernard Chabot, who was involved in the design of the 2001 French wind tariffs. In early 2005, OSEA's program was being mentioned on the floor of the provincial assembly; by spring, OSEA's report was formally released.[8]

OSEA's report called for a "pilot program" lasting five years, with a program review in the second year. OSEA chose not to directly challenge the traditional method of awarding contracts, the tendering process, but instead to seek an "alternative" suitable for farmers, local landowners, First Nations, and cooperatives that were effectively excluded from the provincial tenders. In the Ontario political context, this was viewed as more "palatable" than switching all new renewable development to a policy mechanism that hadn't been used in North America in two decades.

Further, OSEA chose to limit project size to 10 MW connected at distribution voltages. This was done in part because OSEA's members were interested in smaller projects, and in part because it would maximize the benefits of distributed generation to Ontario's electrical network. The specific amount of 10 MW was chosen because of a regulatory decision that projects greater than 10 MW required more detailed interconnection studies than projects of less than 10 MW.

It was also felt that OSEA's proposal might be less intimidating if it were seen as "small" and "insignificant" to policy makers wed to big, centralized solutions to energy problems. Thus, any "above-market" costs associated with the program might be more acceptable if the program were limited in scale.

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5 In American usage "opposite editorial page" or opinion not necessarily that of the newspaper itself. The newspapers of record in English-speaking Canada are the Toronto Star and the Globe & Mail.

6 Erneurebare Energien Gesetz or Renewable Energy Sources Act.

7 In Canadian politics, the Liberal Party is akin to the Labour Party in Britain, the New Democrats are social democrats much like the SPD in Germany, and the Conservatives resemble Germany's CDU or Britain's tories. The Green Party holds no provincial or federal office.

8 Powering Ontario Communities: Proposed Policy for Projects up to 10 MW, Ontario Sustainable Energy Association, for the Ontario Ministry of Energy, May, 2005, http://www.wind-works.org/FeedLaws/Canada/PoweringOntarioCommunities.pdf, visited July 10, 2006.

Despite strong ministerial support, implementation of OSEA's recommendations was hindered for months by the creation of a new contracting and electricity supply forecasting agency, the Ontario Power Authority (OPA). It was some time before the OPA could turn its attention to what for North America was a novel policy concept. In the fall of 2005, OSEA held another workshop with Chabot on the pricing model at the request of the OPA.

In November 2005, OPA released a highly contentious consultant's report on the elements of a Standard Offer program. The consultant, Navigant, elaborated on key questions that the OPA needed to answer before instituting such a program. Following a series of quickly scheduled public hearings, OPA issued a confidential report to the Minister of Energy on the program.

The OPA report to the Minister of Energy dismissed OSEA's pricing model, substituted its own with a much lower initial price, eliminated solar PV entirely, and introduced new elements (peak period pricing for hydro and biomass) not considered during the development of the OSEA program. Significantly, it proposed the same price for all technologies, except for solar PV which it suggested needed an RFP for so-called "price discovery".

OPA, in effect, abandoned the principles of Advanced Renewable Tariffs, and instead proposed traditional Standard Offer Contracts like those used previously in California during the early 1980s.

In retrospect, OSEA erred in adopting the language of its client, the Ministry of Energy. Use of the term "Standard Offer Contracts" conveyed two messages unintended by OSEA: that the contracts may include more than renewable energy, and that the contracts would be "standardized" across the differing technologies.

Initially, OPA wanted to include gas-fired cogeneration in the program. This was never OSEA's intent. Further, the literal interpretation of the term "standard" implied that all technologies would be treated identically. It was always OSEA's intent that each technology would be treated as unique and that prices and program elements would be determined by the nature of the technology. As an illustration of the conceptual differences, one Ministry staffer exclaimed in frustration that "this is the most non-standard, standard offer contract he'd ever seen." Indeed, responded OSEA, the program was never intended to standardize the treatment of each technology.

Considering their opposition to OSEA's pricing model, OPA's report surprisingly concluded that there were sufficient safeguards with a two-year policy review that the program should not be temporary, but permanent.

OPA's position created a policy dilemma for the then new Minister of Energy, a strong proponent of the OSEA model. Since OPA had been created as an arms-length agency, what authority did the Minister of Energy have in giving it direction, specifically, higher prices than those proposed by OPA? After a series of high-level meetings, an agreement was reached between OPA and the Ministry of Energy. OPA's final report was released shortly after Premier McGuinty's announcement on March 21, 2006.[9]

Barriers to ARTs in North America

The barriers encountered to Ontario's adoption of Renewable Tariffs are not unique and can be expected elsewhere in North America. These can be summarized as a

- New or "foreign" concept, a
- "Non-market" mechanism, an
- "Above-market" price, and an
- Absence of Quotas or targets.

Each of these misconceptions was addressed by OSEA in an aggressive educational outreach to farmers, NGOs, government agencies, various stakeholders, and the business community.

Though Renewable Tariffs, or feed laws, are new to anglophone countries, OSEA explained that they have been used successfully in continental Europe, notably Denmark, Germany, Spain, and now France. Renewable Tariffs were also shown to be a more effective "market mechanism" than traditional policy choices.

Some commercial wind developers were opposed to the policy on ideological grounds. Not surprisingly their opposition withered when they were not awarded contracts under the province's RFPs. Eventually the Canadian Wind Energy Association, the trade group representing the country's commercial wind developers, joined OSEA's campaign.

One of the most politically conservative elements of Ontario society, farmers, were quick to see the merit in Renewable Tariffs. Farmers became one of the driving forces behind Renewable Tariffs.

Where used, Renewable Tariffs do not necessarily result in excessive costs or even in above-market costs, as demonstrated in Europe.

One of the more intriguing barriers is the difficulty encountered when proponents try to explain why a policy mechanism is important or worth consideration when there are no Quotas or targets attached to it. Politicians and bureaucrats are accustomed in thinking linearly: Problem X requires so much gener-

OSEA Proposed Renewable Standard Offer Prices					
		Yield	Specific Price*	1.429	Avg. Equivalent Price (Teq)**
	Years	kWh/m^2/yr	$CAD/kWh	€/kWh	$CAD/kWh
Wind**					
All	1-5		0.133	0.093	0.133
Base Wind	6-20	650	0.133	0.093	0.133
Medium Wind	6-20	900	0.097	0.068	0.105
High Wind	6-20	1100	0.069	0.048	0.091
Photovoltaics					
Commercial Loans	1-20		0.83	0.581	0.83
With Soft Loans	1-20		0.67	0.469	0.67
Small Hydro	1-20		0.133	0.093	0.133
Biomass	1-20		0.133	0.093	0.133

*15% adjusted for inflation.
**For reference only.
***Linear interpolation between Low, Medium, & High Wind.

Tab. 1: OSEA Proposed Renewable Standard Offer Prices

[9] Joint Report to the Minister of Energy: Recommendations on a Standard Offer Program for Small Generators Connected to a Distribution System, Ontario Power Authority and the Ontario Energy Board, March 17, 2006, http://www.powerauthority.on.ca/Storage/21/1686_SOP_Report_to_Minister_-_Final.pdf, visited July 10, 2006.

ating capacity, therefore issue an RFP for X, and then build X. However, using a Renewable Tariff mechanism approaches the problem differently: Problem X requires so much generating capacity; therefore, what is the price that will stimulate the rate of development desired? Targets, of course, can be attached to any program to gauge progress. But the targets must be large enough that they don't cause hoarding or a rush to contracts, or must reflect the minimum desired, and not be limited to a maximum amount.

In retrospect, one issue which should not have come as a surprise was the amount of continual education required of political leaders and especially policy analysts responsible for energy policy.

OSEA practiced a policy of full transparency. OSEA's program and all supporting documents were available on its web site. Despite this or perhaps because of the overwhelming amount of material OSEA had amassed on feed laws, many Ontario policy analysts remained ill informed. Questions about fundamental aspects of OSEA's program and its reasoning were raised again and again as new individuals came into the policy-making mix. Many of those responsible for energy policy in Ontario knew little about renewable energy, thought they knew more than they did, or were not convinced of the merits of renewable energy.

Ontario's SOC Tariffs

OSEA's original tariffs proposed for wind, solar photovoltaics, small hydro, and biomass were designed in cooperation with Bernard Chabot of France's ADEME using the Profitability Index Method (PIM). The tariffs were differentiated by technology and in the case of wind by annual specific yields in terms of kWh/m²/year. Because of a paucity of data on the costs of small hydro and on-farm biomass in Ontario, initial tariffs were used as "placeholders" until more data became available, see Table 1.

OSEA chose to pattern Ontario's wind tariffs after those in France and not Germany. Germany's Reference Yield method requires a sophisticated market not present in Ontario.

As in both the German and French program, all wind projects under OSEA's proposed system would have received the same tariff for the first five years. In the German Reference Yield model, payment of the premium tariff is extended beyond the first five years based on the project's performance relative to a reference turbine. In the French system, tariffs are adjusted in year six based on the productivity of the project and this tariff is paid for years 6 through 15.

OPA Standard Offer Contract Tariffs March 21, 2006			
		Specific Price*	1.429
	Years	$CAD/kWh	€/kWh
Wind	1-20	0.011	0.077
Photovoltaics	1-20	0.42	0.294
Small Hydro	1-20	0.110	0.077
On Peak Bonus		0.035	0.025
Biomass	1-20	0.110	0.077
On Peak Bonus		0.035	0.025

*20% adjusted for inflation, excluding PV. No inflation adjustment for PV.
http://www.powerauthority.on.ca/Storage/21/1686_SOP_Report_to_Minister_-_Final.pdf

Tab. 2: OPA Standard Offer Contract Tariffs March 21, 2006

The French system used until mid 2006 based tariffs in years 6 through 15 on full-load hours.[10] The use of full-load hours can lead to gaming of capacity, a long-running problem in the wind industry. In 2002, Chabot and colleagues proposed a revised system that relied on specific yield.[11] This minimizes gaming of rated capacity. This proposal was used for Ontario. In the pricing workshop, OSEA and stakeholders learned and applied the profitability index method for calculating the tariffs needed with the then current costs of installed wind, solar, hydro, and biomass projects. At the time (winter 2004), OSEA estimated installed wind costs of $675 CAD/m² of swept area. Since then costs have risen dramatically.

Participants also made reference calculations with estimated performance under Ontario conditions. For example, Ontario's wind resource resembles that in Germany where some windy sites along the shorelines of the Great Lakes may have maximum yields of 1,100 kWh/m²/year, some sites within a few kilometers of the shoreline where yields of 900 kWh/m²/year could be expected, and many interior sites where yields less than 650 kWh/m²/year are found.[12]

Cost and Value

As in continental Europe, OSEA's tariffs were determined from the cost of developing the resource plus a reasonable or "prudent" profit. The determination of tariffs from cost and a regulated rate of return was the norm in North America from the 1920s until the 1990s. However, neo-liberal induced deregulation attempted to sweep aside the cost-based determination of tariffs substituting tariffs theoretically determined by the value of the generation to an unregulated market.

OSEA's use of the European approach to determining the tariffs needed for profitability were in direct conflict with North America's prevailing economic orthodoxy. This tension between tariffs determined by cost and tariffs determined by value continues in Ontario. OPA's final report attempts to justify renewable tariffs on their "value" to Ontario consumers, though in fact, the tariffs were set politically, see Table 2. For example, solar photovoltaics were included in the program over the opposition of the OPA. The tariff for photovoltaics were effectively determined by halving OSEA's request.[13]

SOC Program Details

Ontario's Standard Offer Program, if implemented as envisioned by OSEA, includes many of the characteristic elements of European feed laws. Contracts are open to all parties and for a sufficient time to produce a profit. And tariffs are differentiated by technology. As in the French feed law, Ontario tariffs for wind, hydro, and biomass are adjusted for inflation but less so than the 60% in France. As in the initial French program but unlike that in Germany, contracts under Ontario's Standard Offer Program are limited to 10 MW. However, as in Germany, there is no limit on the program's total size.

[10] New renewable tariffs in France will be announced in July, 2006. Full provisions of the program will not be known until the announcement.
[11] Defining advanced wind energy tariffs systems to specific locations and applications: lessons from the French tariff system and some examples, B. Chabot, P. Kellet, B. Saulnier, http://www.wind-works.org/FeedLaws/France/ADEME%20advanced%20wind%20energy%20tariffs%20Chabot.doc, visited July 10, 2006.
[12] The WindShare turbine on the Toronto waterfront, a 750 kW, 52 m Lagerwey, delivers on average 475 kWh/m2/year.
[13] Setting the Price For PV for the Advanced Renewable Tariffs Program In Ontario, Rob McMonagle, Canadian Solar Industries Association, January 13, 2006. http://www.cansia.ca/downloads/report2005/C17.pdf, visited July 10, 200.

Summarized below are the program's key elements.

- Inflation Adjustment: 20% excluding Solar PV
- Term of Contracts: 20 years
- Project Size Limit: 10 MW
- Contracts are Open to All
- Simplified Interconnection
- No Cap or Limit on the Program's Size
- Existing Systems from January 1, 2000 Included
- Contracts Available Fall 2006
- Program Review Every Two Years

Conclusion

Development of Ontario's Standard Offer program, from the beginning of OSEA's campaign to the projected awarding of contracts by OPA, will have taken nearly three years. OSEA expects that it will take another two years before any appreciable generating capacity is installed under the program. Nevertheless, there is significant pent up demand for contracts.

Since Ontario's announcement of its Standard Offer Program there have been 240 applications for grid connection of small wind projects. At the maximum permitted under the program, there is 2,400 MW of potential wind projects applying for contracts and moving through the permitting system. This is considerably more than the 1,300 MW that Ontario has contracted for wind energy through it's tendering system. The Canadian Solar Industries Association's Rob McMonagle reports that there are 500 kW of PV systems awaiting contracts since the province announced its Standard Offer Program March 21. McMonagle notes that the capacity is evenly split between commercial and residential applications and comprises 100-200 systems. The amount of new capacity booked is twenty times the average installation rate in the province and five times the total Canada-wide installation rate.

If these projects are eventually installed under Ontario's Standard Offer Program, this will be the first major demonstration in North America of how European feed laws can rapidly deliver significant amounts of renewable generating capacity.