

Generating Investment in Ontario

Final Report of the Renewable Energy Task Team



Presented to:

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Cover photos

Huron Wind: 9 MW wind park near Tiverton, Ontario (photo courtesy of Don Matheson)

Great Lakes Power Limited: new 45 MW waterpower station – Michipocoten River near Wawa, Ontario

Sky Generation: 1.8 MW wind turbine – near Ferndale, Ontario

Executive Summary

In September 2002, the Ontario Waterpower Association (OWA) reported to the provincial government the tangible positive impacts of public policy in support of new renewable energy. Specifically, since the promulgation of Bill 140 in January 2001, more than \$200 million in new and planned investment in Ontario's waterpower industry has been documented (see Appendix 1). In cooperation with representatives of the province's emerging wind industry a joint effort was launched to build on this positive progress and encourage continued leadership in renewable energy policy.

Concurrently, the government was preparing to respond to the recommendations of the Select Committee on Alternative Fuels, to which both the waterpower and wind power industries had provided detailed deputations. On October 1st, Energy Minister John Baird announced that "By the end of the 2002 calendar year, this government will come forward with a progress report on alternative fuel initiatives. I've asked my parliamentary assistant, MPP Steve Gilchrist, to consult with experts, consumer and environmental groups and market participants in the electricity, gas and fuel sectors, with a view to making recommendations for a renewable portfolio standard for Ontario."

In recognition of the considerable analysis previously undertaken through Task Force processes between government and the waterpower and wind power industries, Mr. David Boileau was appointed to co-chair a "Renewable Energy Task Team", charged with bringing forward advice on actions to implement the recommendations of the Select Committee specific to waterpower and wind power. Together with Mr. Boileau, representatives of the OWA (Paul Norris, President) and CanWEA (Glen Estill, President) undertook to prioritize the almost thirty (30) recommendations related to renewable electricity from the Select Committee Report and developed and refined a draft report through consultation with key stakeholders and government ministries.

Input and advice in preparing this report was solicited from:

Association of Major Power Consumers of Ontario
Canadian Wind Energy Association
Independent Power Producers' Society on Ontario
Ministry of Energy
Ministry of Finance
Ministry of Municipal Affairs and Housing
Ministry of Natural Resources
Ontario Power Generation
Ontario Waterpower Association
Pollution Probe

Based on the results of these discussions, the Task Team is providing advice in four key areas:

- Confirming leadership in government,
- Valuing new renewable energy,
- Accessing transmission, and
- Implementing a proactive taxation regime.

It is important to note that this report and recommendations constitute the advice of the authors and, while they have been improved and shaped based on the consultation undertaken, they should not be construed as having received the formal approval of those consulted. However, it is noteworthy that the initial four areas of policy prioritized by the Task Team have remained the focus of the recommendations.

Further, it is the view of the authors that the four themes constitute the “pillars” of a successful renewable energy strategy for Ontario and that inaction in any of the areas will frustrate the achievement of the overall objective. As such, the recommendations must be considered collectively as well as individually.

Confirming leadership in government

As a basis for all the recommendations, the Task Team has established a new “Renewable Supply Objective” of 1% (1500 GWh) of current provincial load to be added in each year commencing in 2003 and progressing until 2010. This 1500 GWh is the approximate annual energy that would be delivered by 375 MW of wind power and waterpower generation.

The delivery of 1500 GWh (375 MW) of new renewables can be expected to result in approximately \$3.5 million annually in new resource royalties to the Crown and represents an annual average capital investment in Ontario of between \$675 and \$750 million.

Critical to the successful implementation of the Renewable Supply Objective is the establishment of renewable energy as “core business” for line ministries involved in new developments or re-developments. The Task Team recommends that implementation direction be the responsibility of a Renewable Energy Secretariat, under the auspices of the Alternative Energy Commission and funded at a level consistent with the annual royalties created from new renewables.

Valuing new renewable energy

The announcement of government’s intent to cap electricity prices for residential and small business consumers at 4.3 cents per kWh poses a significant challenge for all new generation. While 4.3 cents may represent the aggregate cost of existing generation, it is well known in both industry and government that energy from new capacity will cost more. Absolutely critical to attracting new generation are long-term commitments in the form of secure Energy and Attribute Purchase Agreements and/or a stable market climate. Quite simply, in the absence of such security, investment in any new generation by the private sector is highly unlikely.

To remain consistent with the objectives of a “Renewables Portfolio Standard”, the Task Team is proposing that the gap between new and existing generation be bridged through the establishment of a provincial target for new renewables administered by the Crown on behalf of the province. In essence, it is recommended that the province establish mechanisms to contract for the energy, the capacity and environmental attributes of new renewable generation through an expedited competitive process.

Accessing transmission

The team has identified access to and cost of transmission as a major potential impediment to meeting new renewable objectives. No broad-scale planning for new transmission is being undertaken. The existing generator-pay approach to new transmission is a barrier to new generation (increasing the overall cost of electricity). Blocking is also a problem. Applicants for connection are not required to bring a project forward in a timely fashion with any degree of rigor.

The report recommends the strategic investment of a portion of new transmission revenues as one means to assist in the capitalization of transmission upgrades for “ready-to-develop” renewable resources. These revenues are premised on new load growth and the satisfaction of the renewable supply objective.

Implementing a proactive tax regime

The Task Team has reviewed the cost/benefits of the tax measures announced November 12th and included in Bill 210. This analysis suggests that the measures will yield some positive benefits to waterpower and wind power projects, but that the incentives will not result in significant new development. The team recommends that the provisions be carried forward, with some adjustment, and that the province take the opportunity to challenge the federal government to adopt additional positive taxation and incentive provisions.

Summary

It is important to acknowledge that the government’s announcements during the week of November 11th created some challenges with respect to developing implementation details for some recommendations. The expected implementation of Bill 210 clarified some of these issues (e.g. taxation), and helped to refocus others. However, the renewable priorities have not been fundamentally changed as a result of the recent policy shifts – if anything, the need for their expeditious implementation has become more acute.

Additionally, it is necessary to recognize that while these recommendations have been developed by representatives of the waterpower and wind power industries, they are not intended to prejudice other renewable energy sources – in fact, the vast majority are, by design, inclusive. Many of the principles are applicable beyond the renewables sector, (e.g. security for private sector investment).

Finally, it is imperative that the recommendations herein not compromise existing programs related to renewable energy and sustainable development. Specifically, the investment in the “New Business Relationship” (NBR) between the waterpower industry and government, led by the Ministry of Natural Resources, has ongoing requirements well beyond the scope of this report. The waterpower industry supports continued government investment in the NBR to ensure that the Ministry maintains the capacity to deliver its responsibilities.

Summary of Recommendations

Confirming leadership in Government

1. It is recommended that the province establish a Provincial Renewable Supply Objective of adding 1% of the existing provincial load from new renewables in each year between 2003 and 2010.
2. It is recommended that the province establish and resource a Renewable Energy Development Secretariat under the auspices of the Alternative Energy Commission specifically tasked with facilitating the achievement of the renewable supply objective.

Valuing new renewable energy

3. It is recommended that an initial Renewables Portfolio Standard target (1500 GWh/year) be met through a commitment for long-term contracts. These contracts could designate a specific value for energy and a negotiated value for capacity and environmental attributes. Such commitment could be achieved through direct procurement and/or an OEFC requirement.
4. It is recommended that long-term (e.g. 15 - 25 years) contracts be the instrument for ensuring timely investment in new renewable energy capacity.
5. It is recommended that the initial contractual commitments commence in 2003 and that contracts be issued until the price freeze removal.
6. It is recommended that government structure the contracts through a fast-track competitive process, ensuring that the most economic projects proceed first. This process might best be managed by the proposed "Secretariat".
7. It is recommended that the provincial government be permitted to retire or transfer environmental attributes for retirement (Renewable Energy Credits), to meet Climate Change, Emissions Reduction/Offset or other objectives.
8. It is recommended that all renewable generators (including OPG) be permitted to bring forward new renewable energy and capacity project proposals to fulfill the objectives of the program, within the framework of promoting competition.
9. It is recommended that after the removal of the price freeze, the RPS targets be extended to the market, such that the sum of renewable energy requirements in year 4 would equal 4% for the province and continue to accelerate to 8% by 2010.
10. It is recommended that all new renewable energy commissioned since the promulgation of Bill 140 be counted towards the achievement of the renewable supply objective.

11. It is recommended that the achievement of renewable energy objectives be aligned with existing related initiatives such as Superbuild (infrastructure), Smartgrowth (economic development) and/or Climate Change (emissions reduction).

Accessing transmission

12. It is recommended that where upgrades are required in the Hydro One Networks system, Hydro One Networks be required to pay up to \$60,000/MW towards upgrades that will accommodate the new renewable generation.
13. It is recommended that where upgrades are required in the LDC system, LDC's be required to pay up to \$60,000/MW to upgrade their distribution systems to accommodate the new renewables.
- In certain cases this requirement may cause an excess burden on a LDC. To address this, provisions for a one year deferral of costs should be considered. The Task Team also recommends that Superbuild designate a fund, available to the LDC, to offset some of the costs of upgrades attributable to renewable supply connection. The size of the qualifying terms and conditions could be established through discussions between Superbuild and the Renewable Energy Development Secretariat.
14. It is recommended that where upgrades are required, the renewable energy generator will pay all upgrade costs in excess of \$60,000/MW
- In addition to this charge, in order to discourage abuse by generators, the generator will be required to pay a flat "connection study" cost of up to \$5,000/project to connect to distribution systems.
 - As well, the generator will pay a "connection study" cost of up to \$20,000 for connections that impact Hydro One Networks. These charges respectively, are the current minimum charges applied by Hydro One for distribution connection and the IMO for transmission connection.

Implementing a proactive taxation regime

15. It is recommended that the Ontario government provide a capital tax exemption for projects that generate new electricity from renewable energy sources. The eligibility period should be from November 2002 to November 2012.
16. It is recommended that the Ontario government adopt a full Ontario Retail Sales Tax rebate for renewables. The eligibility period should be November 2002 to November 2012.
17. It is recommended that the Ontario government adopt a fixed rate of assessment for wind at \$ 40,000 per installed MW. This fixed rate would encompass all wind energy related improvements to the assessed property, including maintenance and operations buildings, roads, transmission lines and substations.
18. It is recommended that the resulting property tax be paid to the municipality where the project is located and that for a period of 10 years the province rebate, to the property taxpayer, the full amount of the property tax attributable to the wind park assessment.
19. It is recommended that new renewables using Crown land be extended the same royalty holiday provisions as those that exist for waterpower.
20. It is recommended that the Province consider (through the Alternative Energy Commission) challenging the federal government to take the following additional action:
 - provide an exemption for the federal capital tax of 0.225%
 - expand the qualification for Class 43.1 by eliminating, or increasing, the 50 MW cap on waterpower
 - adopt a refundable tax credit for renewables
 - expand funding for the Wind Power Production Incentive (WPPI)
 - raise the WPPI payment and increase the national program target from 1000 MW to 4000 MW
 - introduce similar incentive programs (with new funding) for other renewables.
 - address renewable energy-related recommendations in the Canadian Electricity Association 2003 federal budget submission

Policy Paper #1

Leadership in Government – An Alternative Energy Commission and Renewable Energy Development Secretariat

Background:

In November 1998, after the completion of supporting background analysis and joint investment in pilot studies, representatives of Ontario's waterpower industry and the provincial government, led by the Ministry of Natural Resources created a Task Force to assess the governance and policy implications of a commercialized electricity market on the waterpower sector. The Task Force process prepared the groundwork for the establishment of a "New Business Relationship" between the province and the waterpower industry, recognizing the environmental, economic and energy importance of indigenous renewable resources. Importantly, the government committed four years of new funding to MNR (total of \$16M) to build the capacity within the organization to deliver its responsibilities in the relationship.

Building on the success of the Waterpower Task Force, a similar initiative was undertaken by the leadership of Ontario's burgeoning wind industry and the provincial government. Struck in April 2001, the Wind Power Task Force followed a similar path of collaborative assessment of policy and procedural challenges and opportunities. The Task Force tabled a series of comprehensive recommendations in its final report in October 2001.

Almost coincident with the initiative of the Wind Power Task Force, the Ontario government established the Select Committee on Alternative Fuel Sources, an all-party committee of the Legislature, appointed on June 28, 2001 chaired by Dr. Doug Galt. The committee's mandate was "to investigate, report and recommend ways of supporting the development and application of environmentally sustainable alternatives to existing fossil-based fuel sources."

In its final report, tabled with the legislature in June 2002, the Committee clearly recognized the importance of renewable energy to the province's objectives, adopting many of the recommendations made by the waterpower and wind power industries. Moreover, the report specifically identified the value of the "Task Force" policy development process, stating that "The Committee also believes that the Task Force approach, as used by the Ontario Waterpower and Wind Power Task Forces, has merit to give direction in some cases in the formulation of policy on alternative fuel/energy matters."

In October 2002, in response to a joint presentation by the waterpower and wind power industries to government, MPP Steve Gilchrist confirmed the appointment of Mr. David Boileau as the co-chair of a "Renewable Energy Task Team" in a letter addressed to all key Ministers and requested their full cooperation in developing recommendations. Mr. Gilchrist has recently been appointed as Ontario's "Alternative Energy Commissioner". Led by Mr. Boileau, representatives of the waterpower and wind power industries drafted a series of recommendations and undertook to refine these draft recommendations through consultation with key stakeholders and government ministries.

Recommendations

1. Establish a Provincial Renewable Supply Objective of adding 1% of the existing provincial load from new renewables in each year between 2003 and 2010.

As a basis for all the recommendations, the team has established a new “Renewable Supply Objective” of 1% of current provincial load (1500 GWh) to be added in each year commencing in 2003 and progressing until 2010, consistent with the advice provided to the Select Committee on Alternative Fuels. This 1500 GWh is the approximate annual energy that would be delivered by 375 MW of wind power and waterpower generation.

2. Establish and resource an Alternative Energy Commission and Renewable Energy Development Secretariat tasked with achieving the renewable supply objective.

Critical to the successful implementation of the “Renewable Supply Objective” is the establishment of renewable energy as “core business” for line ministries involved in new developments or re-developments. The delivery of 1500 GWh (375 MW) of new renewables, each year, can be expected to result in approximately \$3.5 million annually in new resource royalties to the Crown (deferred for 10 years – total of \$25-30 million accumulated in meeting the 2010 objective). The task team recommends that an amount representing one year’s new royalties be invested annually in a Renewable Energy Development Secretariat, politically led by the Alternative Energy Commissioner and that resources be allocated by the Commission to the appropriate ministries, agencies and partnerships. An overview of the proposed Secretariat structure and membership is provided below.

Proposed Secretariat Mandate

To synthesize a “Renewable Energy Strategy”, focused specifically on electricity, for the province of Ontario and to develop an implementation plan to achieve its objectives.

To monitor progress and provide ongoing advice to the Alternative Energy Commissioner with respect to the policy and investment priorities in support of the achievement of a provincial “Renewable Energy Supply Objective”.

Potential issues/action items to be addressed

1. Building the capacity across government to achieve renewable energy targets
 - a. What do “line ministries” need to meet the challenge (e.g. resource allocation and development)?
 - b. What do “policy ministries” need to meet the challenge (e.g. resource valuation)?
2. Creating the legislative and regulatory framework to contribute to the achievement of renewable objectives
 - a. What instruments can positively position new renewables (e.g. Provincial Policy Statement under the Planning Act)?
 - b. What impediments exist to achieving renewable objectives (e.g. Red/Green Tape)?
3. Prioritizing new renewable projects (generation and transmission support) and establishing Task Teams to facilitate timely and appropriate project development.
4. Liaising with the Federal Government to harmonize policies and address cross-jurisdictional issues.

Proposed Secretariat Structure*

Alternative Energy Commissioner – Government Policy Lead (+staff)
Chair/Executive Coordinator – Secretariat Lead (+staff)

Policy and Implementation Directorship

Ministry of Energy
Ministry of Natural Resources
Ministry of Finance (+SuperBuild)

Renewable Energy Development Cluster

Agriculture and Food
Enterprise, Opportunity and Innovation
Environment
Municipal Affairs and Housing
Northern Development and Mines
Smartgrowth Secretariat

Renewable Energy Advisory Board

Association of Major Power Consumers of Ontario
Canadian Wind Energy Association (Ontario)
Electricity Distributors Association
Hydro One
Independent Power Producers Society of Ontario
Ontario Power Generation
Ontario Waterpower Association
Pollution Probe

*The framework for the Secretariat is already essentially in place. Some refinement of the responsibilities and mandate is required. The funding commitment and the appointment of the Chair are the **key** components of kick-starting this important initiative.

Policy Paper #2

Valuing New Renewable Energy

Background

The Ontario government confirmed its interest in pursuing the implementation of a “Renewables Portfolio Standard” for the province’s electricity sector, as a key commitment in its response to the Select Committee on Alternative Fuels. On October 30, 2002 Minister Baird, in the House stated that:

“By the end of the 2002 calendar year, this government will come forward with a progress report on alternative fuel initiatives. I've asked my parliamentary assistant, Steve Gilchrist, to consult with experts, consumer and environmental groups and market participants in the electricity, gas and fuel sectors, with a view to making recommendations for a renewables portfolio standard for Ontario.”

Since that statement, however, the government’s response to rising electricity prices has temporarily modified the practicality of applying some of the market-based components of a RPS. The key changes and impacts include:

- the introduction of a 4.3 cents rate freeze that effectively prevents the pass-through component of a market based RPS (e.g. direct retail marketer)
- in a market based RPS, it was contemplated that the Local Distribution Companies (LDC's) would be the administrative agent for confirming the purchase of Renewable Energy Credits (RECs) in the system and that the LDC's would be the agent for purchasing RECs for the Standard Supply Service. Since market opening, and following the November 11th announcements, LDC's appear to be suffering from administrative burden, regulatory uncertainty and budget constraints. In the current climate it appears impractical to impose a RPS on the LDC's
- a freeze on transmission, distribution and uplift charges also limits alternative structures for RPS pass-through (e.g. IMO administered RPS)
- until 2006, consumers will be detached from the direct relationship to the cost of electricity and are unlikely to support new system charges.

The provincial government has retained the wholesale market, but in the near term several factors are likely to discourage investment in renewable or conventional new capacity. These include:

- the absence of any mechanism to achieve the long-term contractual security required for new private sector investment
- uncertainty about the costs and start-up date for the first reactor at Pickering A and the remaining Pickering A reactors
- uncertainty and/or concerns about the competitive aspects of the market and continued potential changes in market rules
- large power consumers’ negotiation of the potential application of a price cap to their loads

- direction to Ontario Power Generation to pursue the Beck Tunnel, Ministry of Energy review of Beck 3, and a private/public partnership for OPG's Hearn site, causing uncertainty about the status of market mitigation.

Offsetting some of the above, the government has

- introduced progressive tax incentives for new, clean and renewable production (see recommendations on Tax Incentives)
- announced it will procure the equivalent of 20% of its own energy requirements from renewable/alternative/clean sources.

While these measures provide tangible economic and environmental benefits, by themselves they are not expected to stimulate the size of investment required to meet the government's objectives for energy supply security and renewable clean power. The primary economic impediment to new generation is the lack of a secure investment climate.

Option Review

In order to adapt to the recent changes, modifications to the original RPS recommendations (as outlined in the Wind Power Task Force Report) are required. It is clear that government has taken action in the Ontario electricity market to achieve broader public policy objectives. It is equally clear that provincial objectives associated with new renewable energy must consider the rationale for and outcome of this intervention. As such, the series of options for achieving the objective of a RPS have been re-evaluated.

1. Implementation at the LDC/Retailer level

Description: This is the originally designed approach, consistent with the recommendations of the Select Committee. Under this scenario, all LDC's and retailers would have to demonstrate that they have acquired and retired the requisite Renewable Energy Credits on an annual basis. Contracts, as such, would be negotiated between the generator and the LDC/Retailer.

Pros: Consistent with Select Committee recommendation.
Establishes mechanism for local contractual agreements.
Consistent with market-based approach to incentives.

Cons: LDC's do not have any vested interest in the source of electricity.
Retailers no longer have a prominent role to play/product to sell.
Does not create required certainty for new capital investment.

2. Implementation through the IMO

Description: This model would pass the requirements for the RPS targets through the IMO directly to the consumer, included as an “uplift charge”. REC purchase agreements could be negotiated either through the IMO or (more probably) through OEFC. Standard contracts could be established or negotiated as part of an RFP process.

- Pros: Does not burden LDC's.
Achieves greater certainty for investment.
Enshrines renewable energy targets as an individual (consumer) responsibility.
- Cons: Not consistent with government's stated policy on freezing both energy and distribution charges.
Direct IMO administration may be problematic, given the experience in the market to date.

3. Implementation through remaining “market participants”.

Description: The model would require those loads not addressed through the price freeze to assume some or all of the responsibility for procuring new renewable energy.

- Pros: Retains some relationship to market-based model.
Consistent with government concept of “open market for generation”.
Does not burden LDC's or individual consumers (directly).
- Cons: Inequitable treatment of one sector of the market.
Does not recognize existing contractual arrangements.

4. Implementation through government procurement of RECs during the “freeze” period.

Description: This option would relate the renewable energy target to government procurement policies in support of new renewables. The government would become the purchaser of renewable energy certificates. OEFC would manage the contracts.

- Pros: Establishes immediate certainty for new investment.
Positions the province as taking strong leadership on energy and environmental policy.
Recognizes the challenges faced by the market participants in meeting new regulatory requirements.
Consistent with the government's commitment to take the steps required to meet Ontario's energy supply needs.
- Cons: Temporarily departs from the contemplated market approach for RPS.
Until 2006, places the burden for new renewables on the provincial government.

Recommendations

1. It is recommended that an initial Renewables Portfolio Standard target (1500 GWh/year) be met through a commitment for long-term contracts. These contracts could designate a specific value for energy and a negotiated value for capacity and environmental attributes. Such commitment could be achieved through direct procurement and/or an OEFC requirement.
2. It is recommended that long-term contracts (e.g. 15 - 25 years) be the instrument for ensuring timely investment in new renewable energy capacity.
3. It is recommended that contracting commitment commence in 2003 and that contracts be issued until the removal of the price freeze. (This target could be met by the annual addition of approximately 375 MW of wind power and waterpower, but would be available to all new renewables).
4. It is recommended that government structure contractual agreements through a fast track competitive process, ensuring that the most economic projects proceed first (possibly administered by the Alternative Energy Commission/Renewable Energy Development Secretariat).
5. It is recommended that government be permitted to retire or transfer environmental attributes for retirement (Renewable Energy Credits) to meet Climate Change, Emissions Reduction/Offset or other objectives.
6. It is recommended that all renewable generators (including OPG), be permitted to bring forward new renewable energy and capacity project proposals to fulfill the objectives of the program, within a framework of competition.
7. It is recommended that once the price-freeze is removed, the RPS targets be extended to the market, such that the sum of renewable energy requirements in year 4 would equal 4% for the province and continue to accelerate to 8% by 2010.
8. It is recommended that all new renewable energy commissioned since the promulgation of Bill 140 be counted toward the achievement of the renewable supply objective.
9. It is recommended that government align renewable energy objectives with existing related initiatives such as Superbuild (infrastructure), Smartgrowth (economic development) and/or Climate Change (emissions reduction).

Costs and Resources

Some analysis of the overall impact of the price freeze over three years suggests that on average, the price will be lower more often than higher than 4.3 cents. While it may be useful to investigate the underlying assumptions in this evaluation, such analysis is beyond the scope of this paper. It is important to recognize, however, that if the current system can be expected to generate new revenues, these resources could be invested in meeting supply objectives.

Moreover, renewable energy already generated more than \$140 million in resource royalties for the Consolidated Revenue Fund through the occupation of Crown land (all waterpower). This revenue source is unique to renewable energy and will grow, in time, with new renewables coming on stream.

As identified in the taxation review, the waterpower and wind power industries have estimated that it will cost only 1.5 to 3 cents per kWh over the price of new natural gas generation (estimated to require 6 –7 cents) to bring on new renewables sufficient to meet the 375 MW/yr objective. Wind's eligibility for the federal WPPI (if improved, as recommended), reduces the differential for wind to approximately 1.5 cents. Using 1.5 cents as the incremental cost of new renewables (and average value of renewable energy credits or "green tags"), an annual 1500 GWh procurement policy requires a maximum investment of \$22.5 million (increased by the accelerating supply objective). This investment will be partially offset by the competitive process, ensuring the most economically viable projects come forward. Additionally, the province may choose to transfer the renewable energy credits to other entities, at a price that recognizes this environmental value (e.g. emissions offsets).

In conclusion, while the investment required to achieve the RPS objective is significant, it can be mitigated through the allocation of revenues received by the Crown (either from the market or resource royalties), the use of a competitive process and/or the transfer of environmental attributes.

Policy Paper #3

Accessing Transmission

Background

When a generator connects to the grid, there are costs associated with required upgrades to the Hydro One Network and/or the distribution system. Depending on the project location, some or all of the following are required:

- engineering studies,
- installation of new communication and protection equipment located at the generator or in the distribution/transmission system,
- re-conducturing of existing lines and/or construction of new lines,
- transformer and substation modifications.

Two basic methods are used to pay for the cost of upgrading the Hydro One Networks and/or the distribution system.

The first method, a “Generator Pay System” requires the generator to pay for all of the costs incurred by the Hydro One Networks and/or distribution system related to the incremental impact of the generator’s new capacity.

The second method is a “Ratepayer Pay System”. Typically, this type of upgrade would proceed despite any new capacity injection. The cost (and benefit) of these upgrades is carried in the rate base.

Economic impacts of the Generator and Ratepayer Pay Systems

Generator Pay System

With the Generator Pay System, the generator bears all of the cost of the system upgrade. The key advantage of this method is that there is a discipline imposed on the generator to ensure that they select projects that recognize the cost of upgrading the system. For example, a major wind project on Hudson Bay would be unlikely to proceed, since the cost to upgrade the grid would be prohibitive. Conversely, a three-kilometre transmission upgrade to the grid-serviced part of the province might be an acceptable investment for a generator. In this case the method works well in providing an economic system that logically rations the use of capital.



However, there are some inherent problems with “Generator Pay” as follows:

- the generator has no control over the cost of the upgrade, since the Hydro One Networks/distribution/IMO (the Connection Providers) are responsible for studying and, in most cases, carrying out the upgrade.
- there is no incentive for the Connection Providers to avoid over-engineering the design, or keeping costs down, since the cost is simply passed on to the generator.
- there is no incentive for the Connection Providers to design an upgrade to accommodate future projects, at lower total cost (as may be desirable in certain wind areas, as well as certain waterways) since they are only able to pass on the costs incurred on a project-by-project basis.
- there are inherent queue management challenges with existing transmission and distribution capacity being allocated on a first-come first-served basis with no milestones for generator performance.
- there is no current regulatory provision or policy direction that provides any connection priority for renewables.
- there is no updated provincial inventory of renewable generation opportunities.
- there is no ranking of opportunities and no strategy to guide a renewables connection program.

As a general rule, requiring the generator to pay for distribution and transmission system upgrades increases the total cost of a project, which will cause some projects to be cancelled. This will reduce the supply of electricity and effectively drive up the cost of power for all consumers. In essence, the upgrade cost becomes a tax on new supply, thus diminishing supply and therefore increasing price. This point is key. The current “Generator Pay” system tends to increase the price of electricity.

Another aspect of the current Distribution System Code is that the LDC or Hydro One Networks may charge the generator for any extra costs incurred by the installation. This could include any increase in line losses associated with a project. But at the same time, the LDC or Hydro One Networks has no obligation to pass on any system benefits delivered by the project. Costs to the system are charged to the generator. Benefits to the system are not credited to the generator but are retained by the LDC and typically passed on to the ratepayers. In essence, this is another tax on new sources of generation, which reduces electricity supply.

The impact of high connection charges on renewable energy sources, which are by nature distributed, is greater than on conventional generation. Many more connection points are required for renewables, and so connection cost per kWh is higher for renewables than for large centralized plants.

Smaller, distributed, renewable energy sources can have a significant positive impact on distribution and Hydro One Networks because of reduced line losses and reduced stress on the system. This is because their energy is often consumed locally. In many cases, it is possible that having the LDC pay for the upgrade may save customers money, with the reduced system charges more than covering the cost of the system upgrade.

Ratepayer Pay System

There are two main drawbacks to the Ratepayer Pay System.

- The principle problem is that it removes the discipline imposed on the generator to locate their project in economically sensible locations (like the Hudson Bay example above), and;
- a free system is open to abuse by prospective generators, who might request many more connection studies, for non-viable projects.

Solution - A Hybrid System

One solution is to create a hybrid system. Generators would pay a modest but fixed cost for the connection study and the physical connection. The existence of this charge would prevent abuse by generators requesting connection studies. LDC's or Hydro One Networks would be required to pay the cost of upgrades above the fixed cost. The amount of cost incurred would be capped, at a specified level per MW of capacity installed. Any cost above this cap would be the responsibility of the generator. This prevents the abuse of the system, like the Hudson Bay example.

This type of hybrid system would encourage the introduction of more renewable generation capacity, thus lowering the price of electricity. It would allow the LDC's and Hydro One Networks to plan their system to accommodate multiple future projects in one upgrade, and recover such costs from system benefits and revenue from new load growth. Finally, the cap on LDC and Hydro One Networks costs would prevent uneconomic projects from being proposed by generators.

The Challenges

What is a reasonable fixed cost for connection? What is the best cap on upgrade cost paid by the Hydro One Networks? What is the best cap on upgrade cost paid by the distribution system?

The Investment Strategy

If the renewables sector builds 375 MW per year (1500 GWh), the Hydro One Networks and distribution system charges associated with the sale of this capacity/energy is over \$20 million/year. Therefore, each new MW of renewable energy results in approximately \$60,000 in new system charges annually. Reinvestment of one year's new revenues into connection costs would substantially reduce the barrier to new renewable generation.

The above analysis tends to simplify the issue of connection for renewables. The Task Team recognizes that there are many other factors that need to be considered. The purpose of this exercise is solely to demonstrate that new connection upgrades for renewable projects can be absorbed from the existing and future revenue streams without triggering a pass-through to ratepayers. As well, the new renewables supply in the market will increase competition at the wholesale level and result in lower prices.

Recommendations

1. Where upgrades are required in the Hydro One Networks system, Hydro One Networks be required to pay up to \$60,000/MW towards upgrades that will accommodate the new renewables generation.
2. Where upgrades are required in the LDC system, LDC's be required to pay/refund up to \$60,000/MW to upgrade their distribution systems to accommodate the new renewables.
 - In certain cases this requirement may cause an excess burden on a LDC. To address this, provisions for a one-year deferral of costs should be considered. The Task Team also recommends that Superbuild allocate a fund available to the LDC to offset some of the costs of upgrades attributable to renewable supply connection. The size of the fund and terms and conditions could be established through discussions between Superbuild and the Renewable Energy Development Secretariat.
3. Where upgrades are required, the renewable energy generator will pay all upgrade costs in excess of \$60,000/MW.
 - In addition to this charge, in order to discourage abuse by generators, the generator will be required to pay a flat connection study cost of up to \$5,000/project to connect to distribution systems.
 - As well, the generator will pay a connection study cost of up to \$20,000 for connections that impact the Hydro One Networks. These charges are the current minimum charges applied by Hydro One for distribution connection and the IMO for transmission connection.

Summary

The electricity system would benefit from lower cost electricity, and greater adoption of renewables, if the cost of upgrades to connect renewable generation was partly paid for by the LDC and/or Hydro One Networks. The LDC and Hydro One Networks already charge consumers when energy/capacity is sold, so increased supply allows increased sales, which covers the costs of connection. Minimum connect charges discourage excess requests by generators for connection studies. Caps on payments per MW connected, encourages generators to seek projects where connection costs are economically viable.

Policy Paper #4

Implementing a Proactive Taxation Regime

Overview

Renewable energy resources in Ontario make an important contribution to local, regional and provincial economies. Importantly, these indigenous resources provide a direct source of royalties to the provincial Consolidated Revenue Fund – a benefit unique to renewables. Currently, this contribution averages more than \$140 million annually – generally the single largest source of resource royalties collected by the Crown. While these royalties are wholly derived from waterpower production, the growing potential of new wind power and continued growth of waterpower will result in additional direct benefits to the Crown.

Waterpower has benefited substantially from the tax reforms and incentives embodied in Bill 140. This is demonstrated by the considerable resurgence of investment in some of Ontario's existing waterpower infrastructure previously impeded by a burdensome property tax regime. Through Bill 210, the Ontario government has proposed a suite of tax incentives intended to encourage more investment in renewables.

While providing tangible financial benefits, the new tax incentives are not expected to significantly improve the investment climate for waterpower. This is because Bill 140 has already addressed property tax and royalty costs.

As well, most waterpower projects and all wind parks already benefit from the federal Class 43.1 depreciation rules. This provides a 30% declining balance depreciation rate applicable at the federal and provincial levels. As this favourable treatment of capital expenditures already offsets the large part of taxable income, a corporate income tax holiday for renewables would have little impact on after tax rates of return.

Other measures such as capital tax and Ontario Retail Sales Tax (ORST) exemptions do provide a modest but important benefit to both waterpower and wind power projects and should be carried forward.

Finally, for wind power, property assessment rationalization, property tax rebates and Crown Land royalty holidays can provide considerable benefit.

To quantify the impact of the proposed measures the Task Team commissioned an assessment of the impact of the proposed measures. Based on this review the team recommends that four of the tax incentive measures be considered.

1. Capital Tax

Background

Ontario has a capital tax rate of 0.3% on employed capital. This tax is applied each year against the depreciated value of the asset. Relative to fossil generation, most renewable energy projects have a high capital cost per installed Megawatt. The impact is exacerbated by the fact that renewable projects have relatively low capacity factors. This is due to the availability of water and wind.

The table below compares the approximate impact of the Ontario capital tax on a 100 MW wind park, a 100 MW waterpower station and a 100 MW combined cycle gas fired installation.

Type of generation (100 MW)	Typical capital cost	Annual capital tax at 0.3%	Typical capacity factor	Capital tax per unit of energy (MWh)
Wind power	\$150 million	\$ 450,000	33%	\$1.56
Waterpower	\$230 million	\$ 690,000	57%	\$1.32
Natural gas	\$100 million	\$ 300,000	90%	\$0.38

Recommendation

It is recommended that the Ontario government provide a capital tax exemption for projects that generate new electricity from renewable energy sources. The eligibility period should be November 2002 to November 2012.

Costs

At present there is only modest investment in new renewables. A capital tax exemption therefore will not have a large impact on current CRF revenue. Additionally, the Ontario government has already indicated that the capital tax will be phased out over time, so this measure would simply be accelerating that plan for this sector.

Benefits

As shown in the above table, adopting a capital tax exemption for renewable generation projects is equitable and helps to close the cost gap between renewables and other sources. See tax calculator spreadsheet (page 31) for cost/benefit figures.

2. Ontario Retail Sales Taxes (ORST)

Background

Most (90% to 95%) of the capital phase of all new electricity generating projects already qualify for the production machinery and equipment exemption for ORST. However, many project expenses during the operations phase are subject to ORST (e.g. services and materials related to administration, operations and maintenance).

Recommendation

It is recommended that the Ontario government adopt a full ORST rebate for new renewables. The eligibility period should be November 2002 to November 2012.

Costs

At present there is only modest investment in new renewables. An ORST rebate will not have a significant impact on current CRF revenue.

Benefits

Although the benefit is small, an ORST rebate is a clear signal to investors that the Ontario Government is committed to encouraging new renewables.

3. Property Assessment and Property Tax Rebates for Wind Turbines

Background

Waterpower

Waterpower property assessment issues were largely addressed by Bill 140. This Act adopted a “market based” Gross Receipts Charge (GRC). The charge was graduated to recognize that small plants carry a larger burden than large plants. Equally important, new plants, redevelopments and upgrades were exempted from the GRC for a period of 10 years.

Wind power

Wind turbines are not subject to the same burden as pre-Bill 140 waterpower projects. This is because the assessable components of the two energy sources are vastly different. With waterpower, the principal capital outlay is for assessable structures (dams, spillways, powerhouses etc) which together can account for 70-75% of the project cost. For wind power, the principal capital outlay is for machinery, which is exempt from assessment. However, under existing Assessment Act rules, the turbine tower may be assessed as a structure, irrespective of the fact that a “tall” tower places the turbine aloft where the winds are robust, thereby ensuring maximum energy capture. If the tower is deemed to be assessable, the resulting annual property tax burden for a 1 MW unit could range between \$ 9000 and \$13,000.

This would be a significant burden considering that a typical wind turbine has a capacity factor of only 33%. This property tax would capture approximately 6% of the project gross revenue. **This at least four times the rate paid by a typical fossil generating station.**

Recommendation

It is recommended:

- that the Ontario government adopt a fixed rate of assessment for wind parks at \$40,000 per installed MW (note: An assessed value of \$40,000 is expected to result in an annual property tax payment of \$3,000 to \$5,000 per MW depending on local mill rates and property class). This fixed rate would encompass all wind energy related improvements to the assessed property, including maintenance and operations buildings, roads, transmission lines and substations.
- that the resulting property tax be paid to the municipality where the project is located.
- that for a period of 10 years the province rebate, to the property taxpayer, the full amount of the property tax attributable to the wind park assessment.

Costs

At present there are only nine (9) commercial wind turbines in Ontario (less than 15 MW). The property tax yield from these turbines is quite small.

Benefits

If the Province adopts a suite of incentives to promote renewables, municipalities should not receive a windfall, especially if the windfall is in the form of an additional burden on renewables.

The public will derive considerable benefit from new jobs and investment as well as the reduced emissions associated with new renewables. Fixing the rate of assessment at \$40,000/MW provides a sizeable revenue stream to municipal governments, sufficient to encourage their potential support for the development of wind energy. At the same time, a 10-year rebate on the property taxes provides wind power developers with the same window of exemption currently enjoyed by waterpower developers.

The Ontario taxpayer benefits by the avoidance of windfall to specific regions. A timeline of ten years also recognizes that renewables, like wind energy, need incentives to bridge the gap in competitiveness during the period of high debt - typically the first 10 years of the project.

Property tax on wind projects is potentially a large recurring expense. Adopting a 10-year rebate helps wind developers bridge the cost gap during the early years. Also, fixing the assessment at \$40,000/MW provides a stable investment climate and certainty for investors and project financiers.

4. Crown Land Royalties on Wind Energy

Background

Waterpower

Crown land waterpower rentals were largely addressed by Bill 140. This Act adopted a “market based” Gross Receipts Charge (GRC). In recognition of the high capital cost burden associated with new waterpower, the Province legislated an exemption for new developments, redevelopments and upgrades from the rental GRC for a period of 10 years.

Wind power

A sizeable portion of Ontario’s wind power potential is located on Crown lands. There is currently no Crown wind land rental schedule for wind parks. This reflects the fact that there are no commercial wind turbines on Crown Land. It is reasonable to expect that in future the Crown will seek rental/royalty income from the use of this public resource.

Recommendation

The same rationale that provided a rental holiday for waterpower (using development incentives to promote public policy objectives like clean energy) should be extended to wind power.

Costs

At present, Ontario has no experience with commercial wind parks on Crown Land and no revenue. There are no prescribed rents for the use of wind to produce electricity. However, experience on private wind lands in the U.S. indicates that landowners are receiving approximately 2% of the energy revenues in wind rights payments. A 2% charge on energy revenue would typically yield \$ 3000 /year/MW in wind right payments to the landowner.

Benefits

Any reduction in operating expenses helps bridge the cost gap. The province has a long history of allocating Crown Lands to promote sustainable resource development. Clearly the use of Crown Lands to promote a public policy priority like renewable energy is consistent with this objective. As a further benefit, many of Ontario’s good wind lands are located in Northern and rural Ontario where there is an urgent need for new jobs and investment.

Summary

If these recommendations are adopted, the team estimates that the after-tax rate of return on equity would improve by an average of 1% for waterpower and 4% for wind power.

These improvements, by themselves will not result in an acceleration of investment in new renewables. However, they should not be dismissed as insignificant – especially for wind power.

These tax measures, together with modest price incentives and long-term contracts, will stimulate large-scale timely investment in new renewables.

Equally important, tax incentives serve as clear notice to the public, financiers and investors that the Ontario government is committed to a course of promoting clean renewable energy and secure supply for Ontario citizens.

Complementary Federal Initiatives

Adoption of the taxation and incentive recommendations will help to create a climate for large-scale investment in Ontario renewables. To build on this initiative and to share costs and benefits, it is recommended that the province match the federal WPPI program and challenge the federal government to achieve a joint incentive equal to the program in place in the United States.

It is further recommended that the Province consider (through the Alternative Energy Commission) challenging the federal government to take the following additional action:

- provide an exemption for the federal capital tax of 0.225%
- expand the qualification for Class 43.1 by eliminating, or increasing, the 50 MW cap on waterpower
- adopt a refundable tax credit for renewables
- expand funding for the Wind Power Production Incentive (WPPI)
- raise the WPPI payment and increase the national program target from 1000 MW to 4000 MW
- introduce similar incentive programs (with new funding) for other renewables.
- address renewable energy-related recommendations in the Canadian Electricity Association 2003 federal budget submission

Tax Calculator

The table below compares the before and after impact (after tax rate of return) of the above tax incentives. The figures are based on a 10 MW waterpower facility and a 100 MW wind park. Prices for power assumes 7 cents for waterpower and 8 cents for wind power. Capital costs assumed at \$2300/kw for waterpower and \$1500/kw for wind. Values are net present values based on a 20 year run. Additional information available on request.

	Before		After	
	Waterpower	Wind	Waterpower	Wind
Income Tax				
Federal	0	0	0	0
Provincial/State/Local	0	0	0	0
Capital Tax				
Federal	51,750	338,381	51,750	338,381
Provincial/State/Local	65,726	422,399	0	0
Payroll Tax				
Federal	14,885	60,924	14,885	60,924
Provincial/State/Local	3,731	15,270	3,731	15,270
Sales Taxes				
Federal				
Provincial/State/Local	3,206	18,900	0	0
Fuel & Other Excise Taxes				
Provincial/State/Local	0	0	0	0
Property Taxes				
Municipal and education	94,475	1,491,540	94,475	163,911
Total Tax Paid	233,772	2,347,414	164,840	578,486
Effective Tax Rate	10.0%	100.1%	7.0%	24.7%
Property Tax	4.0%	63.6%	4.0%	7.0%
Net Income before Tax	995,535	6,648,026	995,535	6,648,026
Net Income after Tax *	761,762	4,300,612	830,694	6,069,540
Capital	23,000,000	150,000,000	23,000,000	150,000,000
Return on Capital before Tax	4.3%	4.4%	4.3%	4.4%
Return on Capital after Tax	3.3%	2.9%	3.6%	4.0%
Equity	6,900,000	45,117,462	6,900,000	45,117,462
Return on Equity after Tax	11.0%	9.5%	12.0%	13.5%
Output (kWh)			49,932,000	289,080,000
Total Tax Savings			\$68,932	\$1,768,928
Savings ¢/kWh			0.14	0.61

Appendix 1: Waterpower Developments since Bill 140

Waterpower Station	Location	Proponent Owner	New Capacity MW	New Energy in GWh*	Capital Cost \$millions	Status
Chaudiere Falls	Ottawa River in Ottawa	Energy Ottawa Geoff Sayre	7.4	36	\$10.0	Commissioned 2001
High Falls	Near Bracebridge	Bracebridge Generation Chris Litchko	1.5	10	\$3.0	EA Stage
High Falls	Michipocoten River near Wawa	Great Lakes Power Colin Clark	18.0	115	\$75.0	Under construction
Mcvittie	Wanapitae River near Sudbury	OPG Graham L. Brown	2.2	12	*\$4.4	EA Stage
Ear Falls	English River near Ear Falls	OPG Graham L. Brown	12.0	79	*\$24.0	Under Construction
Healy Falls	Trent River near Campbellford	OPG Graham L. Brown	6.0	42	*\$12.0	EA Stage
Iroquois Falls	Abitibi River at Iroquois Falls	Abitibi Consolidated Marc Mantha	13	85	\$35.0	Under Construction
Parry Sound	Town of Parry Sound	Parry Sound PUC	1.2	12	*\$2.5	Feasibility Study
Glenmiller	Trent River near Trenton	Innergex Michel Letellier	7.0	36	\$15.0	Under Construction
Twin Falls	Kagiano River, near Wawa	Kagiano Power David deMontmorency	5.0	24	\$10.5	Commissioned 2001
Otonabee	Otonabee River (Peterborough)	Canadian Hydro Developers Ross Keating	5.6	38	\$12.0	Awaiting final Approval
Misema Falls	Misema River (Kapuskasing)	CREC Patrick Gillette	3	14	*6.0	Commissioning December 2002
Total			81.9	503	\$209.4	

- *Note that some of the actual capital cost and annual energy figures are proprietary. Where detailed information was not available a conservative average of \$2000/kw was applied for capital cost and capacity factors of 65% for energy calculations.

Appendix 2: New Wind Power and Waterpower Potential

Table 1 – New Wind Power Potential

Region	Capacity	Energy (GWh)
Lake Huron/Georgian Bay	800-2000 MW	
Lake Erie onshore	300-600 MW	
Lake Erie offshore	200-2000 MW	
Lake Ontario onshore	300-600 MW	
Lake Superior onshore	300-500 MW	
Other highlands	200-500 MW	
Total	2100 – 6200	6100 – 18000

Table 2 – New Waterpower Potential

Source	Capacity (MW)	Energy (GWh)
Known New Development Sites	200 to 300	1,000 to 1,500
Re-developments at Existing Facilities	600 to 1,300 (equivalent)	2,000 to 3,000
Upgrades – re-powering and efficiency improvements	200 to 400	1,000 to 1,500
Additional New Development Potential	200 to ?	1000 to ?
Total	1200 to 2000+	5000 to 6000+