

Theresa McClenaghan

From: <shawn.patrick.stensil@yto.greenpeace.org>
To: <shawn.patrick.stensil@yto.greenpeace.org>
Sent: Monday, June 20, 2005 5:15 PM
Attach: Energy Vision May May 27.doc
Subject: Energy Vision Meeting - Friday at 2 pm

Hello everyone,

This is a reminder that the next Energy Vision meeting will take place Friday June 24th at 2 pm at the office of the Sierra Legal Defence Fund (30 St. Patrick Street, Suite 900).

The call in information is as follows:

In Toronto - 416-343-4997, Toll Free Dial in:
Outside Toronto - 1-866-440-4486

The password is 649-9081.

I have reattached the minutes from the last meeting.

If you are planning to attend in person or by phone or wish to send regrets, please send me an email to -
shawn.patrick.stensil@yto.greenpeace.org

See you Friday.....Shawn-Patrick Stensil

Shawn-Patrick Stensil

Energy Campaigner/Responsable de la campagne énergie

Greenpeace Canada

Tel: 416-597-8408 ex 3013 Cell: 416-884-7053

Fax: 416-597-8422

250 Dundas St. W., Suite 605

Toronto, Ontario, Canada

M5T 2Z5

Shawn-Patrick Stensil

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6/21/2005

Energy Vision Meeting – Minutes

May 27, 2005

CELA Office, Toronto

In Attendance – Shawn-Patrick Stensil (Greenpeace); Dave Martin (Greenpeace); Keith Stewart (Toronto Environmental Alliance); Marion Odell (International Institute of Concern for Public Health), Shirley Farlinger (Voice of Women); Theresa McClenaghan (Canadian Environmental Law Association, CELA), Steve Kishewitsch

Attending by phone – Ziggy Kleinau (Citizens for Renewable Energy); Tom Adams (Energy Probe), Jose Etcheverry (David Suzuki Foundation); Derek Coronado (Citizens Environment Alliance of Southwestern Ontario)

Regrets – John Wellner (Ontario Medical Association); Dan McDermott and Christine Elwell (Sierra Club of Canada – Ontario Chapter); Chris Winter (Conservation Council of Ontario)

1. INTRODUCTION AND AGENDA REVIEW

Participants introduced themselves and the agenda was reviewed. It was decided to add a discussion of Nuclear Liability Act under Nuclear Regulation Update (Item 3). An Update on the Nuclear Waste Management Organisation (Item 4) and a possible Energy Vision Conference (Item 5) were added to the agenda.

It was recommended that Action Items from that last meeting that have yet to be completed be listed in the minutes as TBD (To Be Done). Those Items include:

TBD: Dave and Jose will finish the summary of electricity alternatives for comment by group. The goal of the statement is to have a document that sets out conservation/renewable approach to meet future energy needs (Discussion also on agenda).

TBD: Send Supply Directives letter; but also ask the OPA how we get to where we need to be (and have to be). Theresa will send redraft in one week.

TBD: Dave Martin will present a revised green energy vision statement that was developed at the Greening Ontario's Electricity Sector in 2004.

TBD: Theresa McClenaghan, SP Stensil, Dave Martin, Keith Stewart will brainstorm ideas strategic political action EV could take. These ideas will be presented at the next meeting.

TBD: Shawn-Patrick will develop a 10 point challenge that the EV will subsequently issue yearly report cards on government progress.

2. SUMMARY OF ELECTRICITY ALTERNATIVES IN ONTARIO

Jose presented a summary of Electricity Alternatives in Ontario based on the *Smart Generation* report (See Annex I). He noted that the one item that has changed since this report was released is that the provincial government is about to release a detailed wind map, showing the potential of wind power. The technical potential for renewables is quite big but the question is whether policies are strong enough to ensure their development.

Shawn-Patrick noted that he ~~text~~ that the role of combined heat and power/co-generation was not properly portrayed or downplayed in the draft summary document. He noted that both the Pembina/CELA study the Torrie Phaseout Study call for Combined Heat and Power gas generation as a mid-term transition fuel for phasing out both nukes and coal.

In addition there was a discussion on the need for a clear and understandable 2-page vision statement. Dave will work on the draft that builds on the statement developed at the Greening Ontario's Electricity Sector conference in 2004 (See the outstanding TBD action items). It was suggested that people with some expertise in communications should review the final vision statement.

Dave and Jose agreed to finish both the technical document background and the vision statement before the Jose goes on vacation June 9th.

Keith suggested that we need a common scripted power point for public presentations. Shawn-Patrick noted that he is making one for Greenpeace and could share it with the group.

ACTION ITEM – Shawn-Patrick will share Greenpeace's power point presentation with the group.

3. NUCLEAR REGULATION UPDATE

Shawn-Patrick discussed his recent presentation to the Canadian Nuclear Safety Commission (CNSC) on the environmental guidelines for the life-extension of the Bruce A nuclear station. He noted that he was told by CNSC staff that recent advice from the Canadian Environmental Assessment Agency has changed the CNSC's approach to refurbishment projects, and that all refurbishment projects will undergo an environmental assessment of some sort. The same staff person also informed him that Hydro-Quebec and New Brunswick Power have been informed that their refurbishment projects may be subject to an EA.

Shawn-Patrick noted that both Hydro-Quebec and New Brunswick Power refurbishment projects will be discussed in front of the CNSC this Fall. These two projects could set important precedents for future Ontario refurbishment projects and we should plan to intervene.

Theresa McClenaghan noted that Sierra Legal Defence had committed at a previous meeting to make a list of all the goodies subsidies and regulatory deal that the nuclear industry uses to prop itself up. This should be noted as a TBD for the next meeting.

3.1 Nuclear Liability Act

Ziggy discussed the status of the Nuclear Liability Act (NLA). He noted that the president of the Canadian Nuclear Safety Commission (CNSC) asked CNSC staff to inquire with the Ministry of Natural Resources and report back on the status of the NLA. They reported there was 'no news.' Ziggy noted that the Auditor General will probably demand action from NRCAN on this NLA later this fall.

4. REPRESENTING OUR POSITION TO GOVERNMENT

ACTION ITEM – Shawn-Patrick will draft a letter request a meeting with Jan Carr, newly appointed head of the Ontario Power Authority; Peter Love, newly appointed head of the Conservation Bureau; James Hankinson, newly appointed CEO and President of Ontario Power Generation; and Energy Minister Dwight Duncan -- for 3rd week of June. Keith will provide contact information.

There was agreement that we should (be prepared to) respond to nuclear industry propaganda that "environmentalists" support nuclear power, and that nuclear power is "clean". Keith's response would be 'I've never met these [pro-nuclear] guys, but I do know hundreds of groups in Ontario against nuclear power.'

4. NUCLEAR WASTE MANAGEMENT ORGANISATION (NWMO)

On May 24th, the NWMO released its draft recommendation for the long-term management of radioactive waste, which they call 'Adaptive Phased Management'. It is a 300-year plan, with waste staying on-site for the first 30 years, but a centralized location being identified after 20 years. During the second 30 years, a centralized storage facility is built, and decision is made on proceeding to deep geological disposal.

ACTION ITEM – Shawn-Patrick will send out the NWMO press release on the NWMO draft recommendation to the wider Energy Vision group.

5. FALL GREEN ELECTRICITY CONFERENCE

Mario Odell stated that there is a need to get everyone together that is anti-nuclear and have a meeting in the Fall where people can discuss issues and organize. Jose Etcheverry recommended that we should think of organizing any such meeting as a teach-in in order to reach out to people beyond the ENGO crowd. Keith suggested that any meeting should be based on what we need to do to build Energy Vision and opposition to the province's current energy policies. Keith thought that perhaps a teach-in could be modeled as a 'train the trainer' event.

There was a general feeling that a public meeting/teach-in for the Fall was a good idea. It was suggested that, if such a meeting were to take place, Bloor St. United Church could be used as a venue. Mid-October was considered an ideal time as it would help mobilize people in the run-up to the NWMO's final recommendation being given to the federal government in November.

ACTION ITEM -- Marion Odell will offer recommendations on what the objectives of such a meeting would be at the next meeting. The objectives will answer -- who we want at the meeting, why would they be coming for, and what we want them to do afterwards.

6. OTHER BUSINESS

Ziggy Kleinau noted that World Council for Renewable Energy, headed by Herman Scheer, is having a big conference at the end of November in Bonn and that it would be useful if Canadians attended the conference. Background information can be found in the Annex II.

7. NEXT MEETING

DATE: Friday June 24

TIME: 2:00 p.m.

LOCATION:

Sierra Legal Defence Foundation
30 St. Patrick St., Suite 900
Toronto, Ontario
(2 blocks west of University, just north of Queen)

If there are questions, please contact:

Shawn-Patrick Stensil, Energy Campaigner
Greenpeace Canada
Tel: 416-597-8408 X 3013
shawn.patrick.stensil@yto.greenpeace.org

Annex I

1. Clean alternatives for meeting Ontario's power needs

Several recent studies have analyzed the huge potential for reducing electricity use in Ontario through efficiency and conservation.¹

These studies highlight two important facts for policy-makers: the bulk of all investments in energy efficiency can be paid through the expected energy savings; and just as with renewable energy development, energy efficiency investments can result in important local economic benefits (such as employment creation).²

It must be recognized that only a few measures, such as peak reductions achieved through demand response measures by large electricity users, can be implemented as single concerted efforts.³ Almost all the other strategies to achieve the efficiency gains summarised in Table 1 will require an integrated set of policies and initiatives covering a broad spectrum of activities and products.

Clear evidence already exists in North America showing what can be accomplished in Ontario through efficiency strategies. A noteworthy example is the state of California, which has already reduced peak power demand by 20% or 10,000 MW over the past 20 years by relying on efficiency standards (for buildings and appliances) and utility demand side management programs.⁴

In early 2004, the Pembina Institute released a study that showed that electricity consumption and peak demand could be reduced to 30% below 2004 levels by 2020 through a series of energy efficiency and demand reduction policies. These policies would include equipment efficiency standards and codes, Demand Side Management incentives to utilities, a small public benefits charge to finance energy efficiency, and efforts to fast track efficiency improvements. The study also showed that the cost to Ontario consumers to achieve these goals would be less than adding new supply facilities, and that no new technologies would be required – just the most efficient that are commercially available today.

Notes

¹ See for example Winfield op.cit. note 4 and Torrie, R. and Parfett, R. (2003). Phasing Out Nuclear Power in Canada: Toward Sustainable Energy Futures. Ottawa: Campaign for Nuclear Phaseout. Available at www.cnp.ca.

² Winfield et al. (2004, p.37, op. cit note 4) state that capital investments of \$18.2 billion over the 2005-2020 period would be required to achieve the efficiency gains described by their research and that 96% of these costs would be recovered by consumers through the energy savings resulting from that investment.

³ For example, peak reductions achieved through demand response measures by large electricity users. Estimates developed for the IMO indicate that up to 10% of Ontario's peak demand could be shifted through demand response measures (DRM). About 2 percent of the province's customers (e.g. mining firms, steel and car manufactures) use about 50 percent of Ontario's power so DRM can be organized between the government and this group of large power users to improve provincial power use and to achieve industrial production gains. See Winfield, op.cit. note 4 and Bloom, R. (2004). Corporations keep their cool on power: As temperatures rise, big consumers plan no changes to production, Globe and Mail (June 29, 2004).

⁴ Bachrach, D., M. Ardema, and A. Leupp. *Energy Efficiency Leadership in California: Preventing the Next Crisis*. (San Francisco: Natural Resources Defense Council, 2002). The full report is available at: www.nrdc.org/air/energy/eecal/eecal.pdf.

The Pembina study also looked at how the remaining demand for electricity might be met through a combination of renewable energy and natural gas – eliminating both coal and nuclear energy sources by 2020. This work confirmed similar research carried out by Torrie Smith in 2003.⁵

Table 1 (Below aka Table 5.10): Energy Efficiency Potential in Ontario⁶

Table 5.10: Final Estimated Grid Demand and Proposed Supply Mix, 2010–2020

	2010			2015			2020		
	GWh	Peak	Capacity	GWh	Peak	Capacity	GWh	Peak	Capacity
	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)
IMO Forecast	164,000	27,800		172,000	28,742		180,000	30,079	
Demand Reductions—Efficiency/Cogeneration	(26,867)	(4,510)		(53,002)	(8,898)		(73,499)	(12,339)	
Additional Load Shifting		(2,329)			(1,984)			(1,774)	
On-Site Solar Roofs Program	(876)	(250)	330	(1,752)	(500)	670	(2,628)	(750)	1,000
Grid Demand	136,257	20,711		117,246	17,360		103,873	15,216	
Existing Nuclear	51,246	5,994	9,000	22,776	2,664	4,000			
Existing Hydro	33,572	6,375	7,665	33,572	6,375	7,665	33,572	6,375	7,665
Existing Peaking Gas and Replaced Oil	12,208	3,060	4,645	12,208	3,060	4,645	12,208	3,060	4,645
Wind	7,884	1,317	3,000	13,140	2,196	5,000	18,396	3,074	7,000
New Hydro	4,380	600	1,000	6,570	900	1,500	8,760	1,200	2,000
Biomass	3,504	234	500	4,205	281	600	5,606	375	800
New CCNG Base Load	23,915	3,570	4,200	25,054	3,740	4,400	25,623	3,825	4,500
Total Supply	136,709	21,150	30,010	117,525	19,216	27,810	104,165	17,909	26,610
Contingency	452	440		278	1,856		292	2,693	

Both the Pembina Institute and Torrie Smith studies used available data on renewable resource potential.

The next sections provide information from a 2004 David Suzuki report that was commissioned to obtain a better assessment of Ontario's renewable electricity potential and also to estimate the thermal contribution that these resources could provide.⁷

2. Benefits of renewable energy in Ontario

Ontario enjoys a unique comparative advantage due to its abundant and diverse renewable energy sources, which can be used to provide a clean and reliable supply of electricity.

In addition to electricity generation, a variety of renewable energy sources are highly viable to provide heating and cooling (space conditioning) for Ontario's residential, commercial and institutional buildings. Solar, biomass, and geothermal technologies are

⁵ See Winfield et al. (2004) op. cit. note 5 and Torrie and Parfett (2003) op.cit. note 31.

⁶ Reproduced from table 5.10 Winfield et al. (2004) op.cit note 4.

⁷ Etcheverry, J. et al. (2004). Smart Generation: Powering Ontario with Renewable Energy. Vancouver: David Suzuki Foundation. Available at www.davidsuzuki.org

better alternatives to the massive use of electricity and fossil fuels (e.g. natural gas, oil and propane) currently employed in space conditioning applications.

Renewable technologies represent safe energy choices, which help protect human health and ecosystems, provide economic and energy security, are easy to put in place and create more jobs than fossil-based generation and nuclear plants.

Wind and solar PV facilities can be built in modular steps (e.g. extra turbines can be added or removed to match electricity demand), do not have fuel costs, and can be implemented faster than any other generation option currently available. Wind plants can be built in just one year, which enables developers to respond more accurately to electricity use projections and short-term changes in demand.⁸

Renewable energy technologies can also be installed as smaller power units along the grid and also directly where electricity is used (a concept known as 'distributed generation'), an approach that allows reducing the capital costs and losses of transmission and distribution inherent to centrally generated power.⁹ These costs combined can total up to half of delivered power costs.¹⁰ Distributed generation leads to a more stable and secure electricity than the current system based on centralized utilities.

Renewable energy sources represent the biggest source of job creation amongst all power generation options as documented by a comprehensive study released in 2004 by researchers from the University of California and by comprehensive research conducted for the Bonn 2004 world conference on renewable energy.¹¹

Because of their greater potential for creating employment, renewable energy policies represent a key tool for community economic development. For example, it is estimated that wind energy projects can support rural communities by providing tax revenues and jobs for rural municipalities and new sources of lease income for rural landowners (\$2,500-\$5,000 a year per turbine).¹²

⁸ One-year construction estimate based on page 6 of Canadian Wind Energy Association. (2004). *Submission by the Canadian Wind Energy Association to the Federal/Provincial/Territorial Council of Energy Ministers' Meeting July 19, 2004/Iqaluit, Nunavut*. Available at www.canwea.org Combined cycle natural gas plants can be built in about two years (for example see Ford, A. (2001). *Simulation Scenarios for the Western Electricity Market: Paper for the California Energy Commission Workshop on Alternative Market Structures for California*. Available at: www.wsu.edu/~forda/bbust.html).

⁹ Further benefits of this approach include: modularity, short lead time, fuel diversity and reduced price volatility, load-growth insurance and load matching, reliability and resilience, local and community choice and control, avoided emissions and environmental impacts. See Dunn, S. (2002). *Micropower: New variable in the Energy-Environment-Security Equation*, *Bulletin of Science, Technology and Society*, 22 (2), 72-86.

¹⁰ Beck, F. and Martinot, E. (in print). *Renewable Energy Policies and Barriers*. Available at www.martinot.info/re_publications.htm.

¹¹ Kammen, D.M., Kapadia, K. and M. Fripp (2004) *Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate?* RAEI Report, University of California, Berkeley. Available at <http://list-socrates.berkeley.edu/~rael/renewables.jobs.pdf>. For more details see also Table 3 'Direct jobs in energy production' (page 5) of Goldemberg (2004) "Rationale for renewable energies: Making the case for renewable energies". Available at www.renewables2004.de/en/cd/default.asp

¹² Canadian Wind Energy Association op.cit note 47.

Ontario enjoys the additional benefits of possessing a skilled labour force and an advanced industrial base that, with the right policies, can become a solid foundation to develop the abundant renewable energy resources available throughout the province. The section below examines five sources of renewable energy: wind, hydroelectricity, biomass, solar and geothermal.

Wind

Wind is the fastest growing source of energy in the world, but Ontario is lagging behind. There is great potential for large-scale wind power generation in the province. The technically achievable wind resource in Southern Ontario is estimated at 86 terawatts-hour (TWh) annually, or about 58% of current provincial consumption.

Based on European experience, especially that of Germany and Spain, Ontario could install as much as 8,000 MW of wind-generating capacity by 2012. A fleet of wind turbines representing an installed capacity of 8,000 MW could generate 14 TWh annually, or about 10% of current consumption.

Using the same assumptions as a recent economic impact study of Quebec's 1,000 MW tender for wind-generating capacity, 8,000 MW of wind capacity installed in Ontario could produce nearly \$14 billion in economic activity and 97,000 person-years of employment.¹³

Hydroelectricity

Although wind power is an intermittent resource, management techniques can be enacted so that during times of low wind availability, Ontario's proposed 8,000 MW of wind turbines could be backed up by a portion of the existing provincial hydroelectric facilities that have water reservoir capacity. Coupling wind power with hydroelectricity is a key strategy to ensure the province has a significant and stable source of renewable electricity when needed.

Furthermore, if coordination measures are implemented to ensure that hydroelectric facilities collaborate with wind power producers, renewable energy can then be used effectively to manage electricity peaks. This innovative integration strategy is currently used in the state of Oregon and provides a viable and practical solution to manage the intermittent nature of renewable resources such as wind.¹⁴

The province also has an additional 1,000 MW available from small, low-impact hydropower development and potential hydroelectric refurbishments, capable of generating about 5.7 TWh per year.

¹³ Hélimax. (2004). *Étude sur L'Évaluation du Potentiel Éolien, de son Prix de Revient et des Retombées Économiques Pouvent en Déouler au Québec, Dossier R-3526-2004*. Montreal: Hélimax. Available at http://www.helimax.com/dossier_r35262004.pdf. For 1,000 MW:

6.7 person-years/\$1 million; 121.5 person-years/TWh for operation. For 4,000 MW: 7.7 person-years/\$1 million; 107.9 person-years/TWh. Note: it is not explained in the text why there would be more people employed per dollar invested at 4,000 MW than 1,000.

¹³ Assuming 4,000 MW installed at the rate of 1,000 MW/yr and operating for 25 years, the German employment values would produce about 97,000 person-years, versus the Helimax's estimate of 78,000 person-years.

¹⁴ The Bonneville Power Authority currently offers two systems to support wind power using hydroelectricity: a network wind integration service and a storage and shaping service; for details see www.bpa.gov/Power/PGC/Wind/wind.html.

Biomass

Ontario can develop 2,450 MW of power generation using a variety of biomass sources, which can generate 14.7 TWh per year, provide a new source of income for the province's forestry and agricultural sectors, and help deal effectively with their residues. In addition to electricity generation, biomass sources can generate 114 petajoules (PJ) of green heat that can be used to displace electricity and fossil fuels currently used for residential and commercial space heating.

Solar

Surveys of the world's solar photovoltaic (PV) market consistently show that growth rates of 30% or more have become an established trend. These high growth rates are leading to a general continuing downward trend in grid-connected PV system prices. Markets for solar water and space heating are also increasing at impressive rates of about 26% per year.

If supportive policies for solar energy are implemented in Ontario the province could install 1,263 MW of PV systems; 800,000 solar domestic hot water systems; 120,000 solar pool heaters; solar passive design in 420,000 new homes; 2,000 000 m2 of commercial and institutional solar hot water systems; and 825,000 m2 solar air ventilation systems. The combined energy output of these solar systems has the technically feasible potential of supplying by 2025 the equivalent power that coal provided in 1999, or about half the electricity generated by all of Ontario's nuclear power plants.

Geothermal

Geothermal heat pumps (GHP) are the most cost-effective option to provide space conditioning (heating and cooling) in Ontario. GHP can be widely used to provide heating and cooling for all new residential and commercial buildings in the province. Ontario could install by 2010, 125,000 residential GHP systems that would provide space conditioning needs (heating and cooling) and save the equivalent of 2,148,400 MWh per year (7.7 PJ). By 2020, the province can install 341,000 residential GHP systems that would provide space conditioning and save the equivalent of 5,777,200 MWh a year (20.8 PJ).

A basic premise of this essay is that energy efficiency and conservation strategies are the most logical complement to the widespread use of renewable energy sources. Aggressive energy efficiency measures are essential to ensure that Ontario becomes proficient at obtaining more energy services from lower electricity supply.

3. Conclusion and recommendations

The current government approach to deploy renewable energy in Ontario entails the high risk that only the most profitable sites (e.g. areas with the highest wind speeds) will be developed, and that only a few renewable energy technologies will be used (e.g. large wind and hydroelectric facilities, landfill gas).

These biases indicate the need for clear policies to ensure that 'boom and bust' cycles are avoided, and instead that all the renewable energy sources that exist throughout the province are fully tapped in a sustained and stable manner. New policies are required to develop favourable conditions so a wide variety of participants and local organizations

can actively participate in the implementation of large scale and distributed generation systems in rural and urban areas.

The accumulated experience from the six countries leading in the worldwide adoption of renewable energy is clear: success is achieved through conscious policy decisions that create increasing demand for renewable energy technologies, ensure favourable access to the electricity grid at fair prices, facilitate low cost financing, provide tax incentives and smart subsidies, legislate standards, support education initiatives, and encourage active stakeholder participation.¹⁵

Table 2: Ontario's renewable energy potential for electricity and thermal applications

	Installed capacity	Electricity generation (GWh/Year)	Thermal contribution PJ/Year
Wind	8,000 MW (2012)	14,000	
Hydroelectric (low-impact)	1,000 MW (2020)	5,700	
Biomass:			
Electricity	2,450 MW (2010-2020)	14,700	
Thermal			114
Geothermal heat pumps	125,000 systems (2010) 341,000 systems (2020)		7.7 20.8
Solar:			
Photovoltaic (PV) electricity	1263 MW (2025)	1,263	
Thermal	800,000 SDHW (2025) 120,000 SPH (2025) 420,000 new homes with SPD (2025) 2,000 000 m ² of C & I SHW (2025) 825,000 m ² SAV (2025)		9.6 6.6 85.7 4.0 7.2

Note.

SDHW = solar domestic hot water systems

SPH = solar pool heaters

SPD = solar passive design

C & I SHW = commercial and institutional solar hot water

SAV = solar air ventilation.

If the renewable energy options summarized in Table 2 are fully implemented by 2010, Ontario could have a total of over 25,000 people working in the renewable energy sector. By 2020 this sector could employ over 77,000 Ontarians.

All the estimates about resource and technical potential of various renewable energy technologies, and job creation benefits are estimates based on the best available information from peer-reviewed journals, government and industry data from Ontario and other jurisdictions. While these figures are well-informed general estimates, they are not a substitute for more comprehensive analysis of the provincial renewable energy potential,

¹⁵ For the past decade six countries: Denmark, Germany, India, Japan, Spain and the United States have achieved 80 percent of the world's wind and solar installation through policy mechanisms that address these factors (Sawin, op.cit. note 16).

and its associated economic and health benefits. The federal and provincial government should collaborate to conduct such analysis as soon as possible.

To develop Ontario's full potential of renewable energy and to ensure that the multiple benefits of renewable energy (e.g. job creation, industrial development opportunities) are harnessed to favour local communities, the following policy recommendations are provided:

1. *Mainstream grid scale renewables so that they are prioritized by the Ontario Power Authority (OPA).*
2. *Expand the mandate of the Conservation Bureau to include development of distributed renewable energy sources such as on-site solar, geothermal heat pumps, and biomass digesters.*
3. *Position the Conservation Bureau centrally in the machinery of the OPA so that conservation, efficiency and renewable energy – the very essence of a robust electricity system – are the priorities that shape the entire agenda of the OPA. Measures must be taken so the Conservation Bureau has the authority and practical tools to influence the operation of the entire electricity system.*
4. *Enact and negotiate stable, advanced renewable energy tariffs (ARTs) to provide specific electricity generation (kWh) payments for each renewable energy option (taking into account project location, market share, and level of technological development), and to establish and facilitate the right for renewable energy generators (REG) to connect into the electricity grid.*
5. *Implement a stable funding mechanism to finance the activities of the Conservation Bureau.¹⁶*
6. *Consolidate federal support to implement a provincial education strategy to train and certify renewable energy specialists and installers, quantify and map all renewable resources available in the province, increase public awareness on renewable energy potential and support programs.*
7. *Collaborate with the federal government in the establishment of a provincial revolving loan fund to provide interest free loans to install distributed generation systems in farms, residences and businesses throughout the province.*
8. *Initiate a process with the federal government to quantify the environmental and social costs of all forms of electricity generation and delivery so these costs can be included into the price of each electricity option to better inform investment comparisons.*

¹⁶ Some viable options for stable funding include: developing a public benefit fund based on a 0.3 cent surcharge in each kWh sold in the province; levying a carbon tax on electricity generated by fossil fuels (as it is done in the Netherlands). For more information on the funding alternatives currently used in the U.S. see www.cleanenergystates.org/Funds/

9. *Develop a collaborative process with the largest provincial users of electricity (e.g. auto and steel manufacturers, mining companies) to establish a rational system to deal with electricity peak use.*
10. *To stimulate market transformation, direct all levels of government (provincial and municipal) to use their procurement capacity to purchase their electricity needs from renewable energy sources, and to ensure that any new government-funded building incorporates renewable energy technologies for heating and cooling purposes. This strategy should be financed through new federal-provincial collaborations and should start by working with large government users of electricity such as the Toronto Transit Commission to purchase all their electricity needs from renewable energy sources (as already is done through Calgary Transit's initiative "Ride the Wind").*

As this essay illustrates, Ontario has abundant opportunities to use electricity more efficiently, and an immense variety of renewable sources to satisfy its current and future power needs. Furthermore, with its industrial infrastructure and skilled workforce, the province has all the elements needed to replace its aging electricity system with a variety of sustainable options.

Annex II

First Announcement - World Renewable Energy Assembly

Bonn/Germany, November 26th to 30th, 2005

In June 2002 the first World Renewable Energy Policy Forum of the World Council for Renewable Energies (WCRE) took place in Berlin to review and to promote Renewable Energy policies and strategies on a global level.

This major gathering of global leaders on Renewable Energy stimulated the International Conference of Governors - the ³Renewables 2004² (Bonn, June 1st to 4th, 2004). The second ³World Energy Policy Forum² took place in Bonn from May 28th to 30th, 2004 and adopted the World Renewable Energy Policy Agenda (<http://www.wcre.org>). It was the platform for non-governmental Renewable Energy Associations facing the ³Renewables 2004² and the International Parliamentary Forum on Renewable Energy² (Bonn, June 2nd, 2004)

Based on the preceding World Renewable Energy Policy forums the WCRE now announces the

World Renewable Energy Assembly
Bonn/Germany, November 26th to 30th, 2005

This event covers:

- The 3rd World Renewable Energy Policy Forum.
- The 2nd International Parliamentary Forum.

The assembly will be held in Bonn from November 26th to 30th, 2005.

Main topics:

- Global Renewable Energy acceleration instead of Nuclear Renaissance
- Fighting atomic and fossil energy privileges and subsidies
- Reviewing and evaluation of the best RE policies
- International institution building for Renewable Energy
- A framework for RE in the International Law
- Reviewing and challenging the RE Policies of International GOs and NGOs
- Reviewing and challenging the Credit Policies of International Development Banks
- The State of the Art of RE industrial development
- Cities and villages as solar power station
- Winning the Oil Endgame: Replacing fossil fuels by Renewables in transport and mobility

Further announcements concerning the programme will follow, please visit our website.

The World Renewable Energy Assembly will be chaired by Hermann Scheer, Member of the German Parliament, President of EUROSOLAR and General Chairman WCRE.

World Council for Renewable Energy (WCRE)
c/o EUROSOLAR e.V.
Kaiser-Friedrich-Str. 11
53113 Bonn / Germany
Phone : +49 (228) 36 23 73 / 75
Fax : +49 (228) 36 12 13 / 79
eMail: info@wcre.org
Internet : <http://www.wcre.org>