



CANADIAN ENVIRONMENTAL LAW ASSOCIATION
L'ASSOCIATION CANADIENNE DU DROIT DE L'ENVIRONNEMENT

February 27, 2006

The Honourable Dalton McGuinty
Premier of Ontario
Legislative Building
Queen's Park
Toronto, Ontario
M7A 1A1

Coordinator, Energy Economics
Office of Energy Supply and Competition
880 Bay Street, 3rd Floor
Toronto, ON M7A 2C1

Dear Premier McGuinty:

**Re: Ontario Power Authority *Supply Mix Advice Report*, December 2005 and
Integrated Power System Plan - Supply Mix EBR# PO05E0001**

We write to provide the comments of the Canadian Environmental Law Association on the Ontario Power Authority's December, 2005 *Supply Mix Advice Report* (EBR # PO05E0001).

The Canadian Environmental Law Association ("CELA") is a public interest group founded in 1970 for the purpose of using and improving laws to protect the environment and conserve natural resources. CELA is funded as a legal aid clinic and represents individuals and citizen groups before trial and appellate courts and administrative tribunals on a wide variety of environmental issues. In addition to litigation, CELA also undertakes law reform activities, public education and community organizing.

PART I - OVERVIEW

The Problem:

Electricity supply for Ontario must change. Coal plants will be phased out by 2009 to clear the air. Nuclear plants have a short life-span. They won't work beyond the decade of 2010-2020. Some could last a bit longer but only by spending billions of dollars.

Neither coal nor nuclear can provide for Ontario's long-term electricity needs. Pollution from coal adds to climate change. It produces smog, acid rain and adds toxic mercury to the food

chain. Nuclear power is expensive and unreliable. No solution exists for its radioactive waste. It produces routine radioactive emissions and poses catastrophic risks.

Ontario's electricity system is centralized and fragile with 75% of supply from five coal plants and three nuclear stations. Such a system wastes electricity during long-distance transmission and is vulnerable to sabotage.

The Opportunity:

A smooth transition is possible. As coal and nuclear technologies are phased out, they can be replaced with a stable mix of alternatives.

First and foremost are big improvements in efficiency and conservation. The good news is that per capita electricity consumption can be decreased without any loss of comfort or lifestyle changes. It's been done in California and can be done in Ontario.

Second, we can choose green electricity options that are cheaper, cleaner, safer and more reliable than coal or nuclear. Electricity supply can come from high efficiency gas generation (combined heat and power plants), renewable energy and inter-provincial connections. In the process, we create a more decentralized green electricity generation and transmission system. A decentralized system is more reliable, reducing the risk of major blackouts.

Third, green energy will enhance Ontario's competitiveness and create jobs. In Germany, the renewable energy sector alone has expanded to 130,000 jobs following implementation of a nuclear phase-out plan. Improvements to the electricity productivity of the Ontario economy are both an economic and environmental necessity. Without the ability to rely on local energy sources, Ontario's long-term economic health depends upon maximizing the potential for renewable energy sources.

The Transition to a Green Electricity Future

A Commitment to Coal and Nuclear Phase-out

- Ontario has promised to shut down all five coal stations by 2009. So far, so good.
- A similar phase-out schedule for nuclear will provide much-needed security to the public and private sector to invest confidently in a green electricity future.
- Of the 20 large nuclear power reactors in Ontario, five have been mothballed since 1997. Don't throw good money after bad. Shut them down permanently. Add the cost of their decommissioning to the already massive debt created by this toxic technology.
- The remaining 15 reactors should be shut down after 25 years of operation, or earlier if any large expenditures are required. Nuclear phase-out thus occurs between 2008 and 2018.
- No new nuclear construction. At double the cost of a high efficiency gas plant and disastrously poor performance, a new nuclear plant is a colossal waste of money.

Big Increases in Efficiency

Ontario has committed to a 5% electricity demand reduction by 2007 and sought demand-side management in the bidding process for new electricity supplies. These are minimal starting points. *A reduction of at least 20% in electricity use by 2010 is possible. This should be Ontario's electricity demand reduction target.*

A 20% reduction in demand can be achieved via measures like:

- Incentive programs for load reductions in the residential and commercial sectors in cooperation with federal programs.
- Public education programs on fuel switching, efficiency and conservation.
- A "public benefits charge" of 0.3 cents per kWh. This would equal \$2.20 per month for a typical household. This would raise \$440 million per year to fund efficiency initiatives.
- Fuel switching to eliminate the inefficient use of electricity for space and water heating.
- Improvements in energy standards for buildings, appliances and other electric devices. E.g., the Energy Star standard should be the minimum for appliances.
- A transparent public planning process for efficiency initiatives through a restructured Ontario Energy Board.
- Real-time electricity meters so that consumers can evaluate their consumption more accurately.

Promote Renewable Energy

- Ontario intends to achieve 5% of electricity supply from renewables by 2007. Far higher targets are necessary and attainable.
- Election promises included more realistic but still modest targets of 10% renewables by 2010 and at least 20% by 2020.
- Learn from Europe where the wind industry has grown 35% over five years. Europe will have 75000 megawatts of wind capacity by 2010 -- enough for 34 million households.
- Compare costs of renewables to nuclear.
- For example, \$3 billion could restart three mothballed nuclear reactors (barring cost overruns, which are typical). \$3 billion could instead build 3000 megawatts of wind turbines that would reliably generate about 8 million megawatt hours of electricity per year (and not produce highly toxic radioactive waste). The three reactors, operating at the average 40% performance of Ontario reactors (in 2003) would generate about 5 million megawatt hours.
- Base renewable energy percentages on energy not capacity. For example, wind is intermittent and wind turbines typically function at about 30% capacity factor.
- Eligible renewable energy technologies should be based on the EcoLogo definition.
- Provincial policies are necessary to encourage net metering in order to mobilize an enormous potential from small renewable systems.

Promote Community Power

- Government policy must encourage diversification of the pool of power producers.
- Power producers can include co-operatives, municipal utilities and district energy companies as well as investor-owned companies.
- Ontario Power generation should invest only in new, low environmental-impact plants and efficiency programs.
- Learn from Europe. Community power has been a significant factor in the success of renewable energy in Europe. In Denmark, 85% of wind capacity is locally owned and 35% in Germany.

High Efficiency Gas Generation

- Gas-fired electricity generation is a key transition fuel. It will assist with Ontario's transition to a sustainable system. Efficiency improvements and lower environmental and financial costs are possible with the use of Combined Cycle Gas Turbines in Combined Heat and Power (CHP) applications.

Commitment to Environmental Assessment

- All decisions about Ontario's electricity supply mix must be subject to a full environmental assessment review and public hearing process.

What Ontarians are Saying:

- 93% say energy conservation is important to them.
- 84% say Ontarians need to do a better job of conserving energy
- Over 93% say that both new homes and renovations should meet the highest energy efficiency standards available
- 89% strongly support requirements that new homes carry an energy efficiency rating similar to those found on new appliances.
- When asked to rank electricity options, Ontarians rank coal and nuclear at the bottom of their priority list, while they most favour creating renewable energy, followed by encouraging conservation and cogeneration.¹

Part II - PUBLIC CONSULTATION

The Supply Mix Advice Report was prepared by the Ontario Power Authority with very little public consultation and input. Thereafter, Premier, you committed to additional public consultation, which we welcomed. However, the public consultation thereafter announced and carried out by the Ministry of Energy has been highly inadequate as we set out in correspondence to you of February 15, 2006. The consensus among those who attended the consultations and have contacted us is that it was the most poorly designed and conducted public consultation exercise most have ever seen.

Despite that fact, and despite the short notice and in some cases poor weather, we noted that hundreds of people adjusted their schedules to attend the consultations. They were almost uniformly extremely well informed, with excellent input and advice to provide to your government. This demonstrates the wealth of information and input that could be accessed with a more thorough, transparent and participatory consultation process.

We urge you to extend and continue the consultation process with the people of Ontario, and to defer any decisions or directives to the Ontario Power Authority on the Supply Mix for Ontario until you have had an opportunity to do so.

¹ oraclepoll Research, January, 2006. Survey prepared for the Conservation Council of Ontario.

In that respect, we encourage you to set up a proper consultation process that allows for input in a variety of formats, public and expert, allows transparency and review of the input provided, and allows responses to same.

As this submission is being prepared, the provincial government has announced that it is distributing a brochure to every household in Ontario to solicit Ontarians' views about Ontario's future electricity supply.

CELA has reviewed this brochure as posted to the Ministry of Energy web site on February 20, 2006. Unfortunately, the brochure is also biased and inaccurate and the presentation of the information and questions for the public will prejudice the answers that the province obtains. This is not a legitimate consultation. In particular, the brochure:

- Under-estimates the potential for conservation initiatives
- Mis-states the contribution of wind and renewables for energy production
- Mis-represents the cost of nuclear power and the environmental impacts of nuclear power

We urge the provincial government to immediately commence a proper consultation process, modelled after the Walkerton Inquiry, with fair opportunity for evaluation of the options, access to testing of the information, transparency of process and opportunity for responses to submissions made.

Recommendation 1: We urge the provincial government to immediately commence a proper consultation process, modelled after the Walkerton Inquiry, with fair opportunity for evaluation of the options, access to testing of the information, transparency of process and opportunity for responses to submissions made.

PART III - ENVIRONMENTAL ASSESSMENT

Once the Ontario Power Authority develops the Integrated Power System Plan, it must be subjected to an Environmental Assessment under the Ontario Environmental Assessment Act. You have previously committed to ensuring that this plan is given a full environmental assessment, for which we commend you, and we look forward to participating, along with other Ontarians in that process. We have previously stated that we would encourage you to combine a hearing under the Environmental Assessment Act with the hearing envisaged by the Electricity Act before a combined panel of the Ontario Energy Board and the Environmental Review Tribunal. The OEB hearing will not be an environmental assessment and would not allow for an evaluation of the environmental impacts of the preferred plan or the alternative methods or alternatives to the plan that the OPA ultimately develops. It is critical, for a plan of this magnitude, with such significant repercussions for the economy and ecology of Ontario, that the supply plan and alternatives are thoroughly evaluated based on the impacts to the environment in Ontario as defined in the *Environmental Assessment Act*.

The Ontario *Environmental Assessment Act* (R.S.O. 1990, c. E.18) (hereinafter the *Act*) applies not only to projects, which would limit its reach to physical structures, but also to enterprises,

activities, programs, proposals, and plans.² Section 3 of the *Act* addresses applicability and states that:

This Act applies to,

- (a) enterprises or activities or proposals, plans or programs in respect of enterprises or activities by or on behalf of Her Majesty in right of Ontario or by a public body or public bodies or by a municipality or municipalities;
- (b) major commercial or business enterprises or activities or proposals, plans or programs in respect of major commercial or business enterprises or activities of a person or persons, other than a person referred to in clause (a), designated by the regulations;
- (c) an enterprise or activity or a proposal, plan or program in respect of an enterprise or activity of a person or persons, other than a person or persons referred to in clause (a), if an agreement is entered into under section 3.0.1 in respect of the enterprise, activity, proposal, plan or program.

In addition, the definition for “undertakings” provided in section 1(1) of the *Act* is identical to the wording of section 3.

Recommendation 2: The provincial government must ensure the full application of the *Environmental Assessment Act* to the Integrated Power System Plan and should appoint a combined hearing panel composed of the Environmental Review Tribunal and the Ontario Energy Board once the IPSP is completed.

PART IV – TERMS OF REFERENCE

We enclose as Schedule A, suggested Terms of Reference for evaluation of the future electricity Supply Mix for Ontario, as provided to you with prior correspondence from us and others on January 25, 2006.

PART V - ERRONEOUS ASSUMPTIONS IN ONTARIO POWER AUTHORITY REPORT

As others have pointed out in more detail, the Ontario Power Authority report contains serious erroneous assumptions and premises in reaching its conclusion that a major reliance on nuclear power including new nuclear plants is recommended.³ CELA has reviewed the Ontario Power Authority report in detail and concurs that that report:

- Over-estimated Ontario’s rate of electricity growth for the future
- Under-estimated Ontario’s potential for renewable energy

² David Estrin and John Swaigen, *Environment on Trial: A Guide to Ontario Environmental Law and Policy*, 3rd ed. (Toronto: Emond Montgomery, 1993) at 194.

³ Gibbons, J., “Meeting Ontario’s Electricity Needs: A Critical Review of the Ontario Power Authority’s Supply Mix Advice Report”, Ontario Clean Air Alliance, January 26, 2006.

- Under-estimated Ontario's potential for efficiency and electricity productivity improvements
- Under-estimated the potential for biomass and natural gas-fired combined heat and power plants
- Over-estimated future natural gas prices
- Under-estimated the economic costs of nuclear power
- Under-estimated or ignored the accident, terrorism and radioactive waste risks and legacies of nuclear power
- Over-estimated the reliability of nuclear power
- Under-estimated the reliability and capacity of renewable power, and
- Mis-weighted the environmental impacts of the various forms of power generation.

The Ontario Power Authority report must not be used by the Ontario government to make the critical power supply decisions that are under consideration.

Rather, the Ontario government should direct the Ontario Power Authority to initiate a new process to obtain information, including adequate public consultation, and submit a new report as to the recommended supply mix for the Province.

PART VI - ERRONEOUS ENVIRONMENTAL ANALYSIS IN THE ONTARIO POWER AUTHORITY REPORT

The Supply Mix advice by the Ontario Power Authority was based in part on a "life cycle environmental analysis" that biased the results in favour of nuclear power. This part of the analysis was carried out by SENES: Specialists in Energy, Nuclear and Environmental Services. It is based largely on a "weighting system" that arbitrarily weights one type of environmental impact, greenhouse gases, as twenty times more significant than another type of environmental impact, for example, radioactivity. This is the kind of analysis one would set up if one wanted nuclear power to appear more environmentally benign than it is.

The report completely failed to capture all of the significant environmental and health impacts and risks that nuclear power presents.

- The design of the study explicitly excluded severe accident risks.
- The study discounted the intractable problem of highly radioactive used fuel that will remain toxic and dangerous for a million years.
- It left out ground water impacts which are one of the major environmental risks of uranium mining.
- The report left out transportation for all sectors but transport of toxic radioactive used fuel is of huge import.
- The report authors decided not to include human health and safety as a separate factor on the basis that it would be captured in air quality impacts. But for the nuclear power life cycle, major health and safety impacts occur in uranium mining, milling, mine tailings, radioactive emissions to air and water of routine nuclear power plant operations, as well as in used fuel handling, storage, and transportation over the million year time frame of that spent fuel.
- Accident risks are left out because of their calculated low probability according to the nuclear engineers but in no other form of electricity generation except nuclear power would a severe accident leave much of the population of southern Ontario looking for another place to live.

- The assessment of waste impacts in the study is on the basis of the weight of the used fuel and other wastes; NOT on its toxicity! Furthermore, the Decommissioning study looked only at waste volumes, and not at health and safety issues.

PART VII - EFFICIENCY AND CONSERVATION

In *Power for the Future*,⁴ CELA and the Pembina Institute found, based on the Canadian Integrated Modeling System, with the assistance of the Energy and Materials Group at Simon Fraser University, that Ontario's electricity demand could be reduced by 40% against business-as-usual projections by 2020. This calculation was based on currently available energy efficient technologies and practices, fuel switching and increased industrial and commercial co-generation. Summer peak electricity grid demand could be reduced by nearly 50%.

To accomplish these efficiencies would require a societal expenditure across all sectors of 18 billion dollars over 15 years. However, over 95% of this amount would be recovered by energy consumers through cost savings.

Our report found that three types of technological and behavioural changes would account for these savings:

1. The adoption of the most energy efficient technologies instead of conventional products in all sectors⁵;
2. The expansion of cogeneration in the industrial and commercial / institutional sectors as energy consumers take advantage of the efficiencies offered by combined heat and power, and generating power through cogeneration and micro-turbines instead of buying from the grid, and
3. A shift from electricity to natural gas for heating in the residential and commercial / institutional sectors.

In order to expedite these changes, financial incentives to reduce the capital cost of energy efficient or non-electric technologies, and innovate financing that would allow purchasing decisions more on a life-cycle cost rather than a first-cost basis should be developed by the provincial government.

These recommendations are far more cost effective with a much more sustainable electricity system as a result compared to the Ontario Power Authority Report and its recommendation to spend \$85 billion dollars on Ontario's electricity system over essentially the same time frame, with almost none of that recoverable by consumers in efficiencies, but rather added to consumers' and tax payers' bills.

⁴ Winfield, M., McClenaghan, T., et al, *Power for the Future: Towards a Sustainable Electricity System for Ontario*, Pembina Institute for Appropriate Development, Canadian Environmental Law Association, 2004

⁵ The CIMS model estimates the future energy demand by simulating the addition and replacement of energy using "stock" – industrial process equipment, electric motors, commercial lighting equipment, residential appliances, etc. The addition of new stock is linked to forecasts of macroeconomic parameters. Stock replacement is determined by the life of the piece of equipment or its availability.

Although in the Pembina/CELA report, Ontario's new power recipe showed that demand reductions could amount to 73,500 Gwh, (12,340 MW reductions for peak demand), the Ontario Power Authority Report assumes a meagre 1810 MW by 2025. Furthermore, if conservation is better than the very low projections used by the OPA in the future, the OPA recommends scaling back on renewable power!

Big Increases in Efficiency

Ontario has committed to a 5% electricity demand reduction by 2007 and sought demand-side management in the bidding process for new electricity supplies. These are minimal starting points. *A reduction of at least 20% in electricity use by 2010 is possible. This should be Ontario's electricity demand reduction target.*

- A 20% reduction in demand can be achieved via measures like:
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Recommendation 3: A reduction of at least 20% in electricity use by 2010 is possible. This should be Ontario's electricity demand reduction target. By 2020, Ontario's electricity demand should be reduced by 40% against business-as-usual projections.

PART VIII - RENEWABLE ENERGY SOURCES

In Power for the Future, CELA and Pembina assessed the available sources of renewable energy and their potential for Ontario. Since then, David Suzuki Foundation carried out a more detailed assessment of the available renewable energy sources in Ontario. In comparison, the Ontario Power Authority has under-estimated the potential for renewable energy sources in Ontario, and has also mis-characterized the maturity, reliability and capacity of these energy technologies.

	PEMBINA / CELA, 2004	DAVID SUZUKI FOUNDATION, 2005	ONTARIO POWER AUTHORITY SUPPLY MIX ADVICE DEC. 2005
DEMAND REDUCTIONS	12000 MW		1810 – 4300 MW

DEMAND REDUCTIONS	2000 MW		
SOLAR ROOFS	750 MW	1263 MW to grid plus thousands of hot water systems, pool heaters, passive heating, air ventilation	40 MW solar-powered generation
EXISTING HYDRO	6300 MW		
EXISTING PEAKING GAS & REPLACED OIL	3000 MW		5000 MW
WIND POWER	3000 MW	8000 MW by 2012	6700 MW by 2025
BIOMASS	375 MW	2450 MW	500 MW
NEW COMBINED CYCLE NATURAL GAS	3800 MW		1500 MW - 7500 MW
NEW HYDRO	1200 MW	1000 MW low impact	2850 MW by 2025 plus 1250 hydro imports
GEOTHERMAL	not estimated		125,000 systems 2010; 341,000 systems 2020
NUCLEAR	0 MW		12,900-15,900 MW
COAL GASIFICATION	0 MW		250 MW
COAL-FIRED	0 MW		keep on standby

More recent sources show greater potential estimates for most of the renewable power sources than those we very conservatively relied on in the Power for the Future Report. Nevertheless, we demonstrated that meeting Ontario's future electricity supply needs after the coal phase-out and after the end of life of the current nuclear plants is highly achievable even with conservative renewables estimates. The more recent renewables estimates give even greater confidence to this conclusion, and further erode the Ontario Power Authority recommendations to continue large-scale reliance on nuclear power.

The Ontario Wind Energy Association estimates that Ontario could produce 40,000 MW of wind energy. Solar hot water heating could be installed in 70% of the province's homes, in addition to installation of photo-voltaic cells for electricity generation. Geothermal energy hasn't even begun to be explored despite its huge potential.

It is essential that Ontario institute a Standard Offer Contract on attractive terms for renewable energy, at the earliest opportunity. The Province of Ontario must provide for conditions that will attract robust sustainable, low impact renewable energy technologies. Ontario should set a goal to be a world leader in renewable energy technology.

Promote Renewable Energy

- Ontario intends to achieve 5% of electricity supply from renewables by 2007. Far higher targets are necessary and attainable.

- Election promises included more realistic but still modest targets of 10% renewables by 2010 and at least 20% by 2020.
- Ontario must learn from Europe where the wind industry has grown 35% over five years. Europe will have 75000 megawatts of wind capacity by 2010 -- enough for 34 million households.
- Compare costs of renewables to nuclear.
- For example, \$3 billion could restart three mothballed nuclear reactors (barring cost overruns, which are typical). \$3 billion could instead build 3000 megawatts of wind turbines that would reliably generate about 8 million megawatt hours of electricity per year (and not produce highly toxic radioactive waste). The three reactors, operating at the average 40% performance of Ontario reactors (in 2003) would generate about 5 million megawatt hours.
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Promote Community Power

- Government policy must encourage diversification of the pool of power producers.
- Power producers can include co-operatives, municipal utilities and district energy companies as well as investor-owned companies.
- Ontario Power generation should invest only in new, low environmental-impact plants and efficiency programs.
- Learn from Europe. Community power has been a significant factor in the success of renewable energy in Europe. In Denmark, 85% of wind capacity is locally owned and 35% in Germany.

Recommendation 4: It is essential that Ontario institute a Standard Offer Contract on attractive terms for renewable energy, at the earliest opportunity. The Province of Ontario must provide for conditions that will attract robust sustainable, low impact renewable energy technologies. Ontario should set a goal to be a world leader in renewable energy technology.

PART IX - NUCLEAR POWER

Ontarians are still paying off the 38 billion dollars in “stranded debt” that the former Ontario Hydro accumulated, primarily from its nuclear power investments. Now the Ontario Power Authority envisages another 45 billion dollar nuclear investment. As the Ontario Clean Air Alliance has graphically illustrated, the provincial government has overseen or committed to a ratio of \$73 dollars expenditures for new supply versus every 1\$ for electricity conservation and efficiency between 2004 and the present date.⁶ Twelve billion dollars in new supply

⁶ Ontario Clean Air Alliance, Air Quality Issues Fact Sheet #16 “Electricity Expenditure”, www.cleanairalliance.org

commitments have been made in the past two years; of which 5.27 billion dollars have been for Bruce and Pickering Nuclear Generating Stations refurbishment / restart projects.

Nuclear power generation is not sustainable nor renewable. Uranium mining in Saskatchewan is leaving a highly toxic legacy to the natural environment and surrounding First Nations communities and watersheds. High level radioactive waste from used uranium fuel will leave us a legacy of highly toxic waste that will require centuries of governance structures to safeguard. Nuclear power presents environmental and health threats even from routine operations. For example, routine water emissions such as tritium impact drinking water sources for Great Lakes communities nearby. Nuclear power also presents enormous security risks, such as risk of terrorist attacks on plants, waste facilities or diversion of high level waste.

Cost and Reliability

- Nuclear power is enormously costly - for example Darlington was 500% over budget and the Ontario Power Authority report proposes 45 billion dollars for up to 12 new nuclear plants. However, even that cost estimate is likely far too low given the experience with the actual costs of building nuclear power in Ontario. If the Darlington costs of twenty years ago were applied today, regardless of inflation and increased materials and labour costs, the proposed nuclear new build costs would amount to almost 60 billion dollars.
- Nuclear power reliability is poor - instead of a reliable 30 or 40 years of operation, major problems develop after around 12 years
- Nuclear power requires major public subsidies and special rules to operate such as the Nuclear Liability Act with its \$75 million cap on liability from a nuclear accident!

Potential for Accidents

- The wrong kind of accident would be irreversibly catastrophic to Ontario and is not unthinkable - consider Chernobyl in 1986, Three Mile Island in 1979, Windscale in 1957, SL-1 in 1961, NRX at Chalk River in 1952, Fermi in 1966, Lucens in Switzerland in 1969
- In addition to these have been many other lesser known accidents and incidents in every decade since the 1950's in every type of nuclear power plant - heavy water reactors, gas-cooled reactors, pressurized water reactors, boiling water reactors and fast breeding reactors
- At least 9 accidents world wide have led to deaths from exposure to ionizing radiation.

What about the Waste?

- By the end of 2004, there were 1.9 million used fuel bundles in Canada, or 45,000 metric tonnes of nuclear fuel waste and this number continues to climb with continued production of nuclear fuel waste from on-going nuclear power plant operation
- The Nuclear Waste Management Organization has acknowledged that radioactive waste fuel will remain toxic for a million years.
- Nuclear Waste Management Organization (NWMO) estimates the cost of managing this waste to be 24.4 billion dollars.

Implications

- The challenges and questions around governance arrangements, financing arrangements, and technological arrangements to provide for a 100,000 year legacy of radioactive toxic high level nuclear fuel waste from our current generations' decisions to meet our current wasteful and fleeting energy demands with nuclear power production dictate one answer: we must phase out nuclear power production in Canada.

Phase-Out Nuclear along with Coal

- Ontario has promised to shut down all five coal stations by 2009. So far, so good.
- A similar phase-out schedule for nuclear will provide much-needed security to the public and private sector to invest confidently in a green electricity future.
- Of the 20 large nuclear power reactors in Ontario, five have been mothballed since 1997. Don't throw good money after bad. Shut them down permanently. Add the cost of their decommissioning to the already massive debt created by this toxic technology.
- The remaining 15 reactors should be shut down after 25 years of operation, or earlier if any large expenditures are required. Nuclear phase-out thus occurs between 2008 and 2018.
- No new nuclear construction. At double the cost of a high efficiency gas plant and disastrously poor performance, a new nuclear plant is a colossal waste of money.

RECOMMENDATION 5: No further Nuclear Generating Stations should be retro-fitted or re-furbished in Ontario. Once each of the plants reaches the end of its current life or requires large expenditures, it should be permanently shut down. No new nuclear plants should be built in the province.

PART X - CONCLUSION:

The Canadian Environmental Law Association urges the provincial government to reject the biased Ontario Power Authority advice based on an analysis that was guaranteed to give nuclear as the predominant answer.

CELA urges the provincial government to provide for the open and public debate on nuclear power that it promised, in a transparent and democratic forum, with opportunity for true participation by the Ontario public.

The OPA report was not developed in an open, transparent and participatory manner. Giving very little time for submissions in the middle of the summer; not allowing the public to see the submissions that it was considering until the end of its process; not allowing any forum for debate, questioning and response, nor any testing of evidence and assumptions do not amount to an open, democratic process. The OPA's Supply Mix Advice should be rejected and the Ontario government should start over with a real evaluation of Ontario's electricity options.

PART XI - SUMMARY OF RECOMMENDATIONS:

Recommendation 1: We urge the provincial government to immediately commence a proper consultation process, modelled after the Walkerton Inquiry, with fair opportunity for evaluation of the options, access to testing of the information, transparency of process and opportunity for responses to submissions made.

Recommendation 2: The provincial government must ensure the full application of the *Environmental Assessment Act* to the Integrated Power System Plan and should appoint a

combined hearing panel composed of the Environmental Review Tribunal and the Ontario Energy Board once the IPSP is completed.

Recommendation 3: A reduction of at least 20% in electricity use by 2010 is possible. This should be Ontario's electricity demand reduction target. By 2020, Ontario's electricity demand should be reduced by 40% against business-as-usual projections.

Recommendation 4: It is essential that Ontario institute a Standard Offer Contract on attractive terms for renewable energy, at the earliest opportunity. The Province of Ontario must provide for conditions that will attract robust sustainable, low impact renewable energy technologies. Ontario should set a goal to be a world leader in renewable energy technology.

Recommendation 5: No further Nuclear Generating Stations should be retro-fitted or re-furbished in Ontario. Once each of the plants reaches the end of its current life or requires large expenditures, it should be permanently shut down. No new nuclear plants should be built in the province.

Yours truly,

CANADIAN ENVIRONMENTAL LAW ASSOCIATION

A handwritten signature in black ink, appearing to read 'Theresa A. McClenaghan', with a stylized flourish at the end.

per

Theresa A. McClenaghan, Counsel

Kathleen Cooper, Senior Researcher

Paul Muldoon, Executive Director and Counsel

Richard Lindgren, Counsel

Schedule A

SUGGESTED TERMS OF REFERENCE FOR A PUBLIC CONVERSATION / INQUIRY ON THE FUTURE ELECTRICITY SUPPLY MIX FOR ONTARIO

January 25, 2006

OVER-ARCHING QUESTIONS

- What are the public's priorities among competing supply mix options?
- What are the public's concerns with particular options?

HOW MUCH ELECTRICITY WILL WE NEED?

- What impact on the need for generation will arise from the use of recent electricity consumption data rather than assuming electricity consumption will grow twice as fast as recent experience? What impact would arise from assuming that electricity consumption will grow at a slower rate?

COMPARING ACCIDENT RISKS OF GENERATING OPTIONS

- What are other estimates of nuclear accident risks and societal costs for Ontario?
- What are other estimates of accidents risks from other forms of electricity generation and how do they compare?

COMPARING COSTS OF GENERATING OPTIONS

- What are appropriate costs of capital for comparing generation options?
- Should a social cost of capital (i.e. a cost for capital that reflects the true cost to society of the capital) be calculated for the supply mix decision as is traditionally done for public decisions?
- What are the available gas price forecasts and what is the impact of assuming forecasts other than the highest price forecasts for the available options?

COMPARING ENVIRONMENTAL IMPACTS OF GENERATING OPTIONS

- What are appropriate weighting criteria for comparing environmental impacts of various supply options?

COMPARING IMPACTS ON SMALL BUSINESS OF GENERATING OPTIONS

- What is the impact on emerging industries of the competing portfolios? For example, what is the impact on the emerging renewables industry of a small allocation in the supply mix?
- Early commitment to nuclear power through the portfolios as outlined by OPA effectively caps or limits investment in and proportion of renewables and conservation. What alternatives exist to avoid this effect?

COMPARING RELIABILITY OF GENERATING OPTIONS

- The OPA portfolios assume an 85% availability for nuclear plants; what is the actual experience for CANDU's for all years, including those where the plants were shut down for major repairs and refurbishments?
- How do the plans change for alternative costs of capital, performance and capital cost estimates when nuclear factors are based on historic performance are applied?

COMPARING THE ENVIRONMENTAL AND SOCIETAL COSTS OF SUPPLY AND DEMAND OPTIONS

- What are the full range of so-called “external” costs (i.e. those environmental and social costs not normally included in standard financial statements) for the main supply and demand options?

COMPARING HEALTH IMPACTS AND COSTS OF GENERATING OPTIONS

- What are the potential health effects and impacts of catastrophic accidents arising from the various supply technologies assumed in the portfolios?
- What are the health effects arising from routine operations from the various supply technologies assumed in the portfolios?

COMPARING SECURITY ISSUES OF GENERATING OPTIONS

- What is the risk to the public and to a secure electricity supply arising from threat of terrorism or other attacks from the various supply options?
- What is the risk to the economy of significant reliance on a large amount of any one of the electricity supply technologies should the technology or fuel become unavailable or too risky?

COMPARING IMPACTS ON LOW INCOME CONSUMERS OF GENERATING OPTIONS

- What impact on the portfolios does fuel switching (i.e. programs that switch end uses including heating and water heating from electricity to alternative fuels and technologies) provide?
- What alternatives are available for low income families to reduce electricity consumption, switch to other fuels and has OPA dealt with this question adequately?

IMPACT OF DECENTRALIZED APPROACHES ON SUPPLY MIX OPTIONS

- Should dispersed and decentralized community-based and smaller scale generation be given preference due to lower transmission costs and impacts, greater reliability and reduction in system losses? What are these decentralized generation and conservation options? What is the potential for these options?

WEIGHTING TO PROVEN TECHNOLOGIES IN SUPPLY MIX ADVICE

- To what extent should the supply plan be based on untested technologies or on currently available technologies?

LIABILITY FROM WASTE GENERATION AND PLANT DECOMMISSIONING

- What potential liability would arise in the portfolios, above and beyond the current estimates for nuclear waste management and nuclear power plant decommissioning?

LESSONS FROM OTHER JURISDICTIONS

- What have the best and most aggressive strategies and programs achieved in other jurisdictions for particular end-use efficiencies and for renewables?

COMPARING IMPACTS ON CONSERVATION AND RENEWABLES DEVELOPMENT OF GENERATING MIX OPTIONS

- Ontario Power Authority found a much larger technical potential for conservation and renewables than it used in its supply scenarios, based on a concern that conservation and renewables will not emerge sufficiently. What policy choices does government have that would create greater assurance that conservation and renewables would emerge as a major proportion of Ontario's electricity supply?
- What is the potential for electricity use reduction from government appliance and building standards?
- What is the cost of delaying commitments to nuclear power? If time is allowed for aggressive commitment to renewables and conservation, and commitment to nuclear is delayed by various numbers of years, what is the impact? What would be available as alternatives for supply and at what cost in the event that another permanent supply then needed to be developed?
- If an aggressive commitment to renewables and conservation was successful, what would be the savings to Ontario compared to a commitment to new nuclear power?

IMPACTS OF LARGE SCALE ELECTRICITY IMPORTS

- What are the environmental impacts, such as those associated with transmission facilities, from large-scale electricity imports?