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SUBMISSION TO EBR
RE: AMENDMENT TO REGULATION 496/07
COAL USE

CAE ALLIANCE
COMMENTS REGARDING EBR REGISTRY NUMBER: 010-3530
PROPOSAL TO AMEND ONTARIO REGULATION 496/07
IMPLEMENTATION OF COAL EMISSIONS REDUCTIONS
MINISTRY OF THE ENVIRONMENT
LOADED TO THE REGISTRY: MAY 16, 2008

The CAE (Clean, Affordable Energy) Alliance is a volunteer organization representing a cross section of backgrounds, professions and interests. We represent consumer interests regarding cost impacts on residential ratepayers; the impact of energy resources on job creation and sustainabililty; industrial, manufacturing and agricultural viability; energy security; and the overall health of the provincial economy in conjunction with environmental prudence.

Our members have followed the evolving energy policy and the significant changes that have taken place in the electricity sector over the past few years. We have spent considerable time researching credible energy and environmental information. The CAE Alliance strives to rely on statistics and informed, credible energy sources - unbiased and quantitative information.

The CAE Alliance asserts that the proposed amendment to Regulation 496/07 "Cessation of Coal Use":

(i) is based on misleading information and therefore impairs the public assessment of the validity and value of the proposed actions;

(ii) is a deficient and ineffective means of reducing greenhouse gas emissions, and may lead to an overall increase in emissions impacting climate change;

(iii) violates the Ministry of Energy Mandate and Statement of Values as defined under the Environmental Bill of Rights; and

(iv) conflicts with, and therefore contravens existing legislation and regulations.

Therefore, this Regulation Amendment should not be implemented.

CONTENTS

CHARTS AND GRAPHS

MISLEADING INFORMATION

The people of Ontario have a legislated right to participate in government decisions regarding environmental policy. Any government information that misinforms, misleads or otherwise impairs a proper understanding of issues violates that public right.

The Environmental Bill of Rights (EBR) acknowledges that Ontarians "*recognize the inherent value of the natural environment, have a right to a healthful environment and have as a common goal the protection, conservation and restoration of the natural environment for the benefit of present and future generations.*

While the government has the primary responsibility for achieving this goal, **the people should have means to ensure that it is achieved in an effective, timely, open and fair manner**." (Environmental Bill of Rights, 1993, as amended)

In acknowledging the public interest, this Act includes in its "purpose" provision for public input to proposed legislation.

"In order to fulfill the purposes ... this Act provides,

(a) means by which residents of Ontario may participate in the making of environmentally significant decisions by the Government of Ontario;

(b) increased accountability of the Government of Ontario for its environmental decision-making; ..."

Further, the Bill of Rights implemented a Registry *"to provide a means of giving information about the environment to the public*." Proposals under consideration, loaded to the Registry, are to include a regulatory impact statement which includes *"... the objectives of the proposal, ... assessment of the environmental, social and economic consequences of implementing the proposal,* and *An explanation of why the environmental objectives, if any, of the proposal would be appropriately achieved by making, amending or revoking a regulation".*

It is therefore imperative that the public be given sufficient and full information regarding the environmental benefits of a proposed regulation or amendment. The CAE Alliance asserts that information provided to the public with respect to this proposed amendment does not accurately portray "*the environmental, social and economic consequences of implementing the proposal".* This information includes the Impact Statement contained on the public Registry; the Media Release, Moving Forward on Coal Replacement, May 16, 2008; and the documents to which it refers, namely, "Ontario's Go Green" climate change plan and "Ontario Greenhouse Gas Emissions Target: A Technical Brief".

Consider the following:

♦ The May 16 Media Release, informing the public about the proposed coal plant emissions, **does not** advise the public that this is as yet a proposal, nor that the public has the right to provide contribution or comment by way of the EBR. The media release comment, "View the regulation at www.ebr.gov.on.ca by entering registry number 010-3530" does not, in our opinion, constitute doing "everything in the Minister's power to give notice of the proposal to the public". (EBR)

♦ The required Regulatory Impact Statement (EBR registry) merely states "Coal is the most significant source of criteria air contaminants, greenhouse gases and toxic emissions in the electricity sector. Reducing emissions from coal fired electricity generation will provide significant human health and wider environmental benefits." We assert that this falls far short of the required "*assessment of the environmental, social and economic consequences of implementing the proposal* ".

♦ The Media Release advises, "Learn about Ontario's plan to replace coal-fired power with cleaner, greener electricity by visiting the Renewable Energy section at www.energy.gov.on.ca ." A review of the link provided discusses wind and solar generation, along with smaller bioenergy and hydroelectric projects. These resources cannot replace coal-fired generation. (For a fuller explanation, see CAE Alliance Submission to the EBR re: Coal Closure, August, 2007, available at www.caealliance.com)

♦ Likewise, the government document, "Go Green - Ontario's Action Plan on Climate Change", August, 2007 states that, "As coal plants are phased out, they will be replaced by a mix of energy from clean, renewable sources such as hydro, biomass, wind and solar, as well as energy conservation."

♦ The Ministry of Energy is not forthcoming regarding the replacement of coal fired generation with natural gas fired power. Phrases like "switch off coal, turn on conservation and plug in cleaner sources of electricity" are vague and misleading. There are no specific references to natural gas fired power.

♦ Although the government and the OPA downplay the volume of natural gas that will be utilized for electricity generation, consider:

-The OPA has made/is making contracts with private merchant generators for new gas fired power - 7,000 to 9,000 MW. The power producers must be reasonably confident they will generate – particularly as natural gas prices continue to rise.;

- OPA information suggests that natural gas for power generation in Ontario will triple within the next 15 years;

- The Integrated Power System Plan proposes utilizing natural gas as the "finger in the dyke", suggesting that more natural gas generation will be used: if conservation goals are not met; if power demand is higher than planned; if renewable energy supplies are insufficient to meet demand; as well as interim replacement for nuclear if the Pickering B units are not refurbished - all in addition to coal replacement.

- The replacement generation for coal must mirror the characteristics, ie load following and balancing, dispatchability, for intermediate and peak power production. Natural gas fired generation is the only viable alternative;

- Some of the Conservation/Demand Management applies to load shifting – ie the peak may be reduced, but the demand not lessened, merely shifted to another time – flattening the peak, but increasing the intermediate requirement.

♦ Ministry of Energy information provided to the public infers that greenhouse gases from electricity generation in Ontario would be eliminated as a result of the coal closure mandate. Information has not been forthcoming which would demonstrate that Ontario emissions will actually be reduced by a mere 5% at best, and could actually increase. (Current coal contribution to total Ontario greenhouse gas emissions is 12%. Natural gas generation would reduce those emissions to about 7% - See Section 2, Page 7)

♦ In spite of this, the government's "Go Green - Ontario's Action Plan on Climate Change", August, 2007 displays the following summary information:

> Ontario's **coal phase-out** initiative is the single largest greenhouse gas reduction initiative across Canada. The replacement initiative will reduce greenhouse gas emissions by up to 30 million tonnes.

♦ Greenhouse gas emissions from natural gas fired generation - at best 25% less than those of coal fired power - when lifecycle emissions are considered - are being ignored.

♦ According to "Ontario Greenhouse Gas Emissions Targets", June 18, 2007, (gogreenontario.ca), "The government's current policies will reduce greenhouse gas emissions in Ontario for the next several years, primarily due to the very deep reductions in emissions from the electric power sector. Power plant emissions will drop by 85% from 46 Mt CO_2e in 2003 to less than 7 Mt CO_2e by 2014 when the last of the coal plants is retired."

(i) According to Environment Canada, 2003 emissions from Ontario coal plants were 32,869 kt (32.87 Mt) CO_2 eq; and from natural gas, 5,629 kt CO_2 eq (5.63 Mt); a total of 39,575 kt CO_2 eq, (39.58 Mt) including all power generating sources, not 46 Mt as noted above.

(ii) Emissions from natural gas fired generation are increasing. It is impossible to deduce that power plant emissions will be less than 7 Mt by 2014 if natural gas-fired power produced 5.63 Mt in 2006. The OPA indicates that power production from natural gas could reach 30 TWh, which would net at least 17.5 Mt of CO_2 eq emissions and likely more depending on the amount of power produced from single cycle natural gas plants and if oil is used to supplement natural gas, as at Lennox. (The OPA has suggested allowing gas plants to utilize oil in the event of shortfalls of natural gas.)

(iii) It is impossible, at this point in time, to replace coal fired generation with anything but another fossil fuel. Wind and solar can displace, but due to generating characteristics, cannot replace. Nuclear power is suitable for base load. The 24.5 TWh of coal fired power produced in 2006 cannot be offset by the most ambitious combination of conservation, wind, solar and remaining hydro capability.

(iv) The net benefit of using natural gas to replace coal fired generation - a 5% reduction in Ontario's total greenhouse gases - can hardly be described in terms of "current policies (that) will reduce greenhouse gas emissions in Ontario for the next several years, primarily due to the very deep reductions in emissions from the electric power sector".

♦ The Regulation Proposal Notice (Notice) loaded to the EBR Registry notes that "the proposed amendments ... ensures that the government's coal cessation commitment has legally binding interim carbon dioxide limits..." However, a Resolution of OPG's Sole Shareholder, represented by the Ministry of Energy, dated May 16, 2008, provides for OPG to "emit CO_2 from its coal fired generating stations and such emissions shall not be included in the total CO_2 emissions ... if such emissions are the result of the Corporation's decision to operate ... pursuant to a reliability must run contact ... or pursuant to a direction issued by the Independent Electricity System Operator...". The "Directives" issued to OPG regarding emissions caps (available for viewing at www.opg.com) are in contradiction to this proposed Regulation Amendment.

♦ The EBR Notice indicates that "From 2003 to 2006, carbon dioxide emissions from coal plants were reduced by approximately one third." However, as shown on the chart below, CO_2 emissions from coal plants in 1990 (the reference year for overall reductions) were comparable to 2006 coal plant emissions. The rise in greenhouse gas emissions from 1998 to 2003 resulted, in part, from lower nuclear availability and the necessity to utilize coal fired power for baseload requirements.

Ontario[1]																
Sources	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Greenhouse Gas Emissions[a] ***kt CO2 eq***																
Coal	24 720	26 161	25 374	16 496	13 520	14 248	16 419	20 585	27 154	28 233	36 159	33 301	33 107	32 869	24 463	27 601

Source: Environment Canada - National Inventory Report: Information on Greenhouse Gas Sources and Sinks in Canada, 1990-2005

2006 emissions from Ontario Coal Fired Power stations - 24,650 kt CO_2 eq

♦ The Ministry has not calculated the "environmental, social and economic consequences" of the significant use of natural gas fired power, and has not informed the public accordingly.

♦ The reference to the economic consequences of this proposal is a "greening the economy" phrase in the Ministry of Energy news release. This is an unsubstantiated catch phrase. The components of renewable generation - wind turbines and solar panels, energy efficient appliances - are all manufactured outside of Ontario.

There has been no cost assessment of the impacts of removing coal fired generation - which moderates provincial electricity costs - and subsequent replacement with much higher cost natural gas. (See page 13 for further information.)

♦ The government asserts that "Current government policies for greenhouse gas emission reductions will have net positive impacts on Gross Provincial Product (GPP – a measure of the size of the economy), population and disposable income over the period to 2020, even while emissions are held at or below current levels."
This is contrary to what is actually happening in the Ontario economy. Tens of thousands of jobs are being lost - with energy costs a significant contributor to the downturn in the manufacturing and industrial sectors.

Summary

Information released to the public infers that coal fired power produced will be replaced with renewable generation and conservation. There is no acknowledgment of the plans for a significant increase in natural gas to generate power, nor of the environmental impacts of implementing these plans. Ontario greenhouse gases will decrease 5%, not the grandiose amount that is being promoted.

Government information provided to the public regarding the reasons for this proposed amendment to the legislation is inaccurate and misleading - impairing valid input to the process.

2. MARGINAL, IF ANY, NET GREENHOUSE GAS REDUCTIONS

Contrary to the perception implied by Ministry of Energy information, the closure of coal fired generation in Ontario will not create drastic, nor significant reductions in greenhouse gas emissions.

The coal facility closures cannot be viewed in isolation of replacement generation which, according to the Ontario Power Authority (OPA), will come primarily from natural gas fired generation. The greenhouse gas emissions from this fossil fuel must be taken into consideration when assessing the net benefit of ceasing to utilize coal for electricity generation. (See Section 3, page 11 for further information)

♦ The following chart, demonstrates the dramatic increase in installed capacity of natural gas fired resources (along with the decreased use of Lennox GS beginning in 2011).
This chart shows required resources in terms of MW of installed capacity. However, renewable resources such as wind and solar will not produce equivalent power, in terms of TWh. The proposed new renewables are primarily wind, which have a 20% capacity factor.

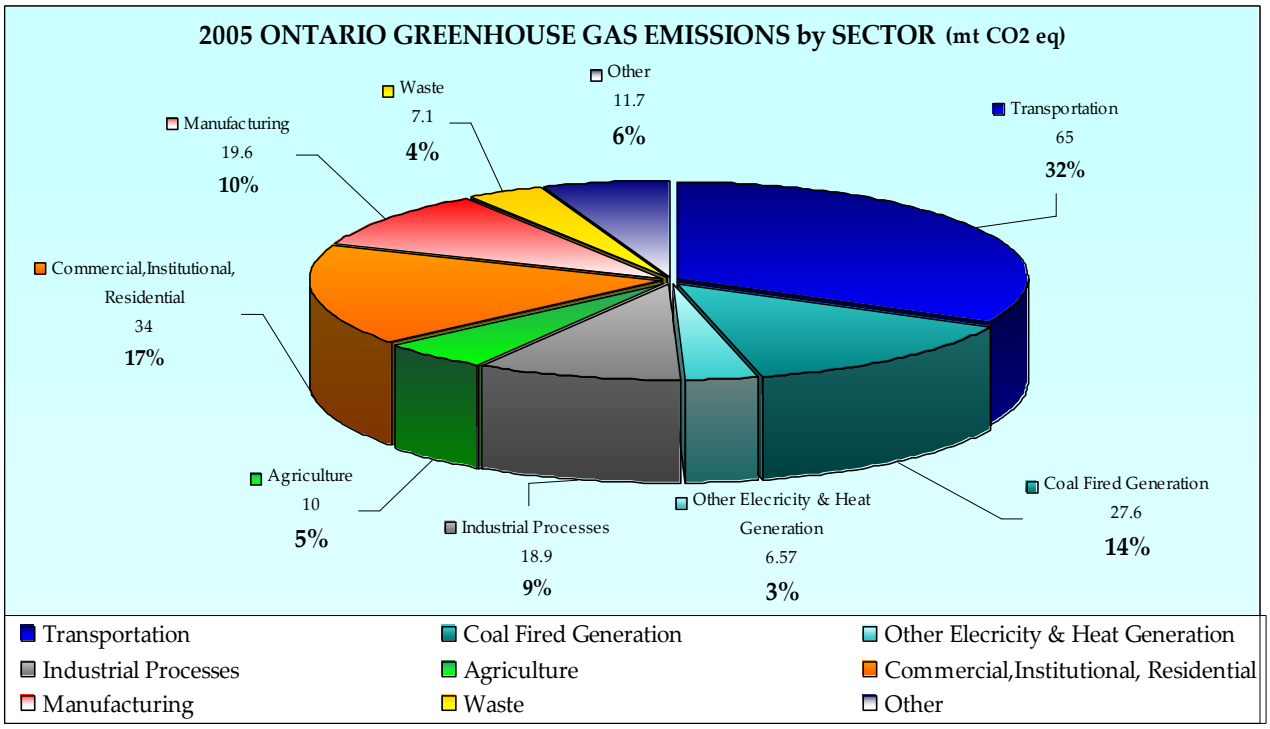
Table 5: Resource Contributions in the Absence of Coal-fired Resources but Including Regional Gas-fired Generation for Local Area Reliability and Lennox (MW)

Effective MW	2007	2008	2009	2010	2011	2012	2013	2014
Existing Nuclear	11,419	11,419	11,419	9,879	9,879	9,879	9,363	9,363
Committed Nuclear	0	0	0	1,500	1,500	2,270	3,040	3,040
Planned Nuclear	0	0	0	0	0	0	0	0
Existing Gas/Oil	4,578	4,578	4,578	4,578	2,473	2,473	2,308	2,308
Committed Gas	0	281	3,431	4,267	4,267	4,267	4,267	4,267
Planned Gas	0	0	0	0	2,455	2,905	4,507	5,057
Existing Renewables	6,129	6,129	6,129	6,129	6,129	6,129	6,129	6,129
Committed Renewables	4	115	317	408	408	408	408	408
Planned Renewables	11	25	58	58	303	584	742	982
Committed Conservation	768	1,019	1,388	1,420	1,420	1,420	1,420	1,420
Planned Conservation	0	0	0	755	1,084	1,413	1,741	2,070
Interconnection	500	500	500	500	500	500	500	500
Total Available Resources	23,409	24,066	27,820	29,495	30,419	32,248	34,425	35,544
Annual Peak	26,282	26,515	26,749	26,986	27,205	27,426	27,648	27,873
Required Reserves	4,468	4,507	4,547	4,588	4,625	4,662	4,700	4,738
Required Resources	30,750	31,022	31,296	31,573	31,830	32,088	32,349	32,611
Gap (Required - Available)	7,341	6,956	3,477	2,079	1,411	0	0	0

Source: OPA

(IPSP - Replacing Coal-Fired Resources - Exhibit D, Tab 7, Schedule 1)

♦ Ontario's coal fired power plants presently contribute about 12% to total Ontario greenhouse gas emissions, down from the 14% of total provincial greenhouse gas emissions in 2005, as shown on the following chart.



Environment Canada, National Inventory Report, 1990-2004 – Greenhouse Gas Sources and Sinks in Canada – Annex 12: Provincial/Territorial Greenhouse Gas Emission Tables, 1990-2005"
2005 includes Lakeview GS prior to closure

♦ Natural gas emits about 55% - 63% the CO_2 of coal generation **at point of combustion**. (63.06% according to - "Carbon Dioxide Emissions from the Generation of Electric Power in the United States", July 2000, staff of the U.S. Department of Energy and the U.S. Environmental Protection Agency; 56.67% according to Natural Resources Canada). Therefore, replacing coal fired generation with natural gas would reduce total Ontario greenhouse gas emissions by only 5.4% (45% of coal's contribution to Ontario total emissions).

♦ However, this figure represents emissions from the power generation process alone. There are additional, significant emissions associated with production, flaring, processing and transport of natural gas. A life cycle assessment of methane (unburned natural gas), which is 23 times more potent as a greenhouse gas than CO_2 - from extraction through the pipeline, valves, fittings, compressor stations to power generation - would nulify the benefit of natural gas useage over coal.

♦ "Exploration, production, transmission and distribution of natural gas account for a quarter of the total emissions from the natural gas sector." (Canadian Gas Association, House of Commons Committee on Environment and Sustainable Development, February, 2007) These emissions are credited primarily to Alberta.

♦ "…. Contrary to its clean image, natural gas contributes to climate change. Although burning natural gas produces fewer greenhouse gas emissions than coal or oil (25–40% lower, per unit of generated electricity), natural gas still creates emissions when it is produced, processed, and transported…" (Suzuki Foundation submission to the Ontario Power Authority, Fall, 2005)

♦ Fugitive releases (e.g. venting and flaring from oil production, methane leaks from pipelines) by themselves contributed to greenhouse gas emissions. The current estimates show an increase of 24.1 Mt between 1990 and 2006, a growth of about 57%. Much of this increase is the result of higher crude oil and natural gas exports. (Environment Canada)

♦ Greenhouse gas emissions (2006) associated with natural gas delivery and storage within Ontario alone were 3.61 kt CO_2 equ (3,609,358 tonnes CO2 – Enbridge Gas Distribution Inc.; Union Gas re: natural gas distribution and transmission systems; and TransCanada Pipeline System, Ontario - Environment Canada)

♦ "Burning gas instead of coal also sounds good and green since it cuts CO2 emissions in half. In practice it may be the most dangerous energy source of all, because natural gas is 23 times as potent a greenhouse gas as CO2. … even a 2 percent leak of the natural gas from the production sites to the power stations makes it as bad as burning coal. In practice, the leak rate is 4 percent, so it may be more than twice as bad as burning coal or oil." (Dr. James Lovelock)

♦ It is estimated that natural gas for generation to replace coal fired power would increase gas use in Ontario approximately 35%, thereby increasing these associated emissions (methane, at 23 times the potency of CO_2) by about 1/3.

♦ When lifecycle emissions are taken into consideration, natural gas GHG emissions are about 25% less than coal. (IAEA Spadaro et al. 2000). This gap could be closed by burning biomass with coal.

♦"If life cycle analysis was used and other greenhouse gases were taken into account, electricity generation from fuels other than coal would show similar or even higher GHG emissions …" (World Energy Council)

♦ "In Canada … natural gas is a larger source of carbon dioxide emissions than coal. Natural gas 29.0%; Coal 19.2% (Carbon Dioxide Fact Sheet, 2004)

♦ Considering the significant amount of new gas fired generation proposed for Ontario, and the future supply concerns, "…liquefied Natural Gas (LNG) is expected to play a critical role in addressing the forecast supply gap." (Navigant Consulting Report to OPA) There are greenhouse gas implications of using LNG. LNG entails an energy loss of 15% - 30% in the transport, liquefaction and regasification processes.

♦ The Ministry of Energy has not taken into consideration the carbon intensity of generating facilities. Some existing natural gas fired power plants produce higher emissions/MWh.

♦ Some new natural gas fired power plants in Ontario will utilize both oil and natural gas for power production. Some will be single cycle peaking plants. The emissions associated with both these forms of power production are higher than combined cycle natural gas plants.

♦ The reduction of coal fired power use will necessite the equivalent of 24.7 TWhs of production from other sources. The net value of conservation and renewable energy will barely cover the increase in load demand. It is probable that power will be imported from coal fired power plants in the U.S. While this may reduce Ontario contributions to greenhouse gas emissions, it will create higher emissions elsewhere in Canada (process and transport of natural gas from western

provinces), internationally (emissions associated with liquefied natural gas), or to the U.S. from "dirtier" coal facilities.

♦ According to the (Independent Electricity System Operator) IESO, market resources (both internal generators and imports) will continue to be selected in cost based merit order. (May 30,2008) According to the U.S. government Energy Information Administration (EIA), the average retail price for electricity generated in Michigan was 8.44 cents/kWh; in Ohio 7.65 cents/kWh, compared to the average Ontario electricity spot market price in 2007 of 5.1 cents/kWh. With coal fired generation setting market price in Ontario 55% of the time, prices have been moderated. When coal is replaced with natural gas generation, at almost triple the cost (at current prices), imports will become more economical and chosen by the IESO in cost based order prior to Ontario natural gas facilities. (But Ontario consumers will still have to pay a guaranteed return to gas fired plants)

Table 2: Energy Production from Coal-fired Facilities (TWh)

Station	2003	2004	2005	2006
Lambton	10.6	7.7	9.4	6.9
Nanticoke	20.4	14.5	17.7	16.2
Thunder Bay	1.5	1.0	1.0	1.0
Atikokan	1.0	1.0	1.0	0.7
Lakeview	2.8	2.3	0.7	0.0
Total	**36.3**	**26.4**	**29.7**	**24.7**
% of Actual Ontario Annual Energy	**23.9**	**17.2**	**18.9**	**16.3**

Source: OPG, IESO
Note: The Lakeview station was shut down in 2005 and taken out of service

Summary

The proposed regulation amendment is based on false premises. The greenhouse gas emissions reductions proposed from electricity generation are not achievable, even with coal closure. Natural gas generation produces greenhouse gas emissions that must be taken into consideration when assessing Ontario's **net benefit** of ceasing to utilize coal for electricity generation.

This proposed regulation amendment presents an inferior and flawed method for achieving greenhouse gas emission reductions. Relying on natural gas generation in place of coal will likely lead to power imports from sources of higher greenhouse gas emissions - from U.S. power plants, or from the use of liquefied natural gas.

3. VIOLATION OF ENVIRONMENTAL BILL OF RIGHTS MANDATE AND STATEMENT OF VALUES

The Environmental Bill of Rights (EBR) *"requires that government ministries develop Statements of Environmental Values (SEVs) to guide ministry staff when they make environmentally significant decisions." These Values "describe how ministries will integrate environmental values with social, economic and scientific considerations when they make environmentally significant decisions*."

According to the Statement of Environmental Values *"The Ministry of Energy, Science & Technology's mandate is to:*

> ***ensure that Ontarians have access to safe, reliable and environmentally sustainable energy supplies at competitive prices;*** *and*
>
> *ensure that all Ontarians are able to participate in the knowledge economy and share the benefits of scientific research, technology development and innovation.*

*The following **strategic directions will guide the Ministry's activities**:*
promotion of a safe, secure and competitively-priced supply of energy; ...'

(i) Access to **Reliable** Energy Supply

♦ The proposed regulation, if passed, will impact system reliability. The OPA acknowledges coal fired generation to be "an important component of the present supply mix … supporting the security of the electricity system and in helping to manage uncertainties caused by the unavailability and/or reduced capacity of other generating plants. ... Coal-fired generation is a flexible, dispatchable and quick response supply resource, and supports the reliability of the Ontario electricity system. Flexibility is particularly important to respond to commonly occurring supply unavailability and hour-to-hour load following (ramping) requirements. ... also helps to maintain supply reliability to local areas."

♦ The Integrated Power System Plan (IPSP) under review by the OEB highlights a number of uncertainties and contingencies which will impact the ability to remove 6,500 MW of reliable and affordable power by 2014.

♦ "Ontario's electricity sector is in the early stages of the biggest infrastructure change in its history." (IESO, The Ontario Reliability Outlook, March, 2007) The OPA and the IESO, tasked with the determination of the coal closure timeline, note significant challenges and uncertainties in the decade ahead, and continue to express caution regarding a specific date by which this can be achieved. Although a 2014 time frame has been proposed for coal phase out, "The period to the end of 2014-2015 sees a dramatic transformation."; and "…the 2016-2017 timeframe clearly will be affected by events that happen or begin to happen in the near and medium terms". (OPA)

♦ According to the OPA, "... the capacity gap from 2012 to 2015 will be filled by planned gas-fired resources consisting of new gas-fired generation located in areas with local reliability needs and Lennox. This still leaves a capacity gap to 2012 which requires the existing installed coal-fired resources to continue to operate combined with reliance on interconnections as the only feasible alternative." ... "Risks considered include uncertainties associated with the development

of Conservation resources, renewable resources, gas-fired resources, and nuclear resources, and nuclear performance. The results of the risk analysis determined the amount of generation required to mitigate the risks and to provide the necessary insurance. This insurance function is necessary in order to ensure the reliability of the electricity system. Coal-fired generation and interconnections are the only feasible resources that can provide this insurance function to 2014."

♦ Natural gas supplies are declining.

- The National Energy Board studied the use of natural gas for power generation in relevant parts of Canada and the U.S., with the conclusion that there will be increased competition for dwindling supplies, and that new resources in western Canada will not be sufficient to meet the growing needs. "the growing gas demand and uncertainty in future gas supply have meant high and volatile natural gas prices and have led to greater and renewed focus to develop other non-gas generation." (National Energy Board, "Natural Gas for Power Generation: Issues and Implications, June 2006

-"By 2017, natural gas prices are expected to rise until 2020 due to depletion of conventional gas resources in the Western basin. These conventional resources will need to be replaced by more costly supplies from coal-bed methane and the Mackenzie Delta." (OPA Supply Resources Discussion Paper)

- The OPA reports that "More than 95% of the gas consumed in Ontario comes from outside the province, mostly from the WCSB". (Western Canadian Sedimentary Basin)

- Enbridge Gas owns Canada's largest natural gas utility and provides natural gas to 18 million residential, commercial and industrial consumers across Ontario. The following quote represents this company's concern regarding gas supplies.

"Increasing demand for natural gas and a dearth of new supply from Western Canada means Ontario residents could be heating their homes in part with gas imported from offshore within five years, says Enbridge Inc. Chief executive Patrick Daniel told reporters that there is a 'real scramble' in the West to keep up with demand, and shorter supplies are looming. .... 'I don't think we need to be overly concerned about a shortage that would create inability to provide basic services ... But it would be at a price the consumer would find very high." ("Enbridge Scrambling to Meet Gas Demand" Toronto Star, May 6, 2004)

Enbridge is a partner in the Gaz Metro LNG Project, Beaumont Quebec. The facility is expected to be in service by mid 2010. A recent contract has been negotiated with Russian Gazprom to supply LNG to eastern Canada, describing Ontario and Quebec as "attractive markets" for natural gas.

Summary

The proposed regulation amendment effectively accelerates the closure timetable, putting further strain on resource acquisition at a time of major electricity restructuring. We have justifiable concerns regarding reliability of supply. Also, the CAE Alliance challenges the wisdom of reliance on significant new installation of natural gas fired generation considering the dwindling supplies of traditional sources of natural gas and uncertain expectation of newer and unconventional sources. Security of electricity supply will be dependent on natural gas resources in areas of the world that are politically unstable. We are staking our future on something that may not exist or materialize.

(ii) Access to Competitively Priced Power

Ontario's coal fired power plants produce 16% - 18% of the province's electricity. However, from a cost persepective, the impact of removing these facilities from service is far more serious.

♦ Coal closure and subsequent replacement with natural gas fired generation will cause electricity prices to rise to 60%-70% higher than they are now, or roughly 6.5% per year. ("Can Ontario Shutdown Coal and Keep the Lights On?", Benjamin Tal, CIBC World Markets Inc., July 18,2007)

♦ This is "based on our assumption that natural gas prices will reach $12-$14/mmBtu by 2015." (CIBC World Markets Inc., July 18, 2007) That was almost a year ago. In mid May 2008, natural gas futures for June delivery set a record of $11.675 per 1,000 cubic feet (closed lower at $11.30) on the Nymex market.

♦ Natural gas prices as of June 6, 2008 were $12.70/mmBtu. It must be noted that a cost estimate of $6.25 Can was used in the government's Cost Benefit Analysis to determine the merit of using natural gas for power generation. In that analysis greenhouse gas costs comprised 94% of the total estimated environmental damages with respect to coal fired generation. Even with this significant allocation of environmental costs, coal fired generation was a better choice than utilizing natural gas. This government report also noted that "Ideally, the GHG emissions being assessed should be based on a life-cycle perspective ... GHGs are associated with the production of natural gas (e.g. leakage during recovery and transport, burning of impurities) and the impact of these emissions is not captured in the damage estimates in this report." (Cost Benefit Analysis: Replacing Ontario's Coal-Fired Electricity Generation prepared for the Ontario Ministry of Energy, April 2005)

♦"The growing share of electricity produced from natural gas will increasingly tie the price of the electricity to that of natural gas." (National Energy Board report, "Natural Gas for Power Generation: Issues and Implications, June 2006)

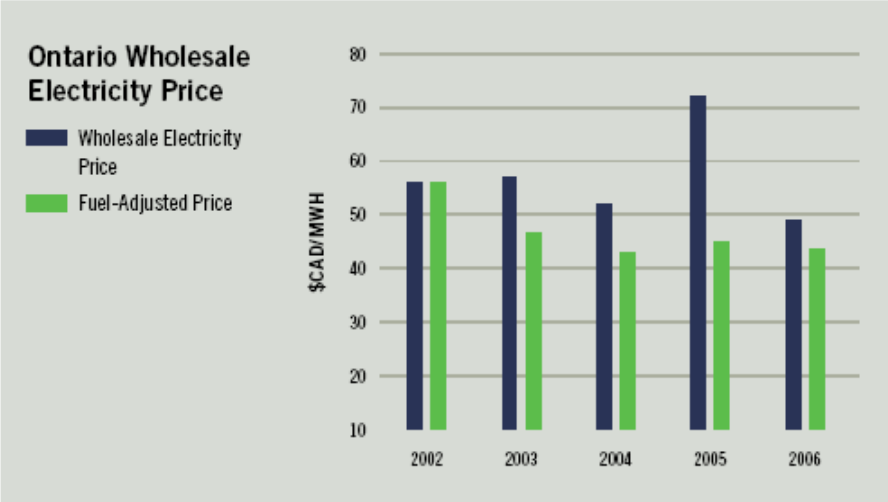
♦ "... electricity prices in Ontario dance very closely to the tune of natural gas. The surge in natural gas prices during Katrina led to a 40% increase in electricity prices in Ontario. On average, a one percentage point increase in natural gas prices leads to 0.5 percentage point increase in electricity prices in Ontario." (CIBC World Markets Inc., July 18, 2007)

♦ "Preliminary analyses shows that for every 10% increase in natural gas prices, Ontario electricity spot market prices would increase by approximately 6%." (Navigant Consulting – Monthly Variation Explanation April/05 – October/05)

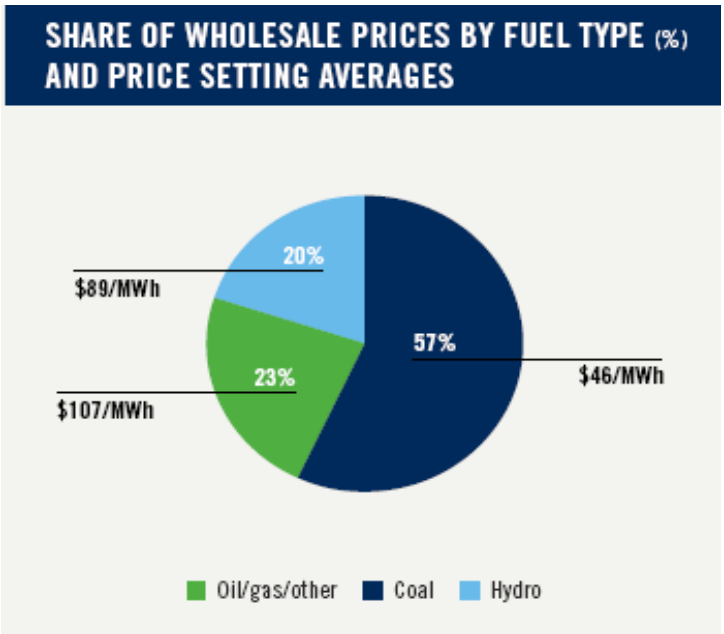
♦ The estimated price increase will impact homeowners' costs for both electricity and home heating; industrial and manufacturing viability in Ontario; all retail and business and farming sectors; institutions, etc. and therefore every aspect of our economy.

♦ As higher priced power is introduced into the system - i.e. wind and solar - there is nothing to offset or mitigate the costlier resources.

♦ The following chart demonstrates the impact of fuel cost on the wholesale electricity price. Note the 2005 wholesale price and what it would have been before the natural gas price spike.



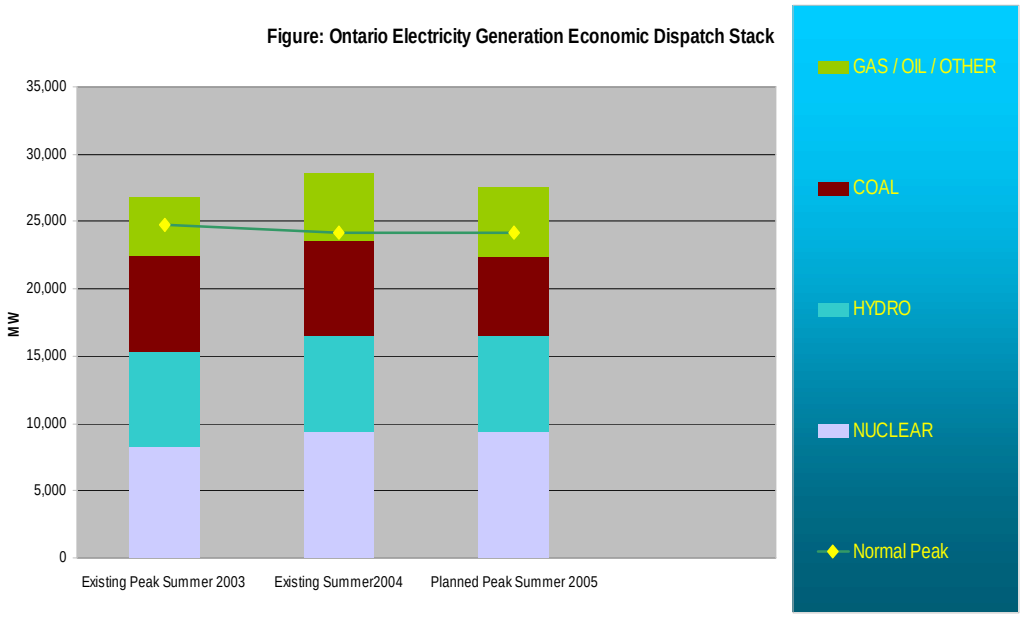
♦ The projected increase in electricity is consistent with the reality that gas fired generation - at double to triple the price - will set market price 85% of the time (according to Union Gas).

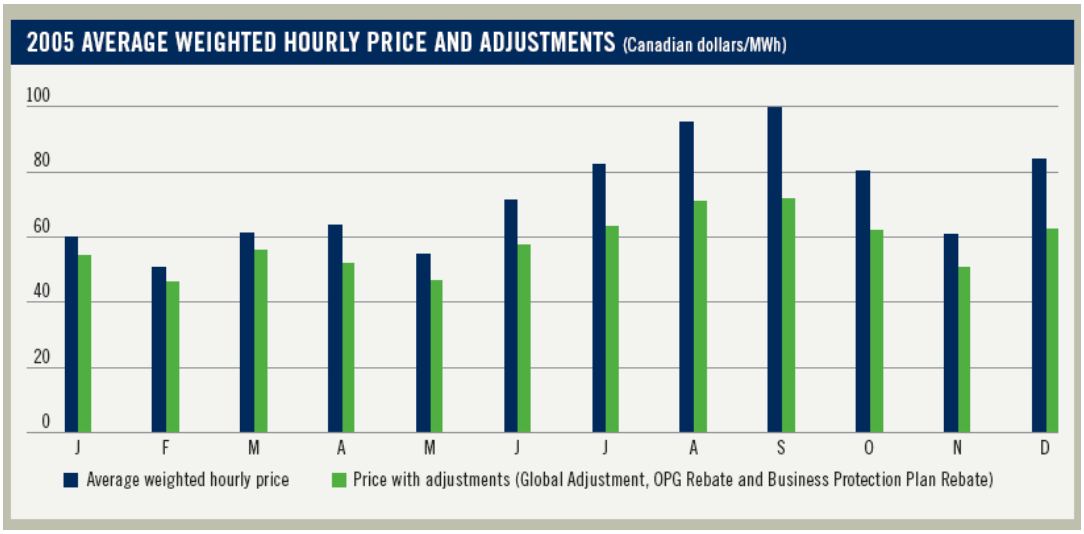


IESO

♦ Coal fired generation stabilizes prices and mitigates market power. The revenue from 85% of coal power production is capped. Revenue earned above the capped rate is rebated back to Ontario consumers. (The difference between market price received and capped rate.) When these assets are removed from service and replaced by private generators, this money flows to merchant power producers.

Figure: Ontario Electricity Generation Economic Dispatch Stack





IESO Market Year in Review - 2005

Summary

"Today's increased globalization means that Ontario faces a more challenging and competitive environment than ever before. Ontario's future prosperity depends largely on its ability to continue to adapt, innovate and strengthen its competitive advantage. … Reliable electricity supply and price stability, which keep Ontario's economy competitive and benefit all consumers, are central to the government's plan." (Ministry of Finance, "2006 Ontario Economic Outlook and Fiscal Review")

Competitively priced power is to be safeguarded by the Ministry of Energy as set out in the EBR Mandate and Statement of Values. A failure to uphold this mandate trivializes the standard of

the Environmental Bill of Rights and the public process we are engaging in, minimizing its function as a crucial standard and guideline by which all energy related actions are measured.

(iii) Sharing the benefits of scientific research, technology development and innovation

The Ministry of Energy has a mandate to "ensure that all Ontarians are able to participate in the knowledge economy and share the benefits of scientific research, technology development and innovation".

There is considerable technological development regarding coal fired power generation in Ontario and internationally that significantly reduces air contaminant emissions. The Ministry of the Environment and the Ministry of Energy are aware of these technologies.

♦ The pollutants of greatest concern in relation to coal fired power generation, are the emissions that can be most affordably and successfully reduced. This success is evidenced in reports generated by and for the Ministry of Energy, including the Cost Benefit Analysis Report and the OPA's IPSP Discussion Paper Emission Control Alternatives for Ontario Coal Generators, 1 April 2007. These reports show that the emissions from Lambton Generating Station Units 3 and 4 are approximately 75%-85% less for NO_x and SO_2; 95% less for mercury emissions, as a result of emissions abatement technology installed on these units. Subsequently, they are ranked 4th and 9th cleanest of the 500 coal fired plants in North America.

♦ "... if currently existing remediation technology were used, the air quality effects from coal fired power plants are comparable to those from natural gas plants and neither could be distinguished from the regional background at distances more than a few km from the source." ("A Regional Modeling Study of the Effects on Air Quality of Electric Power Generation by Fossil Fuels" Waterloo Centre for Atmospheric Sciences, May 26, 2006)

♦ This study, funded by the Ontario Ministry of the Environment, reports that "currently existing remediation technology on the coal plant reduces both the SO_2 and NO_X contributions to about 0.3% when averaged across southern Ontario and about 1% within 20 km of the largest plant".

♦ "Essentially all coal-fired power boilers in Germany are equipped with both SCR systems and limestone based wet scrubbers. Total mercury capture in these systems exceeds 80% system-wide." ("How Low Can We Go?" Babcock & Wilcox) Germany uses coal fired generation for 50% of its power needs.
(For more information, view our Submission to the EBR Coal Closure, available on our website)

Likewise, there are scientific and technological advancements regarding the mitigation of CO_2 from coal fired power plants, including co-firing with biomass successfully employed in Europe (currently being tested by OPG); the use of algae for CO2 absorption and further growth of algae for biofuel conversion; carbon capture/sequestration; and the "Thermal Energy Integrated Power System" technology.

The Ministry has refused to countenance these technologies, although the use of biomass in particular would have the added benefit of enhancing our agricultural and forestry industries. This technology would reduce emissions from existing Ontario coal fired power plants to a level comparable with natural gas use.

4. CONFLICT WITH EXISTING LEGISLATION AND REGULATIONS

This proposed amendment to the coal use regulation interfers with the legislated process of the review by the Ontario Energy Board (OEB), of the Integrated Power System Plan (IPSP), as developed by the Ontario Power Authority (OPA).

♦ On June 13, 2006, a Ministerial Directive was issued in respect to the creation of the IPSP, directing the OPA to meet specific goals, including "Plan for coal-fired generation in Ontario to be replaced by cleaner sources in the earliest practical time frames that ensures adequate generating capacity and electricity system reliability in Ontario."

"The OPA should work closely with the IESO (Independent Electricity System Operator) to propose a schedule for the replacement of coal-fired generation, taking into account feasible in-service dates for replacement generation and necessary transmission infrastructure."

♦ The IESO is carefully monitoring replacement generation. "As project commitments are made by the OPA … the Ontario Reliability Outlook will monitor and report on infrastructure developments and their impact on future reliability." (IESO, The Ontario Reliability Outlook, March, 2007)

♦ "Coal fired generators are characterized by relatively high ramp rates and low minimum loading points which translates into timely load following capability over a large range of output levels. … The IESO has undertaken a study to establish a quantifiable measure of load following requirement based on historical demand and market data. … The next steps will be to determine how Ontario's existing supply mix satisfies the identified load following requirements; and simulate how well potential supply mixes in the future will meet these requirements. This will likely include a detailed analysis of the amount of load following provided by generation technology type; and will address the potential impact of replacing coal-fired generation with other types of generation." (IESO, The Ontario Reliability Outlook, March, 2007)

The coal closure timetable – assessing when these facilities can be removed from service while ensuring adequate capacity and reliability - forms part of the IPSP process and Plan. This Plan has recently been delivered to the Ontario Energy Board for assessment, public consultation and approval. The reliability issues are being addressed by the IESO. This proposed resolution, if passed, will impede the review process, the monitoring of the IESO, and the overall reliability of power in Ontario.

♦ Ontario Regulation 424/04 specifies that, when developing an IPSP, the OPA shall ensure that for each electricity project which requires an assessment under the Environmental Assessment Act, that the Plan "contains a sound rationale including … an analysis of both the impact on the environment of the project, and an analysis of the impact of a reasonable range of alternatives to the electricity project." According to the Environmental Assessment Act, this includes impacts to both the natural environment, and "the social, economic and cultural conditions that influence the life of humans or a community".
The OEB has yet to assess whether this requirement has been fulfilled by the OPA in preparing aspects of the IPSP, and in particular, the replacement generation for coal fired power.

♦ This proposed Regulation will result in significantly higher use of natural gas, contrary to Minister of Energy Directives, and OPA recommendations.

Summary

This proposed regulation amendment conflicts with Ministerial Directives, and the IPSP process, as well as the Environment Bill of Rights legislation, as noted earlier.

Failure to comply with the regulatory directives, designed to safeguard the energy system evolving here in Ontario diminishes the credibility of the entire process.

CONCLUSIONS

According to the Ministry of Energy, "climate change is a global issue that requires global solutions". (Ontario Greenhouse Gas Emission Targets, June 2007)

In context, it must be noted that Ontario's coal-fired power plants represent less than 0.06% of global manmade greenhouse gas emissions (GHG). Antropogenic emissions of CO_2 account for approximately 4% of all GHG. Therefore, closure of Ontario's coal-fired power plants will impact the global total by 0.0024%. (About 3% nationally; 12% provincially)

It has been said that Ontarians must do their part, however small that may be. However, it is an irony to close 6,434 MW of affordable, reliable power to the continued detriment of our manufacturing, industrial and agricultural base while we import literally tons and tons of goods from China, which now operates in excess of 690,000 MW of coal fired generation.

In context, Ontario coal plants emit about 12% of the provincial total greenhouse gas emissions; our transportation 32%; and residential emissions - that is home heating, fireplaces, etc. (not including electricity) - 10%.

Ontario emissions could be reduced by about 5% by implementing this amendment, but at a huge cost. Comparable gains can be made with less pain. The Chief Conservation Officer acknowledges that OPG's energy efficiency programs have resulted in fewer environmental emissions per unit of energy. (Conservation Officer's Report, OPA, June, 2008) Co-firing of biomass with coal appears promising. The Premier is discussing an interprovincial carbon trading mechanism, and the federal government is developing policies to address greenhouse gas emissions reductions.

This proposal is premature. It pre-empts these progressive discussions, as well as the legislated responsibility of the Ontario Energy Board's review of the IPSP. Coal closure and replacement - the timing and the cost effectiveness - form a major part of the 20 year provincial power plan.

The CAE Alliance maintains that the Ministry has failed to fulfill the legislated requirements for public notice and public disclosure of all relevant information. The Ministry has failed to explain how the "environmental objectives of the proposal would be achieved". The public good is not served - from an environmental, social or economic perspective.

Therefore, the CAE Alliance requests that the proposed amendment be rejected.