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**SUBMISSION TO THE ONTARIO ENERGY BOARD**

RE: EB-2007-0707

Proposed Issues List

Ontario Power Authority (OPA) Application in Respect of the Integrated Power System Plan (IPSP)

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The CAE (Clean, Affordable Energy) Alliance is a volunteer organization representing the interests of Ontario's energy ratepayers. 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 has reviewed and responded to OPA reports and discussion papers; made submissions and presentations to the media, MPPs, the Ministry of Energy, Ministry of the Environment, and Legislative Committees. We continue to participate in energy conferences and public forums.

**1. GENERAL COMMENTS**

**1. Mandate of Highest Merit**

According to the proposed Issues List, legislation requires the Ontario Energy Board (the Board) to review the IPSP for two purposes: "(1) compliance with directions issued by the Minister; and (2) economic prudence and cost effectiveness."

This however, represents only a part of the Board's responsibilities in reviewing the IPSP. The Board must also ensure that the IPSP conforms to the Ministry of Energy Statement of Environmental Values, under the Environmental Bill of Rights. The express mandate is "to ensure that Ontarians have access to safe, reliable and environmentally sustainable energy supplies at competitive prices".

Further, existing legislation determines that, "The Board, in carrying out its responsibilities under this or any other Act in relation to electricity, shall be guided by the following objectives ... **To protect the interests of consumers with respect to prices and the adequacy, reliability and quality of electricity service. ...**"

(Protect - "to cover or shield from exposure, injury, damage, or destruction; guard" Webster)

We therefore assert:

- The protection of all classes of consumers in Ontario with regard to the affordability and availability of electricity is the overarching mandate and priority of the Ontario Energy Board in its consideration of the IPSP.
- The IPSP is particularly weak in the assessment of all the costs involved in delivering the Plan. Equally important however is the absence of any calculation regarding the impact of increased energy costs on homeowners for both hydro and heat; on industrial and manufacturing viability in Ontario; on all retail, business and farming sectors; and on institutions such as hospitals and educational facilities.
- The Board has the responsibility to "ensure that the relative cost of different energy sources, fiscal implications, energy security, impact on job creation, export development and the provincial economy are all considered." (Select Committee on Alternative Fuel Sources)

**2.** According to EB-2007-0707, Exhibit B, the OPA summarizes the priorities of the Ministerial Directive as:

Maximizing feasible cost effective conservation/demand management (CDM);  
Maximizing feasible cost effective renewable resources;  
Nuclear power to make up remaining base load requirements;  
Replacing coal powered generation by 2014;  
And finally including natural gas fired resources to fulfill balance of needs and requirements.

- It is necessary to include a review of **all** of the issues in the proposed issues list because, the success or failure in securing required resources in any one of these areas will necessarily impact the other supply resources.
- It is apparent that the IPSP is based on the priorities of resource supply mix as defined by the Ministerial Directive. The OPA has sought to develop a Plan to meet resource criteria, without a full assessment of the impact to the economy.
- There are many uncertainties and contingencies surrounding the acquisition of CDM and renewable resources, particularly from 2010 to 2020. This is a critical time, with existing nuclear units coming off line and a legislated coal closure date. The hierarchy of priorities, as set out above, will place the burden on natural gas to make up for all shortfalls. This comprises the Ministerial Directive regarding the use of natural gas. (see section on Issue (1) 4.)
- No guideline or benchmark has been established for what is considered "feasible and cost effective".

**3.** Major restructuring of Ontario's power system is impacted by:

- aging of base load nuclear facilities;
- economic uncertainty, exacerbated by rising energy costs;
- failures in restructuring attempts which have weakened the electricity system;
- mandated removal of ¼ of reliable, affordable and flexible assets (coal fired generation);
- concerns associated with cost and supply of natural gas;
- lack of experience integrating CDM and renewable resources;
- concerns regarding energy security and self-sufficiency.

The proposed IPSP does not address these fundamental concerns, it increases them. The Plan does not provide a concrete, deliverable plan for firm resources. It is vague and uncertain.

The OPA acknowledges that the early and mid stages of the plan "see a tight resource balance, and the successful implementation of a large number of individual projects is essential for adequacy." There are simply too many contingencies and uncertainties, which if not met, will inevitably result in shortfalls of power supply. The timing for integration of new resources is too constrained to allow for reliable delivery of electricity.

**SUMMARY** The Board must review all of the issues listed, and all aspects of the IPSP to determine first and foremost whether the interests of all Ontario consumers are protected in terms of the ability to bear the costs associated with higher electricity prices, and the domino impact throughout the entire economy. All issues must be reviewed in order to determine whether adequate and reliable resources are available to provide base load, intermediate and peaking generation as required. This necessary in order for the Board to fulfill its legislated mandate to protect consumers in regards to price and reliability of power supply.

## **2. ISSUE (1): COMPLIANCE WITH DIRECTIONS ISSUED BY THE MINISTER OF ENERGY: Supply Mix Directive, June 13, 2006**

### **1. Conservation/Demand Management**

The target Conservation/Demand Management is the most ambitious undertaken anywhere, and "...it will be a challenge for Ontario to deliver the near-term amount of CDM included in the plan." (OPA) According to Peter Love, Chief Conservation Officer, the amount of CDM planned is "very aggressive, extremely aggressive, more than what California has been able to achieve". The required amount, 6,300 MW, represents the expected growth in demand during the planning period; ¼ of electricity used on an average day in Ontario (OPA Discussion Papers).

The proposed IPSP does not contain:

- sufficient planning beyond 2010 for the bulk of the targeted reduction;
- tracking to determine how feasible some measures are, how effective they will be, and how costly in the longer term;

Contrary to the Chief Conservation Officer's report, Ontario has not achieved short term goals.

The following concerns are related to the viability of CDM targets:

#### ▪ Inaccurate reporting by the OPA on CDM success to date

The Conservation Officer's Annual Report 2007 notes that "The actual Ontario system peak in 2007 was 25,737 megawatts (24,820 megawatts weather-adjusted), on June 26, 2007. This peak is 1,268 megawatts lower than the highest peak demand in 2006 and represents a decrease of almost five percent."

The 2006 highest peak occurred August 1, 2006, at 27,005 MW, i.e. 1,268 MW higher than the 2007 peak. However, according to the IESO, the weather adjusted peak for August 1, 2006 is recorded at 22,890 MW demonstrating that in reality, the energy use at peak was **1,930 MW higher** in 2007 than 2006. (24,840 weather adjusted 2007 peak minus 22,890 weather adjusted 2006 peak) (IESO 18 Month Outlook, Sept. 10, 2007)

#### ▪ Over stated impact of CDM on demand reduction to date

**(i)** The Conservation Officer's Annual Report 2007 indicates that "In 2006, the weather-adjusted per capita consumption had decreased by 2.5 percent. The results for the first six months of 2007 show that further progress has been made toward achieving the 10 percent target." This is not a verifiable claim. The IESO 18 Month Demand Forecast of Sept. 10, 2007, notes a 1.6 % decrease of demand in 2006, (not 2.5%), much of which resulted from erosion of industrial demand, not from "per capita" reductions in electricity use.

"Energy demand for the first seven months of 2007 is flat compared to the same period in 2006. However, once the weather is taken into consideration, energy demand is down 0.9% compared to 2006. Industrial demand was down significantly during these months, an average of 5.7% May-July alone. (IESO 18 Month Outlook, Sept. 10, 2007)

The IESO notes that a return to a healthier performance across all sectors of the economy would lead to a rebound in electricity demand growth of 1.5%.

**(ii)** "In May, 2007, the Chief Energy Conservation Officer reported that 1,080 megawatts of peak demand reduction had been achieved, based on a bottom-up analysis of two years of conservation programs and activities." (2007 Annual Report) However, the "erosion in industrial demand has an impact on peak demands as industrial demand is part of the baseload component on which peak demands are built". (IESO 18 Month Forecast, Sept. 10., 2007)

▪ Concerns Regarding Overassessment of Smart Meter Potential

The Ontario Energy Board Smart Price Pilot Final Report contains information of concern regarding the potential capacity for peak power reductions and demand shifting potential. The findings from this pilot project demonstrate that marginal benefits will come at great cost to consumers. See Appendix "A", an Analysis of this Report conducted by Thomas Hughes Consulting (Corunna) Ltd.

▪ Insufficient information for planning purposes

The ability to track conservation achievement is not sufficiently developed at this time to either claim success, to determine what is cost effective conservation, or to determine what is achievable in future.

**(i)** The latest OPA conservation report does not include economic impacts on energy demand, including population growth, employment, GDP, or change in industrial use. Although the IESO has included this information in the 18 month forecast of Sept. 10, 2007, the Chief Conservation Officer reports that the impact of these factors will be provided in a supplementary report, expected in May, 2008 to determine whether the 2007 target has been achieved.

**(ii)** The OPA reports that it plans to implement a web-based evaluation, measurement and verification system tracking system in 2008.

▪ Impact of overestimating CDM potential

**(i)** "There is a risk associated with conservation and demand management in both the timing and the levels they represent. Failure to meet the targeted levels at the prescribed time would lead to higher levels of demand than identified ..." (IESO – 18 Month Outlook, June 22, 2007)

**(ii)** "With our population and economy continuing to grow, the demand for power is steadily increasing – even with our best efforts at conservation and energy efficiency." (OPA, IPSP Roadmap, Feb., 2007)

**(iii)** CDM targets include a reduction in projected peak demand. However, electricity demand in excess of 21,000 MW occurred only 6.2% of the time. Reducing peak demand reduces the need for some peaking generation, but not intermediate, load following generation.

▪ Insufficient definition of programs and actions

The IPSP is simply too vague in discussing how 3,600 MW of peak reduction can be accomplished between 2010 and 2027. Too much focus and resources are directed to residential demand reduction. Preliminary results from Smart Metering demonstrates small return at great cost. (See the cost concerns associated with CDM and Smart Meters in particular, in Section 3 (i), pages 18-21)

**Summary**

According to the proposed IPSP, economically feasible conservation takes priority over supply resources in meeting resource requirements. Inaccurate or overly optimistic assessment of achievable targets will lead to a shortfall of generating capacity, causing reliance on expensive natural gas, costly imports, or the continued use of coal fired power without emissions reduction technology.

## **2. Increasing Installed Renewable Capacity**

The proposed IPSP does not provide sufficient planning for either installed capacity of new renewable resources, or the projected energy production from these resources. Equally important, the IPSP fails to consider the required generating characteristics required at each planning stage to ensure sufficient peak, intermediate and base load generation.

- The IPSP identifies renewable resources which could be added to the supply mix later in the next decade, but has not established a plan for procuring these resources. Those most promising are located in northern Ontario and therefore require considerable cost and difficulty to implement.
- The IPSP delivered to the OEB is not consistent with the preliminary information contained in the Discussion Papers and the Preliminary Plan delivered earlier this year. It is therefore difficult to compare the information in terms of expected TWhs of production with the planned resources.
- Approximately 8,250 MW of installed renewables, primarily hydroelectric (7,850 MW), produces 34-37 TWh of power (36 TWh in 2005 – OPA Dec. 2005). A total of 49 TWh of power production from renewables is expected by 2015, an increase of 12-15 TWh.

3,300 MW of additional renewable resources is expected by 2015 - 2,000 MW from wind generation; 900 MW from new hydroelectric. The OPA anticipates 3.5 TWh of production from new hydro resources, leaving new wind power to produce the bulk of the remaining 9-11 TWh. Considering that wind resources have a 17% capacity factor (IESO indicates 10%) it is impossible to expect this amount of production from wind generation. (See Table 1.1 - Preliminary Plan - Energy Production TWh)

- Likewise, by 2020, an additional 910 MW of installed wind capacity; 390 MW of hydroelectric and 200 MW biomass is expected to produce a further 11 TWh of production.
- There are significant uncertainties regarding the installation of these resources, particularly transmission requirements and environmental assessments.
- Consideration has not been given to the concern that water levels are decreasing, with the potential to affect hydroelectric production. The drought like conditions of 2005 impacted power production from these facilities (IESO). Hydro production was down in the first quarter of this year (2007) due to below normal water levels. (OPG)
- The IESO has advised that coal replacement resources should closely resemble the withdrawn resources, i.e. in load following, load balancing, and quick dispatch abilities. The addition of intermittent resources, i.e. wind, increases the need for resources with these generating characteristics. The IPSP does not sufficiently address these concerns, other than to suggest plugging in natural gas generating facilities when any deficiency occurs, somewhat like the "finger in the dyke".

### **Summary**

The IPSP fails to demonstrate confidence in the acquisition of sufficient new renewable resources. Further, the proposed Plan has not demonstrated that a significant portion of new renewable resources is either feasible, or cost effective. The Board must review the renewable resources portion of the proposed Plan in order to fulfill its legislated requirements to ensure "adequacy of electricity service".

### **3. Nuclear Capacity to Meet Base Load Requirements**

The proposed IPSP states that, "after the contributions from existing and committed supply, planned Conservation and renewable resources are taken into account, there remains a base load requirement of 85 TWh. That base load requirement may be met by one of two candidates: nuclear power and combined cycle gas turbine generation ("CCGT)". (EB-2007-0707 Exhibit B, Schedule 1)

The OPA has determined that nuclear units are best suited to supply this base load requirement, although more power will be expected from less resources.

- Table 1.1 of the OPA Preliminary Plan demonstrates that in 2010, 91 TWh, and in 2015, 88 TWh will be required from nuclear facilities.
- In 2005 11,414 MW of installed nuclear capacity produced 79 TWh of power. During the years 2011-2018, the OPA anticipates 85-88 TWh, an additional 6-9 TWh, from 1,000 less MW of installed nuclear capacity, primarily from units that are reaching end of life.
- Existing nuclear units will reach end of life between 2013 and 2022. "Availability is lowest between 2016 and 2020 when a number of units are simultaneously on refurbishment outages." ... For purposes of overall adequacy, it will be especially critical to manage and maximize nuclear availability during this period." (OPA Discussion Paper - Integration)
- Plans to provide the necessary refurbishment of units, and the installation of new nuclear facilities may be impacted by labour and material shortages. According to the OPA, "...the availability of skilled labour, long lead time for equipment and critical material resources can adversely impact scheduled completion dates and cost. ... many nuclear units throughout the world also due for refurbishments, coordination will also be vital for Ontario companies to secure their place in line for materials and specialized companies ..."
- "The OPA does not intend to procure any nuclear supply by the end of 2010." (EB-2007-0707 Exhibit B, Schedule 1) The timing for both new build and refurbishment of nuclear units is such that delays in planning at this stage could imperil the supply of necessary base load power.
- The proposed IPSP indicates that "If OPG decides not to refurbish Pickering B, then the Plan assumes that the associated capacity of 2,064 MW will be replaced at a later time by new nuclear resources." However, Table 4, below, demonstrates that 1,074 MW of replacement power will be provided by natural gas facilities. This clearly violates the Ministerial Directive regarding the use of natural gas fired generation for base load requirements. (see next section of this document.)

**Table 4: Allocation of Planned Gas-Fired Resource Requirements**

Project/Site	Pickering B Refurbished			Pickering B Not Refurbished		
	Generation Type	MW	In-Service	Generation Type	MW	In-Service
Lennox	CST	2,100	2011	CST	2,100	2011
CHP	CHP	586	2013	CHP	586	2013
Northern York Region	SCGT	350	2011	SCGT	350	2011
Kitchener-Waterloo-Cambridge-Guelph	SCGT	450	2012	SCGT	450	2012
Southwest GTA	CCGT	850	2013	CCGT	850	2013
GTA	SCGT	550	2014	SCGT	550	2014
NUG Replacement	SCGT/CCGT	469	2013 +	SCGT/CCGT	1,368	2013 +
Unspecified/Proxy Gas	SCGT/CCGT	650	2018+	SCGT/CCGT	825	2017 +
	<b>Total</b>	<b>6,005</b>		<b>Total</b>	<b>7,079</b>	

Source: OPA (Exhibit D-8-1, Table 9). Southwest GTA may be met by either CCGT or SCGT, but was modelled as CCGT. Likewise, GTA could be met by either type, but was modelled as SCGT. CST is the acronym for "Condensing Steam Turbine"

**Summary**

The proposed IPSP fails to provide solid plans for the replacement of aging nuclear facilities that provide critical base load resources for Ontario. Uncertainty regarding procurement of CDM and renewable resources exacerbates the concern that we will be undersupplied during the next decade. As a result, Ontario will become reliant on expensive natural gas facilities for base load power, which is outside of the allowable parameters for natural gas use as determined in the Ministerial Directive.



#### **4. Natural Gas**

The IPSP does not comply with the directions for use as prescribed in the Ministerial Directive. Natural gas will inevitably be used for significant intermediate generation, and likely for base load purposes.

The issue of natural gas fired generation must be assessed and reviewed by the Board in order to determine:

**(i)** available supply of natural gas for proposed natural gas generation, as well as potential need for gas generation to meet shortfalls of other resources;

**(ii)** full cost impacts for both electricity and natural gas consumers;

**(iii)** full environmental impacts of natural gas use in combined cycle and single cycle gas turbines, as well as LNG and unconventional sources of natural gas for gas fired power generation.

▪ Natural gas generating facilities are expected to double in installed capacity; almost triple in electricity production. (11TWh in 2005 to 30TWh by 2015 - OPA) It is highly likely that planned natural gas output will exceed this level of increase due to uncertainty regarding other resource acquisition and lack of CDM target achievement.

▪ According to the proposed IPSP, natural gas generation will be implemented to fill the gap between coal resources removed from service and available renewable and CDM resources. When determining renewable resources however, installed capacity, rather than generating capacity has been used. Coal resources are available 90+% of the time, renewable resources less than 20%. 6,500 MW of wind, solar and even hydroelectric cannot replace the equivalent installed capacity of 6,500 MW of coal fired generation. Therefore, the net requirement for gas resources will therefore be considerably higher than what is planned.

▪ Concerns related to gas use are summarized by the David Suzuki Foundation. “Although natural gas may be a cleaner fuel than coal, its use still impacts air quality and human health, and its production has significant environmental consequences in the form of wilderness and habitat destruction.... 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 ... Finally, a decrease in natural gas reserves has meant a doubling of its price – with wild price fluctuations – both of which make it a less attractive and more volatile alternative for electricity generation than efficiency strategies and renewable energy. ...Canada’s reserves are dwindling. Based on proven reserves and 2002 production figures, Canada has only nine years of production unless new reserves are discovered. In the long run, increased supply will not be able to match demand. ... ‘many of the new fields coming on stream are small and quickly depleted.’ This reality will keep natural gas prices high in North America, and may potentially increase them further.”

... the option of using natural gas as a “transition fuel” also poses risks. That is because the pipelines required to transport natural gas from its source to power plants are expensive. High pipeline costs have to be spread out by building several gas-fired power plants that last a generation or more.” (Suzuki Foundation submission to the Ontario Power Authority, Fall, 2005)

▪ The contribution of coal fired generation to provincial air quality concerns is less than 5% and can be reduced near par with natural gas using existing and cost effective emissions reduction technology, as verified in government reports prepared for the Ministries of Energy and the Environment..

### Supply Concerns:

All credible government and energy agencies, confirm that North American natural gas production is in decline. Traditional sources of supply are drying up. The largest pockets of gas have been discovered, tapped and are now depleted. Newer wells are smaller with less extraction. In spite of unprecedented drilling efforts and increasing demand for natural gas, that demand is now outpacing supply.

- 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.” ... a "barrier that could put the brakes on the growth of gas-fired generation is the availability of adequate gas supplies at competitive prices.”
- While it is impossible to quantify all of the risks at this point, the price and supply risk around gas as a generation source has grown significantly.” (OPA)
- "Gas-fired generation is not recommended for base-load generation because in that role it presents risks across all three dimensions of cost, environmental impact and financial risk." "the volatility of price and uncertainty of supply ... major drawbacks to gas-fired generation for base-load." (OPA)
- “... expectations of higher gas and electricity prices combined with the risk of diminished reliability raise the question as to whether there should be a debate or expanded discussion on the impacts of increasing the use of natural gas to generate electricity. Other consumers of gas, whether small residential and commercial customers or large industrials, may face higher energy costs as a greater portion of natural gas demand becomes increasingly weather sensitive. Further, some of these consumers may be challenged to compete with gas-fired generators for supplies of natural gas and related transportation services.” (National Energy Board, “Natural Gas for Power Generation: Issues and Implications, June 2006)

### Cost Concerns:

The decreasing availability of natural gas will continue to impact costs. (See 3. Issue (2) Economic Prudence and Cost Effectiveness of Natural Gas, Page 20)

- “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)
- “Residential and commercial space heating and industrial processes compete for supply and several nearby jurisdictions also rely heavily on gas, all of which puts its availability at a premium or even at risk.” (OPA)

- “The need for additional gas storage capacity in Southern Ontario close to the new gas-fired generation ... the need for additional upstream gas transmission pipeline and other capacity improvements ... will entail major costs and development times.” (OPA – Natural Gas Price Context)

#### Environmental Concerns:

- Dwindling supplies of conventional gas will lead to reliance on Liquefied Natural Gas (LNG), coalbed methane and other unconventional sources. Environmental impacts from these sources have not been assessed as part of the IPSP process
- Likewise, the environmental impacts of natural gas use in single cycle turbines has not been adequately assessed, nor has comparison been made with alternative resources, as required.

See Section 7, page 16 for further information.

#### Summary

Natural gas for home heating is used at high efficiency rates, 95%. Natural gas produces power at about 35% - 50% efficiency. The CAE Alliance challenges the wisdom and ability to provide reliable power to Ontario in the critical next decade, considering the dwindling supplies of traditional sources of natural gas and uncertain expectation of newer and unconventional sources. Billions of dollars will be spent for infrastructure changes to accommodate gas-fired power; home heating costs will rise in parallel. We are committing to billions of dollars in replacement generation, while staking our future on something that may not exist or materialize.

The significant uncertainties related to resource availability in the middle of the next decade could lead to an increase in natural gas-fired generation beyond what is allowed within the parameters of existing regulations. The expected rise in prices, due to supply concerns related to natural gas at that time would further imperil the Ontario economy, contrary to the stated purposes of the Electricity Restructuring Act.

## 5. Coal Replacement

The IPSP does not plan for coal-fired generation in Ontario to be replaced by cleaner sources in the earliest practical time frame that ensures adequate generating capacity and electricity system reliability in Ontario.

▪ "The Directive priority is to first apply the feasible and economic contributions of Conservation and renewable supply to replace coal-fired generation." (EB-2007-0707 Exhibit B, Schedule 1)

As we have noted, there are a number of uncertainties and contingencies which will impact the ability to remove 6,500 MW of reliable and affordable power.

▪ The generating characteristics of coal limit the resources with which it can be effectively replaced. 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." It meets all the criteria of reliability, cost-effectiveness, flexibility, robustness, and with emissions abatement technology, can conform to environmental performance demands.

▪ "The only remaining resource with the characteristics to replace these contributions is gas-fired generation ("GFG"). As a result, replacing coal-fired generation will require additional contribution from GFG, accompanied by any necessary transmission enhancements."

The previous section addresses the significant concerns associated with natural gas generation to replace coal.

In addition, consider:

▪ There are supply and cost concerns associated with natural gas, particularly in the middle of the next decade, due to depleting resources in the Alberta basin (OPA). If coal resources are removed when some nuclear units providing power to the GTA are taken out of service, the Toronto area will be serviced primarily by natural gas and will be particularly vulnerable.

▪ The OPA acknowledges risks and concerns associated with near and mid term planning, including "... less than anticipated success ... in capturing conservation potential, ... harvesting domestic renewable resource potential, less than expected nuclear performance, higher than anticipated load growth and the potential retirement of existing non-utility generation resources." The "**risk around the implementation and performance of new resources is managed by the timing of coal replacement** and by imports." (OPA)

▪ Future import capability is uncertain, as surrounding jurisdictions are beginning to face supply concerns of their own. "Longer-term Ontario may not be able to continue to rely on the same level of support from its interconnected neighbours as it has received in the past. Surrounding jurisdictions ... are beginning to face the prospect of declining supply margins. ... Although the benefits of being interconnected continue to exist, this decline will serve to reduce Ontario's confidence in imports." (IESO, The Ontario Reliability Outlook, March, 2007)

▪ Resource replacement for coal fired generation is dependent upon environmental assessments and approvals which have slowed some projects, halted others.

- “.. projections of future coal-fired electricity production are subject to a variety of uncertainties.” (OPA - Emission Control Alternatives for Ontario Coal Generators, April, 2007)

- According to the Ministerial Directive, “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.”

(i) 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)

(ii) “... the IESO continues to identify a need to ensure that the future supply and demand response mix has sufficient generation that can be dispatched up or down to match changes in the level of demand. Over half of Ontario’s installed capacity ... are base load or non-maneuverable generation ... This type of capacity is expected to grow over the next few years with the addition of 1,500 MW of Bruce A generation and significant amounts of new wind generation.” (IESO, The Ontario Reliability Outlook, March, 2007)

(iii) “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)

It is evident from these statements, that it is simply too soon to determine whether there will be sufficient resources with the necessary generating characteristics to replace coal fired generation at the anticipated time.

- The cost implications of coal removal - including market price setting; impact on OPG rebate and global adjustment; switch to high cost natural gas - are included in Section 3, Page 20.

## **Summary**

The complete phase out of coal fired generation may not be possible by the scheduled date. In order to maintain system reliability and ensure affordability of electricity rates, emissions reduction technology should be implemented on all remaining coal fired units without further delay.

## **6. Transmission**

It is necessary for the OEB to review issues associated with transmission plans arising out of the proposed IPSP.

In order to implement important elements of the Plan, a large number of transmission projects is required.

- "Without new transmission facilities, the IESO will be forced to operate existing facilities near their maximum capabilities, with little margin for unexpected events and requiring complex arrangements to do routine maintenance on critical facilities. A number of local transmission or generation initiatives are also needed in areas throughout Ontario." (IESO, The Ontario Reliability Outlook, March, 2007)
- "The IESO remains concerned about the uncertainty around the length of approvals process affecting generation and transmission projects. ... The situation is particularly troublesome in the case of new transmission. ... there will continue to be a risk that transmission will not be available when it is required." (IESO, The Ontario Reliability Outlook, March, 2007)
- The planned installation of natural gas resources accompanied with "relatively modest transmission system enhancements" in the North York, Kitchener and GTA areas, as replacement for the Nanticoke Generating Station (NGS), fails to adequately address the complexities of implications on grid reliability as a result of removal of NGS from service.
- Additional power from the Bruce area - refurbished nuclear and wind - may not be utilized if interim transmission measures are not effectively implemented. Concern was expressed during the OPA workshop about the transmission methods considered, i.e. technology that has not been used in Ontario, or on systems quite like ours. "...these interim measures are acceptable only as a stop-gap measure since they introduce an increased level of complexity (read risk) to a critical part of Ontario's network and the neighboring interconnect systems". The generation from the Bruce units, and wind power in that vicinity, are dependent upon deliverability from transmission not currently available.
- There are concerns regarding insufficient staffing from Hydro One to service these new projects and upgrades.
- The most promising wind and hydroelectric resources are in geographical areas remote from existing transmission. Planning for future transmission projects to harness these resources is very sketchy and without firm cost analysis. This directly impacts both the feasibility and cost effectiveness of these resources which are a necessary component of the IPSP.

## **Summary**

The success of the IPSP hinges on the feasibility and timing of transmission projects. There is insufficient planning regarding too many of the proposed projects.

## **7. Compliance with Regulation 424/04**

### **(i) Consultation with Stakeholders**

The Ontario Power Authority, according to Regulation 424/04, must “consult with consumers ... and other persons who have an interest in the electricity industry in order to ensure that their priorities and views are considered in the development of the plan” (IPSP).

Although the OPA has outwardly complied with this regulation by offering web conferences, workshops and inviting stakeholder input at all stages of the process, we believe that the OPA is not listening to the public or to energy stakeholders.

- According to the OPA, the Ministry directive regarding supply resources “very much shapes the plan ... is prescriptive, with the areas where there is OPA discretion being relatively narrow.” and is “cast in stone”. Much of the concerns raised by stakeholders are dismissed because they do not conform to government policy. Questions asked and concerns voiced are not responded to.
- Political will is driving the electricity planning, in spite of industrial and societal considerations and without full investigation of the environmental criteria that it purports to champion. Warnings and concerns raised by industrial, farming and the business sectors – the economic drivers in this Province – are not being heeded. In fact, they are blatantly ignored.
- Although the OPA indicates that “Stakeholder engagement is a valuable and integral component of the process to develop the IPSP.”, and that the “...OPA is strongly encouraging Ontario’s consumers, businesses and other stakeholders to become involved in the planning process.”, representation of stakeholder interest, seems to come from environmental associations that are loudly voicing biased and unsubstantiated opinions, power producers and private market generators. The CAE Alliance suggests that the OPA encourage residential consumer interest and input, as well as more business and manufacturing involvement.
- Media information published by the Ministry of Energy contain misleading and inaccurate information.
- Public survey consultant Decision Partners has reported to the OPA that, ”Most participants ... concluded that in the end, the Ontario economy must be the most important priority – the economy is the primary driver of all decisions in the Province.”

### **Summary**

There are 3 classes of consumers of Ontario's power - industrial, commercial and residential, each using about 1/3 of Ontario's power. Industrial and commercial consumers have voiced concerns over current energy policy. Residential consumers however are generally not represented. Unfortunately, much of the information generated for the public is not an accurate representation of the energy and resource situation, and much is, in our opinion, geared to justify political policy.

## (ii) Ensuring Safety, Environmental Protection and Environmental Sustainability

Concerns in this regard have been alluded to elsewhere in this submission. Specifically, however, the OEB must consider the following, which are not sufficiently addressed in the proposed IPSP:

- World political events are putting greater emphasis on energy security and on independence from OPEC nations. Increased reliance on natural gas inevitably ties the Ontario electricity system to imported gas resources in future, from politically unstable countries.
- Neglecting the installation of best available emissions control technology on remaining coal units at this time negates responsibilities to protect the environment.

## (iii) Competitive Market Options for System Needs

- It is widely recognized that public power, when properly administered, is most cost effective. (For example, the report “Levelised Unit Electricity Cost Comparison of Alternate Technologies for Baseload Generation in Ontario”, prepared by CERI, August, 2004, concludes that publicly financed generation is less costly than is private, merchant generation.) OPG has been precluded from certain RFP processes. It is in the public interest to allow OPG to participate in all procurement opportunities. (Although OPG was not "excluded" from the RFP process, the board of directors was "*directed not to bid*" The Standing Committee on Estimates - Ministry of Energy, October 6, 2004)
- “OPG will operate as a commercial enterprise with an Independent Board of Directors.” (Memorandum of Agreement) As such, OPG operations should be guided by the same market principles as other prospective generators, including fair and unbiased procurement options and subject to competition processes that are open and accessible. (as defined in the OPA Procurement Discussion Paper) If private industry can compete against OPG without concessions, contracts should be awarded. Otherwise, the ratepayer subsidizes private enterprise.
- “Rather than push ahead with fundamental electricity market reforms, the Government of Ontario has opted to focus its efforts on contracting directly with the private sector to build new generating capacity. This approach entails potentially significant financial risks for the province and, ultimately, for the electricity ratepayers and taxpayers of Ontario, as the province is providing investment guarantees to private-sector electricity generators in an effort to attract investments.” (Parliamentary Information and Research Service – “Ontario’s Electricity System, September 22, 2005)
- Opening the Ontario energy market to private players creates a potential for market monopolies outside of the public utility. In the U.S. and Europe, mergers and acquisitions of power generators are creating larger power companies which impacts competition. For competition in the marketplace to become a reality, there must be a diversity of suppliers. No apparent mechanisms are in place to prevent private generators from having too large a share in the market.
- The future responsibilities of the OPA are vague and it is unclear how or when the OPA will divest itself of procurement responsibilities. It appears that the OPA may hand this process over to “load serving entities” (LSE) to secure future supply.
- ◆ There is some concern regarding procurement of power contracts. Some falling under Standard Offer Contract procedure should be determined in competitive market. There is some concern regarding abuse of the abuse of standard offer program – i.e. breaking projects into smaller units such as the solar farm near Sarnia (4 – 10 MW projects).



#### (iv) Compliance with Environmental Criteria

Information concerning environmental assessments used to determine supply resources is neither accurate nor complete.

1. Ontario Regulation 424/04 specifies that 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”. This criteria has not been assessed by the OPA for proposed projects.

2. A report prepared for the Ministry of Energy states that “The scientific evidence demonstrating that the PM<sub>2.5</sub> fraction accounts for many health damages has increased substantially over the last five years. Accordingly, health damages were forecast largely based on PM<sub>2.5</sub> concentrations.”

This report also states that “All particulate from gas turbines is on the order of 1 micron, hence all PM is assumed to be PM<sub>2.5</sub>.” (natural gas combined cycle facilities)

(Cost Benefit Analysis: Replacing Ontario’s Coal-Fired Electricity Generation, prepared for the Ministry of Energy, April 2005)

- Significantly more natural gas-fired generation in the GTA and “Golden Horseshoe” will create higher rates of ozone and particulate matter, increasing the health impacts in urban areas. (OPA) With shorter emissions stacks and higher concentrations of smog producing pollutants where pre-ambient conditions for ozone and smog occur, natural gas fired generation may be worse for the environment than the current coal fired generation plants.

- An environmental assessment must be done regarding the safety or environmental impacts of citing natural gas facilities in urban areas, such as higher particulate and ozone; the transport of ammonia for NO<sub>x</sub> abatement equipment; hydrogen for generator cooling, and large volume natural gas pipelines.

- The OPA suggests that gas fired power plants may utilize the option for oil fuelled power generation. “to ensure operational capability during winter peak periods when gas demand and electricity demand peak simultaneously.” The environmental impacts from oil use have not been assessed.

- Single cycle natural gas power plants are proposed for peaking periods. An additional 1300 MW is expected to be procured in the near future. The higher emissions associated with these facilities have not been compared to coal-fired generation, for either greenhouse gas, or air contaminant emissions.

- The uncertainties and tight resource balance anticipated from 2010 to 2020 will likely force imports of power from coal-fired power plants less environmentally “clean” than existing Ontario coal-fired plants (which are in the top 10% in North America).

- Natural gas resources in North America are declining, while demand is increasing. The coal closure necessitates significant use of natural gas in Ontario – a 37% increase, more than all residential consumers combined. Ontario will inevitably become dependent on LNG imports (National Energy Board) and unconventional gas resources, such as coalbed methane (OPA), resulting in higher emissions and other environmental impacts.

### **3. Issue (2): Economic Prudence and Cost Effectiveness**

The IPSP is particularly weak in cost assessment in all aspects of the proposed Plan.

A year ago, the OPA anticipated spending \$56 billion to \$83 billion on capital costs for energy restructuring, plus “significant operating, fuel and maintenance costs.” Using an average of \$70 billion, the OPA concluded that, as “the total of all electricity bills in Ontario is \$12 billion per year, the capital expenditure averages \$3.5 billion per year over the twenty-year period.” This figure suggests an approximate 25% to 30% increase in all electricity bills for capital expenditure alone, exclusive of higher operating and fuel costs.

This issue must be addressed by the Ontario Energy Board for 2 basic reasons:

**1.** There have been complaints and concerns expressed by energy stakeholders regarding the lack of transparency and full cost analysis of energy restructuring in Ontario. Attempts to assess costs is complicated by lack of disclosure regarding contracts with private power producers, conflicting and incomplete information provided by the OPA and Ministry of Energy.

**2.** Every product and service utilizes electricity, so the impact of higher energy costs has a compound and domino effect.

- “An increase in electricity prices may have adverse macroeconomic effects on the provincial economy in terms of employment losses and may hinder the effectiveness of Ontario businesses that compete outside of the province.” (OPA – Sustainability Discussion Paper)

- The slowing of the Ontario economy is due in part to “higher energy costs”, according to Finance Minister Greg Sorbara, December 13, 2006. Likewise, higher energy costs are deemed a risk to any hoped for turn around in the economic outlook.

- The Finance Ministry also notes that “Ontario has the largest agriculture sector of any province, with sales of \$8.2 billion in 2005. The government recognizes that Ontario farmers face challenges from a variety of external factors.” According to The Ontario Federation of Agriculture, “Without reasonably priced power the production and processing of food in Ontario would be uncompetitive and likely extinct. Agriculture is Ontario’s second largest industry. Reliable and reasonably priced power is essential to its sustainability.”

- “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”)

- In the manufacturing sector, "employment and output have been declining for quite awhile. There is always the risk that this weakness could deteriorate households' confidence and spread to the rest of the economy, notably consumer spending and housing demand." (Toronto Star – Dec 28/06)

- “Manufacturing is the single largest sector of the economy (17.5% of GDP) employing over 1,000,000 people directly in this province ... for every dollar invested in the manufacturing sector there is an additional \$3.05 in economic activity.” (Canadian Manufacturers and Exporters)
- Higher energy costs cause disproportionate harm to those least able to cope - the elderly, the infirm, those on fixed and lower incomes. This will translate into issues such as lack of ability to afford air conditioning, or using wood burning for residential heat.
- “Resource additions and refurbishments between 2007 and 2027 total about 30,000 MW.” (OPA) All of this is 30%-150% more costly than current resources. It is impossible to restructure the Ontario electricity system to the extent planned, and not see prices rise significantly higher than projected.
- In order for the “average” household to see a decrease in electricity costs, they will need to spend a considerable amount on new appliances and switch from electric to natural gas for water heating, cooking and clothes drying. While the hydro bill may be reduced, the gas bill will increase. It is unlikely that the outlay costs for these appliances and fuel switching will ever be recovered over the life of the appliances.

With respect to the decisions identified in Table 1, please note the following concerns:

(i) Conservation

- Too much is spent on bureaucratic overhead and administration of programs.
- No clear indication or publication of costs for the various programs, or net cost/MW saved through CDM. Cost analyses provided to date are flawed in findings and reportings.
- According to pilot project information to date, smart meters will have a negligible impact on reducing peak demand through load shifting. An approximate 1% increase is already added to all residential bills for smart meters although they are not yet implemented. The cost to install and administer smart meters will eat most, if not all, energy savings. See Appendix "A", analysis of the OEB Smart Meter Pilot Report by Thomas Hughes Consulting (Corunna) Ltd.

We believe that there are serious omissions in the OPA’s cost benefit analysis of this program, which if corrected would indicate that there is little if any benefit to be gained.

- While the Conservation Bureau gives the budget for the CDM program to be \$10.2 billion less than half of this amount is used in the cost-benefit analysis.
- Table B14 –CDM Costs and Benefits, in the revised CDM section of the IPSP issued in December 2006, gives the avoided costs as \$11.5 billion and the Resource cost as only \$4.5 billion, not \$10.2 billion, for “net benefits of roughly \$7 billion plus or minus \$2 billion given our assessment of the uncertainty in both the costs and the benefit estimates.”
- Tables B12 and B13 CDM Costs 2008-2025, show the total Delivery Costs, which when added up, to be approx \$4.6 billion and the Societal Cost to be approx \$5.7 billion for a total of \$10.3 billion.

- It is very clear that the Societal Costs have been totally ignored in the analysis giving the general public a very distorted view on the (lack of) benefits. This is confirmed by at least three statements in the IPSP relating to the smart meter program.

IPSP CDM –Revised

P86. “Since the government has already decided on this program, there are no new costs”

P91. “In Demand Management, the small customer (TOU) component has not been allowed any costs as the primary cost, improved metering, has already been committed. This, in part, explains Demand Management’s high benefit”

P92 (Summary of findings) “Demand management appears to have the highest benefit relative to the costs involved. However a large part of those costs, the cost of smart metering, have not been included as they have already been either spent or are committed to be spent.

- This whole approach is totally flawed and needs to be corrected. It is just the same as saying the Nuclear Refurbishment program will cost nothing since it has already been committed!
- Adding the approx \$6 billion Societal Cost into the equation would result in benefits of perhaps \$1 billion to a loss of \$4 billion.
- In preparing the Cost-Benefit analysis the OPA has gone against the procedure of one of the references frequently used in the IPSP i.e. the California Standards Practice Manual.

Total Resource Cost Test Definition (previously called the All Ratepayers Test)

The Total Resource Cost Test measures the net costs of a demand-side management program as a resource option based on the total costs of the program, including both the participants' and the utility's costs ...

... The costs in this test are the program costs paid by both the utility and the participants plus the increase in supply costs for the periods in which load is increased. Thus all equipment costs, installation, operation and maintenance, cost of removal (less salvage value), and administration costs, no matter who pays for them, are included in this test. Any tax credits are considered a reduction to costs in this test. For fuel substitution programs, the costs also include the increase in supply costs for the utility providing the fuel that is chosen as a result of the program.....

As ratepayers we need to understand the true costs of the government’s energy plan. We urge the Board to make this happen. In particular, it would appear that the IPSP is trying to deliberately cover up the true cost of the smart meter program. Considering the huge cost of this program there need to be a lot more scrutinizing of the economics to find more cost effective ways to achieve results

- Time of Use pricing will have a hugely detrimental impact on retail and commercial businesses which are unable to load shift.
- Some are advising that consumers are paying too much for CDM projects – up to \$1,000 MWh and there needs to be greater scrutiny and assessment of some of these costs.

## (ii) Renewable Supply

- Renewable resources of greatest potential are in remote areas that require significant transmission installation. These costs must be factored in to the planning strategy.

## (iii) Nuclear for Baseload

- Information provided to the public via news and media coverage did not provide clear details of the Bruce Power Refurbishment costs for power. It was necessary to review the Auditor General's report to assess the true cost to the public from these units.

## (iv) Replacement for Coal Generation

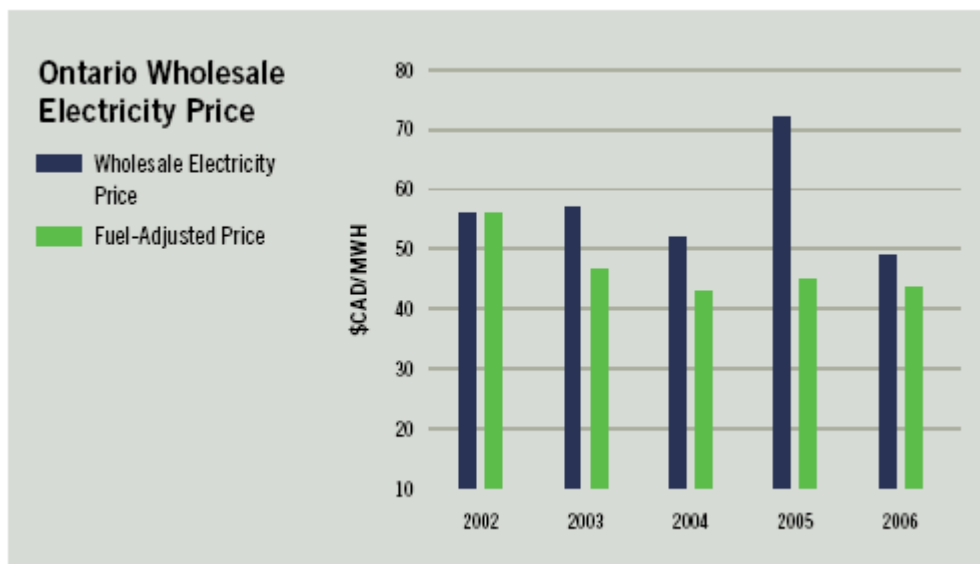
- A report recently prepared by CIBC World Markets Inc. estimates that coal closure and subsequent replacement with natural gas fired generation will cause electricity prices to rise to 60%-70% higher than they are now, or roughly 6.5% per year. ("Can Ontario Shutdown Coal and Keep the Lights On?", Benjamin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

The cost impacts of coal closure have been very vague, inconclusive, and not disclosed to the public. The Premier himself, in response to the CIBC World Markets report, has admitted that, "It's almost impossible to predict where electricity prices will end up...".

- Full costs implications, such as the impact of coal closure on market setting price, are not considered. IESO reports that coal fired generation set market price @ \$46 MWh 57% of the time; hydro at \$89/MWh 20% of the time; and natural gas @ \$107/MWh 23% of the time. With coal removed, natural gas, at more than double the cost, will set market price 85% (Union Gas).
- The cost impact on prices regarding the global adjustment and OPG rebate after coal is removed has not been assessed and included in cost estimates.
- Removal of low priced coal, and subsequent replacement with natural gas may have an unintentional and adverse impact on the environment. "While imports have played an important role in maintaining reliability in Ontario over the past five years, they are primarily transacted for economic reasons, often displacing higher priced domestic generation." (IESO - 2007 Ontario Market Outlook) As power costs from alternate sources become too expensive in Ontario, we will, by virtue of market rules, import power from "dirtier" coal fired plants in the U.S., while continuing to pay natural gas generators that remain idle.
- Banning coal will raise the price of substitutes – we need to assess most economical way to achieve the environmental goals.
- Cost analysis for coal replacement with conventional natural gas is included in the OPA assessments (although we are confident that the price used for future natural gas resources is too low). However, a cost assessment has not been conducted for the price of LNG, unconventional gas, or oil, all of which will likely be required as we have noted earlier in this submission.

## (v) Natural Gas

- "... energy market experts no longer see natural gas as a stable and affordable fuel ... Some members of the Task Force believe that the phase out (of coal) poses large economic costs and that the environmental benefits can be achieved by other means (than phasing out coal)." (Tough Choices, Addressing Ontario's Power Needs – Final Report to the Minister, January, 2004)
- "... 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)
- "The substantial increase in the hourly prices in 2005 is attributed to the increase in the price of natural gas following hurricanes Katrina and Rita, with those prices being 40 per cent higher in 2005 than in 2004. ... This also illustrates how in a market model, changes in fuel prices such as natural gas, a major component of the cost to produce electricity, have an immediate and direct impact on the price of electricity." (IESO - 2007 Market Outlook)  
See Chart, Below.



(IESO - 2007 Market Outlook)

- "The price of natural gas ... is expected to remain high and volatile. Residential and commercial space heating and industrial processes compete for supply and several nearby jurisdictions also rely heavily on gas, all of which puts its availability at a premium or even at risk." (OPA)
- According to the U.S. government Energy Information Administration, natural gas prices 10 years from now will be "consistently higher" due to resource depletion and increased demand coupled with higher exploration and development costs. (Annual Energy Outlook 2006 with Projections to 2030)
- "When gas generation set the price, it is more than twice as high (about \$78/MW.h, versus about \$33/MW.h for coal). ... increased gas-fired generation in Ontario will likely result in higher electricity prices due to greater frequency in setting the price of electricity" (National Energy Board report, "Natural Gas for Power Generation: Issues and Implications, June 2006)

- “Not only will electricity prices be influenced by that of natural gas but, with power generation becoming the fastest growing sector of natural gas demand, natural gas prices will also be increasingly influenced by electricity markets. This growing interdependency may contribute to higher costs for natural gas and electricity that will have to be absorbed by a range of energy consumers.” (National Energy Board)
- Other consumers of gas, whether small residential and commercial customers or large industrials, may face higher energy costs as a greater portion of natural gas demand becomes increasingly weather sensitive. Further, some of these consumers may be challenged to compete with gas-fired generators for supplies of natural gas and related transportation services.” (National Energy Board report, “Natural Gas for Power Generation: Issues and Implications, June 2006)
- “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)
- “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)

#### (vi) Transmission

- OPA workshop participants consistently indicated that the transmission costs reflected in the Integration discussion paper were unrealistically low. (Approximately 7.5 billion total for all new projects) OPA indicates that base transmission (2008) is assumed to be \$1,298 million, plus revenue from non Hydro One transmission facilities. This base revenue requirement is assumed throughout the planning period, plus “any new transmission expansion associated with the IPSP will be layered on top of the base revenue requirement to capture the incremental transmission costs of the new facilities.”
- It is estimated that the transmission costs for power from Manitoba will be \$1.5-1.7 billion dollars – line losses range from 10 and up to 30% over greater distances – this is also not being considered in the cost of imported power.

#### Summary

The CAE Alliance believes that the resource supply mix delivered by Ministerial Directive is too ambitious and too costly. It is simply not viable. Unfortunately, the Plan caters to that supply mix and will therefore inevitably lead to higher prices than our economy can sustain.

## CONCLUSIONS

- 1.** It is necessary for the Ontario Energy Board to review all of the items on the proposed issues list. Each generating resource listed, the cost and feasibility of implementing all of these is so interconnected, that each facet of the proposed plan impacts the others. Weaknesses in planning for any stage or any resource will invariably impact all other aspects of the Plan.
- 2.** A full cost analysis of all aspects of the proposed Plan, together with the impact to all Ontario consumers and the economy in general must be completed in order for the Ontario Energy Board to fully assess the financial ramifications of this energy plan. Only after this has been accomplished can the Board be in a position to "protect" consumers with respect to prices and the adequacy, reliability and quality of electricity service, the primary legislated mandate of the Board.