



**Submission  
to  
Standing Committee on Government  
Agencies  
of the Legislature of Ontario**

**RE: Ontario Power Generation**

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Submitted by:  
**The Society of Energy Professionals**  
September 9, 2009

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# Who We Are

- We represent engineers, scientists, supervisors and other experts in Canada's energy sector and have represented professionals for more than 70 years
- The Society represents over 7,500 employees at Hydro One, Ontario Power Generation, Bruce Power, Ontario Energy Board, Inergi, Kinectrics, Toronto Hydro, the Independent Electricity System Operator, New Horizons System Solutions, Nuclear Safety Solutions, Vertex, and the Electrical Safety Authority
- Society members work in every aspect of the electricity industry including generation, transmission, distribution, system planning and management, regulation and enforcement of standards performing a broad range of key functions
- Because of the particular expertise and the professional, ethical responsibilities of our members, the Society has historically taken on the role of speaking out on energy related social policy issues

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# OPG Today

- General acknowledgement of good financial and operational performance
- Good Health & Safety record due to cooperation between management and the unions
- OPG's nuclear power a bargain for Ontario compared to other generators
  - *Wind (Green Act) \$150 /MW*
  - *Gas fired generation \$80 /MW*
  - Bruce Power 'A' \$64 /MW
  - OPG nuclear \$55 /MW
  - OPG Regulated Hydro \$37 /MW
- Nuclear, Hydro facilities and new use of fossil assets produce clear energy
- OPG producing less electricity than planned, and exposure to low market prices have resulted in lower revenue stream and now trying to cut costs to stay profitable
- The low cost generation from OPG facilities had an enormous affect on rates, mitigating the impact of expensive new-gas fired generation/wind

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# Hydroelectric Business

- OPG has 65 hydroelectric stations on 25 rivers and operates over 240 dams, which supply approx. 25% of Ontario energy needs with clean renewable power
- Hydroelectric has the lowest operating costs per MW when compared to other technologies
- OPG continues to engage and strengthen relations with aboriginal peoples to resolve past issues and forge partnerships for future new development projects while maintaining positive relationships between the communities
- The kinds of relationships that are currently being established by OPG with aboriginal communities across Ontario are models for other industries and businesses
- The practice of establishing equity partnerships with aboriginal communities in hydroelectric projects is a promising means of relieving the social and economic circumstances that constrain the promise and potential of aboriginal youth in Ontario
- Lac Suel GS (12.5 MW capacity) put into service in February 2009 and is the first project OPG has with a first nation partner



# Hydroelectric's Success Leveraged

- Market rules and low demand are increasing the number of unit dispatches and spilling of water, increasing wear and tear on equipment
- OPG must continue with rehab work on existing stations to ensure their long-term safety and reliability while increasing and optimizing their potential
- Continuing the use of Hydroelectric Energy Supply Agreements (HESA) between OPG and the OPA is a sound way to move forward
- Most of the potential hydroelectric opportunities are in the north and require transmission infrastructure to be started
- Hydroelectric approvals (federal and provincial) take too long compared to other technologies
- Development – there are over 3,000 MW plus significant MW's of pumped storage capacity available that should be developed by OPG
- OPG and Moose Cree First nation finalizing partnership agreement to allow Lower Mattagami redevelopment (450 MW additional capacity) to start construction in 2010

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# Refuelling Existing Generation Assets

- Under the Ontario Green Plan, we see converted fossil units having an essential role in the day to day operation of the grid
- Much more can and should be done to expedite the use of these public assets for achieving climate change targets and in the process for triggering the development of a significant biomass generation industry in Ontario with tremendous benefits for Ontario's agricultural industry as well as our beleaguered forestry and manufacturing industries (specialized harvesting equipment, pelletizing plants etc).
- While OPG is well down the road in its commitment to wood biomass, it can and should take a leadership position on agricultural biomass to feed OPG's southern coal plant assets.
- Biomass will complement non-dispatchable generation (wind) which optimizes the non-dispatchable generation assets and allows them to operate without waste
- Biomass units will allow Ontario to be seen as an environmental leader



# Refuelling Existing Generation Assets (cont.)

- Biomass will create forestry jobs as pelletized fuel is produced from wood waste and will retain jobs in Rural Ontario where the stations are located
- Biomass can produce 3 to 6% of Ontario's energy needs from pelletized fuel which is carbon neutral and will reduce greenhouse gases
- Depending on the amount of wind generation introduced, we see a need to have 4-6 Nanticoke units and 2 Lambton units in the South, as well as Atikokan and Thunder Bay station conversions, in the North
- Biomass is dispatchable and has load following capability which can be enhanced by the addition of natural gas support to the boilers
- Biomass has the capability to rapidly cycle load to accommodate undispachable wind for improved system reliability and stability



# Refurbishment of Pickering “B”

- OPG received EA approval for the refurbishment in February 2009
- Integrated safety review (ISR) currently underway to identify all work required as part of the refurbishment project and expected to be approved in Q2 2010
- OPG will make a decision on the refurbishment of Pickering B in late 2010 which includes environmental, safety, engineering and economic assessments
- Pickering B refurbishment is only 30% of the cost of the AECL plant for new nuclear
- OPG has strengthened it's project management organization and learned from Pickering A and can execute this project properly



# Refurbishment of Darlington “A” (Cont.)

- OPG began working on the business case for Darlington A refurbishment in 2008
- In late 2008 a draft screening level assessment to the OPG Board and the completion of a technical assessment of the steam generators was completed
- 2009 work to be done includes:
  - Technical assessments for re-tubing, fuel handling and the turbines;
  - Development of an “islanding” study, which will look at all aspects of how to separate the units undergoing refurbishment from the operating units;
  - Development of a draft outage plan, including schedule and scope;
  - Continuation of integrated safety review (ISR) activities for the CNSC (the EA is expected to begin in 2010); and
  - Continuation of the business case development for refurbishment



# Refurbishment of Pickering & Darlington

- Pickering B and Darlington A refurbishment are cost effective against other electricity generation options in the amount of time required to meet Ontario's electricity needs
- The projects will take 6-8 years each to complete and will extend the life of the plants by approx. 30 years
- No Greenhouse Gas Emissions
- Local community support
- No transmission line improvements required
- Refurbishment takes less time to complete than new built station
- Refurbishment will enable Ontario to maintain it's nuclear generation at the desired 50% of capacity level
- Darlington A is among the best operating nuclear units in the world

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# Nuclear New Build

## Darlington “B”

- June 2006, OPG was directed by the Ontario Ministry of Energy to begin a federal approvals process including environment assessment, for new nuclear units at an existing site
- Sept 2006, OPG submitted Application for Approval to Prepare a Site for the Future Construction of a Nuclear Power Generating Facility to the CNSC
- April 2007, OPG submitted a Project Description to the CNSC for the Darlington Site for up to 4 nuclear reactors and up to 4800MW
- March 2008, Government of Ontario launched a competitive procurement process to select a nuclear vendor for 2 units to supply 2000-3500MW baseload generation
- Infrastructure Ontario appointed by Government to lead the RFP process with technical support from OPG & Bruce Power
- June 2008, Darlington site selected and OPG named as operator for 2 new nuclear units
- February 2009, 3 bids were received by Infrastructure Ontario

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# Nuclear New Build

## Darlington “B” (Cont.)

- May, 2009 the Government of Canada announced the restructuring of AECL
- June, 2009 the provincial government suspended the RFP process
- Ontario energy demand expected to reach 35,000 MW by 2030
- New nuclear plants required to be built to keep nuclear at 50% of demand ensuring a reliable green base load supply of electricity
- Clarington and Durham region support the building of new nuclear plants in their communities
- Nuclear power is more economic (\$/MW) in comparison to alternative sources (including gas, wind or other renewable)
- This infrastructure project also will create thousands of jobs in Ontario's hard hit job market (Oshawa)
- OPG is a proven operator of nuclear units in a safe and responsible way

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# Impact of “Green Act” on OPG

- OPA buying wind at \$150 /MW which will raise electricity prices by 10% for Ontarians by 2014 and additional 10% by 2024
- Impact even greater since back up power required to stay on standby in case no wind
- Wind generates mostly at night when energy not needed and cannot be stored so forces “Green” (run of the river) water to be spilled. IESO must take wind at \$150/MW over hydroelectric at \$37/MW
- Wind displacing cheap green with expensive green energy and Ontario ratepayers paying for it
- Wind is depressing price for all base load generators at night while receiving \$150 /MW
- Lower Ontario spot prices means Ontario ratepayers subsidizing energy exports to Quebec and US



# Staffing Issues

- 45% of electricity sector staff are expected to retire in the next ten (10) years
- OPG has over the past few years begun the process to hire young professionals to train for upcoming retirements but progress is slow
- One area of staffing in which the results are of concern is the training time to operationalize certified staff in categories such as Nuclear Authorized Staff
- OPG needs to staff for the future, not just the present to allow for timely transfer of knowledge
- OPG must be given adequate funding so it can hire the necessary resources



# Labour Relations

- Good labour relations contributes to motivated people doing good work
- Society members, as professionals, have a commitment to high standards of quality and safety in doing their work
- The Society is committed to helping OPG to be a successful company
- Employee satisfaction surveys confirm the frustrations our members face
- We continue to have disputes with OPG regarding too many management people doing society work and violation of collective agreement.



# Recommendations

- OPG's regulated assets should continue to be funded properly through the OEB rate hearings
- Enabler transmission for connection of OPG Hydro projects treatment should be the same as wind enabler connections
- OPG should be given a standard HESA to build new hydroelectric plants
- OPG should be encouraged to build windmills and pumped storage stations to use low priced power at night and generate at higher prices in the daytime
- Curtailment of wind at excess generation, no spilling of water
- OPG should be directed to continue with it's Biomass work
- OPG should refurbish Pickering B, and Darlington A
- OPG should build a new nuclear plant at the Darlington site
- OPG should deal with the demographic issue and try to better engage employees

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