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By electronic filing

November 15, 2010

Kirsten Walli  
Board Secretary  
Ontario Energy Board  
2300 Yonge Street  
27<sup>th</sup> floor  
Toronto, ON M4P 1E4

Dear Ms Walli,

**Ontario Power Generation Inc. (“OPG”)  
2011-2012 Payment Amounts Application  
Board File No.: EB-2010-0008  
Our File No.: 339583-000064**

Please find attached the Affidavit of Bruce Sharp adopting his evidence in this proceeding.  
Paper copies will follow shortly.

Yours very truly,

A handwritten signature in black ink, appearing to read 'VJ DeRose', with a long horizontal flourish extending to the right.

Vincent J. DeRose

VJD:slc  
enclosure

c. Intervenors EB-2010-0008  
Paul Clipsham

OTT01\4270292\1

**IN THE MATTER OF** the *Ontario Energy Board Act, 1998*, S. O. 1998, c. 15, Schedule B;

**AND IN THE MATTER OF** a review of an Application by Ontario Power Generation Inc. pursuant to section 78.1 of the *Ontario Energy Board Act, 1998* for an order or orders determining payment amounts for the output of certain of its generating facilities.

**AFFIDAVIT OF BRUCE SHARP**

I, Bruce Sharp, of the City of Toronto, in the Province of Ontario, make oath and say as follows:

1. I am a Senior Consultant in electricity consulting with Aegent Energy Advisors Inc. ("Aegent"). Aegent is a consulting company providing independent, objective advice to large energy buyers on all aspects of their electricity and natural gas procurement. Aegent specializes in helping buyers to reduce commodity costs, manage commodity price risk, and optimize utility contracts.
2. I hold a Bachelor of Applied Science in Mechanical Engineering from the University of Waterloo and have been involved in the energy business for approximately 23 years.
3. I am a professional engineer and a chartered industrial gas consultant.
4. Prior to joining Aegent, I provided independent advice to medium and large volume customers of electricity, and to small generators, on purchasing power and operating in Ontario.
5. Further, as Manager of power products and services with Engage Energy Canada, I was actively involved in the design, sale and delivery of client products and services targeted at a commodity segment of the electricity business. Prior to that, my work experience included working as a manager of industrial product marketing with The Consumers' Gas Company Limited, and as an industrial energy advisor with Ontario Hydro.
6. I was requested by Canadian Manufacturers & Exporters ("CME") to develop a total bill impact analysis of increases over the next five (5) years. The Ontario Electricity Total Bill

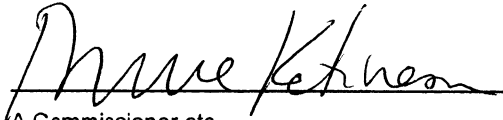
Impact Analysis which I prepared is attached at Tab A to this my Affidavit and marked as Exhibit A.


7. I also prepared Responses to Interrogatories posed by Board Staff and the Power Workers' Union (PWU"). Attached at Tab B to this my Affidavit and marked as Exhibit B is a copy of the Interrogatory Responses. I prepared all of the Interrogatory Responses except the Response to Board Staff Number 1, which was provided by CME's counsel.

8. For the purpose of this proceeding, I adopt as evidence before the Board my Ontario Electricity Total Bill Impact Analysis as attached at Tab A and all of the Interrogatory Responses, with the exception of CME Response to Board Staff Interrogatory Number 1, attached at Tab 2.

9. I make this Affidavit for the purpose of swearing this evidence in the context of the Ontario Energy Board's process for considering Ontario Power Generation Inc.'s ("OPG") Payment Amounts Application for 2011 and 2012 (EB-2010-0008) and for no other purpose.

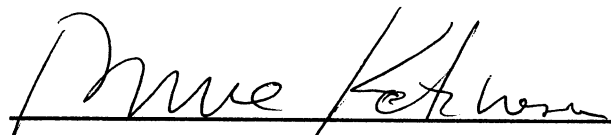
SWORN BEFORE ME at the City of Toronto,  
in the Province of Ontario, this 9<sup>th</sup> day of  
November, 2010.

  
A Commissioner etc.

)  
)   
) \_\_\_\_\_  
) Bruce Sharp

**TAB A**

**This is Exhibit "A" to the Affidavit of  
Bruce Sharp sworn before me this  
9th day of November, 2010.**



**A commissioner etc.**



**BORDEN  
LADNER  
GERVAIS**

By electronic filing and by e-mail

August 31, 2010

Kirsten Walli  
Board Secretary  
Ontario Energy Board  
P.O. Box 2319  
27<sup>th</sup> floor  
2300 Yonge Street  
Toronto, ON M4P 1E4

Dear Ms Walli,

**Ontario Power Generation Inc. ("OPG")  
2011-2012 Payment Amounts Application  
Board File No.: EB-2010-0008  
Our File No.: 339583-000064**

Please find attached the evidence of Bruce Sharp from Aegent Energy Advisors Inc. ("Aegent"), which is being filed on behalf of Canadian Manufacturers & Exporters ("CME").

Yours very truly,

Vincent J. DeRose

VJD\slc  
enclosures

c. Barbara Reuber (OPG)  
EB-2010-0008 Intervenors  
Paul Clipsham

OTT01\4175865\1

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EB-2010-0008

**IN THE MATTER OF** the *Ontario Energy Board Act*,  
1998, S.O. 1998, c. 15, Schedule B;

**AND IN THE MATTER OF** an Application by Ontario  
Power Generation Inc. pursuant to section 78.1 of the  
*Ontario Energy Board Act, 1998* for an order or orders  
determining payment amounts for the output of certain of  
its generating facilities.

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**EVIDENCE OF BRUCE SHARP  
FROM AEGENT ENERGY ADVISORS INC. ("AEGENT")  
ON BEHALF OF  
CANADIAN MANUFACTURERS & EXPORTERS ("CME")**

---

**August 31, 2010**

**Peter C. P. Thompson, Q.C.**  
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Counsel for CME

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**Ontario Electricity Total Bill Impact Analysis  
August 2010 to July 2015**

**About Aegent Energy Advisors**

Aegent Energy Advisors Inc. ("Aegent") is a consulting company providing independent, objective advice to large energy buyers on all aspects of their electricity and natural gas procurement. Aegent specializes in helping buyers to reduce commodity cost, manage commodity price risk, and optimize utility contracts.

More on Aegent can be found at [www.aegent.ca](http://www.aegent.ca).

**Background**

With all of the changes the Ontario electricity industry is undergoing, it is clear there will be future cost increases and resulting customer impacts. Related to the Ontario Energy Board ("OEB") process for considering Hydro One Networks Inc.'s ("Hydro One") application for transmission rate increases for 2011 and 2012 (EB-2010-0002), Canadian Manufacturers and Exporters ("CME") commissioned Aegent to develop a total bill impact analysis of increases over the next five years. CME has concluded that this total bill impact analysis is also relevant to Ontario Power Generation Inc.'s ("OPG") application for payment amounts for 2011 and 2012 (EB-2010-0008). In this regard, CME takes the position that the total bill impact of any specific utility rate application the OEB considers cannot be evaluated by simply considering utility-specific changes to line items in the electricity bill and holding everything else constant. Rather, there is a need to consider the total bill impact of what a particular utility is proposing in conjunction with everything else in the electricity bill that is simultaneously changing. It is within this context that CME files this evidence.

CME asked Aegent to provide this analysis because Aegent has experience in estimating total bill impacts of this nature. An example of this type of analysis was released by Aegent in March 2010 in a report. A copy of this is attached at Tab A.

This document provides a discussion of the method Aegent has applied and the results of the analysis. These materials have been prepared by Mr. Bruce Sharp of Aegent. Mr. Sharp, whose curriculum vitae is attached at Tab B, will testify to support this analysis.

The information upon which this analysis is based includes information published by the Ontario Power Authority ("OPA"), the Independent Electricity System Operator ("IESO"), Ontario electricity distributors, and rate case filings with the OEB made by Hydro One and OPG. Almost all of these entities, except some of the electricity distributors, are owned by the Government of Ontario, and all are entities over which the OEB exercises regulatory authority.

Aegent does not have access to the five (5) year Business Plans of these entities. Accordingly, where necessary, this analysis provides Aegent's estimates, based on assumptions that it considers to be reasonable and conservative, of the electricity price implications of the five (5) year Business Plans of these entities that will have an influence on elements of the electricity bill. Aegent readily acknowledges that entities such as the OEB or the Ministry of Energy and Infrastructure ("MEI" or the Ministry of Energy), with an ability to access the five (5) year Business Plans of the OPA, IESO, Hydro One, OPG and other transmitters and distributors the OEB regulates, are in a position to provide any information that is needed to better align Aegent's estimates with the contents of those five (5) year Business Plans.

It is possible that the OEB and/or the MEI have already prepared total bill impact reports of the type presented in this analysis. If they are conducting total bill impact studies, then the results of those studies or reports should be made public. They are urgently needed by manufacturers and other consumers for business planning purposes.

**Time Period Covered**

This analysis assumes that there will be no lag in the bill impact of utility cost increases for a particular year for which the OEB sets prospective test period rates. Cost increases derived from information on file with the OEB are assumed to have an effect on the bill in each particular year for which those costs are either forecast or estimated to be incurred. For other cost increases, including those linked to procurements by the OPA, the analysis assumes that there will be a lag between the contracting commitments made by the OPA and the total bill impact of those procurement arrangements. The analysis assumes that commitments made between August of one year and July of the ensuing year will affect electricity bills in that ensuing year, so that costs reflected in OPA publications pertaining to the period August 2010 to July 2011 will be reflected in the analysis for the year 2011. Procurement commitments made by the OPA in the period between August 2011 and July 2012 will be reflected in the analysis for the year 2012. The same method is applied to estimate cost increases for 2013, 2014, and for early 2015.

**Cost Increase Elements**

The following cost increase elements, shown with the residential bill areas they fall under, were evaluated:

cost increase element	bill area	table
Feed-In-Tariff (FIT)	Electricity (Provincial Benefit)	1a, 1b, 1c
Renewable Energy Standard Offer Program (RESOP)	Electricity (Provincial Benefit)	2
Renewables (other)	Electricity (Provincial Benefit)	3
Bruce Power (existing)	Electricity (Provincial Benefit)	4
Bruce Power (new)	Electricity (Provincial Benefit)	5
OPG	Electricity (Provincial Benefit)	6
Natural Gas	Electricity (Provincial Benefit)	7
Non-Utility Generators (NUGs)	Electricity (Provincial Benefit)	8
Conservation and Demand Management (CDM)	Electricity (Provincial Benefit)	9
Transmission	Delivery or Regulatory	10a, 10b, 10c
Distribution (non-Green Energy Act)	Delivery	11
Distribution (Green Energy Act)	Delivery or Regulatory	12

**Excluded Cost Increase Elements - Already in Effect**

The following cost increase elements have already come into effect for residential consumers:

- a) Two-tier RPP rate increase – This increase came into effect May 1, 2010. For consumers using 800 kWh per month, this increase amounted to \$ 7.10/MWh (12 month impact).
- b) TOU RPP increase – This has affected some residential consumers, with most to follow. The cost increase is in the order of \$ 4/MWh.
- c) Special Purpose Charge – Effective May 1, 2010 many or most local distribution companies began collecting this from customers. The rate/increase is \$ 0.38/MWh.
- d) HST – Introduction of the Harmonized Sales Tax on July 1, 2010 resulted in the sales tax on electricity increasing from 5 % to 13 % -- a residential bill impact. The additional 8 % adds about \$ 9/MWh to an approximate, previous GST-exclusive residential unit rate of about \$ 115/MWh.

The total of items a) to c) is about \$ 11.50/MWh (no HST) or \$ 13/MWh with HST. In combination with item d), the total bill impact of the items already in effect is about \$ 22/MWh. This is an increase of about 18% from a previous GST- inclusive

unit price of about \$ 120/MWh. Increases included in this analysis are additive, though there is some overlap with these excluded items (in the order of \$ 3/MWh).

#### **Excluded Cost Increase Elements – Other**

The following elements were not included in the analysis as they have non-uniform and/or uncertain impacts:

- a) Industrial "time-of use" rates – This concerns the reallocation of Global Adjustment / Provincial Benefit costs, from a postage-stamp basis to one determined by coincident peak demands.
- b) Coincident peak allocation of future transmission costs – Similar to the Global Adjustment/Provincial Benefit reallocation noted above, the same could occur with transmission. Even with transmission rates rising rapidly, there are less total dollars involved and so if this occurs the ultimate (into 2015) increase would likely be less than \$ 0.50/MWh.
- c) IESO Smart Grid investment – These costs may arise in the future but as of this date the IESO has not identified any significant related costs in its most recent Business Plan (2010 - 2012).
- d) Ancillary services – The integration of a huge amount of new generation will most likely lead to significant operating challenges, which in turn will result in increased ancillary services (including operating reserve and regulation service) costs.

#### **General Methodology**

The following general methodology was used in analyzing each cost increase element:

- a) Calculate cost in reference time period prior to first increase period, if applicable (\$ million)
- b) Calculate cumulative cost in forecast periods (\$ million)
- c) Cumulative increase for each forecast period is value or value less reference period value (\$ million)
- d) Use IESO total annual energy consumption forecast (and escalated) values (TWh)
- e) Calculate cumulative unit cost increase values (\$/MWh)
- f) Increases will manifest themselves through increases to the Global Adjustment/Provincial Benefit, transmission distribution and possibly regulatory charges.

#### **Methodology Details**

The following methodologies were used in analyzing groups of or individual cost increase elements:

##### FIT, RESOP, Renewables (other), Bruce Power (new)

- For each period, subtract reference spot price from contract price to arrive at premium over spot price in \$/MWh
- Estimate MW quantities added each period
- Calculate cumulative MW quantities to end of each period
- Use capacity factors and 8,760 hours in year to arrive at cumulative MWh to the end of each period
- Cumulative \$, to end of period = cumulative MWh, to end of period x \$/MWh
- Cumulative increase \$ = cumulative \$ (all "new" so no reference required to prior to Aug10)

##### Bruce Power (existing)

- For each period, subtract reference spot price from contract price to arrive at premium over spot price in \$/MWh
- Use current, uniform MW quantity in each period
- Apply capacity factors and 8,760 hours in year to arrive at cumulative MWh in each period
- Cumulative \$ to end of each period = cumulative MWh x \$/MWh
- Cumulative increase \$, to end of each period = cumulative \$, in each period less cumulative \$, prior to Aug10

#### OPG, NUGs

- Subtract reference spot price from contract price to arrive at premium over spot price in \$/MWh
- Use annual TWh quantities for each period
- Calculate premium-over-spot \$ in period = \$/MWh x MWh
- Increase \$ to end of period = premium-over-spot \$ in period less same, prior to Aug10

#### Natural Gas

- Estimate MW quantities added each period
- Calculate cumulative MW quantities to end of each period
- Estimate contingent support payment rates (\$/MW/year)
- Cumulative \$ to end of each period = cumulative MW x \$/MW/year
- Cumulative increase \$ = cumulative \$

#### CDM

- Estimate expenditures in each period
- Cumulative increase \$, to end of each period = cumulative \$, to end of period less cumulative \$, prior to Aug10

#### Transmission

- Determine / estimate Rates Revenue Requirement in reference and each forecast period
- Cumulative increase \$, to end of each period = cumulative \$, to end of period less cumulative \$, prior to Aug10

#### Distribution (non-GEA)

- Use 2009 total Ontario LDC distribution revenue (OEB's 2009 Yearbook of Electricity Distributors)
- Estimate annual increase percentages
- Calculate increased annual revenues
- Cumulative increase \$, to end of each period = revenue, each period less revenue, 2010

#### Distribution (GEA)

- Use Hydro One Distribution Green Energy Act data to extrapolate total Green Energy Act investment by all Ontario LDCs
- Determine / estimate Rates Revenue Requirement in reference and each forecast period
- Cumulative increase \$, to end of each period = cumulative \$, to end of period less cumulative \$, prior to Aug10

#### **Commodity Price Assumptions**

For this analysis we define the total commodity price for electricity as being comprised of the spot price of electricity and the Global Adjustment (the "GA"). By spot price we generally refer to the arithmetic average price of electricity, also referred to as the Hourly Ontario Energy Price ("HOEP"). The GA is also referred to as the Provincial Benefit on local distribution company ("LDC") – served customers' electricity bills).

### HOEP-GA Interaction

There is a clear interaction between the spot price of electricity and the GA. When spot prices fall, the GA rises and vice versa. This occurs because the government and its agencies have entered into electricity supply arrangements that cover off a very large majority of Ontario electricity supply requirements. The majority of these contracts included fixed prices (some with escalators). With the huge amount of contracted generation coming in to service over the next five years, virtually no new supply will be un-contracted and so this interaction will become even stronger.

The dynamic is more complex than that but for the purposes of this analysis we assume that the combination of HOEP and the GA are generally fixed. This means that a lower spot price is offset by a correspondingly higher GA and vice versa.

### Uniform Forecast of HOEP

We also assume that HOEP is fixed during the forecast period. This simplifies the analysis related to most of the generation-related elements, by taking away the need to forecast and incorporate HOEP and the GA for each year analyzed. Even if different HOEP forecast values were used for each period, HOEP-GA interaction assumption would have an offsetting impact, resulting in the same reference total commodity price and rendering varying annual HOEP values moot.

### Reference Spot Market Prices

Based on the monthly behavior of HOEP and the GA over the last six to twelve months, we estimate the current, total commodity price to be approximately \$ 65/MWh, comprised of HOEP at \$ 38/MWh and the GA at \$ 27/MWh. For most of the new generation sources with fixed-price contracts, we assume they will be paid \$ 38/MWh from the spot market and then be "made whole" through payments funded through the GA. Solar and NUG projects are the exception – as they produce energy during higher-priced daylight and on-peak hours. We assume they will be paid \$ 48/MWh from the spot market, with the remainder funded through the GA.

### Other Assumptions

This analysis includes a number of assumptions. Some relate to forecast years beyond test periods documented in OEB rate cases; in those cases we assumed similar and/or moderate increases in future years. In all cases we have tried to be reasonable and err on the side of being conservative, i.e. the low side.

One major assumption of note is the amount of FIT generation that will come into service during the forecast period. For our analysis, we assume a total of 10,500 MW of FIT generation will come online by July 2015. This is comprised of 8,000 MW of FIT applications received by the OPA as of April 2010 and 2,500 MW of Samsung wind and solar projects.

### Incremental Surplus from New Generation

Using near-term IESO forecasts and similar escalation rates, we estimate that annual Ontario energy consumption will grow by 6.2 TWh between 2010 and 2015. By 2015, the new generation (FIT, remaining RESOP, other renewable, new Bruce Power) identified in this analysis will produce an approximate 41 TWh (25.9 + 1.4 + 1.5 + 12.0) of incremental annual energy.

Generation that will or could be retired or otherwise out of service in the next few years includes coal (10 TWh in 2009) and nuclear (OPG's Pickering B: 2,160 MW at a capacity factor of 85% ~ 16 TWh), for a total of about 26 TWh. Not included in this number is the inevitable contribution of energy from incremental natural gas generation, required for system operability and other purposes.

