January 27, 2012

Mrs. Kristen Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto ON M4P 1E4

RE: Hydro Hawkesbury Inc.

Electricity Distribution Rate Application.

Board File No. EB-2011-0173 IRM3 2012

Response to SEC Interrogatories

Ms. Walli

Please find enclosed HHI's response to SEC interrogatories dated January 12, 2012.

Yours Truly,

Michel Poulin

Manager, Hydro Hawkesbury Inc.
613-632-6689

EB-2011-0173

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

AND IN THE MATTER OF an Application by Hydro Hawkesbury Inc. for an Order or Orders approving just and reasonable rates and other service charges for the distribution of electricity to be effective May 1, 2012.

INTERROGATORIES

OF THE

SCHOOL ENERGY COALITION

1. Please advise the actions the Applicant will take in the event that the Board does not approve the ICM and/or Z-Factor applied for.

HHI Response The replacement for the 44KV is currently on order. If the Board denies the application, the financing of this new transformer could potentially be at risk. HHI's priority is the safe and reliable continuity of service in its territory and therefore, it will do whatever it takes to make sure the lights stay on in Hawkesbury.

With respect to the 110KV, if the OEB doesn't approve the ICM application, the utility has no other alternatives but to take a reactive stance and wait until the 110KV fails.

As mentioned in the application, if one transformer fails or is taken out of commission, the other cannot support its load. The first thing the utility would do is to inform their customer of potential outages in the service area and inform the

ESA of the failure of its main distribution transformer. The utility would then turn to the following options as recourse.

1) Turn to Hydro One to see if the mobile transformer is available. As indicated in the present application, even if a mobile unit is available Hydro One will not guarantee that it will be available for HHI. (Refer to Exh1, Tab2, Sch3, page 11 for Hydro One's response.)

2) Rent a generator and send the transformer for repairs. Monthly cost for a 2 Megawatt generator is approximately $310,000. HHI would need 4 units. (8 Meg which is 80% of the capacity of our existing 10 MEG transformer). The monthly cost for 4 generators would be in the surroundings of $1,240,000. (Please see quote below). These costs do not cover the overhaul or the total revamp (winding) of the transformer.

HHI did due diligence, with the proper assessment report and professional Engineer studies to clarify the situation HHI is facing. The 44KV, the Z-factor is totally out of management control, while the 25Meg ICM is in fact planned by HHI's management.

RENTAL COST FOR A 2 MW GENERATOR IN CASE OF MAJOR FAILURE

Delivery of the Unit	$	9,000.00	
Monthly rental	$	68,640.00	Monthly rental charge
Fuel cost per month ($1.3*253*24hrs*30 days)	$	236,808.00	Fuel $1.30 per liter. At 100% 253 liter per hour. This generator will run 24 hours per day
Maintenance cost ($6.4 per hour*24*30)	$	4,608.00	per month
total monthly cost for 1 unit	**$**	**310,056.00**	covers rental , maintenance, and fuel.
HHI existing transformer size 10MW			
TOTAL MONTHLY COST FOR 10 MW GENERATION	**$**	**1,550,280.00**	
Total units required at 2MW each is 5 unit to match the existing capacity			
Estimated time to build a new transformer			
6 to 12 months	**$**	**9,301,680.00**	6 months
	$	**18,603,360.00**	12 months

GAL Power Systems Ottawa Ltd.
84 Bentley Avenue
Nepean, Ontario K2E 6T9
TEL: (613) 226-4876
FAX: (613) 226-7236
Toll free (800) 619-4219

GAL
POWER SYSTEMS LTD.
WWW.GALPOWER.COM

Email Quotation

Date	**Thursday, January 19, 2012**	Total Pages	**2**
Company	**Hawkesbury Hydro**	Email	**poulinmi@hawk.igs.net**
Attention	**Michel Poulin**	Phone	**613-632-6689**
Subject	**Generator Rental Quotation**	Gal Ref #	**CW1266**
From	**Charles Way**	CC	

Michel,

Thank you for your recent inquiry and we are pleased to submit our quotation for your consideration.

You have a requirement for temporary power at your jobsite, details as follows:

JOB SITE LOCATION: Hawkesbury, Ontario
LOAD IN DATE: February 2012
RENTAL LENGTH: TBD
LOAD OUT DATE: TBD
SERVICE REQUIRED: 2000 kW, 4160 Volt, 3PH, 60HZ

Based on the above information we offer to supply:

(2X) 1000kW, 347/600 Volt, 3PH, 60HZ Hushpower Generator
(1X) 3000 Amp, Main Bus
(1X) 3000kVA Transformer, Primary 600 Volt, Secondary 4160 Volt
c/w associated cables and pigtails

Weekly Rental Charge: $22,880.00 Plus Taxes and Additional Charges
Monthly Rental Charge: $68,640.00 Plus Taxes and Additional Charges

Notes:

- The above rates are based on Continuous duty.
- Quotation is subject to equipment availability at time of order.
- 2 days equals 1 week, 3 weeks equals 1 month.
- For billing purposes 1 month is equal to 28 days.

ADDITIONAL CHARGES

FUEL: All equipment will be supplied full of fuel on a sale or return basis. Fuel will be charged at $1.60 per litre. Price is subject to change due to market increase.

FREIGHT: The charge to deliver the above equipment to your site in Hawkesbury, Ontario and pick up at the end of the rental period will be $9,000.00. Any delays caused by the customer may result in additional charges.

LABOUR:	08:00 to 17:00	$95.00 per Hour
	17:00 to 22:00	$142.50 per Hour
	22:00 to 08:00	$190.00 per Hour

* Saturdays and Sundays are charged at double time rates.

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84 Bentley Avenue
Nepean, Ontario K2E 6T9
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FAX: (613) 226-7236
Toll free (800) 619-4219

GAL
POWER SYSTEMS LTD.

PAYMENT TERMS: payment in full will be required 30 days from date of invoice.

VALIDITY: this offer is valid for 30 days, subject to availability.

FUEL CONSUMPTION (approx.): 253 liters per hour at 100% load each unit

REPLACEMENT VALUE OF EQUIPMENT SUPPLIED: $105,500.00

ON SITE MAINTENANCE: It is the customer's responsibility to check/top up, fuel level, as necessary engine oil, coolant level (including anti-freeze mixture) and battery levels, on a daily basis. In addition to checking the levels the customer is also responsible to check for fluid leaks. Any leaks should be reported to Gal Power immediately. The checks should be carried out prior to starting the generator. It is the customer's responsibility to notify Gal Power Systems when the equipment has run 250 hours from the last point of service. The number of hours the generator runs during the rental period will be pro rated for maintenance costs and will be added to invoice. The cost per hour running is $6,40. **Each Unit**

CUSTOMERS RESPONSIBILITIES

- Any rental that results from this quotation would be subject to our normal conditions of contract.
- Full replacement value insurance on all equipment.
- All lifting of our equipment, if required.
- Compliance with all city codes, pulling of permits and all required licenses.
- To notify Gal Power Systems immediately if equipment has been exposed to any hazardous/corrosive chemicals or contaminants. Any costs associated with cleaning or decontaminating of equipment, will be the responsibility of the customer.
- To follow the on site maintenance procedures specified in this quotation.
- To pay any applicable taxes. If you are tax exempt, you must supply us with a certificate to confirm this.
- We are not responsible for connecting power to your equipment, or testing the ground connection.
- A 1% environmental fee to a maximum of $100.00 will be applied to all final invoices. This is based on the equipment rental portion and excludes accessories, fuel and freight charges.

We hope the above information meets with your requirements and please feel free to contact me should you require further assistance.

2. [Ex 1/1/5/p.8]
   Please provide a reference in any Board decision, guideline or policy that allows a utility to be permitted to adjust its load forecast during the IRM term?

   HHI Response: Under these circumstances, and since the Board requires utilities to provide the most up to date information in every other aspect of applications, HHI opted to provide "2010 Actuals" to ensure that rates are based on actual information rather than projections made in 2008 at the height of the economic downturn and therefore the height of economic uncertainties.

3. [Ex 1/1/5/p.9]
   In the format of the table on page 9, please provide 2011 actual data compared to the Board-Approved 2011 forecast.

   HHI Response: As a 2010 rebaser, HHI does not have a 2011 Board Approved load forecast.

4. [Ex. 1/1/5p.9]
   Why does the Applicant believe 2010 actual data is more reflective for 2012 than the 2010 Board-approved load forecast?

   HHI Response: The actual 2010 data is a real image of 2010 kWh sold. The forecast in the COS took consideration our LU loss but still was a forecast. HHI feels that actual and real data is more accurate that forecast kWh.

5. [Ex. 1/2/2/1, Ex. 1/2/2/2, Ex. 1/2/3/4]
   Please provide the instructions that were provided to GE Energy and BPR.

   HHI Response: Please refer to the detailed timeline of events and preventative measures presented at the next page (Table 1). Further detail of the communication between the utility and both GE and BPR is presented below:

GE;

GE has had a long standing relationship with HHI and has been involved in the testing and monitoring of the two distribution transformers for years now.

For the **110 KV Station** (25MEG transformer), GE was mandated by HHI to perform a comprehensive station assessment in order to obtain a complete picture of the existing asset. As mentioned in the application the 2 transformers at the station are over 45 years of age. In the past few years several repairs were performed on site.

As part of HHI's operation we are very well aware that these 2 twin transformers are getting closer to the end of life. The station assessment report can be found at Exh 1, Tab2, Sch 2, Att 1.

While HHI was GE we getting the station assessment performed on the **110 KV station, the 44KV station** didn't show any signs of concern. Reports were recommending normal operation of the transformer.

During 2009 TDCG gases started to appear in the **44KV transformer**.
As can be seen under Table 1 below, the different steps and mandate given to GE to monitor and evaluate our Distribution substations. During 2010 mainly HHI provided oil samples to GE to perform the required monitoring asked by HHI as recommended by GE.

Late 2010 HHI obtain a quote from GE to perform a major intervention on our **44 KV transform**er in order to see what causes the TDCG within the transformer. All this driven by the oil test results over several month. This outage has to be planned during a low peak period.

In April 2011, HHI asked GE to investigate further to obtain a better diagnostic of the transformer to better understand the issues. On April 12, 2011, during our off peak season, HHI did a shut-down of the **44 KV transformer** in order to perform tests and a visual inspection of the **44KV transformer**. The results are provided in the application. (Exh1, Tab2, Sch3 App2).

BPR Engineering

Following GE's station assessment report on out **110 KV station:**

Once the GE report was acknowledge, BPR was asked as part of HHI's due diligence exercise, BPR was retained and mandated evaluate options for our aging **110 KV substation**. Several options were provided. See The BPR report Exh1, tab2, Sch 2 Att 2.

BPR was asked to produce the engineering to add a transformer based on HHI's size, capabilities, and needs as well as making sure that all current industry standards are met. Furthermore HHI asked BPR to consider redundancy, safety, environmental facts, and protection of the new assets.

BPR's involvement with the **44KV station**

BPR was then asked as a second mandate to provide the same logistics for the addition of our **44KV transformer**. BPR being already involved in the engineering and HHI's needs and utility concept, provided a study and plans to perform the addition due to the urgency we are faced with.

TABLE 1. TIMELINE OF EVENTS AND PREVENTATIVE MEASURES FROM HHI.

- Oil testing was performed in 2006, 2007, 2008, 2009, 2010 and 2011.

- Oil testing was performed on a regular basis and on a timeframe recommended by General Electric ("GE") to monitor the transformer adequately. The test results were used to provide a picture of the transformer and the condition it's in at a certain point in time.

- From **2007 to 2008** the Total Combustible Gas ("TDCG") percentage was stable. The 2008 report from GE recommendation was: Continue to operate normally. Resample in on year.

- In **2009** again the recommendation was to operate normally but GE advised HHI that a slight increase in TDCG was noticed. GE also recommended that some inhibitor be added to the transformer. This repairs was done. GE also mentioned that the aging of a transformer and the history of the same transformer should not be ignored and that constant monitoring would be valuable. It was noted that if the TDCG increased further, then the possibility of a major fault could occur.

- In **2009** 3 oil samples were taken in order to monitor TDCG.

- In **2010** again oil samples were taken on a regular basis to monitor the gases. TDCG % seemed to be constantly increasing. In 2010 as per oil test results (Exh1, Tab2, Sch3 App2), it was recognized that dangerous combustible gases was present in the oil. It was recommended to sample the transformer on a regular basis to see the progression of these gases.

- In **2011**, following the annual oils sampling exercise, a major increase in the TDCG was again found.

- In **April 2011**, HHI engaged GE to investigate further in order to obtain a better diagnostic of the transformer to better understand the issues. **On April 12, 2011**, (Exh1, Tab2, Sch3 App2), during our off peak season, HHI did a shut- down of the 44 KV transformer in order to perform tests and a visual inspection of the 44KV transformer.
- GE did some minor repairs and by-passed the Tap changer. No other action can be performed on site. There is no room within the transformer tank for anyone to go in and inspect and/or do repairs. The GE Technician doubts that this Tap Changer was the cause of high gases.

- During this intervention, GE's comment was: 'With the type of gas, we know some overheating at over 700 degree Celsius is happening inside the transformer. The amount of combustible gases is in constant rising and may degenerate to a major failure in the transformer.
- In **2011** following the intervention, oil samples were taken in June, July and October. All results did show a progression in the total TDCG %.

- In August of **201**1 HHI opted to purchase a replacement for the 44KV as it felt that the reliability and continuity of its service was at great risk.

6. [Ex. 1/2/2/p.3] Please provide details on the reliability, maintenance and repair history of the transformer over the past 5 years.

   HHI Response: See table below

MAINTENANCE PERFORMED ON 110 KV STATION.		
YEAR	COMMENTS	WORK PERFORMED
2004	OIL TESTS RESULTS ARE OK. NO MAJOR INTERVENTION REQUIRED ON THE TRANSFORMER	MAINTENANCE & TESTING INCLUDING OIL REPLACEMENT IN ON LOAD TAP SWITCH AS WELL AS IN RECLOSERS. ALSO MAJOR MAINTENANCE DONE ON THE STRUCTURE TO REPLACE SEVERAL INSULATORS. Following an infra red test, several hot spot (in-line switches etc) we replaced and maintained.
2005	On transformer 55T2	one primary bushing replaced under an emergency situation on transformer 55T2
		All cooling fans and conservator tank were removed from the main tank
		All new gasket put into place and transformer repainted
	transformer 55T1	Oil test show the formation of High Gases
2006	transformer 55T1	major shutt down to find why high combustible gases are performed. Inspection with a camera was performed since no room for GE to go in the transformer (confined space)
		The incorperated grounding device on these old transformers show corrosion and this might cause the gases. GE mentions that if this is not the problem, then the transformer will need to be removed and sent to a manufacturer for further testing and re-vamp.
		Oil in the 55T1 was degased and put back in the tank once the by-pass of the grouinding device was completed. Inhibitor added to the transformer to prevent aging of the isolation paper
2007	Transformer 55T2	Showing high gases , but maybe cause by normal aging
	Transformer 55T1	Following the major intervention in 2006, the oil tests results are good. No need at the present time to remove from service. No high risk
2008	Transformer 55T1 and T2	Oil test are OK, but during a general inspection oil leaks were found from the wire connection post between the tap box and the Control panel. HHI had both transformers repaired to correct the situation. New gasket and oils was added
		REPLACE 1 OF 3 THREE PHASES RECLOSERS
2009	55T1	No action Oil test results OK
	Transformer 55T2. Oil test show high gases. GE suspect the same problem as seen with 55T1	Close monitoring of the transformer. Gases are increasing. Shutt down required for GE to find the problem. Once the transformer down GE did the internal inspection and found out that the problem seems to be similar to 55T1 repaired in 2006. and oil degased.
		Comments from GE :E mentions that if this is not the problem, then the transformer will need to be removed and sent to a manufacturer for further testing and re-vamp.
		infra red inspection. Minor anomalies on the structure were repaired.
		REPLACE 1 THREE PHASE RECLOSER (2 OF 3)
2010	55T1 and 55T2	Gas level are stables. No action required station assessment performed.
		REPLACE THE LAST THREE PHASE RECLOSER

MAINTENANCE PERFORMED ON 44kv STATION.		
YEAR	COMMENTS	WORK PERFORMED
2004	no issues will oil tests.	Maintenance on structure
2005	transformer oil test show no worries.	Replaced oil in al three phase reclosers.
2006	transformer oil Ok	Issues with a recloser on circuit 43T1. Repaired
2007	Annual oil tests performed. Some gases showing progression but without major concern. Recommended to sample	no action required
2008	Same as 2007, fairly stable eexcept for CO and CO2. This might indicate overheating and/or normal aging of the transformer	changed a few connector and switches on the structure while the station was down and did upgrades on conductors from 3/0 to 336 MCM
2009	Gas in oil has doubled since last sampling in 2008. Overheating is now recognised as the cause of these high gases (not normal aging) Recommendation from GE is to follow closelly the evolution of these combustible gases.	close monitoring is performed during 2009. The evolution of these high gases .GE suspect arcing within the transformer tank infra red inspection. Minor anomalies on the structure were repaired. Added inhibitor
2010	oil test are showing progression in combustible gases. C2H4	closelly miitor the transformer in order to make a sound decision of the action to be taken

2011	Tap Changers 55T1 & T2	As recommended in the station assessment report the Tap changers on both transformers need replacement. Done		2011	Oil test show progression. Recommendation is to sample monthly	April 2011: GE as the mandate to inspect the inside of the transformer. Not to much room (just like the 55T1 and 55T2 transformers) but GE could go inside the transformer up to the transformer coils. They inspected the manual tap chagers and did some minor repairs. They do not expect this to be the cause of high gases. No anomalies found in the electrical tests. GE Comments: with the type of gases we know some overheating at over 700 degree celcius is happening inside the transformer.
		Inhibitor added to both transformers while they are out of service (one at a time)				The amount of combustible gas may generate to a major failure in the transformer
						REPLACE 2 THREE PHASE RECLOSERS (2 OUT OF 2)

7. [Ex. 1/2/3/p.3] Please explain why the Applicant is seeking recovery through a Z-Factor claim and not an ICM claim.

   HHI Response. In the case of the 44KV for which the utility is seeking recovery through Z-Factor, although the transformer is nearing the end of its useful life, its operation had not been a major source of concern until late 2009. In an effort to manage the risk of having 2 aging transformers supplying the utility's service area, HHI opted to be proactive and have its transformer assessed (Ex1/Tab2/Sch2/Att1) and also performed repeated oil sampling to make sure the transformer was functioning safely and properly. There is a misconception that Z-Factors should be granted solely to "Acts of God" however, it is HHI's view that despite having taken every precaution in order to prolong the life of this transformer, it could not have predicted that the 44KV would fail and that the reliability and continuity of the utility 'service would be at risk.

   The main reason behind the choice of applying for a Z-Factor instead of an ICM is that HHI and its board of directors was forced to make the desperate decision of purchasing a replacement for this 44KV transformer without the OEB's approval and that the application satisfies all 3 criteria of a Z-Factor.

8. [Ex. 1/2/3/p.3] Please provide details on the reliability, maintenance and repair history of the transformer over the past 5 years.

   HHI Response: See response to question 6

9. [Ex. 1/2/3/p.9] Please provide a copy of all the information that was provided to the Board of Directors.

   HHI Response: all expert reports from General Electric and BPR Engineering are part of the application. HHI'S board of directors respect the importance of those report performed by professional who have no pecuniary interest in the outcome of the tests and results. They provide professional expertise, comments and recommendations. Please refer to Exh1, Tab2, Sch2 and Exh1, Tab2, Sch3.