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August 27, 2015

Ontario Energy Board
P.O. Box 2319
27th Floor
2300 Yonge Street
Toronto, Ontario
M4P 1E4

Attention: Ms. Kirsten Walli, Board Secretary

Dear Ms Walli:

**Re: Re: January 1, 2016 Cost of Service Rate Application / EB-2015-0108 – Technical
Conference Undertaking Responses**

Pursuant to Waterloo North Hydro Inc.'s (WNH) Technical Conference on August 19, 2015, WNH has attached its Technical Conference Undertaking Responses for its January 1, 2016 Cost of Service Rate Application.

WNH has two reports being filed in response to Undertaking JTC1.2 which are being filed in confidence in accordance with the *Rules of Practice and Procedure* and the Board's *Practice Direction on Confidential Filings*. The reasons for the confidentiality request are described in the response to Undertaking JTC1.2.

We enclose two (2) hard copies of WNH's Technical Conference Undertaking Responses.

WNH has previously forwarded the PDF version and Excel Files for its Interrogatory Responses via the Board's web portal.

If there are any questions, please contact Chris Amos at 519-888-5541, camos@wnhydro.com or Albert Singh at 519-888-5542, asingh@wnhydro.com.

Yours truly,

Original Signed By

Albert P. Singh, MBA, CGA
Vice-President, Finance and CFO

EB-2015-0108

Waterloo North Hydro Inc. (WNH)
Technical Conference Undertakings
August 27, 2015

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Undertaking No. JTC1.1:

Undertaking:

To provide the net book value of both stations at the beginning and end of 2016

Response:

The Net Book Values of MS 1 and MS 3 at the beginning and end of 2016 are as follows:

MS1					
Land		Building		Total	
NBV Beginning of 2016	NBV End of 2016	NBV Beginning of 2016	NBV End of 2016	NBV Beginning of 2016	NBV End of 2016
15,095	15,095	12,214	11,467	27,310	26,562

MS3					
Land		Building		Total	
NBV Beginning of 2016	NBV End of 2016	NBV Beginning of 2016	NBV End of 2016	NBV Beginning of 2016	NBV End of 2016
2,112	2,112	-	-	2,112	2,112

Undertaking No. JTC1.2 (Confidential):

Undertaking:

To provide what the expectations of the property would be.

Response:

In response to this Interrogatory WNH is filing 2 independent appraisals in confidence pursuant to the Board's confidential filing guidelines. WNH retained COLDWELL BANKER COMMERCIAL REALTY for the sale of the property and they are in discussions with two interested parties. Public disclosure of the appraisals would be detrimental to the negotiation process, and could reasonably be expected to result in a lower overall sale price for the property.

Undertaking No. JTC1.3:

Undertaking:

To provide the updated 2-SEC-25 spreadsheet in an excel format.

Response:

WNH has attached the updated 2-SEC-25 spreadsheet in excel format to these Undertaking Responses.

Undertaking No. JTC1.4:

Undertaking:

To advise what is driving the fact that a smaller percentage of O&M costs are being contracted out.

Response:

WNH has provided a revised table reflecting the O&M Percentage of Contracted Service below. The previous response to 2-SEC-18 incorrectly included costs which are not directly related to O&M. As is demonstrated below, 2015 and 2016 are not materially different than previous years.

O & M % Contracted Services		
Year	Reporting	% Contracted
2010	Actual	10.0%
2011	Actual	16.3%
2012	Actual	12.8%
2013	Actual	10.4%
2014	Actual	12.6%
2015	Forecast	10.4%
2016	Forecast	10.5%

Undertaking No. JTC1.5:

Undertaking:

With reference to 2-SEC-33 and 2-Staff-29, to provide what the actuals were for each of the projects.

Background

In WNH's Technical Conference Transcript of August 19, 2015, page 50, lines 7 – 14, it states:

"MR. RUBENSTEIN: So if we go back to the 2011 projects that were discussed before where you didn't have actuals for, putting aside when those projects were completed -- so they may not have been completed in 2011; they may have been completed in 2012, 2013 -- do you have actuals for each of those projects?"

MR. HALLER: Yes, we believe we can get the actuals from 2011."

Response:

WNH has attached Table 2-38 below, which details the 2011 COS projects.

Table 2-38
Details for 2011 COS Approved Projects

Project Number	Projects	2011 Board Approved	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Bridge	Notes
	Reporting Basis	CGAAP	CGAAP	CGAAP	RCGAAP	MIFRS	MIFRS	
System Access Projects								
	Customer Connections & Meters - 23 & 28							
1	New Overhead Service Connections/Upgrades	864,042	944,922					
2	New Underground Service Connections/Upgrades	870,995	1,372,289					
3	Retail Meters	315,250	384,912					
	Municipal Relocations - 22							
4	Road Relocation Projects	293,382	70,824					
5	Park Street - Union St to Allen St	267,316	258,665					
6	Barrel Yards - Father David Bauer Dr.	640,439	0		272,511			See Note (7)
	Expansions (Subdivisions) - 24							
7	Vista Hills - Wilmot Line	344,309		228,172				See Note (6)
8	Greyerbiehl Ph 2 - Wilmot Line	344,309		125,723	267,756			See Note (6)
9	Lunor Lands - Church St. - Elmira	344,309			382,481			Subdivisions delayed by developers
10	Galantai - Cook Homes - Woolwich St.	296,094					222,531	Subdivisions delayed by developers
11	Activa - Rural East Carriage Crossing Subdivision U/G Dist. (Millennium Blvd)	256,741	311,871					
12	Hopewell Heights Subdivision, Breslau		147,908					See Note (6)
13	Riverland Subdivision, Breslau		321,121					See Note (6)
	Expansions (Lines) - 25							
14	Columbia St. Extension - Rhine Fall Dr. to Wilmot Line	316,016	177,742		210,887			
15	Cober Rd - New line for Airport supply (design only) 1	204,132						Project cancelled by the Airport
	Subtotal	5,357,336	3,990,254	353,895	1,133,635	-	222,531	
System Renewal and System Service Projects								
	Overhead Line Renewal (4kV) - 5							
16	2011 Overhead 4kV Conversions	465,919	413,113					
17	HS New 13.8 kV Feeder 4 - Quiet Pl., Parkside to Albert	314,625	202,927					
18	HS New 13.8 kV Feeder 3. - Parkside, Weber - Bearinger	330,416	701,114					Budgeted as 2 phases, completed as one project
19	HS New 13.8 kV Feeder 5 - Albert, Quiet Pl to Columbia	261,845						
	Overhead Line Renewal (8kV) - 4							
20	27.6kV tie-Woolwich 1-Victoria St, Breslau Strn to 2km E	258,913	249,712					
21	27.6kV to Wellesley-Weimar Line-Moser Young to Bamberg Limits	296,478	0					See Note (8)
22	Weimar Line - Moser-Young to Hutchison Rd, Wellesley	72,904	186,649					
23	Greenwood Hill Rd, Gerber Rd to 2.1 km N.	231,603	212,503					
24	Greenwood Hill Rd, N of Weimar Line # 4 Rep. 2	291,618	161,047					
25	Gerber Rd - Greenwood Hill to Nafziger, Wellesley		305,681					See Note (8)
	Line Renewal for Relocating DS 33 Transformer to Bloomingdale DS							
26	Heidelberg - Wellesley Side	446,658	235,629					
27	Heidelberg - Woolwich Side	551,674	594,150					
28	Lobsinger Line - Rebuild, Town of Heidelberg		177,849					See Note (1)
29	Lobsinger Line, Herrgott Rd to 1km West, St Clements		431,522					See Note (1)
30	Lobsinger Line PH3 - St. Clements limit to Herrgott Rd.		350,006					See Note (1)
31	44 kV Circuit 1b. 27.6 Snyders Flats to Bloomingdale DS	280,765		367,489				See Note (1)
32	44kV Ckt Rebuild, Bloomingdale to Zubers	413,195						See Note (1)

Table 2-38
Details for 2011 COS Approved Projects

Project Number	Projects	2011 Board Approved	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Bridge	Notes
		CGAAP	CGAAP	CGAAP	RCGAAP	MIFRS	MIFRS	
	Reporting Basis							
	Line Renewal for Scheifele TS Egress (UG & OH)							
33	Conestoga Rd Rebuild - 1 of 2 stage	431,008	785,252					Budgeted as 2 phases, completed as one project
34	Conestoga Rd Feeder Egress/rebuild 2 of 2	446,308						
35	HSA Rehab - Replace Feeder Cables	334,359		246,717				
	Overhead Line Renewal - Failing Conductor - 3							
36	2011 City of Waterloo #6 / 4 Replacement	193,815		449,675				Completed as part of larger 2012 project
37	2011 Elmira #6 Conductor Replacement	399,049	214,530					Budgeted as one project, completed as 2 subprojects
38	Gerber Rd - Lawrence to Hutchison Rd, Wellesley		190,589					
	Bluevale St. Line Renewal							
39	Bluevale T.H. Phase 1	452,207	330,354					One budgeted project completed as 2 subprojects
40	Bluevale Street North, Lincoln Rd to 291 Bluevale St		176,916					
	Proactive Renewal (Inspection and Testing Outcomes) - 8							
41	Underground Capital Operations Department	326,063	181,505					
42	Depreciated Pole Replacement	447,889	371,415					
43	Designated Danger Poles	57,370	278,098					
44	Loadbreak Replacement	72,615	178,308					
45	Reid Woods Dr. - Rebuild, Elmira TS to Northfield 1 of 2	705,296	278,149					Reduction in scope of work
	Customer Driven Line Renewal							
46	William Hastings Line (Reg.#5) - Manser Rd. to Hutchinson Rd.		304,176					Voltage issues due to small conductor and circuit loading
47	Kossuth Pole Line Rebuild		291,147					LTLT project driven by Cambridge North Dumfries Hydro
	Line Renewal Projects Expected to be completed prior to 2011							
48	King St N - Bridge to Farmer's Market Road		319,414					Work started in 2010 and completed in 2011
49	Erb St W.-Erbville to Wilmot Line - Duct Bank		179,883					Note (9)
50	Rebuild Lee Ave and Colonial Drive		467,822					Work deferred from 2009 to 2011
51	SCADA Master Replacement	834,356	572,058					Vendors bid lower prices than budgetary estimates
52	2011 Distribution Automation	630,586	112,753			-279,169		Note (2)
53	ERTS Rehab - Protection Upgrades	153,862	307,372					Note (2)
54	HSB Rehab - Feeder Protection Upgrades	86,041	377,858					Note (2)
55	Settlement Agreement Deduction to Move to WIP	(400,000)						
	Subtotal	9,387,440	10,386,218	817,163	0	-279,169	0	

Table 2-38
Details for 2011 COS Approved Projects

Project Number	Projects	2011 Board Approved	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Bridge	Notes
	Reporting Basis	CGAAP	CGAAP	CGAAP	RCGAAP	MIFRS	MIFRS	
General Plant Projects								
56	Land - New Service Centre & Administration Building	1,483,905	1,489,660					
57	New Service Centre & Administration Building	23,556,990	18,007,516	635,404				Note (3)
58	Roof - New Building		608,000					Note (3)
59	Mechanical - New Building		3,639,359					Note (3)
60	Parking Lot - New Building		581,259					Note (3)
61	Telephone System - New Building		199,696					Note (3)
62	Generator - New Building		267,464					Note (3)
63	Security Equipment - New Building		341,198					Note (3)
64	Equipment - New Building		676,436					Note (3)
65	Communications Tower - New Building		218,009					Note (3)
66	Capitalized Interest on Building		330,976					Note (3)
67	Furniture - New Building	1,700,000	536,972					Note (4)
68	Corporate Server Upgrade for ERP/CIS/Billing Legacy Systems	225,000	184,918					
69	Operational Data Store System		215,747					Note (5)
70	2011 - R11 - 50' Single Bucket Material Handler Aerial Device	340,560	307,929					
	Sub-Total	27,306,455	27,605,139	635,404	0	0	0	
	Various Projects Less Than Materiality (OEB Miscellaneous)	3,590,066	4,772,044					
	Total	45,641,297	46,753,654	1,806,463	1,133,635	-279,169	222,531	0
Percent Budget Completion:		102.4%						

Notes:

- ✓ (1) DSP (Exhibit 2, Attachment 2-1, pg 194), WNH executed a alternative solution to the issue of 44kV reliability by using the 44kV line renewal budget to advance line renewal in the St. Clement's DS area in order to free up a 27.6kV transformer and convert one of the 44kV stations away from a Hydro One controlled 44kV source and onto WNH controlled 27.6kV source. Project 31 was still required as part of the new solution and was deferred by a year in order to have sufficient time for transformer removal from St. Clement's DS and installation at Bloomindale DS. As part of executing the alternate solution, the monies for project 32 were used to execute projects 28, 29 & 30.
- ✓ (2) WNH invested in new technology reclosers and planned to ramp up deployment in 2011. Performance issues resulted in delays in recloser deployment. Ultimately order was cancelled and monies refunded by vendor in 2013. In 2011, WNH installed communication facilities and changed over to a different recloser vendor. 2012 stations projects (53 & 54) were advanced to utilize idled stations engineering resources.
- ✓ (3) New Service Centre & Administration Building was budgeted as one large project but execution was administered under several scope specific subprojects.
- ✓ (4) Exhibit 2, p 77 of 95. Furniture also included Equipment in 2011 Board Approved, 2011 Actual allocated to correct Capital Asset Account
- ✓ (5) Costs were forecasted under System Hardware (\$10,800) and Software (\$205,110) for 2010. Project was under development at the time of filing and went into service in 2011.
- ✓ (6) IRR 2-Staff-29 second paragraph - In 2011 a number of subdivisions planned for development on the west side of the City of Waterloo were delayed due to development being challenged by local residents in front of the Ontario Municipal Board. (projects 7 & 8). The development community responded by advancing projects elsewhere in our service territory. (projects 12 & 13).
- ✓ (7) This project was started in 2010 and was forecast to be completed in 2011 at the time of filing. City of Waterloo ran into problems with deep services. The project was broken up into phases, some being completed in 2010 and the remainder being completed in 2013.
- ✓ (8) Project 25 forecasted in 2010 and project 21 forecast in 2011 were constructed in reverse order due to system constrains at the time.
- ✓ (9) Project completed in 2010, however, it was not recorded until 2011.

Undertaking No. JTC1.6:

Undertaking:

To advise why there are no projections for capital contributions for 2015 and 2016.

Background:

In WNH's Technical Conference Transcript of August 19, 2015, page 56, lines 11 – 13, it states: *"On the line that's SR, which I take it to be system renewal, for 2015 and 2016, there are no projections for capital contributions..."*

Response:

WNH has revised the table provided in 2-VECC-11 in order to reflect Contributed Capital for System Renewal (SR) in 2015 and 2016 which previously were incorrectly shown as System Access (SA).

Category	2011	2012	2013	2014	2015	2016
SA	(1,348,058)	(2,592,976)	(1,555,864)	(1,338,367)	(6,135,810)	(6,214,587)
SR	(136,052)	(288,043)	(116,841)	(250,329)	(153,128)	(157,722)
SS						
GP		(4,982)		(4,548)		
Total	(1,484,110)	(2,886,001)	(1,672,705)	(1,593,244)	(6,288,938)	(6,372,309)

Undertaking No. JTC1.7:

Undertaking:

To reconcile specific account billing information as reflected in Table 1-5, September 2014

Background

In WNH's Technical Conference Transcript of August 19, 2015, page 59, lines 27 – 28 and page 60, lines 1 - 2, it states: "... *in relation to 1-E2-4, and the question is, if I understand it correctly, why are the numbers that I add up on my bills not aligning with the numbers that you are saying in this interrogatory response?*"

Response:

WNH notes in Table 1-5 of Exhibit 2, Attachment 2-1, DSP, the headings referred to kW Billed in September 2014. This is the consumption for September 2014 and was billed in October 2014.

WNH reviewed the billings for both the Large Use customer and the 11 accounts summed in Table 1-5 as Customer 1 and WNH was unable to reconcile to the 16,604 kW in Interrogatory 1-E2-4. WNH reviewed the billings for both September and October 2014 and determined the following kW was billed:

Month Billed	Consumption Month	11 Accounts Table 1-5
Sept 2014	Aug 2014	18,366
Oct 2014	Sept 2014	19,580

Undertaking No. JTC1.8:

Undertaking:

To provide the breakdown for tested poles

Response:

WNH has provided the breakdown for tested poles below.

Tested Wood Poles (GIS) AGE (yrs) / % Fibre Strength	0% - 49%	50% - 66%	67% - 69%	70% - 74%	75% - 79%	80% - 84%	85% - 89%	90% - 94%	95% - 100%	Total Tested Poles
Age > 70				5	1	2	6		30	44
Age > 60 <= 70	3	3	0	34	51	11	134	12	732	980
Age > 50 <= 60	6	2	7	95	198	54	61	11	799	1233
Age > 40 <= 50	5	10	5	164	163	78	39	98	1566	2128
Age > 30 <= 40	1	5	3	82	99	162	61	15	697	1125
Age > 20 <= 30	2	1	2	3	2	34	69	36	369	518
Age > 10 <= 20										
Age > 0 <= 10										
	17	21	17	383	514	341	370	172	4193	6028

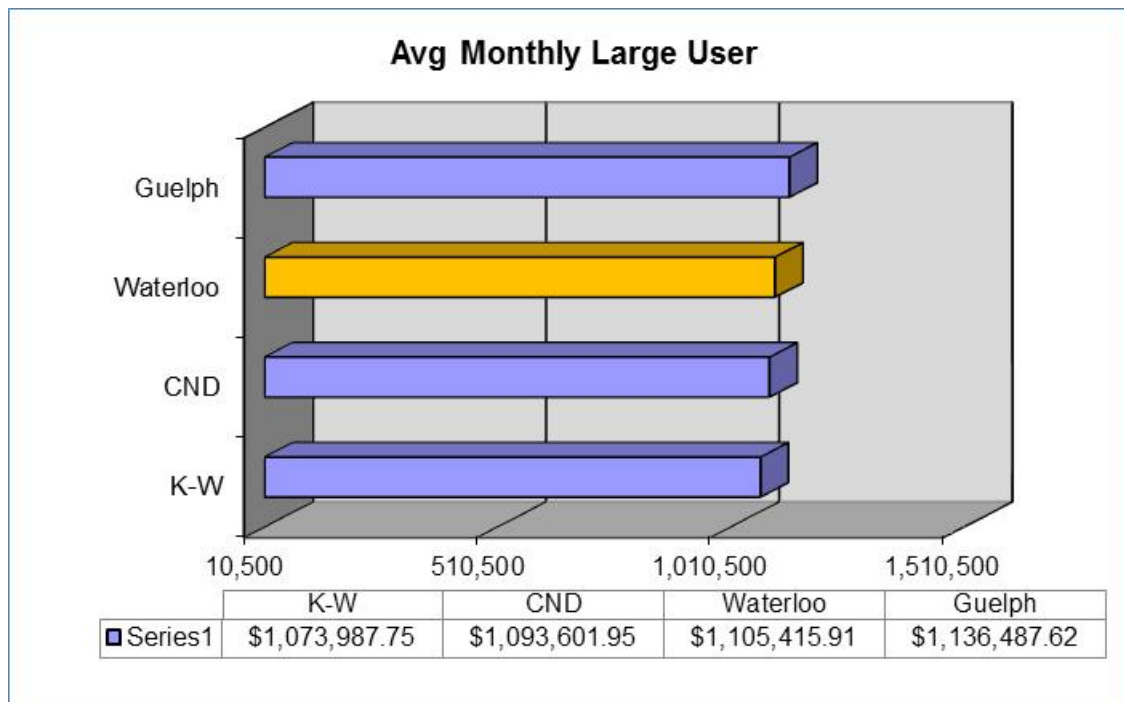
Undertaking No. JTC1.9:

Undertaking:

With reference to page 20, 1-SEC-1, the report titled "2015 Operating and Capital Budgets", to fill in the gap on large user class.

Response:

WNH has provided a comparison of WNH, Kitchener-Wilmot Hydro Inc., Cambridge and North Hydro Inc. and Guelph Hydro Electric Systems Inc. below. The comparison used each distributor's Board Approved 2015 rate and had monthly consumption of 8,000,000 kWh and 14,500 kW.



Undertaking No. JTC1.10:

Undertaking:

To clarify the OM&A number in 2-Staff-23

Response:

WNH has adjusted its Working Capital to reflect a deduction of the OM&A portion only of the Depreciation included in WNH's burdens. These changes have been reflected in the Revised RRWF and Tracking Sheet attached to these undertakings.

Undertaking No. JTC1.11:

Undertaking:

To confirm whether there is a 1.5 percent change in the volumes in 2015

Background:

In WNH's Technical Conference Transcript of August 19, 2015, page 89, lines 10 – 12, it states: *"Would you take just to give a ballpark estimate of what the impact on your revenues was of a one and a half percent change in the volumes?"* and on page 89, lines 16 – 18, it states: *"I am looking for based on your current rates, so base it on your current rates, and if there is a 1.5 percent change in the volumes in 2015."*

Response:

A change in the 2015 volumes of 1.5% results in a distribution revenue change of \$295,961.

Undertaking No. JTC1.12:

Undertaking:

To advise what the increase in the revenue requirement would be for the increase in the cost of power.

Response:

The Revenue Requirement would increase by \$49,043 if the Predicted kWh Purchases derived and filed in IR 3-Energy Probe -24 were included in the Cost of Power Forecast.

Undertaking No. JTC1.13:

Undertaking:

Provide Tables 3-5, 3-6, and 3-24, utilizing a real GDP forecast of 2.7 percent in 2015 and 2.4 percent in 2016

Response:

Table 3-5

Statistic	Value
R Square	96.1%
Adjusted R Square	96.0%
F Test	784.0
MAPE (monthly)	1.99%
T-stats by Coefficient Intercept	(12.2)
Heating Degree Days	24.7
Cooling Degree Days	17.3
Number of Days in Month	8.2
Spring Fall Flag	(4.5)
Ontario Real GDP Monthly %	3.3
Number of Customers	12.0
Number of Peak Hours	5.2

Table 3-6

Year	Actual	Predicted	% Difference
1996	1,054.6	1,051.5	-0.3%
1997	1,067.4	1,064.6	-0.3%
1998	1,089.9	1,098.4	0.8%
1999	1,136.6	1,151.1	1.3%
2000	1,173.5	1,172.9	-0.1%
2001	1,205.8	1,213.9	0.7%
2002	1,286.4	1,267.6	-1.5%
2003	1,270.0	1,271.9	0.2%
2004	1,294.3	1,304.3	0.8%
2005	1,358.6	1,369.2	0.8%
2006	1,372.5	1,367.0	-0.4%
2007	1,423.6	1,400.7	-1.6%
2008	1,421.4	1,413.4	-0.6%
2009	1,411.8	1,410.6	-0.1%
2010	1,479.1	1,447.2	-2.2%
2011	1,488.8	1,477.1	-0.8%
2012	1,495.5	1,489.5	-0.4%
2013	1,493.0	1,514.5	1.4%
2014	1,490.8	1,528.2	2.5%
2015 Bridge - Normalized		1,550.4	
2016 Test - Normalized		1,573.0	
2016 Test - Normalized - 10 Year Trend		1,552.9	
2016 Test - Normalized - 20 Year Trend		1,551.0	

Table 3-24

	2011 Board Approved	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Bridge	2016 Test
Residential							
# of Customers	46,613	46,194	46,877	47,602	48,191	48,705	49,305
kWh	393,848,054	408,768,579	409,922,519	409,442,945	410,104,642	417,175,210	419,373,643
kW							
Variance Analysis							
# of Customers		-0.90%	0.57%	2.12%	3.38%	4.49%	5.78%
kWh		3.79%	4.08%	3.96%	4.13%	5.92%	6.48%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GS < 50 kW							
# of Customers	5,470	5,402	5,454	5,503	5,547	5,596	5,632
kWh	179,687,810	187,070,265	190,189,482	194,737,949	197,096,102	201,109,021	201,874,123
kW							
Variance Analysis							
# of Customers		-1.26%	-0.31%	0.60%	1.39%	2.29%	2.96%
kWh		4.11%	5.84%	8.38%	9.69%	11.92%	12.35%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GS > 50 kW							
# of Customers	668	666	668	670	683	694	693
kWh	705,732,689	725,123,828	716,491,037	705,737,128	699,842,688	727,428,627	736,331,481
kW	1,581,207	1,775,934	1,801,339	1,766,195	1,726,654	1,788,748	1,810,640
Variance Analysis							
# of Customers		-0.30%	0.00%	0.30%	2.25%	3.89%	3.74%
kWh		2.75%	1.52%	0.00%	-0.83%	3.07%	4.34%
kW		12.32%	13.92%	11.70%	9.20%	13.13%	14.51%
Large User							
# of Customers	1	1	1	1	1	1	1
kWh	79,638,262	84,249,637	86,740,767	90,202,679	91,205,251	94,955,401	97,509,603
kW	153,852	160,630	165,061	168,361	166,649	173,383	178,046
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		5.79%	8.92%	13.27%	14.52%	19.23%	22.44%
kW		4.41%	7.29%	9.43%	8.32%	12.69%	15.73%
Unmetered Scattered Load							
# of Customers	551	499	472	496	519	541	563
kWh	1,648,666	2,043,853	2,250,008	2,352,596	2,544,974	2,829,382	3,140,372
kW							
Variance Analysis							
# of Customers		-9.50%	-14.49%	-10.05%	-5.88%	-1.89%	2.10%
kWh		23.97%	36.47%	42.70%	54.37%	71.62%	90.48%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Street Lighting							
# of Customers	13,374	13,678	13,736	13,841	13,853	13,808	13,828
kWh	7,792,006	7,939,684	8,173,989	8,074,319	7,720,857	7,639,658	7,594,660
kW	21,835	22,237	22,349	22,476	21,568	21,240	21,115
Variance Analysis							
# of Customers		2.27%	2.70%	3.49%	3.58%	3.25%	3.40%
kWh		1.90%	4.90%	3.62%	-0.91%	-1.96%	-2.53%
kW		1.84%	2.35%	2.93%	-1.22%	-2.73%	-3.30%
Embedded Distributor							
# of Customers	1	1	1	1	1	1	1
kWh	28,618,000	22,030,344	32,083,013	30,731,900	31,728,985	31,553,438	31,378,863
kW	71,600	39,512	71,507	71,174	72,407	71,803	71,406
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		-23.02%	12.11%	7.39%	10.87%	10.26%	9.65%
kW		-44.82%	-0.13%	-0.60%	1.13%	0.28%	-0.27%
Direct Market Participant							
# of Customers		-	2	2	2	2	2
kWh		-	3,552,539	7,094,070	7,002,713	6,912,533	6,823,514
kW		-	5,848	13,338	12,738	12,785	12,620
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Totals							
Customers / Connections	66,679	66,440	67,209	68,116	68,796	69,348	70,025
kWh	1,396,965,487	1,437,226,191	1,449,403,353	1,448,373,585	1,447,246,211	1,489,603,270	1,504,026,259
kW from applicable classes	1,828,494	1,998,313	2,066,104	2,041,543	2,000,016	2,067,958	2,093,827
Totals - Variance							
Customers / Connections		-0.36%	0.80%	2.15%	3.17%	4.00%	5.02%
kWh		2.88%	3.75%	3.68%	3.60%	6.63%	7.66%
kW from applicable classes		9.29%	12.99%	11.65%	9.38%	13.10%	14.51%

Undertaking No. JTC1.14:

Undertaking:

To provide Tables 3-5, 3-6, and 3-24 based on the response to 3-VECC-18

Response:

WNH has provided Table 3-5, 3-6 and 3-24 based on the response to 3.0-VECC-18 below.

Table 3-5

Statistic	Value
R Square	92.5%
Adjusted R Square	92.3%
F Test	457.2
MAPE (monthly)	2.75%
T-stats by Coefficient Intercept	(8.2)
Heating Degree Days	17.7
Cooling Degree Days	11.4
Number of Days in Month	5.3
Spring Fall Flag	(2.8)
Employment Kitchener-Waterloo-Cambridge (000's)	46.5
Number of Peak Hours	3.8

Table 3-6

Year	Actual	Predicted	% Difference
1996	1,054.6	1,079.4	2.4%
1997	1,067.4	1,075.1	0.7%
1998	1,089.9	1,106.9	1.6%
1999	1,136.6	1,184.2	4.2%
2000	1,173.5	1,184.5	0.9%
2001	1,205.8	1,206.9	0.1%
2002	1,286.4	1,238.4	-3.7%
2003	1,270.0	1,274.0	0.3%
2004	1,294.3	1,286.1	-0.6%
2005	1,358.6	1,388.0	2.2%
2006	1,372.5	1,364.2	-0.6%
2007	1,423.6	1,375.0	-3.4%
2008	1,421.4	1,399.5	-1.5%
2009	1,411.8	1,369.1	-3.0%
2010	1,479.1	1,421.7	-3.9%
2011	1,488.8	1,492.5	0.2%
2012	1,495.5	1,496.3	0.1%
2013	1,493.0	1,525.3	2.2%
2014	1,490.8	1,546.6	3.7%
2015 Bridge - Normalized		1,602.5	
2016 Test - Normalized		1,621.5	
2016 Test - Normalized - 10 Year Trend		1,601.4	
2016 Test - Normalized - 20 Year Trend		1,599.8	

Table 3-24

	2011 Board Approved	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Bridge	2016 Test
Residential							
# of Customers	46,613	46,194	46,877	47,602	48,191	48,705	49,305
kWh	393,848,054	408,768,579	409,922,519	409,442,945	410,104,642	434,456,778	435,324,033
kW							
Variance Analysis							
# of Customers		-0.90%	0.57%	2.12%	3.38%	4.49%	5.78%
kWh		3.79%	4.08%	3.96%	4.13%	10.31%	10.53%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GS < 50 kW							
# of Customers	5,470	5,402	5,454	5,503	5,547	5,596	5,632
kWh	179,687,810	187,070,265	190,189,482	194,737,949	197,096,102	209,490,154	209,649,576
kW							
Variance Analysis							
# of Customers		-1.26%	-0.31%	0.60%	1.39%	2.29%	2.96%
kWh		4.11%	5.84%	8.38%	9.69%	16.59%	16.67%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GS > 50 kW							
# of Customers	668	666	668	670	683	694	693
kWh	705,732,689	725,123,828	716,491,037	705,737,128	699,842,688	746,564,470	752,889,627
kW	1,581,207	1,775,934	1,801,339	1,766,195	1,726,654	1,835,803	1,851,356
Variance Analysis							
# of Customers		-0.30%	0.00%	0.30%	2.25%	3.89%	3.74%
kWh		2.75%	1.52%	0.00%	-0.83%	5.79%	6.68%
kW		12.32%	13.92%	11.70%	9.20%	16.10%	17.08%
Large User							
# of Customers	1	1	1	1	1	1	1
kWh	79,638,262	84,249,637	86,740,767	90,202,679	91,205,251	100,003,100	103,574,661
kW	153,852	160,630	165,061	168,361	166,649	182,599	189,121
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		5.79%	8.92%	13.27%	14.52%	25.57%	30.06%
kW		4.41%	7.29%	9.43%	8.32%	18.69%	22.92%
Unmetered Scattered Load							
# of Customers	551	499	472	496	519	541	563
kWh	1,648,666	2,043,853	2,250,008	2,352,596	2,544,974	2,829,382	3,140,372
kW							
Variance Analysis							
# of Customers		-9.50%	-14.49%	-10.05%	-5.88%	-1.89%	2.10%
kWh		23.97%	36.47%	42.70%	54.37%	71.62%	90.48%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Street Lighting							
# of Customers	13,374	13,678	13,736	13,841	13,853	13,808	13,828
kWh	7,792,006	7,939,684	8,173,989	8,074,319	7,720,857	7,639,658	7,594,660
kW	21,835	22,237	22,349	22,476	21,568	21,240	21,115
Variance Analysis							
# of Customers		2.27%	2.70%	3.49%	3.58%	3.25%	3.40%
kWh		1.90%	4.90%	3.62%	-0.91%	-1.96%	-2.53%
kW		1.84%	2.35%	2.93%	-1.22%	-2.73%	-3.30%
Embedded Distributor							
# of Customers	1	1	1	1	1	1	1
kWh	28,618,000	22,030,344	32,083,013	30,731,900	31,728,985	31,553,438	31,378,863
kW	71,600	39,512	71,507	71,174	72,407	71,803	71,406
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		-23.02%	12.11%	7.39%	10.87%	10.26%	9.65%
kW		-44.82%	-0.13%	-0.60%	1.13%	0.28%	-0.27%
Direct Market Participant							
# of Customers	-	-	2	2	2	2	2
kWh	-	-	3,552,539	7,094,070	7,002,713	6,912,533	6,823,514
kW	-	-	5,848	13,338	12,738	12,785	12,620
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Totals							
Customers / Connections	66,679	66,440	67,209	68,116	68,796	69,348	70,025
kWh	1,396,965,487	1,437,226,191	1,449,403,353	1,448,373,585	1,447,246,211	1,539,449,512	1,550,375,306
kW from applicable classes	1,828,494	1,998,313	2,066,104	2,041,543	2,000,016	2,124,230	2,145,618
Totals - Variance							
Customers / Connections		-0.36%	0.80%	2.15%	3.17%	4.00%	5.02%
kWh		2.88%	3.75%	3.68%	3.60%	10.20%	10.98%
kW from applicable classes		9.29%	12.99%	11.65%	9.38%	16.17%	17.34%

Undertaking No. JTC1.15:

Undertaking:

With respect to 4-Staff-114, to provide what the charges would have been in the previous years.

Response:

Charges for Smart Meter Software Costs for Smart Meter Monitoring Service and Base Station / TGB operation, monitoring, and maintenance are as follows:

Year	Basis	\$
2011	Actual	-
2012	Actual	52,004
2013	Actual	96,052
2014	Actual	196,460
2015	Forecast	201,468
2016	Forecast	207,336

Undertaking No. JTC1.16:

Undertaking:

To advise what the difference would be in the revenue requirement for 2016 if the revenue requirement included recovery of OPEBs on a cash basis

Response:

In 2016 the difference in the Revenue Requirement would be a decrease of \$176,026 if the OPEB was recovered on a cash basis.

Undertaking No. JTC1.17:

Undertaking:

To provide the amount of the \$277,681 that was actually incurred in 2011

Response:

The amount of Smart Meter costs incurred in 2011 was \$102,816. These costs were recorded in the Deferral Account USoA 1556 until Board approval of WNH's Smart Meter Disposition Costs in 2012.

Undertaking No. JTC1.18:

Undertaking:

To provide the aggregate dollars that could have been awarded in incentive pay and the aggregate dollars that were awarded.

Response:

The table below lists the aggregate amount of dollars that could have been awarded for incentive pay and the aggregate dollars that were awarded for 2011 – 2014. Five positions are included in the aggregate. These are the only positions with incentive pay.

Year	Amount \$ Available	Amount \$ Awarded
2011	101,000	74,920
2012	106,000	83,980
2013	109,000	94,330
2014	112,000	97,000

Undertaking No. JTC1.19

Undertaking:

To provide the actual components of the incentive pay, what the actual measures are for 2015, and what the targets are.

Response:

The targets and measures for the key objectives towards incentive pay for 2015 are as follows:

1. Meet our Health & Safety Objectives for the year.
 - Regular updates to the Board on Health & Safety (Measures are reports to the Board at Board Meetings on Health & Safety initiatives, incidents and number of lost time accidents. Targets are reports at all meetings and zero lost time accidents.)
2. Meet or exceed financial and operating targets set in the approved 2015 Budget.
 - Completion of expected OM programs including maintenance inspections and preventive maintenance programs on the distribution system, within budget. (Measures are % of program completed and % of actual to budget.)
 - Completion of expected capital programs or capital acquisitions within budget (Measures are % of programs or acquisitions completed and % of actuals to budget.)
 - Meet or exceed financial targets for revenues and expenses per the Statement of Operations in the approved Budget. (Measures are % comparison of actuals to expected.)
 - Develop and implement CDM plans to meet mandated provincial targets (Measures are the implementation of programs for various customer classes and the results towards the 6-year targets.)

3. Complete the Cost of Service (COS) Rate Filing and approval of COS rates for implementation in 2016.
 - Submission of Application (Measure is a complete submission that complies with OEB filing requirements.)
 - Submission of Distribution System Plan (Measure is a thorough DSP that complies with OEB filing requirements.)
 - Completion of COS Rate Filing in 2015 with rates approved for 2016 (Target is fair and reasonable rates for implementation January 1, 2016. Measure is completing the requirements of the process within the responsibilities of WNH, obtaining approval for revenue requirements to sustain the utility and the long term OM&A and Capital programs and implementing new rates for 2016.)
4. Maintain or improve relative position of rates within 10% of the lowest rates of the neighbouring utilities on total bill.
 - Compare total bill by rate class with Cambridge & North Dumfries Hydro, Guelph Hydro and Kitchener-Wilmot Hydro. (Measure is to be within 10% of the lowest of the four utilities in the various rate classes.)
 - Prepare 2016 budget and 5-year forecast in accordance with this measure
5. Meet or improve controllable reliability targets over 2014.
 - Successfully implement Outage Management System including customer accessible outage map. (Target and measure is to complete within budget in 2015.)
 - Continue program of installing switches on the distribution system that can be remotely operated from the Control Room. (Target and measure is that switches are installed and operating. Additional measure to provide examples of where switches in use reduce customer outage minutes.)
 - CAIDI and SAIDI are within 2014 actuals or improve on 2014 reliability statistics (Excluding major events.)

6. Update Succession Plans to the Board.

- Refresh Succession Plans in light of upcoming Management Team retirements and continued retirements in skilled trades and technical positions. (Measure is completion of full review, strategy to replace skilled trades and technical positions and strategy to develop replacements for Senior Management Team.)

7. Develop a Communications Strategy for WNH Inc.

- Develop a strategy for approval by the Board and implementation in 2016. Strategy to provide information and education to customers in various forms and formats. (Newspaper, radio, on-line, social media.)
- Include existing programs, as well as, new program for customer engagement. (Measure will be approval of strategy by the Board.)

Undertaking No. JTC1.20:

Undertaking:

To explain why there are differences in the two Tables of 12 FTES

Response:

WNH incorrectly labeled the title above Table 14-4A in Exhibit 4, page 47. Contract and Student FTEs were not included in this table, as the title had stated, thus, this table reflected 12 fewer FTEs in 2015 than Table 4-15 in Exhibit 4, page 48.

Undertaking No. JTC 1.21:

Undertaking:

To provide an update to Table 5-3 in the original evidence for 2016 only that reflects the May 18TH, 2015, CIBC loan for \$10 million at a rate of 3.43 percent.

Response:

WNH has adjusted its 2015 Term Loan interest rate in 2016 to reflect the actual interest rate of 3.43%. These changes have been reflected in the Revised RRWF and Tracking Sheet attached to these undertakings.

Undertaking No. JTC 1.22:

Undertaking:

Based on any corrections, changes or updates that may result from the technical conference questions, please update the response to the interrogatory including the provision of the revenue requirement work form and the electronic form.

Response:

WNH has attached the following revised Excel Files to these Undertaking responses:

- Waterloo_JTC1.22_2016 Cost Allocation Model_20150827
- Waterloo_JTC1.22_2016_Rev_Reqt_Work_Form_V6_20150827
- Waterloo_JTC1.22_2016 Bill Impacts_Appendix 2-W_20150827
- Waterloo_JTC1.22_Appendix 2-PA_2016 COS_20150827
- Waterloo_JTC1.22_Proposed 2016 Tariff Schedule_Appendix 2-Z_20150827

WNH notes that it adjusted Tab I8 in its JTC1.22 2016 Cost Allocation Model to correctly prorate the Line Transformer NCP and Secondary NCP demand, for each rate class, by the proportion of the number of customers in the Line Transformer Customer Base and Secondary Customer Base respectively, of the Primary Customer Base.

Undertaking No. JTC 1.23:

Undertaking:

For the cost allocation model, clarify that we are describing the assets appropriately and any services that may or may not be provided in looking after those assets.

Background:

In WNH's Technical Conference Transcript of August 19, 2015, page 132, lines 3 - 6, it states: *"Yes, because then I assume that on the rate base side there are service assets that are allocated to the non-residential customer classes if you own some of those assets?"*

Response:

WNH clarifies its provision of Services in Interrogatory 7.0-VECC-44 as follows:

7.0-VECC-44

Reference: E7, pg. 3-4

Interrogatory:

- (a) With respect to the non-Residential customer classes, does Waterloo North perform any work related to the provision of Services assets (e.g. repairs/replacements) or the maintenance of such assets once installed?
- (b) If yes, please confirm whether the costs are all billed back directly to the customers and how the costs (and revenues if any) are treated in the Application.
- (c) Please confirm that, based on Waterloo North's approach (per page 4, lines 6-17), the gross costs (i.e. with no adjustment for contributed capital) associated with Services for the non-Residential classes are not included in the allocation base used for General Plant.

Response:

- a) WNH does perform work related to the provision of Services assets for Non-Residential customer classes once such assets are installed, however, only on the services that it owns, not customer owned services. To clarify this response, Non-Residential services fall into two categories:
 - 1. Those services that are owned and maintained by WNH. These services are installed by WNH and a 100% Contributed Capital Amount is collected *and*
 - 2. Those that are owned and maintained by the customer.
- b) WNH does not bill the costs back directly to the customers. The costs are reflected in the appropriate O&M account.
- c) WNH confirms that the Gross Costs associated with Services for the Non-Residential classes are not included in the allocation base used for General Plant.

Undertaking No. JTC 1.24:

Undertaking:

Create hypothetical to put customer back into the LU category, articulate all the assumptions, rerun the model, and advise as to what the bill impact would be.

Response:

WNH has adjusted the Large Use rate class with the following assumptions:

- In 2016 moved 1 customer from the GS > 50 kW rate class to the Large Use rate class
- The moving customer's monthly consumption is 5,000 kW and 2.5M kWh
- The 2016 Test Year on Existing Rates was revised to reflect these changes
- The Cost Allocation Model was re-run to reflect these changes
- The Large Use Bill Impact reflected monthly consumption of 14,500 kW and 8M kWh
- The Bill Impact Model was re-run and the impacts of these changes is as follows:

Details	Before Change		After Change		Change	
	JTC1.22 *		JTC1.24			
	\$	%	\$	%	\$	%
Distribution Increase excluding pass through items	\$ 10,022	18.14%	\$ 7,536	13.64%	\$(2,487)	-4.50%
Distribution Increase including pass through items	\$ 25,889	52.61%	\$23,396	47.55%	\$(2,493)	-5.07%
Delivery Increase	\$ 24,495	21.77%	\$22,003	19.56%	\$(2,493)	-2.22%
Total Bill Increase	\$ 27,664	2.38%	\$24,848	2.14%	\$(2,817)	-0.24%

* Bill Impacts reflect the changes in JTC 1.25 for Formula Changes,
JTC 1.10 Burden Depreciation Adjustment and JTC 1.21 Loan Rate Change

Undertaking No. JTC 1.25:

Undertaking:

"Line losses on cost of power", recalculate both rate and the kilowatt-hours for 2016, based on the new loss factors.

Response:

WNH has recalculated the Line Losses on Cost of Power, both the rate and kWh, in Appendix 2-W for the Large User. The Appendix 2-W adjusted for the Large User is as filed in the Interrogatory Responses in 1-Staff-1. A revised Appendix 2-W for the Large User is shown below.

WNH updated all Non-TOU customers to the Navigant April 2015 Non-RPP rates to be consistent with the rate used in the calculation of Cost of Power in Working Capital.

WNH noted that the formula for all Non-TOU customers on this line was referencing Energy RPP Rates and all have been changed to reference the Navigant April 2015 Non-RPP rate. WNH has provided an updated Appendix 2-W Bill Impacts attached to this Undertaking to reflect in Undertaking JTC1.22 which includes these changes.

**Appendix 2-W
Bill Impacts**

Customer Class: Large Use									
TOU / non-TOU: non-TOU									
Consumption 8,000,000 kWh 14,500 kW									
	Charge Unit	Current Board-Approved			Proposed			Impact	
		Rate (\$)	Volume	Charge (\$)	Rate (\$)	Volume	Charge (\$)	\$ Change	% Change
Monthly Service Charge	Monthly	\$ 6,975.72	1	\$ 6,975.72	\$ 8,604.24	1	\$ 8,604.24	\$ 1,628.52	23.35%
Rate Rider for LRAMVA	per kW		14,500	\$ -	\$ 0.1398	14,500	\$ 2,027.10	\$ 2,027.10	
Rate Rider for Application of Tax Change	per kW	-\$ 0.0072	14,500	\$ (104.40)	-\$ 0.0072	14,500	\$ (104.40)	\$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		14,500	\$ -	\$ (0.3304)	14,500	\$ (4,790.80)	\$ (4,790.80)	
Distribution Volumetric Rate	per kW	\$ 3.3375	14,500	\$ 48,393.75	\$ 4.1167	14,500	\$ 59,692.15	\$ 11,298.40	23.35%
Sub-Total A (excluding pass through)				\$ 55,265.07			\$ 65,428.29	\$ 10,163.22	18.39%
Deferral/Variance Account Disposition Rate Rider	per kW	-\$ 0.7541	14,500	\$ (10,934.45)	\$ 0.3182	14,500	\$ 4,613.90	\$ 15,548.35	-142.20%
Rate Rider for Disposition of Global Adjustment Sub-Account (Applicable only for Non-RPP Customers)	per kW		14,500	\$ -		14,500	\$ -	\$ -	
Low Voltage Service Charge	per kW	\$ 0.0553	14,500	\$ 801.85	\$ 0.0941	14,500	\$ 1,364.45	\$ 562.60	70.16%
Line Losses on Cost of Power	per kWh	\$ 0.1019	40000	\$ 4,074.40	\$ 0.1019	37600	\$ 3,829.94	\$ (244.46)	-6.00%
	Monthly		0	\$ -		0	\$ -	\$ -	
Sub-Total B - Distribution (includes Sub-Total A)				\$ 49,206.87			\$ 75,236.58	\$ 26,029.71	52.90%
RTSR - Network	per kW	\$ 3.3423	14500	\$ 48,463.35	\$ 3.2624	14500	\$ 47,304.80	\$ (1,158.55)	-2.39%
RTSR - Line and Transformation Connection	per kW	\$ 1.0234	14500	\$ 14,839.30	\$ 1.0072	14500	\$ 14,604.40	\$ (234.90)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				\$ 112,509.52			\$ 137,145.78	\$ 24,636.26	21.90%
Wholesale Market Service Charge (WMSC)	per kWh	\$ 0.0044	8040000	\$ 35,376.00	\$ 0.0044	8037600	\$ 35,365.44	\$ (10.56)	-0.03%
Rural and Remote Rate Protection (RRRP)	per kWh	\$ 0.0013	8040000	\$ 10,452.00	\$ 0.0013	8037600	\$ 10,448.88	\$ (3.12)	-0.03%
Standard Supply Service Charge	Monthly	\$ 0.25	1	\$ 0.25	\$ 0.25	1	\$ 0.25	\$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	\$ 0.0070	8000000	\$ 56,000.00	\$ 0.0070	8000000	\$ 56,000.00	\$ -	0.00%
COP Spot Price - Apr/15 Navigant	per kWh	\$ 0.1019	8000000	\$ 814,880.00	\$ 0.1019	8000000	\$ 814,880.00	\$ -	0.00%
Total Bill on TOU (before Taxes)				\$ 1,029,217.77			\$ 1,053,840.35	\$ 24,622.58	2.39%
HST		13%		\$ 133,798.31	13%		\$ 136,999.24	\$ 3,200.93	2.39%
Total Bill (including HST)				\$ 1,163,016.08			\$ 1,190,839.59	\$ 27,823.51	2.39%
Ontario Clean Energy Benefit ¹				\$ (116,301.61)			\$ (119,083.96)	\$ (2,782.35)	2.39%
Total Bill on TOU (including OCEB)				\$ 1,046,714.47			\$ 1,071,755.63	\$ 25,041.16	2.39%
Total Bill on RPP (before Taxes)				\$ 1,029,217.77			\$ 1,053,840.35	\$ 24,622.58	2.39%
HST		13%		\$ 133,798.31	13%		\$ 136,999.24	\$ 3,200.93	2.39%
Total Bill (including HST)				\$ 1,163,016.08			\$ 1,190,839.59	\$ 27,823.51	2.39%
Ontario Clean Energy Benefit ¹				\$ -			\$ -	\$ -	
Total Bill on RPP (including OCEB)				\$ 1,163,016.08			\$ 1,190,839.59	\$ 27,823.51	2.39%
Loss Factor (%) 0.50% 0.470%									

WNH updated all Non-TOU customers to the Navigant April 2015 Non-RPP rates to be consistent with the rate used in the calculation of Cost of Power in Working Capital.

WNH noted that the formula for all Non-TOU customers on this line was referencing Energy RPP Rates and all have been changed to reference the Navigant April 2015 Non-RPP rate. WNH has provided an updated Appendix 2-W Bill Impacts attached to this Undertaking to reflect in Undertaking JTC1.22 which includes these changes.

Undertaking No. JTC 1.26:

Undertaking:

Before the Settlement Conference, provide any further updates to the revenue requirement work form that need to be made. And, to provide a list of interrogatory responses or Technical Conference Undertakings that change aspects of the original application that would not be reflected in the revenue requirement work form

Response:

WNH has provided a list of Interrogatory Responses or Technical Conference Undertakings that change aspects of the Original Application that would not be reflected in the RRWF.

Exhibit 1	Exhibit 5
1-Staff-3	5-Staff-133
1-Energy Probe-5	5-Energy Probe-46
Exhibit 2	Exhibit 7
2-SEC-18 / JTC1.4	7-Staff-136
2-SEC-25 Spreadsheet / JTC1.3	7-Energy Probe-51
2-Staff-55	Exhibit 8
2-Staff-91	8-Staff-138
2-SEC-31	8-Staff-141
2.0-VECC-8	Exhibit 9
2.0-VECC-11 / JTC1.6	9-Staff-143
2-Energy Probe-9	9-Staff-145
Exhibit 3	9-Staff-147
3-Staff-102	Undertakings
3-Staff-104	JTC1.20
3-Energy Probe-22	JTC1.25
3.0-VECC-20	Models
3.0-VECC-22	Cost Allocation Model
3.0-VECC-23	
Exhibit 4	
4-Staff-117	
4-Staff-126	
4-Staff-131	
4-Energy Probe-27	
4-Energy Probe-40	
4-Energy Probe-44	
4-SEC-45	
4.0-VECC-36	