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**Susan Frank**

Vice President and Chief Regulatory Officer  
Regulatory Affairs



BY EMAIL

September 17, 2014

Ms. Kirsten Walli  
Board Secretary  
Ontario Energy Board  
Suite 2700, 2300 Yonge Street  
P.O. Box 2319  
Toronto, ON, M4P 1E4

Dear Ms. Walli:

**EB-2013-0416 Hydro One Networks' 2015 - 2019 Distribution Custom Rate Application –  
Undertaking Responses**

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Please find enclosed responses to undertakings provided at the September 15<sup>th</sup> and 16<sup>th</sup> Oral Hearings in the above-noted proceeding and electronic copies of the exhibits which were physically distributed during the hearing.

Sincerely,

ORIGINAL SIGNED BY SUSAN FRANK

Susan Frank

cc. Intervenors

Encls.

**UNDERTAKING – J3.2**

**Undertaking**

To correct or confirm data in the smart meter chart in Exhibit K3.1.

**Response**

Hydro One can confirm the accuracy of the input numbers presented in the Exhibit K3.1.

Consistent with the 2014 forecast numbers as filed in Exhibit TCJ1.07, the update for the smart meter chart in Exhibit K3.1 are as follows:

		<b>2014 Forecasted</b>
<b>Hydro One Networks</b>		<b>(\$M)</b>
	Capital	
	- Minimum Functionality	16.73
	- Beyond Minimum Functionality	2.07
	OM&A	
	- Minimum Functionality	10.97
	- Beyond Minimum Functionality	3.53
<b>Number of Smart Meters Installed</b>		<b>#'s</b>
	Residential	1,375
	GS	2,818
	Other	2,675
		6,868

The following are key considerations that Hydro One believes need to be taken into account when reviewing Exhibit K3.1:

- Hydro One operates in a much larger geographical territory than other distribution entities, with a more dispersed customer base and hence the costs incurred in the installation of smart meters will vary significantly and not be comparable to other distribution entities
- As a result of the larger geographical territory that Hydro One operates in, higher up front infrastructure costs and additional equipment costs are involved in setting up the smart meter communications equipment (e.g. labour installation costs, data collectors, data repeaters, etc.)
- Exhibit K3.1 is prepared as a ‘point in time’ analysis. However, by combining both capital and OM&A costs together, the specific time frame you look at or the further

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Exhibit J3.02

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1        out you look in the analysis (i.e. 2006 to 2009 or 2009 – 2014 or 2014 - beyond), the  
2        higher the average cost per meter costs may be calculated and hence the calculation  
3        can vary significantly

**UNDERTAKING – J3.6**

**Undertaking**

To provide an average estimate for the year of the full-time FTE equivalent in casual.

**Response**

Refer to Attachment #1 for the average estimate of full-time FTE equivalents in casual labour for the year.

<b>2010</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,397	327,600,666	260,915,303	51,809,932	6,528	14,868,904	76,808
SOCIETY Reg	1,315	125,599,454	117,961,991	4,326,114	22,859	3,288,489	89,705
MCP Reg	651	88,150,303	74,337,104	403,461	8,568,152	4,841,586	114,189
<b>Total Reg</b>	<b>5,363</b>	<b>541,350,422</b>	<b>453,214,398</b>	<b>56,539,507</b>	<b>8,597,538</b>	<b>22,998,979</b>	<b>84,508</b>
PWU Temp	185	5,762,822	5,627,702	62,451		72,670	30,420
Society Temp	80	5,097,027	4,793,945	112,596		190,486	59,924
MCP Temp	21	1,366,870	1,315,636			51,234	62,649
<b>Total Temp</b>	<b>286</b>	<b>12,226,719</b>	<b>11,737,283</b>	<b>175,047</b>		<b>314,389</b>	<b>41,039</b>
CASUAL	2438	156,998,961	121,022,320	18,121,118		17,855,523	49,640
<b>Total</b>	<b>8087</b>	<b>710,576,102</b>	<b>585,974,000</b>	<b>74,835,672</b>	<b>8,597,538</b>	<b>41,168,891</b>	<b>72,459</b>
<b>2011</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,456	353,770,142	275,254,552	63,197,265		15,318,324	79,645
SOCIETY Reg	1,330	134,279,772	126,051,768	4,947,039	2,250.00	3,278,715	94,776
MCP Reg	644	88,234,049	73,880,625	69,859	9,414,079	4,869,486	114,721
<b>Total Reg</b>	<b>5,430</b>	<b>576,283,963</b>	<b>475,186,946</b>	<b>68,214,163</b>	<b>9,416,329</b>	<b>23,466,525</b>	<b>87,511</b>
PWU Temp	211	5,508,958	5,331,454	85,668		91,836	25,268
Society Temp	79	5,234,552	4,983,808	26,116		224,627	63,086
MCP Temp	22	1,660,391	1,612,601	1,331		46,460	73,300
<b>Total Temp</b>	<b>312</b>	<b>12,403,901</b>	<b>11,927,862</b>	<b>113,115</b>		<b>362,923</b>	<b>38,230</b>
CASUAL	2265	162,360,313	121,857,267	22,206,889		18,296,157	53,800
<b>TOTAL</b>	<b>8,007</b>	<b>751,048,177</b>	<b>608,972,076</b>	<b>90,534,167</b>	<b>9,416,329</b>	<b>42,125,605</b>	<b>76,055</b>

<b>2012</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,475	357,280,035	284,842,527	56,320,273	3,000.00	16,114,235	81,969
SOCIETY Reg	1,336	139,483,054	131,185,379	4,758,285	54,686.00	3,484,704	98,193
MCP Reg	643	88,165,625	73,683,706	126,637	9,884,915	4,470,367	114,594
<b>Total Reg</b>	<b>5,454</b>	<b>584,928,714</b>	<b>489,711,612</b>	<b>61,205,195</b>	<b>9,942,601</b>	<b>24,069,306</b>	<b>89,789</b>
PWU Temp	214	5,476,528	5,366,490	78,090	0.00	31,949	25,077
Society Temp	61	3,758,898	3,549,772	28,883	0.00	180,243	58,193
MCP Temp	18	1,061,210	1,018,662	0	0	42,548	56,592
<b>Total Temp</b>	<b>293</b>	<b>10,296,636</b>	<b>9,934,925</b>	<b>106,973</b>		<b>254,739</b>	<b>33,908</b>
CASUAL	2292	160,069,578	125,643,475	16,225,206		18,200,897	54,818
<b>TOTAL</b>	<b>8,039</b>	<b>755,294,928</b>	<b>625,290,012</b>	<b>77,537,374</b>	<b>9,942,601</b>	<b>42,524,941</b>	<b>77,782</b>
<b>2013</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,321	361,121,121	282,009,791	63,909,056	5,000.00	15,197,274	84,917
SOCIETY Reg	1,260	137,307,219	127,603,743	6,218,672	18,650.00	3,466,154	101,273
MCP Reg	600	82,932,593	70,297,687	176,885	8,236,068	4,221,953	117,163
<b>Total Reg</b>	<b>5,181</b>	<b>581,360,932</b>	<b>479,911,220</b>	<b>70,304,613</b>	<b>8,259,718</b>	<b>22,885,381</b>	<b>92,629</b>
PWU Temp	205	6,747,274	6,521,171	189,533	0.00	41,214	31,811
Society Temp	46	3,144,181	2,911,798	115,174	0.00	117,601	63,300
MCP Temp	25	1,221,374	1,175,065	1,172	0	45,138	47,003
<b>Total Temp</b>	<b>276</b>	<b>11,112,830</b>	<b>10,608,034</b>	<b>305,878</b>	<b>0.00</b>	<b>203,953</b>	<b>38,435</b>
CASUAL	2246	164,600,289	124,241,111	20,144,909	11,000	20,203,269	55,317
<b>TOTAL</b>	<b>7,703</b>	<b>757,074,052</b>	<b>614,760,365</b>	<b>90,755,400</b>	<b>8,270,718</b>	<b>43,292,603</b>	<b>79,808</b>

<b>2014</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,467	381,570,832	300,295,846	65,187,237		16,087,749	86,615
SOCIETY Reg	1,311	145,456,033	135,424,029	6,343,045		3,688,958	103,298
MCP Reg	622	90,121,621	74,332,774	180,423	11,149,916	4,458,508	119,506
<b>Total Reg</b>	<b>5,400</b>	<b>617,148,485</b>	<b>510,052,648</b>	<b>71,710,705</b>	<b>11,149,916</b>	<b>24,235,215</b>	<b>94,454</b>
PWU Temp	381	12,624,883	12,362,231	193,323	0.00	69,328	32,447
Society Temp	103	7,035,467	6,650,294	117,477	0.00	267,695	64,566
MCP Temp	56	2,789,114	2,684,789	1,195	0	103,131	47,943
<b>Total Temp</b>	<b>540</b>	<b>22,449,464</b>	<b>21,697,314</b>	<b>311,996</b>	<b>0.00</b>	<b>440,154</b>	<b>40,180</b>
CASUAL	2283	167,171,831	128,813,583	19,178,514		19,179,734	56,423
<b>TOTAL</b>	<b>8,223</b>	<b>806,769,780</b>	<b>660,563,545</b>	<b>91,201,215</b>	<b>11,149,916</b>	<b>43,855,104</b>	<b>80,331</b>
<b>2015</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,435	386,223,662	303,474,633	66,490,982		16,258,047	88,348
SOCIETY Reg	1,281	145,118,122	134,971,583	6,469,906		3,676,634	105,364
MCP Reg	592	87,499,293	72,162,544	184,032	10,824,382	4,328,336	121,896
<b>Total Reg</b>	<b>5,308</b>	<b>618,841,077</b>	<b>510,608,760</b>	<b>73,144,919</b>	<b>10,824,382</b>	<b>24,263,017</b>	<b>96,196</b>
PWU Temp	410	13,842,539	13,569,252	197,190	0.00	76,097	33,096
Society Temp	132	9,162,915	8,693,161	119,827	0.00	349,927	65,857
MCP Temp	85	4,317,515	4,156,628	1,219	0	159,669	48,902
<b>Total Temp</b>	<b>627</b>	<b>27,322,970</b>	<b>26,419,041</b>	<b>318,236</b>	<b>0.00</b>	<b>585,693</b>	<b>42,136</b>
CASUAL	2283	170,515,267	131,389,854	19,562,084		19,563,329	57,551
<b>TOTAL</b>	<b>8,218</b>	<b>816,679,314</b>	<b>668,417,655</b>	<b>93,025,239</b>	<b>10,824,382</b>	<b>44,412,039</b>	<b>81,336</b>

<b>2016</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,414	391,954,343	307,651,717	67,820,801		16,481,826	90,115
SOCIETY Reg	1,252	144,818,913	134,554,340	6,599,304		3,665,268	107,472
MCP Reg	574	86,541,326	71,367,780	187,712	10,705,167	4,280,666	124,334
<b>Total Reg</b>	<b>5,240</b>	<b>623,314,582</b>	<b>513,573,837</b>	<b>74,607,818</b>	<b>10,705,167</b>	<b>24,427,760</b>	<b>98,010</b>
PWU Temp	437	15,035,958	14,752,093	201,134	0.00	82,731	33,758
Society Temp	148	10,464,228	9,941,815	122,224	0.00	400,189	67,174
MCP Temp	94	4,870,026	4,688,676	1,243	0	180,106	49,880
<b>Total Temp</b>	<b>679</b>	<b>30,370,212</b>	<b>29,382,585</b>	<b>324,600</b>	<b>0.00</b>	<b>663,026</b>	<b>43,273</b>
CASUAL	2283	173,925,572	134,017,651	19,953,325		19,954,596	58,702
<b>TOTAL</b>	<b>8,202</b>	<b>827,610,366</b>	<b>676,974,074</b>	<b>94,885,744</b>	<b>10,705,167</b>	<b>45,045,382</b>	<b>82,538</b>
<b>2017</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,392	397,662,922	311,782,576	69,177,217		16,703,128	91,917
SOCIETY Reg	1,224	144,562,294	134,176,041	6,731,290		3,654,963	109,621
MCP Reg	554	85,203,139	70,258,720	191,466	10,538,808	4,214,144	126,821
<b>Total Reg</b>	<b>5,170</b>	<b>627,428,355</b>	<b>516,217,337</b>	<b>76,099,974</b>	<b>10,538,808</b>	<b>24,572,235</b>	<b>99,849</b>
PWU Temp	461	16,167,699	15,873,523	205,156	0.00	89,020	34,433
Society Temp	161	11,600,100	11,031,385	124,668	0.00	444,048	68,518
MCP Temp	109	5,759,898	5,545,607	1,268	0	213,023	50,877
<b>Total Temp</b>	<b>731</b>	<b>33,527,698</b>	<b>32,450,514</b>	<b>331,092</b>	<b>0.00</b>	<b>746,091</b>	<b>44,392</b>
CASUAL	2283	177,404,084	136,698,004	20,352,392		20,353,688	59,876
<b>TOTAL</b>	<b>8,184</b>	<b>838,360,136</b>	<b>685,365,855</b>	<b>96,783,459</b>	<b>10,538,808</b>	<b>45,672,014</b>	<b>83,745</b>



<b>2018</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,366	403,047,949	315,580,588	70,560,762		16,906,599	93,755
SOCIETY Reg	1,189	143,433,469	132,946,093	6,865,916		3,621,459	111,813
MCP Reg	534	83,776,808	69,076,750	195,296	10,361,513	4,143,249	129,357
<b>Total Reg</b>	<b>5,089</b>	<b>630,258,226</b>	<b>517,603,432</b>	<b>77,621,974</b>	<b>10,361,513</b>	<b>24,671,307</b>	<b>101,710</b>
PWU Temp	492	17,585,924	17,279,758	209,259	0.00	96,906	35,121
Society Temp	180	13,213,431	12,579,890	127,161	0.00	506,380	69,888
MCP Temp	125	6,737,306	6,486,834	1,294	0	249,179	51,895
<b>Total Temp</b>	<b>797</b>	<b>37,536,661</b>	<b>36,346,481</b>	<b>337,714</b>	<b>0.00</b>	<b>852,465</b>	<b>45,604</b>
CASUAL	2283	180,952,166	139,431,964	20,759,440		20,760,761	61,074
<b>TOTAL</b>	<b>8,169</b>	<b>848,747,052</b>	<b>693,381,878</b>	<b>98,719,128</b>	<b>10,361,513</b>	<b>46,284,534</b>	<b>84,880</b>
<b>2019</b>							
<b>REPRESENTATION</b>	<b>TOTAL NO. EMPLOYEES</b>	<b>TOTAL WAGES</b>	<b>Base Pay</b>	<b>Overtime(Incl Premium)</b>	<b>Incentive</b>	<b>Other**</b>	<b>Average Base Pay</b>
PWU Reg	3,336	408,086,297	319,023,285	71,971,977		17,091,035	95,630
SOCIETY Reg	1,156	142,435,979	131,841,377	7,003,235		3,591,367	114,050
MCP Reg	508	81,301,442	67,027,732	199,202	10,054,160	4,020,349	131,944
<b>Total Reg</b>	<b>5,000</b>	<b>631,823,718</b>	<b>517,892,395</b>	<b>79,174,413</b>	<b>10,054,160</b>	<b>24,702,750</b>	<b>103,578</b>
PWU Temp	524	19,090,436	18,771,718	213,445	0.00	105,273	35,824
Society Temp	204	15,257,432	14,542,352	129,705	0.00	585,375	71,286
MCP Temp	151	8,301,164	7,992,817	1,319	0	307,028	52,933
<b>Total Temp</b>	<b>879</b>	<b>42,649,032</b>	<b>41,306,887</b>	<b>344,469</b>	<b>0.00</b>	<b>997,677</b>	<b>46,993</b>
CASUAL	2283	184,571,209	142,220,604	21,174,629		21,175,977	62,295
<b>TOTAL</b>	<b>8,162</b>	<b>859,043,959</b>	<b>701,419,886</b>	<b>100,693,510</b>	<b>10,054,160</b>	<b>46,876,403</b>	<b>85,937</b>

**UNDERTAKING – J4.2**

**Undertaking**

To recalculate J2.3 to include the revenue requirement savings; to update J2.3 using a base of 2015.

**Response**

The productivity X factor from J2.3 has been recalculated in two ways as requested and are as follows:

- 1) The productivity x factor using 2014 base, with capital expenditure savings reduced to 10% of its total would lead to a productivity x factor of 0.79%.
- 2) The productivity x factor using 2015 base, with capital expenditure savings reduced to 10% of its total would lead to a productivity x factor of 0.29%. Adjusting the base year to 2015 does not include the incremental productivity growth during the rate term of 2015 to 2019. Hydro One does not believe this is a fair assessment of productivity for the years being filed.

Please see Attachment 1 for calculations.

**2014 Base 10% Cap**

Inflation	1.70%	2014	2015	2016	2017	2018	2019
Revenue Requirement ORIGINAL		1,426,331,369	per susan franks calculations/comments in the hearing				

**Using Productivity Factor**

<b>Cook an X Factor</b>	0.79%						
<b>Projected Saving</b>		11,320,093	11,422,693	11,526,222	11,630,690	11,736,105	
						11,736,105	
					11,630,690	11,630,690	
Cumulative				11,526,222	11,526,222	11,526,222	
Savings			11,422,693	11,422,693	11,422,693	11,422,693	
		11,320,093	11,320,093	11,320,093	11,320,093	11,320,093	
		11,320,093	22,742,786	34,269,008	45,899,698	57,635,803	
<b>Projected Rev Req</b>		1,426,331,369	1,439,258,909	1,452,303,618	1,465,466,557	1,478,748,799	1,492,151,424
							171,867,388

**Using Forecasted Productivity Savings**

Savings from A-19-01 (our exhibit)	71,545,804	97,642,486	105,078,811	108,698,166	109,057,300	109,119,645	
Incremental Savings		26,096,682	7,436,325	3,619,355	359,134	62,346	
Cumulative Savings						62,346	
					359,134	359,134	
Cumulative				3,619,355	3,619,355	3,619,355	
Savings			7,436,325	7,436,325	7,436,325	7,436,325	
		26,096,682	26,096,682	26,096,682	26,096,682	26,096,682	
<b>Total Cumulative Savings</b>		26,096,682	33,533,007	37,152,362	37,511,496	37,573,841	171,867,388

<b>Delta (Factor vs Forecast):</b>	<b>0</b>
<b>Percentage Delta:</b>	<b>0.00%</b>

**2015 Base 10% Cap**

Inflation	1.70%	2014	2015	2016	2017	2018	2019
Revenue Requirement ORIGINAL		1,414,940,340	per susan franks calculations/comments in the hearing				

**Using Productivity Factor**

<b>Cook an X Factor</b>	0.29%						
<b>Projected Saving</b>			4,080,390	4,137,990	4,196,403	4,255,640	
						4,255,640	
		Cumulative			4,196,403	4,196,403	
		Savings		4,137,990	4,137,990	4,137,990	
			4,080,390	4,080,390	4,080,390	4,080,390	
			4,080,390	8,218,380	12,414,783	16,670,423	41,383,977
<b>Projected Rev Req</b>		1,414,940,340	1,434,913,935	1,455,169,482	1,475,710,961	1,496,542,407	

**Using Forecasted Productivity Savings**

Savings from A-19-01 (our exhibit)	97,642,486	105,078,811	108,698,166	109,057,300	109,119,645	
Incremental Savings		7,436,325	3,619,355	359,134	62,346	
Cumulative Savings					62,346	
	Cumulative			359,134	359,134	
	Savings		3,619,355	3,619,355	3,619,355	
		7,436,325	7,436,325	7,436,325	7,436,325	
Total Cumulative Savings		7,436,325	11,055,680	11,414,814	11,477,159	41,383,977

Delta (Factor vs Forecast):	-
Percentage Delta:	0.00%

**UNDERTAKING – J4.3**

**Undertaking**

To advise why the OM&A incremental billing drops to zero for 2012. (from transcript)

With respect to J2.9, to explain why the incremental billing drop to zero from 2012 to 2014.

**Response**

The incremental billing cost relates to meter data operations center costs, customer contact center costs and related billing/call-handling costs. The reason for the decrease in these costs from 2012 onwards is because the nature of this work was moved to the sustainment work program (EB-2013-0416, Exhibit C1, Tab 2, Table 9, Section 5.1 ‘Retail Revenue Meters’) from 2012 onwards. It was no longer work of an incremental nature related to the initial smart metering initiative.

**UNDERTAKING – J4.4**

**Undertaking**

To produce a spreadsheet showing the numbers used in the calculation of J2.3.

**Response**

Please see Attachment 1 for underlying calculations.

Hydro One does not believe the 0.6% is appropriately applied to a Custom filing. Detailed program description allows for a more specific look at program or level of spend. Overall, flat OM&A spend and a 1% increase in Capital spend are demonstrative of acceptable productivity.

The Board has suggested that the productivity X factor that Hydro One should achieve is 0.6, however Hydro One, as demonstrated in the attached analysis will already be achieving a productivity factor of 0.85. If the Board were to ask for a further 0.6 productivity factor, it would essentially be asking Hydro One to commit to a productivity factor of 1.45. This number would not be fair considering the Board's stated expectations.

Inflation 1.70% 2014 2015 2016 2017 2018 2019  
Revenue Requirement ORIGINAL 1,426,331,369 per susan franks calculations/comments in the hearing

Using Productivity Factor						
Cook an X Factor	0.85%					
Projected Saving		12,161,722	12,264,773	12,368,698	12,473,503	12,579,197
						12,579,197
					12,473,503	12,473,503
Cumulative				12,368,698	12,368,698	12,368,698
Savings			12,264,773	12,264,773	12,264,773	12,264,773
		12,161,722	12,161,722	12,161,722	12,161,722	12,161,722
		12,161,722	24,426,495	36,795,193	49,268,696	61,847,893
Projected Rev Req		1,426,331,369	1,438,417,280	1,450,605,601	1,462,897,198	1,475,292,947
					1,475,292,947	1,487,793,731

184,500,000

Using Forecasted Productivity Savings						
Savings from A-19-01 (our exhibit)	90,700,000	118,400,000	126,500,000	130,300,000	131,300,000	131,500,000
Incremental Savings		27,700,000	8,100,000	3,800,000	1,000,000	200,000
Cumulative Savings						200,000
					1,000,000	1,000,000
Cumulative				3,800,000	3,800,000	3,800,000
Savings			8,100,000	8,100,000	8,100,000	8,100,000
		27,700,000	27,700,000	27,700,000	27,700,000	27,700,000
Total Cumulative Savings		27,700,000	35,800,000	39,600,000	40,600,000	40,800,000

184,500,000

Delta (Factor vs Forecast): -  
Percentage Delta: 0.00%

1 **UNDERTAKING – J4.5**

2  
3 **Undertaking**

4  
5 To file an updated corporate scorecard.

6  
7 **Response**

8  
9 Please see Attachment #1 for a copy of the approved July 2014 Corporate scorecard.



# Scorecard - Hydro One Networks Inc.

Filed: 2014-09-15  
EB-2013-0416  
Exhibit J4.5  
Attachment 1  
Page 1 of 3

8/28/2014

Performance Outcomes	Performance Categories	Measures	2009	2010	2011	2012	2013	Trend	Target	
									Industry	Distributor
Customer Focus  Services are provided in a manner that responds to identified customer preferences.	Service Quality	New Residential/Small Business Services Connected on Time	90.50%	90.90%	92.00%	95.70%	97.40%	↑	90.00%	
		Scheduled Appointments Met On Time	93.50%	92.70%	93.90%	98.60%	98.40%	↑	90.00%	
		Telephone Calls Answered On Time	69.70%	69.70%	81.40%	83.40%	63.90%	↓	65.00%	
	Customer Satisfaction	First Contact Resolution					78.30%			
		Billing Accuracy					4.40%			
		Customer Satisfaction Survey Results					87%			
Operational Effectiveness  Continuous improvement in productivity and cost performance is achieved; and distributors deliver on system reliability and quality objectives	Safety	Public Safety [measure to be determined]								
	System Reliability	Average Number of Hours that Power to a Customer is Interrupted	9.25	9.00	21.17	10.58	26.57	↑		at least within 9.00 - 21.17
		Average Number of Times that Power to a Customer is Interrupted	3.08	2.91	3.93	3.15	4.23	↓		at least within 2.91 - 3.93
	Asset Management	Distribution System Plan Implementation Progress					Under Review			
	Cost Control	Efficiency Assessment				5	5			
		Total Cost per Customer	\$989	\$1,052	\$1,072	\$1,041	\$1,046			
		Total Cost per Km of Line	\$9,775	\$10,471	\$11,064	\$10,741	\$10,682			
Public Policy Responsiveness  Distributors deliver on obligations mandated by government (e.g., in legislation and in regulatory requirements imposed further to Ministerial directives to the Board).	Conservation & Demand Management	Net Annual Peak Demand Savings (Percent of target achieved)			16.00%	20.00%	39.40%			213.66MW
		Net Cumulative Energy Savings (Percent of target achieved)			30.00%	45.00%	59.60%			1,130.21GWh
	Connection of Renewable Generation	Renewable Generation Connection Impact Assessments Completed On Time	100.00%	100.00%	95.79%	99.39%	100.00%			
		New Micro-embedded Generation Facilities Connected On Time					99.71%		90.00%	
Financial Performance  Financial viability is maintained; and savings from operational effectiveness are sustainable.	Financial Ratios	Liquidity: Current Ratio (Current Assets/Current Liabilities)	0.94	1.01	0.99	0.99	1.00			
		Leverage: Total Debt (includes short-term and long-term debt) to Equity Ratio	1.42	1.44	1.34	1.30	1.35			
		Profitability: Regulatory Return on Equity			9.66%	9.66%	9.66%			
		Deemed (included in rates) Achieved			8.80%	8.72%	8.00%			

Legend:

- ↑ up
- ↓ down
- ↔ flat
- target met
- target not met

## Management Discussion and Analysis for Year 2013

### Service Quality

#### Telephone Calls Answered On Time:

Total call volume increased by 57% from 2012 due to the province experiencing 7 major storms through the year, as well as the implementation of the Customer Information System. For example, December 2013 call volumes surged by 219% vs. 2012 mainly due to the December ice storm. November 2013 showed an increase of 168% vs. 2012 and both April and July had increases of approximately 100%, all mainly impacted by major storms.

### Customer Satisfaction

### Safety

### System Reliability

In 2013, seven storm events met the definition of major events, i.e. with over 10% of our distribution customers interrupted. The impact of these storms is considered beyond the day to day operations capability of the company. These events had a major impact on system reliability. The detailed event descriptions can be found in the notes of Hydro One's RRR document submitted to the OEB. By separating out the impact of these major events, the system reliability results are:

- With Loss of Supply - Annual SAIDI of 7.3 hours, annual SAIFI of 2.8 interruptions.
- Without Loss of Supply - Annual SAIDI of 6.9 hours, annual SAIFI of 2.5 interruptions

### Asset Management

### Cost Control

### Conservation & Demand Management

### Connection of Renew Generation



**UNDERTAKING – J4.6**

**Undertaking**

To advise how frequently outage report is updated.

**Response**

Information for the Asset Analytics tool is updated on an on-going and regular basis dependent on the type of information. For example:

- Anytime an oil sample is taken, the results are uploaded into the Hydro One SAP system and refreshed in the Asset Analytics tool on a weekly basis;
- Outage information is updated on a monthly basis; and
- Any time work is performed on the asset in the field and the SAP data is updated the information in Asset Analytics is updated accordingly on a weekly basis.

**UNDERTAKING – J4.7**

**Undertaking**

To file a copy of the hay report, redacted if necessary.

**Response**

The questions posed by Ms. Hare and Mr. Rubenstein in regards to the Hay Report were:

- Page 49 – In a general sense how is Hydro one doing on the Hay Study?
- Page 75 – Management is a broad group. Separate out middle level management from the most senior levels, like senior VP level and president level. What is the difference in comparison at the P50 level?

As agreed to on page 186 of the Day 3 transcript, line 28, Hydro One has provided a summary table below in response to these queries. In the first column “Band Level”, are examples of the positions that fall under that level of management.

**2013 Hay MCP Results**

Band Level	# Over P50	% Over P50	# Under P50	% Below P50
1 President &CEO	0	0	1	100
2 CAO&CFO	0	0	2	100
3 SVP	1	17	5	83
4 VP	4	24	13	76
5 Director	31	50	31	50
6 Manager	139	77	41	23
7 Manager/Professional	301	90	33	10
8 Para Professional	8	36	14	64
9 Admin Assistant	25	58	18	42
10 Admin Assistant	4	80	1	20

Notes:

1. P50 is market median
2. Data is based upon Hydro One actual total compensation vs participant P50

**UNDERTAKING – J4.9**

**Undertaking**

To explain what they want to be measured on as their successful or unsuccessful outcome to achieve the target which they have set out of the number of outages, excluding force majeure, of 6,300 per annum for '15 and '16, et cetera, i.e., whatever costs they believe they need to spend to achieve that target which they have set for themselves.

**Response**

The Table in Attachment #1 identifies the outcome targets and total associated expenditures required to achieve those targets that Hydro One is to be measured against for the test year period of this application.

The historical spend identified for the 2010 to 2014 period includes the 2010 to 2013 actuals and the forecast for the 2014 bridge year.

The 2015 to 2019 expenditures identified include the total funding required to meet the Hydro One outcome targets.

**Vegetation Management:**

The 2010 to 2014 spend for the Hydro One Vegetation Management Program is \$668 million. The forecast expenditures of \$814 million for the test years 2015 to 2019 include all costs to meet the outcome targets.

**Pole Replacements:**

The 2010 to 2014 spend for the Hydro One Pole Replacement Program is \$320 million. The forecast expenditures of \$530 million for the test years 2015 to 2019 include all costs to meet the outcome targets.

**PCB Line Equipment:**

The 2010 to 2014 spend for the Hydro One PCB Line Replacement Program for pole mount transformers pilot program starting in 2014 is \$2 million. The forecast expenditures of \$99 million for the test years 2015 to 2019 include all costs to meet the outcome targets.

**Substation Refurbishments:**

The 2010 to 2014 spend for the Hydro One Substation Refurbishment Program is \$175 million. The forecast expenditures of \$354 million for the test years 2015 to 2019 include all costs to meet the outcome targets.

**Distribution Line Equipment Refurbishments:**

The 2010 to 2014 spend for the Hydro One Distribution Line Equipment Refurbishments Program is \$156 million. The forecast expenditures of \$307 million for the test years 2015 to 2019 include all costs to meet the outcome targets.

1   **Customer Experience:**

2   The 2010 to 2014 spend for the Hydro One Customer Experience Program is \$6 million.  
3   The forecast expenditures of \$21 million for improvements to the Customer Experience  
4   Program for the test years 2015 to 2019 include all costs to meet the outcome targets.

5  
6   **Handling of Unplanned Outages:**

7   The 2010 to 2014 spend for the Handling of Unplanned Outages is \$811 million. The  
8   forecast expenditures of \$756 million for improvements of the Handling of Unplanned  
9   Outages for the test years 2015 to 2019 include all costs to meet the outcome targets.

10  
11   **Estimated Bills:**

12   The 2010 to 2014 spend for the reduction in the percentage of Estimated Bills issued is  
13   \$411 million. The forecast expenditures of \$246 million for the test years 2015 to 2019  
14   include all costs to meet the outcome targets.



Desired Outcome	Area	Measure	Overview	2010 -2013 Actuals & 2014 Forecast					Total Spend	Performance Benchmarking	Performance Projection	Cost Projection (i.e., Forecasted Costs to Achieve Outcome)					Benefits Projection (i.e., Forecasted Benefits of Achieved Outcome)					Consequences of outcome being met, exceeded or not met	Exhibit References for Costs	Notes	
				2010	2011	2012	2013	2014	2010-2014*	(i.e. How does Hydro One's performance compare to others inside/outside the industry)	(i.e., Key Goals/Targets & Timetable for achieving them [short-, medium-, long-term])	2015-2019	2015	2016	2017	2018	2019	2015	2016	2017	2018				2019
Reduced number of vegetation-related interruptions during the 5 year plan. (Excludes Force Majeure events)	Vegetation Management	Reduction in vegetation related customer outages	Service interruptions caused by vegetation are an issue faced by most electric distribution companies. Hydro One is proposing an outcome metric against which its efforts to reduce the number of vegetation-caused outages will be evaluated.	6,116	6,113	6,953	5,791	6,300	\$ 668 M	Not Available	As Vegetation is managed to achieve an 8-year vegetation management cycle, Hydro One expects that the number of outages caused by contact of trees with the distribution system will decline.	\$ 814 M	\$ 142 M	\$ 177.6 M	\$ 180.3 M	\$ 161.1M	\$ 152.9 M	6,300	6,300	6,200	6,100	6,000	Over the next five years Hydro One will make significant progress on clearing the accumulated backlog. This will help improve the long term affordability of the vegetation management program and improve vegetation-related outcomes.	C1-02-02 Table 10 Vegetation Management	The spend identified in Exhibit A, Tab 4, Schedule 4 includes the OM&A associated with the Line Clearing costs only. This table includes all costs associated with the Hydro One Vegetation Management Program required to meet the outcome targets.
Approximately 4,500 additional end-of-life poles will be replaced per year by 2019.	Pole Replacement	Poles replaced per year	Hydro One has approximately 1.6 million distribution poles in its system. Each year approximately 20,000 poles are installed, a figure that includes both new installations and end of life replacements. Poles that fail can cause customer outages.	7,518	7,282	7,452	10,720	11,000	\$ 320 M	Not Available	Given the current age and condition of the poles, Hydro One expects to replace between 11,000 and 15,000 poles per year during the 5 year plan.	\$ 530 M	\$ 88.7 M	\$ 95.1 M	\$ 105 M	\$ 115.2 M	\$ 125.8 M	11,600	12,200	13,200	14,200	15,200	The unit price is expected to increase over the plan due to the replacements of poles with more complex framing and poles in difficult to access locations. This could impact overall costs	D1-03-02 Table 5 Pole Replacements	The spend identified and found in Exhibit A, Tab 4, Schedule 4 includes Capital costs only.
Address Federal PCB regulations and ensure Hydro One's communities' environmental concerns are addressed by decreasing the number of pole top transformers containing PCBs.	PCB Line Equipment	Number of pole top transformers with PCB oil that have been replaced	The PCB line equipment capital project was selected as an area to be measured via an outcome metric because of the public safety issues pertaining to the equipment. The initiative addresses Federal PCB regulations and ensures Hydro One's communities' environmental concerns are addressed by decreasing the number of pole top transformers containing PCBs.	0	0	0	0	0	\$ 2 M	Not Available	Given the safety and environment concerns with PCB line equipment, Hydro One expects to replace up to 2200 PCB pole top transformers per year starting in 2017.	\$ 99 M	\$ 7.9 M	\$ 17.9 M	\$ 23.8 M	\$ 24.2 M	\$ 24.8 M	400	1,000	2,200	2,200	2,200	The program is being piloted to determine the most efficient manner of completing the program which is legislated. The new legislation dictates the replacement of PCB line equipment by 2025.	D1-03-02 Table 5 Lines PCB Equipment Replacements  C1-02-02 Table 7 PCB Lines Equipment Inspection & Testing	Previous PCB work was performed on pad mount transformers. This program is the pilot for replacing pole mount transformers containing PCBs starting in 2014. The spend includes Capital and OM&A. The spend identified in Exhibit A, Tab 4, Schedule 4 identifies Capital costs only.
Reduced number of substation interruptions during the 5 year plan. (Excludes Force Majeure events and planned outages)	Substation Refurbishments	Number of substation interruptions over the five year period	Hydro One maintains 1,004 distribution and regulating station facilities, with an average expected service life of 50 years. The Company is proposing increased funding in this area to manage system reliability in the face of demographic and load requirement pressures on the system, and to mitigate against a growing wave of stations reaching expected service life simultaneously. Hydro One's distribution system has experienced a number of substation-related outages over the last five years.	190	159	144	129	155	\$ 175 M	Not Available	Hydro One expects to manage substation reliability performance in the face of demographic & load requirement pressure on the system.	\$ 354 M	\$ 63.9 M	\$ 67.8 M	\$ 68.5 M	\$ 76.4 M	\$ 77.2 M	155	155	155	155	155	An aging fleet of distribution stations where predictive test results for equipment suggest we need to accelerate renewal efforts to maintain reliability.	D1-03-02 Table 2 Stations Sustaining Capital	The spend identified in Exhibit A, Tab 4, Schedule 4 includes Capital costs for Station Refurbishments only. This table includes all Capital costs associated with the Hydro One Stations Sustaining Capital required to achieve the outcome targets.
Reduced number of distribution line equipment caused interruptions during the 5 year plan. (Excludes Force Majeure events)	Distribution Line Equipment Refurbishments	Number of distribution line equipment interruptions over the five year period	Hydro One owns over 120,000 circuit km of lines (approximately 3200 feeders). An ongoing assessment of the condition of the lines/feeders is performed by Hydro One. Small and large sustainment projects will be performed over the course of the 5-year plan to sustain the performance of the system. Hydro One's distribution system has experienced a number of line equipment-related outages over the last five years.	5,971	7,681	7,316	7,266	7,300	\$ 156 M	Not Available	Hydro One will be carrying out small and large sustainment projects over the course of the 5-year plan to improve local reliability performance.	\$ 307 M	\$ 52.1 M	\$ 58.6 M	\$ 62.4 M	\$ 66.3 M	\$ 67.5 M	7,300	7,300	7,300	7,300	7,300	Distribution system has experienced a number of line equipment-related outages over the last five years. Reliability will be effected if targets are not met.	D1-03-02 Table 5 Line Projects	The spend identified and found in Exhibit A, Tab 4, Schedule 4 includes Capital costs only.
Become a trusted partner to our customers by improving the quality of interactions and meeting their expectations regarding reliable power supply.	Customer Experience	Overall Customer Satisfaction.	An independent third-party research firm will conduct random bi-annual residential and small-business impression surveys on behalf of Hydro One.	80%	77%	78%	80%	80%	\$ 6 M	Not Available	The main goal is to move Hydro One towards a 85% customer satisfaction target in 5 years.	\$ 21 M	\$ 4.3 M	\$ 4.3 M	\$ 4.3 M	\$ 4.2 M	\$ 4.3 M	81%	82%	83%	84%	85%	All areas impacting customer experience including health and safety, environment, reliability, customer service, communications, technology, etc. will be reviewed for action to continue to meet or exceed the target.	C1-02-05 Table 5 Total Customer Experience	The spend identified and found in Exhibit A, Tab 4, Schedule 4 includes OM&A costs only.
Maintain current levels of distribution reliability, while improving customer service and satisfaction	Handling of Unplanned Outages	Percent of customers satisfied with the way Hydro One handled the unplanned outage	An independent third-party research firm will conduct random bi-annual residential and small-business impression surveys regarding Hydro One's handling of unplanned outages.	83%	81%	79%	78%	80%	\$ 811 M	Not Available	The main goal is to move Hydro One towards a 83% customer satisfaction target in 2016 & maintain to 2019.	\$ 756 M	\$ 145.3 M	\$ 149.2 M	\$ 151.9 M	\$ 153.9 M	\$ 155.7 M	80%	83%	83%	83%	83%	Exceeding the target will prove Hydro One is listening to the customers and taking the correct steps to meet their level of service expectations.	C1-02-02 Table 5 Trouble Calls C1-02-04 Table 1 Operations & Operations Support D1-03-02 Table 4 Trouble Calls & Storm Damage Response	The spend identified and found in Exhibit A, Tab 4, Schedule 4 includes OM&A and Capital costs.
Reduced number of estimated bills during the 5 year plan	Estimated Bills	Percent of estimated bills issued	Hydro One understands "estimated bills" are an issue for our customers. Therefore Hydro One proposes an outcome metric that measures the Company's success in reducing the number of estimated bills received by our customers.	23.9%	10.2%	8.5%	10.8%	6.0%	\$ 411 M	Not Available	Reducing the number of estimated bills received by the Hydro One customers.	\$ 246 M	\$ 47.6 M	\$ 51.2 M	\$ 53.8 M	\$ 51.6 M	\$ 41.4 M	5.5%	5.0%	4.5%	4.0%	3.5%	Reducing the volume of estimated bills planned or unplanned will increase customer satisfaction and trust in the Company.	C1-02-05 Table 2 Meter Reading C1-02-02 Table 9 Retail Revenue Meters & Telecom, Monitoring & Control D1-03-02 Table 6 Customer Retail Meters & Smart Meter Project	The spend identified and found in Exhibit A, Tab 4, Schedule 4 includes OM&A and Capital costs.

\* NOTE: The historical spend found in Exhibit A, Tab 4, Schedule 4 is for the period of 2009 to 2013 inclusive.



**UNDERTAKING – J4.10**

**Undertaking**

To advise whether external benchmarking is included in the budget for any of those years.

**Response**

External customer satisfaction benchmarking within the electric industry, similar to that found in Exhibit I, Tab 2.06, Schedule 11, EP 23 (b), will be continued throughout the test years.

**UNDERTAKING – J5.8**

**Undertaking**

To explain the assumptions made in developing budgets for research, development and pilots.

**Response**

For Conservation and Demand Management (CDM), the budgets for Research, Development and Pilots cover costs that are not funded through Global Adjustment via the OPA.

The budgets for CDM research and development were developed for:

- On-going CDM programs such as Online Home Energy Audit, Energy Conservation Team (Call Centre);
- Program Management and Research expenditures including Energy and Appliance Surveys, Research and Memberships, and Load Forecast CDM analysis and studies;
- Distribution funded portion of specific programs for which funding is not available from OPA initiatives supported by the Ministry of Energy (Green Button); and
- Research and work with stakeholders and other industry players to develop new CDM local programs, test new technologies, etc.

The historical actual spend was used to forecast the amounts of funding required to continue this work throughout the test years.

Rate Class	Consumption Level	Monthly Consumption (kWh)	Monthly Peak (kW)	2015				2016				2017				2018				2019			
				Change in DX Bill (\$)	Change in DX Bill (%)	Change in Total Bill (\$)	Change in Total Bill (%)	Change in DX Bill (\$)	Change in DX Bill (%)	Change in Total Bill (\$)	Change in Total Bill (%)	Change in DX Bill (\$)	Change in DX Bill (%)	Change in Total Bill (\$)	Change in Total Bill (%)	Change in DX Bill (\$)	Change in DX Bill (%)	Change in Total Bill (\$)	Change in Total Bill (%)	Change in DX Bill (\$)	Change in DX Bill (%)	Change in Total Bill (\$)	Change in Total Bill (%)
UR	Low	100		\$3.19	16.6%	\$3.00	9.0%	\$0.62	2.8%	\$0.63	1.7%	(\$0.38)	-1.6%	(\$0.39)	-1.0%	(\$0.73)	-3.2%	(\$0.74)	-2.0%	(\$0.40)	-1.8%	(\$0.41)	-1.1%
	Typical	800		(\$2.88)	-7.7%	(\$4.86)	-3.4%	\$1.04	3.0%	\$1.06	0.8%	(\$0.59)	-1.7%	(\$0.60)	-0.4%	(\$1.08)	-3.1%	(\$1.10)	-0.8%	(\$0.61)	-1.8%	(\$0.62)	-0.5%
	High	2,000		(\$13.30)	-19.3%	(\$18.35)	-5.6%	\$1.76	3.2%	\$1.79	0.6%	(\$0.95)	-1.7%	(\$0.97)	-0.3%	(\$1.68)	-3.0%	(\$1.71)	-0.6%	(\$0.97)	-1.8%	(\$0.99)	-0.3%
R1	Low	100		\$4.00	14.5%	\$3.86	9.2%	\$1.43	4.5%	\$1.45	3.2%	(\$0.33)	-1.0%	(\$0.34)	-0.7%	(\$0.95)	-2.9%	(\$0.97)	-2.1%	(\$0.43)	-1.4%	(\$0.44)	-1.0%
	Typical	800		\$1.29	2.5%	(\$0.35)	-0.2%	\$2.48	4.6%	\$2.52	1.6%	(\$0.54)	-1.0%	(\$0.55)	-0.3%	(\$1.58)	-2.9%	(\$1.61)	-1.0%	(\$0.57)	-1.1%	(\$0.58)	-0.4%
	High	2,000		(\$3.35)	-3.6%	(\$7.57)	-2.1%	\$4.28	4.7%	\$4.35	1.3%	(\$0.90)	-0.9%	(\$0.92)	-0.3%	(\$2.66)	-2.8%	(\$2.71)	-0.8%	(\$0.81)	-0.9%	(\$0.82)	-0.2%
R2	Low	100		\$5.66	15.3%	\$5.82	11.3%	\$5.68	13.3%	\$5.78	10.1%	\$2.65	5.5%	\$2.70	4.3%	\$2.47	4.8%	\$2.51	3.8%	\$2.53	4.7%	\$2.57	3.8%
	Typical	800		\$10.19	15.8%	\$10.88	6.4%	\$8.48	11.4%	\$8.62	4.8%	\$4.05	4.9%	\$4.12	2.2%	\$4.08	4.7%	\$4.15	2.1%	\$4.21	4.6%	\$4.28	2.2%
	High	2,000		\$17.97	16.1%	\$19.56	5.2%	\$13.28	10.2%	\$13.51	3.4%	\$6.45	4.5%	\$6.56	1.6%	\$6.84	4.6%	\$6.96	1.7%	\$7.09	4.5%	\$7.21	1.7%
Seasonal	Low	50		\$3.46	12.4%	\$3.49	9.7%	\$2.25	7.2%	\$2.28	5.8%	\$1.39	4.1%	\$1.41	3.4%	\$0.80	2.3%	\$0.81	1.9%	\$1.06	2.9%	\$1.07	2.4%
	Typical	400		\$5.14	8.9%	\$5.03	4.5%	\$4.80	7.6%	\$4.88	4.2%	\$2.82	4.1%	\$2.87	2.4%	\$1.78	2.5%	\$1.81	1.5%	\$2.49	3.4%	\$2.53	2.0%
	High	1,000		\$8.03	7.3%	\$7.67	3.2%	\$9.18	7.8%	\$9.34	3.8%	\$5.28	4.2%	\$5.37	2.1%	\$3.46	2.6%	\$3.52	1.3%	\$4.95	3.6%	\$5.03	1.9%
GSe	Low	1,000		\$3.05	3.8%	\$4.24	2.0%	\$6.03	7.2%	\$6.13	2.9%	\$2.65	2.9%	\$2.70	1.2%	\$1.80	1.9%	\$1.83	0.8%	\$2.39	2.5%	\$2.43	1.1%
	Typical	2,000		\$15.55	12.7%	\$18.09	4.8%	\$9.83	7.1%	\$10.00	2.5%	\$4.35	2.9%	\$4.42	1.1%	\$3.20	2.1%	\$3.25	0.8%	\$4.29	2.8%	\$4.36	1.1%
	High	15,000		\$178.05	26.9%	\$216.59	7.8%	\$59.23	7.1%	\$65.39	2.2%	\$26.45	2.9%	\$29.20	1.0%	\$21.40	2.3%	\$23.66	0.8%	\$28.99	3.1%	\$32.06	1.0%
UGe	Low	1,000		\$16.60	54.1%	\$15.22	9.6%	\$3.11	6.6%	\$3.16	1.8%	\$3.22	6.4%	\$3.27	1.9%	\$2.40	4.5%	\$2.44	1.4%	\$2.57	4.6%	\$2.61	1.4%
	Typical	2,000		\$23.92	50.6%	\$21.01	7.0%	\$4.61	6.5%	\$4.69	1.5%	\$4.82	6.4%	\$4.90	1.5%	\$3.70	4.6%	\$3.76	1.1%	\$4.07	4.8%	\$4.14	1.2%
	High	15,000		\$119.08	45.3%	\$103.93	4.4%	\$24.11	6.3%	\$26.55	1.1%	\$25.62	6.3%	\$28.23	1.1%	\$20.60	4.8%	\$22.71	0.9%	\$23.57	5.2%	\$26.00	1.0%
GSd	Low	15,000	60	\$160.67	21.5%	\$161.48	5.7%	\$93.15	10.3%	\$105.26	3.5%	\$85.13	8.5%	\$96.20	3.1%	\$75.77	7.0%	\$85.62	2.7%	\$76.78	6.6%	\$86.76	2.7%
	Typical	35,000	120	\$292.92	20.3%	\$290.84	4.7%	\$178.74	10.3%	\$201.97	3.1%	\$163.20	8.5%	\$184.42	2.8%	\$146.55	7.1%	\$165.61	2.4%	\$148.66	6.7%	\$167.99	2.4%
	High	175,000	500	\$1,130.52	19.4%	\$1,110.13	3.8%	\$720.77	10.4%	\$814.47	2.7%	\$657.66	8.6%	\$743.16	2.4%	\$594.84	7.1%	\$672.17	2.1%	\$603.94	6.8%	\$682.45	2.1%
UGd	Low	15,000	60	\$111.45	25.1%	\$120.55	4.9%	\$55.34	10.0%	\$62.54	2.4%	\$51.88	8.5%	\$58.63	2.2%	\$45.48	6.9%	\$51.39	1.9%	\$46.21	6.5%	\$52.22	1.9%
	Typical	35,000	120	\$169.86	19.9%	\$175.47	3.2%	\$102.78	10.0%	\$116.15	2.0%	\$96.08	8.5%	\$108.57	1.9%	\$85.35	7.0%	\$96.45	1.6%	\$86.90	6.6%	\$98.20	1.6%
	High	175,000	500	\$539.79	15.6%	\$508.12	1.9%	\$403.25	10.1%	\$455.67	1.7%	\$376.03	8.6%	\$424.91	1.6%	\$337.90	7.1%	\$381.83	1.4%	\$344.62	6.7%	\$389.42	1.4%
St Lgt	Low	100		\$4.28	48.1%	\$4.32	20.6%	\$1.19	9.0%	\$1.21	4.8%	\$0.69	4.8%	\$0.70	2.6%	\$0.56	3.7%	\$0.57	2.1%	\$0.58	3.7%	\$0.59	2.1%
	Typical	500		\$11.04	28.6%	\$11.06	11.3%	\$4.43	8.9%	\$4.51	4.1%	\$2.73	5.1%	\$2.78	2.4%	\$2.20	3.9%	\$2.24	1.9%	\$2.18	3.7%	\$2.22	1.9%
	High	2,000		\$36.37	24.3%	\$36.34	8.9%	\$16.58	8.9%	\$16.86	3.8%	\$10.38	5.1%	\$10.56	2.3%	\$8.35	3.9%	\$8.49	1.8%	\$8.18	3.7%	\$8.32	1.7%
Sen Lgt	Low	20		\$1.20	33.6%	\$1.21	19.5%	\$0.66	13.9%	\$0.67	9.0%	\$0.48	8.8%	\$0.49	6.0%	\$0.39	6.5%	\$0.39	4.6%	\$0.23	3.6%	\$0.23	2.6%
	Typical	50		\$1.57	23.6%	\$1.58	12.3%	\$1.11	13.5%	\$1.13	7.8%	\$0.81	8.6%	\$0.82	5.3%	\$0.65	6.4%	\$0.66	4.0%	\$0.36	3.3%	\$0.37	2.1%
	High	200		\$3.42	15.5%	\$3.42	7.4%	\$3.36	13.2%	\$3.42	6.9%	\$2.44	8.4%	\$2.48	4.7%	\$1.97	6.3%	\$2.00	3.6%	\$1.02	3.1%	\$1.04	1.8%
USL	Low	100		\$9.00	26.6%	\$9.02	19.4%	\$0.05	0.1%	\$0.05	0.1%	(\$0.18)	-0.4%	(\$0.18)	-0.3%	(\$1.44)	-3.4%	(\$1.46)	-2.6%	(\$0.61)	-1.5%	(\$0.62)	-1.2%
	Typical	500		\$4.72	9.4%	\$4.15	3.7%	(\$0.11)	-0.2%	(\$0.11)	-0.1%	(\$0.42)	-0.8%	(\$0.43)	-0.4%	(\$1.92)	-3.5%	(\$1.95)	-1.7%	(\$0.77)	-1.5%	(\$0.78)	-0.7%
	High	1,000		(\$0.63)	-0.9%	(\$1.94)	-1.0%	(\$0.31)	-0.4%	(\$0.32)	-0.2%	(\$0.72)	-1.0%	(\$0.73)	-0.4%	(\$2.52)	-3.6%	(\$2.56)	-1.3%	(\$0.97)	-1.4%	(\$0.99)	-0.5%
DGen	Low	300	10	\$99.09	95.9%	\$115.06	72.2%	\$55.72	27.5%	\$62.97	22.9%	\$45.83	17.8%	\$51.79	15.3%	\$41.63	13.7%	\$47.04	12.1%	\$31.25	9.0%	\$35.31	8.1%
	Typical	2,000	20	\$70.49	42.8%	\$85.83	19.7%	\$71.17	30.3%	\$80.42	15.4%	\$60.88	19.9%	\$68.79	11.4%	\$55.46	15.1%	\$62.67	9.3%	\$43.05	10.2%	\$48.65	6.6%
	High	5,000	100	(\$158.33)	-24.2%	(\$148.02)	-10.6%	\$194.72	39.2%	\$220.03	17.6%	\$181.24	26.2%	\$204.80	13.9%	\$166.09	19.0%	\$187.68	11.2%	\$137.50	13.2%	\$155.38	8.3%
ST	Low	200,000	500	\$522.13	41.1%	\$870.59	3.2%	\$158.13	8.8%	\$178.69	0.6%	\$67.89	3.5%	\$76.72	0.3%	\$89.53	4.4%	\$101.17	0.4%	\$85.84	4.1%	\$97.00	0.3%
	Typical	500,000	1,000	\$683.73	38.8%	\$1,333.77	2.0%	\$221.58	9.1%	\$250.39	0.4%	\$101.19	3.8%	\$114.34	0.2%	\$122.93	4.4%	\$138.91	0.2%	\$121.29	4.2%	\$137.06	0.2%
	High	4,000,000	10,000	\$3,592.53	33.7%	\$9,671.14	1.8%	\$1,363.68	9.6%	\$1,540.96	0.3%	\$700.59	4.5%	\$791.67	0.1%	\$724.13	4.4%	\$818.27	0.1%	\$759.39	4.5%	\$858.11	0.2%

**UNDERTAKING – J6.1**

**Undertaking**

Provide the bill impacts for 2015 to 2019 by rate class assuming unsmoothed revenue requirement.

**Response**

The table below provides the bill impacts for 2015 to 2019 by rate class assuming unsmoothed revenue requirement.