

London Hydro Inc.

EB-2007-0552

2007 Incentive Rate Mechanism – Smart Meter Addendum

Managers Summary

Introduction

London Hydro, as instructed by the OEB, has completed the 2007 IRM Rate Adjustment Model which was filed prior to the January 26, 2007 timeline. Shortly after filing of the 2007 IRM model, the OEB released the Smart Meter Addendum.

Please find this managers summary and the Rate Addendum Model for the determination of a Smart Meter Rate Rider. The current value of the rate rider is \$0.34 per month.

London Hydro has not finalized any tendering process and as a result, all costs and expenses contained in this model are estimates based on current market data. This may limit the usefulness of this data in the combined hearing process scheduled for May 2007.

Methodology

Sheet 1 – Utility Information Sheet:

- All LDC specific information has been entered as requested.

Sheet 2 – Smart Meter Data:

- **Smart Meter Unit Installation Plan**
 - Consistent with the December 15 filing, London Hydro has scheduled a small pilot project in 2007 while planning to install the remainder of the meters equally over 2008 / 2009 / 2010
- **Smart Meter Unit Cost (line A – D)**
 - Assumptions based on a total of 133,447 meters consisting of
 - 10,000 bulk metered residential buildings @ \$200 per meter
 - 10,352 GS < 50 meters @ \$300 per meter
 - 113,095 residential meters @ \$120 per meter
 - For a weighted average cost of \$139.96 per meter
 - A nominal cost of \$10 per meter has been estimated for costs associated with meter inventory management and field installation
- **AMI Capital Costs**
 - Hardware (line F)
 - Costs of AMCC server hardware and installation costs, with a hardware refresh in 4 years
 - Software (line G)
 - Includes estimated cost of software, configuration, installation, training and ongoing software maintenance fees spread over 2 years equally

- **Other Capital Costs**
 - Computer Hardware (line I)
 - A total cost of \$6.1 million has been estimated for regional data collectors and has been prorated based on the number of installed meters in a calendar year
 - A total of 948 controllers has been estimated for London Hydro service territory at a cost of \$1,500 per meter (including engineering, accessory components, and installation labour)
 - Computer Software (line J)
 - 2007 includes license fees and capital cost of software
 - 2008 includes capital cost and IT interface change costs
- **Incremental AMI Operational Expenses**
 - Incremental AMI Operation Expenses – O&M (line L)
 - Estimated based on off-peak time telecommunications from the AMCC to the AMRC, with an estimated average of 300 meters served by each AMRC
 - Staff costs for 2 FTEs for AMI operations including AMCC maintenance and exception management
 - Service charges for the MDM/R currently administered by the IESO are not included in this model
 - Includes software maintenance fees
 - Incremental AMI Operation Expenses – Admin (line M)
 - 1 FTE to manage telecom issues beginning in 2008
- **Incremental Other Operational Expenses**
 - Incremental Other O&M (line O)
 - Including incremental call centre staff to handle temporary additional volume of inquiries for 2008 – 2011
 - Customer communication program 2008 – 2010
 - MDMR transaction costs
 - Staff training material development
 - Incremental Other Admin Expenses (line P)

Sheet 3 – LDC Assumptions and Data:

- Debt / Equity structure mirrors the 2006 EDR approved model (55% Debt, 45% Equity) with a 6% debt return and a 9% equity return for a WACC of 7.35%
- 2006 EDR Total Metered Customers has a result of 135,006 meters consisting of all metered customers in London Hydro services territory (excluding Unmetered/Scattered Loads, Street Lighting and Sentinel Lights)
- The currently approved Corporate Income Tax rate of 36.12% has been utilized
- The default depreciation rates were not changed by London Hydro

Sheet 4 – Smart Meter Rate Calc:

- No LDC specific input
- \$0.34 rate rider has been calculated using the OEB model

Sheet 5 – PILS

- No LDC specific input

Sheet 6 – SM Average Net Fixed Assets & UCC:

- No LDC specific input

London Hydro did not enter any other information or utilize the Smart Meter Rate Rider Model in any other manner other than explained above.

London Hydro has assumed that all calculations in the OEB provided model are accurate and reserves the right to re-file and adjust the rate rider if calculation errors are discovered in the future.

If you have any questions please contact me directly.

Sincerely:

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Ontario Energy Board

2007 EDR Smart Meter Rate Calculation Model

Sheet 1 Utility Information Sheet

Legend:	Input Cell	Pull-Down Menu Option	Output Cell
	From Another Sheet	To The 2007 IRM Model	To Another Sheet

Please note that this model uses MACROS. Before starting, please ensure that macros have been enabled.

Name of LDC:

Licence Number: Smart Meter Grouping:

IRM 2007 EB Number:

EDR 2006 RP Number: EDR 2006 EB Number:

Date of Submission: Revision:

Version: 1.0

Contact Information

Name:

Title:

Phone Number:

E-Mail Address:

Please Note: In the event of an inconsistency between this model and any element of the January 2007 "Report of the Board on 2nd Generation Incentive Regulation of Ontario's Electricity Distributors - Addendum for Smart Metering Rates ", the Report governs.

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2007 EDR Smart Meter Rate Calculation Model

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Sheet 2. Smart Meter Capital Cost and Operational Expense Data

Smart Meter Unit Installation Plan: (From Smart Meter Plan filed December 15, 2006)

assume calendar year installation	2006	2007	2008	2009	2010	Total
Planned number of Residential smart meters to be installed	-	3,095	40,000	40,000	40,000	123,095
Planned number of General Service Less Than 50 kW smart meters	-	410	3,314	3,314	3,314	10,352
Planned Meter Installation (Residential and Less Than 50 kW only)	-	3,505	43,314	43,314	43,314	133,447
Planned Meter Installation Completed before January 1, 2008		<u>3,505</u>				

Smart Meter Unit Cost

	Per Unit	
Smart Meter Unit Cost	\$ 139.96	A
<i>Enter the invoiced cost per smart meter purchased Please provide details in Manager's Summary</i>		
Smart Meter Other Unit Cost	\$ -	B
<i>Enter the invoiced other costs per smart meter unit purchased Please provide details in Manager's Summary</i>		
Smart Meter Installation Cost per Unit	\$ 10.00	C
<i>Enter the time and material cost per smart meter unit installed Please provide details in Manager's Summary</i>		
Smart Meter Other Cost per Unit	\$ -	D
<i>Enter the other cost per smart meter unit installed Please provide details in Manager's Summary</i>		
Total Unit cost per Smart Meter	\$ 149.96	E = A + B + C + D

3. LDC Assumptions and Data

AMI Capital Cost

	2006	2007	2008	2009	2010	Total	
AMI Computer Hardware Costs	\$ -	\$ 70,000	\$ -	\$ -	\$ 70,000	\$ 140,000	F
<i>Enter the estimated capital costs for AMI related Computer Hardware Please provide details in Manager's Summary</i>							
AMI Computer Software Costs	\$ -	\$ 300,000	\$ 300,000	\$ -	\$ -	\$ 600,000	G
<i>Enter the estimated capital costs for AMI related Computer Software Please provide details in Manager's Summary</i>							
Total AMI Capital Cost	\$ -	\$ 370,000	\$ 300,000	\$ -	\$ 70,000	\$ 740,000	H = F + G

3. LDC Assumptions and Data

3. LDC Assumptions and Data

Other Capital Cost

	2006	2007	2008	2009	2010	Total	
Other Computer Hardware Costs	\$ -	\$ 160,217	\$ 1,979,928	\$ 1,979,928	\$ 1,979,928	\$ 6,100,000	I
<i>Enter the estimated capital costs for other related Computer Hardware Please provide details in Manager's Summary</i>							
Other Computer Software Costs	\$ -	\$ 1,014,000	\$ 1,250,000	\$ -	\$ -	\$ 2,264,000	J
<i>Enter the estimated capital costs for other related Computer Software Please provide details in Manager's Summary</i>							
Total Other Capital Cost	\$ -	\$ 1,174,217	\$ 3,229,928	\$ 1,979,928	\$ 1,979,928	\$ 8,364,000	K = I + J

3. LDC Assumptions and Data

3. LDC Assumptions and Data

Incremental AMI Operational Expenses

	2006	2007	2008	2009	2010	Total	
Incremental AMI O&M Expenses	\$ -	\$ 205,674	\$ 299,008	\$ 372,341	\$ 445,674	\$ 1,322,697	L
<i>Enter the estimated incremental AMI related O&M expenses Please provide details in Manager's Summary</i>							
Incremental AMI Admin Expenses	\$ -	\$ -	\$ 60,000	\$ 61,800	\$ 63,654	\$ 185,454	M
<i>Enter the estimated incremental AMI related Admin expenses Please provide details in Manager's Summary</i>							
Total Incremental AMI Operation Expenses	\$ -	\$ 205,674	\$ 359,008	\$ 434,141	\$ 509,328	\$ 1,508,151	N = L + M

3. LDC Assumptions and Data

3. LDC Assumptions and Data

Incremental Other Operational Expenses

	2006	2007	2008	2009	2010	Total	
Incremental Other O&M Expenses	\$ -	\$ 50,000	\$ 624,350	\$ 667,908	\$ 761,466	\$ 2,103,724	O
<i>Enter the estimated incremental Other related O&M expenses Please provide details in Manager's Summary</i>							
Incremental Other Admin Expenses	\$ -	\$ -	\$ 75,000	\$ 77,250	\$ 79,568	\$ 231,818	P
<i>Enter the estimated incremental Other related Admin expenses Please provide details in Manager's Summary</i>							
Total Incremental Other Operation Expenses	\$ -	\$ 50,000	\$ 699,350	\$ 745,158	\$ 841,034	\$ 2,335,542	Q = O + P

3. LDC Assumptions and Data

3. LDC Assumptions and Data

AMI - Advanced Metering Infrastructure

Other - Cost or expenses not AMI but does not include stranded assets



2007 EDR Smart Meter Rate Calculation Model

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Sheet 3. LDC Assumptions and Data

Assumptions:

1. Planned meter installations occur evenly through the year.
2. Year assumed January to December
3. Amortization is straight line and has half year rule applied in first year

2006 EDR Data Information

Deemed Debt (from 2006 EDR Sheet "3-2 COST OF CAPITAL (Input)" Cell C 18)

Deemed Equity (from 2006 EDR Sheet "3-2 COST OF CAPITAL (Input)" Cell C 19)

Weighted Debt Rate (from 2006 EDR Sheet "3-2 COST OF CAPITAL (Input)" Cell C 25)

Proposed ROE (from 2006 EDR Sheet "3-2 COST OF CAPITAL (Input)" Cell E 32)

Weighted Average Cost of Capital

55% 4. Smart Meter Rate Calc

45% 4. Smart Meter Rate Calc

6.00% 4. Smart Meter Rate Calc

9.00% 4. Smart Meter Rate Calc

7.35%

2006 EDR Total Metered Customers

Sum of Residential, General Service, and Large User

from 2006 EDR Sheet "7-1 ALLOCATION - Base Rev. Req." Cells H16 thru H93

135,006 4. Smart Meter Rate Calc

2006 EDR Tax Rate

Corporate Income Tax Rate

(from 2006 PILs Sheet "Test Year PILs, Tax Provision" Cell D 14)

36.12% 5. PILs

Capital Data:

Smart meter including installation (\$149,958,185,646,736 times Planned Meters Installed)

Computer Hardware Costs 2. Smart Meter Data; AMI (F) plus Other (I)

Computer Software Costs 2. Smart Meter Data; AMI (G) plus Other (J)

Total Computer Costs 2. Smart Meter Data; AMI (H) plus Other (K)

	2006	2007	2008	2009	2010	Total
\$	-	\$ 525,603	\$ 6,495,289	\$ 6,495,289	\$ 6,495,289	\$ 20,011,470
\$	-	\$ 230,217	\$ 1,979,928	\$ 1,979,928	\$ 2,049,928	\$ 6,240,000
\$	-	\$ 1,314,000	\$ 1,550,000	\$ -	\$ -	\$ 2,864,000
\$	-	\$ 2,069,821	\$ 10,025,216	\$ 8,475,216	\$ 8,545,216	\$ 29,115,470

6. SM Avg Net Fixed Assets & UCC

LDC Amortization Policy:

Smart Meter Amortization Rate Enter Amortization Policy

Computer Hardware Amortization Rate Enter Amortization Policy

Computer Software Amortization Rate Enter Amortization Policy

15 Years 6. SM Avg Net Fixed Assets & UCC

5 Years 6. SM Avg Net Fixed Assets & UCC

3 Years 6. SM Avg Net Fixed Assets & UCC

Operating Expense Data:

Incremental O&M Expenses 2. Smart Meter Data; AMI (L) plus Other (O)

Incremental Admin Expenses 2. Smart Meter Data; AMI (M) plus Other (P)

Total Incremental Operating Expense 2. Smart Meter Data; AMI (N) plus Other (Q)

	2006	2007	2008	2009	2010	Total
\$	-	\$ 255,674	\$ 923,357	\$ 1,040,249	\$ 1,207,141	\$ 3,426,421
\$	-	-	\$ 135,000	\$ 139,050	\$ 143,222	\$ 417,272
\$	-	\$ 255,674	\$ 1,058,357	\$ 1,179,299	\$ 1,350,362	\$ 3,843,693

4. Smart Meter Rate Calc

Per Meter Cost Split:

Smart meter including installation

Computer Hardware Costs

Computer Software Costs

Smart meter incremental operating expenses

Total Smart Meter Capital Costs per meter

	Per Meter	Installed	Investment	% of Invest
\$	149.96	133,447	\$ 20,011,470	61%
\$	46.76	133,447	\$ 6,240,000	0%
\$	21.46	133,447	\$ 2,864,000	0%
\$	28.80	133,447	\$ 3,843,693	0%
\$	246.98		\$ 32,959,163	61%



2007 EDR Smart Meter Rate Calculation Model

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Sheet 4. Smart Meter Rate Calc

Smart Meter Rate Calculation

Average Asset Values

	2007	
Net Fixed Assets Smart Meters (6. SM Avg Net Fixed Assets &UCC)	\$	254,042
Net Fixed Assets Computer Hardware (6. SM Avg Net Fixed Assets &UCC)	\$	103,598
Net Fixed Assets Computer Software (6. SM Avg Net Fixed Assets &UCC)	\$	547,500
Total Net Fixed Assets	\$	905,139

A

Working Capital

Operation Expense	\$	255,674	
15 % Working Capital	\$	38,351	\$ 38,351

B

Smart Meters included in Rate Base

\$	943,491
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C = A + B

Return on Rate Base

Deemed Debt (3. LDC Assumptions and Data)	55.0%	\$	518,920
Deemed Equity (3. LDC Assumptions and Data)	45.0%	\$	424,571
		\$	943,491

D = C * Deemed Debt
E = C * Deemed Equity

Weighted Debt Rate (3. LDC Assumptions and Data)	6.0%	\$	31,135
Proposed ROE (3. LDC Assumptions and Data)	9.0%	\$	38,211

F = D * Weighted Debt Rate
G = E * Proposed ROE
H = F + G

Return on Rate Base	\$	69,347	\$	69,347
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Operating Expenses

Incremental Operating Expenses (3. LDC Assumptions and Data)	\$	255,674
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I

Amortization Expenses

Amortization Expenses - Smart Meters (6. SM Avg Net Fixed Assets &UCC)	\$	17,520
Amortization Expenses - Computer Hardware (6. SM Avg Net Fixed Assets &UCC)	\$	23,022
Amortization Expenses - Computer Software (6. SM Avg Net Fixed Assets &UCC)	\$	219,000

Total Amortization Expenses	\$	259,542	^{5. PILs}
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J

Revenue Requirement Before PILs

\$	584,563
----	---------

K = H + I + J

Calculation of Taxable Income

Incremental Operating Expenses	-\$	255,674
Depreciation Expenses	-\$	259,542
Interest Expense	-\$	31,135

I

J

F

Taxable Income For PILs	\$	38,211	^{5. PILs}
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L = K - I - J - F

Grossed up PILs (5. PILs)

-\$	34,557
-----	--------

M

Revenue Requirement Before PILs	\$	584,563
Grossed up PILs (5. PILs)	-\$	34,557

K

M

Revenue Requirement for Smart Meters	\$	550,006
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N = K + M

2007 Smart Meter Rate Adder

Revenue Requirement for Smart Meters	\$	550,006
2006 EDR Total Metered Customers (3. LDC Assumptions and Data)		135,006
Annualized amount required per metered customer	\$	4.07
Number of months in year		12

O = 2006 EDR Total Metered Customers

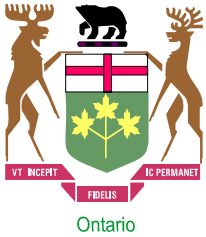
P = N / O

Q

2007 Smart Meter Rate Adder	\$	0.34
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R = P / Q

Enter this amount in the 2007 IRM Model sheet "4. 2006 Smart Meter Information" in cells F 17 thru F 32 (as required)



2007 EDR Smart Meter Rate Calculation Model

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Sheet 5. PILs

PILs Calculation

INCOME TAX

Net Income (4. Smart Meter Rate Calc)	\$ 38,211
Amortization (4. Smart Meter Rate Calc)	\$ 259,542
CCA - Class 47 (8%) Smart Meters (6. SM Avg Net Fixed Assets &UCC)	-\$ 21,024
CCA - Class 45 (45%) Computers (6. SM Avg Net Fixed Assets &UCC)	-\$ 347,449
Change in taxable income	-\$ 70,720
Tax Rate (3. LDC Assumptions and Data)	36.12%
Income Taxes Payable	-\$ 25,544

ONTARIO CAPITAL TAX

Smart Meters (6. SM Avg Net Fixed Assets &UCC)	\$ 508,083
Computer Hardware (6. SM Avg Net Fixed Assets &UCC)	\$ 207,195
Computer Software (6. SM Avg Net Fixed Assets &UCC)	\$ 1,095,000
Rate Base	\$ 1,810,279
Less: Exemption	\$ -
Deemed Taxable Capital	\$ 1,810,279
Ontario Capital Tax Rate	0.300%
Net Amount (Taxable Capital x Rate)	\$ 5,431

Gross Up

	PILs Payable	Gross Up	Grossed Up PILs
Change in Income Taxes Payable	-\$ 25,544	36.12%	-\$ 39,987
Change in OCT	\$ 5,431		\$ 5,431
PIL's	-\$ 20,113		-\$ 34,557

4. Smart Meter Rate Calc



2007 EDR Smart Meter Rate Calculation Model

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Sheet 6. SM Avg Net Fixed Assets &UCC

Smart Meter Average Net Fixed Assets

Net Fixed Assets - Smart Meters

	2006	2007
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1 (3. LDC Assumptions and Data)	\$ -	
Capital Investment Year 2 (3. LDC Assumptions and Data)		\$ 525,603
Closing Capital Investment	\$ -	\$ 525,603
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (15 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (15 Years Straight Line)		\$ 17,520
Closing Accumulated Amortization	\$ -	\$ 17,520
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 508,083 5. PILs
Average Net Fixed Assets	\$ -	\$ 254,042 4. Smart Meter Rate Calc

Net Fixed Assets - Computer Hardware

	2006	2007
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1 (3. LDC Assumptions and Data)	\$ -	
Capital Investment Year 2 (3. LDC Assumptions and Data)		\$ 230,217
Closing Capital Investment	\$ -	\$ 230,217
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (5 Years Straight Line)		\$ 23,022
Closing Accumulated Amortization	\$ -	\$ 23,022
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 207,195 5. PILs
Average Net Fixed Assets	\$ -	\$ 103,598 4. Smart Meter Rate Calc

Net Fixed Assets - Computer Software

	2006	2007
Opening Capital Investment	\$ -	\$ -
Capital Investment Year 1 (3. LDC Assumptions and Data)	\$ -	
Capital Investment Year 2 (3. LDC Assumptions and Data)		\$ 1,314,000
Closing Capital Investment	\$ -	\$ 1,314,000
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (3 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (3 Years Straight Line)		\$ 219,000
Closing Accumulated Amortization	\$ -	\$ 219,000
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 1,095,000 5. PILs
Average Net Fixed Assets	\$ -	\$ 547,500 4. Smart Meter Rate Calc



2007 EDR Smart Meter Rate Calculation Model

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Sheet 6. SM Avg Net Fixed Assets &UCC

For PILs Calculation

UCC - Smart Meters

CCA Class 47 (8%)	2006	2007
Opening UCC	\$ -	\$ -
Capital Additions	\$ -	\$ 525,603
UCC Before Half Year Rule	\$ -	\$ 525,603
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 262,802
Reduced UCC	\$ -	\$ 262,802
CCA Rate Class 47	8%	8%
CCA	\$ -	\$ 21,024 ^{5. PILs}
Closing UCC	\$ -	\$ 504,579

UCC - Computer Equipment

CCA Class 45 (45%)	2006	2007
Opening UCC	\$ -	\$ -
Capital Additions Hardware	\$ -	\$ 230,217
Capital Additions Software	\$ -	\$ 1,314,000
UCC Before Half Year Rule	\$ -	\$ 1,544,217
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 772,109
Reduced UCC	\$ -	\$ 772,109
CCA Rate Class 45	45%	45%
CCA	\$ -	\$ 347,449 ^{5. PILs}
Closing UCC	\$ -	\$ 1,196,768