



# 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.

<b>Name of LDC:</b>	Hydro 2000 Inc.		
<b>Licence Number:</b>	ED-2002-0542	<b>Smart Meter Grouping:</b>	Active
<b>IRM 2007 EB Number:</b>	EB-2007-0539		
<b>EDR 2006 RP Number:</b>	RP-2005-0020	<b>EDR 2006 EB Number:</b>	EB-2005-0380
<b>Date of Submission:</b>	FEBRUARY 9,2007	<b>Revision:</b>	0
<b>Version:</b>	1.0		
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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**

**Hydro 2000 Inc.**

**EB-2007-0539**

**FEBRUARY 9, 2007**

**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	-	560	570	-	-	1,130
Planned number of General Service Less Than 50 kW smart meters	-	10	20	-	-	30
<b>Planned Meter Installation (Residential and Less Than 50 kW only)</b>	-	570	590	-	-	1,160
Planned Meter Installation Completed before January 1, 2008		570				

**Smart Meter Unit Cost**

	Per Unit	
<b>Smart Meter Unit Cost</b>	\$ 95.00	A
<i>Enter the invoiced cost per smart meter purchased</i>		
<i>Please provide details in Manager's Summary</i>		
<b>Smart Meter Other Unit Cost</b>	\$ 17.63	B
<i>Enter the invoiced other costs per smart meter unit purchased</i>		
<i>Please provide details in Manager's Summary</i>		
<b>Smart Meter Installation Cost per Unit</b>	\$ 30.00	C
<i>Enter the time and material cost per smart meter unit installed</i>		
<i>Please provide details in Manager's Summary</i>		
<b>Smart Meter Other Cost per Unit</b>	\$ 16.47	D
<i>Enter the other cost per smart meter unit installed</i>		
<i>Please provide details in Manager's Summary</i>		
<b>Total Unit cost per Smart Meter</b>	\$ 159.10	E = A + B + C + D

3. LDC Assumptions and Data

**AMI Capital Cost**

	2006	2007	2008	2009	2010	Total	
<b>AMI Computer Hardware Costs</b>	\$ -	\$ 2,500	\$ -	\$ -	\$ -	\$ 2,500	F
<i>Enter the estimated capital costs for AMI related Computer Hardware</i>							
<i>Please provide details in Manager's Summary</i>							
<b>AMI Computer Software Costs</b>	\$ -	\$ 16,250	\$ -	\$ -	\$ -	\$ 16,250	G
<i>Enter the estimated capital costs for AMI related Computer Software</i>							
<i>Please provide details in Manager's Summary</i>							
<b>Total AMI Capital Cost</b>	\$ -	\$ 18,750	\$ -	\$ -	\$ -	\$ 18,750	H = F + G

3. LDC Assumptions and Data

3. LDC Assumptions and Data

**Other Capital Cost**

	2006	2007	2008	2009	2010	Total	
<b>Other Computer Hardware Costs</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	I
<i>Enter the estimated capital costs for other related Computer Hardware</i>							
<i>Please provide details in Manager's Summary</i>							
<b>Other Computer Software Costs</b>	\$ -	\$ 35,580	\$ -	\$ -	\$ -	\$ 35,580	J
<i>Enter the estimated capital costs for other related Computer Software</i>							
<i>Please provide details in Manager's Summary</i>							
<b>Total Other Capital Cost</b>	\$ -	\$ 35,580	\$ -	\$ -	\$ -	\$ 35,580	K = I + J

3. LDC Assumptions and Data

3. LDC Assumptions and Data

**Incremental AMI Operational Expenses**

	2006	2007	2008	2009	2010	Total	
<b>Incremental AMI O&amp;M Expenses</b>	\$ -	\$ -	\$ 10,000	\$ 10,000	\$ 10,000	\$ 30,000	L
<i>Enter the estimated incremental AMI related O&amp;M expenses</i>							
<i>Please provide details in Manager's Summary</i>							
<b>Incremental AMI Admin Expenses</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	M
<i>Enter the estimated incremental AMI related Admin expenses</i>							
<i>Please provide details in Manager's Summary</i>							
<b>Total Incremental AMI Operation Expenses</b>	\$ -	\$ -	\$ 10,000	\$ 10,000	\$ 10,000	\$ 30,000	N = L + M

3. LDC Assumptions and Data

3. LDC Assumptions and Data

**Incremental Other Operational Expenses**

	2006	2007	2008	2009	2010	Total	
<b>Incremental Other O&amp;M Expenses</b>	\$ -	\$ 6,380	\$ 6,380	\$ 6,380	\$ 6,380	\$ 25,520	O
<i>Enter the estimated incremental Other related O&amp;M expenses</i>							
<i>Please provide details in Manager's Summary</i>							
<b>Incremental Other Admin Expenses</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	P
<i>Enter the estimated incremental Other related Admin expenses</i>							
<i>Please provide details in Manager's Summary</i>							
<b>Total Incremental Other Operation Expenses</b>	\$ -	\$ 6,380	\$ 6,380	\$ 6,380	\$ 6,380	\$ 25,520	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

**Hydro 2000 Inc.**

**EB-2007-0539**

**FEBRUARY 9, 2007**

## 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)

50%

4. Smart Meter Rate Calc

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

50%

4. Smart Meter Rate Calc

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

5.50%

4. Smart Meter Rate Calc

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

9.00%

4. Smart Meter Rate Calc

### Weighted Average Cost of Capital

7.25%

### 2006 EDR Total Metered Customers

**Sum of Residential, General Service, and Large User**

1,127

4. Smart Meter Rate Calc

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

### 2006 EDR Tax Rate

**Corporate Income Tax Rate**

0.00%

5. PILs

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

### Capital Data:

Smart meter including installation (\$159.1 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
\$	-	\$ 90,687	\$ 93,869	\$ -	\$ -	\$ 184,556
\$	-	\$ 2,500	\$ -	\$ -	\$ -	\$ 2,500
\$	-	\$ 51,830	\$ -	\$ -	\$ -	\$ 51,830
\$	-	\$ 145,017	\$ 93,869	\$ -	\$ -	\$ 238,886

6. SM Avg Net Fixed Assets &UCC

### LDC Amortization Policy:

Smart Meter Amortization Rate *Enter Amortization Policy*

15 Years

6. SM Avg Net Fixed Assets &UCC

Computer Hardware Amortization Rate *Enter Amortization Policy*

5 Years

6. SM Avg Net Fixed Assets &UCC

Computer Software Amortization Rate *Enter Amortization Policy*

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
\$	-	\$ 6,380	\$ 16,380	\$ 16,380	\$ 16,380	\$ 55,520
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -
\$	-	\$ 6,380	\$ 16,380	\$ 16,380	\$ 16,380	\$ 55,520

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
\$	159.10	1,160	\$ 184,556	63%
\$	2.16	1,160	\$ 2,500	0%
\$	44.68	1,160	\$ 51,830	0%
\$	47.86	1,160	\$ 55,520	0%
\$	253.80		\$ 294,406	63%



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**Sheet 4. Smart Meter Rate Calc**

**Smart Meter Rate Calculation**

**Average Asset Values**

Net Fixed Assets Smart Meters (6. SM Avg Net Fixed Assets &UCC)  
 Net Fixed Assets Computer Hardware (6. SM Avg Net Fixed Assets &UCC)  
 Net Fixed Assets Computer Software (6. SM Avg Net Fixed Assets &UCC)  
 Total Net Fixed Assets

2007	
\$	43,832
\$	1,125
\$	21,596
\$	66,553

A

**Working Capital**

Operation Expense  
 15 % Working Capital

\$	6,380	
\$	957	\$ 957

B

**Smart Meters included in Rate Base**

\$	67,510
----	--------

C = A + B

**Return on Rate Base**

Deemed Debt (3. LDC Assumptions and Data)  
 Deemed Equity (3. LDC Assumptions and Data)

50.0%	\$	33,755
50.0%	\$	33,755
	\$	67,510

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

Weighted Debt Rate (3. LDC Assumptions and Data)  
 Proposed ROE (3. LDC Assumptions and Data)

5.5%	\$	1,857
9.0%	\$	3,038

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

**Return on Rate Base**

\$	4,894	\$ 4,894
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**Operating Expenses**

Incremental Operating Expenses (3. LDC Assumptions and Data)

\$	6,380
----	-------

I

**Amortization Expenses**

Amortization Expenses - Smart Meters (6. SM Avg Net Fixed Assets &UCC)  
 Amortization Expenses - Computer Hardware (6. SM Avg Net Fixed Assets &UCC)  
 Amortization Expenses - Computer Software (6. SM Avg Net Fixed Assets &UCC)

\$	3,023
\$	250
\$	8,638

**Total Amortization Expenses**

\$	11,911	5. PILs
----	--------	---------

J

**Revenue Requirement Before PILs**

\$	23,186
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K = H + I + J

**Calculation of Taxable Income**

Incremental Operating Expenses  
 Depreciation Expenses  
 Interest Expense

-\$	6,380
-\$	11,911
-\$	1,857

I  
 J  
 F

**Taxable Income For PILs**

\$	3,038	5. PILs
----	-------	---------

L = K - I - J - F

**Grossed up PILs (5. PILs)**

\$	399
----	-----

M

Revenue Requirement Before PILs  
 Grossed up PILs (5. PILs)

\$	23,186
\$	399

K  
 M

**Revenue Requirement for Smart Meters**

\$	23,585
----	--------

N = K + M

**2007 Smart Meter Rate Adder**

Revenue Requirement for Smart Meters  
 2006 EDR Total Metered Customers (3. LDC Assumptions and Data)  
 Annualized amount required per metered customer  
 Number of months in year

\$	23,585
	1,127
\$	20.93
	12

O = 2006 EDR Total Metered Customers  
 P = N / O  
 Q

**2007 Smart Meter Rate Adder**

\$	1.74
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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

**Hydro 2000 Inc.**

**EB-2007-0539**

**FEBRUARY 9, 2007**

**Sheet 5. PILs**

### PILs Calculation

#### INCOME TAX

Net Income (4. Smart Meter Rate Calc)	\$	3,038
Amortization (4. Smart Meter Rate Calc)	\$	11,911
CCA - Class 47 (8%) Smart Meters (6. SM Avg Net Fixed Assets & UCC)	-\$	3,627
CCA - Class 45 (45%) Computers (6. SM Avg Net Fixed Assets & UCC)	-\$	12,224
Change in taxable income	-\$	903
Tax Rate (3. LDC Assumptions and Data)		0.00%
Income Taxes Payable	\$	-

#### ONTARIO CAPITAL TAX

Smart Meters (6. SM Avg Net Fixed Assets & UCC)	\$	87,664
Computer Hardware (6. SM Avg Net Fixed Assets & UCC)	\$	2,250
Computer Software (6. SM Avg Net Fixed Assets & UCC)	\$	43,192
Rate Base	\$	133,106
Less: Exemption	\$	-
Deemed Taxable Capital	\$	133,106
Ontario Capital Tax Rate		0.300%
Net Amount (Taxable Capital x Rate)	\$	399

#### Gross Up

	PILs Payable	Gross Up	Grossed Up PILs
Change in Income Taxes Payable	\$ -	0.00%	\$ -
Change in OCT	\$ 399		\$ 399
PIL's	<u>\$ 399</u>		<u>\$ 399</u>

4. Smart Meter Rate Calc



## 2007 EDR SMART METER RATE CALCULATION MODEL

**Hydro 2000 Inc.**

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**FEBRUARY 9, 2007**

**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)		\$ 90,687
Closing Capital Investment	\$ -	\$ 90,687
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (15 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (15 Years Straight Line)		\$ 3,023
Closing Accumulated Amortization	\$ -	\$ 3,023
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 87,664
Average Net Fixed Assets	\$ -	\$ 43,832

5. PILs

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)		\$ 2,500
Closing Capital Investment	\$ -	\$ 2,500
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (5 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (5 Years Straight Line)		\$ 250
Closing Accumulated Amortization	\$ -	\$ 250
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 2,250
Average Net Fixed Assets	\$ -	\$ 1,125

5. PILs

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)		\$ 51,830
Closing Capital Investment	\$ -	\$ 51,830
Opening Accumulated Amortization	\$ -	\$ -
Amortization Year 1 (3 Years Straight Line)	\$ -	\$ -
Amortization Year 2 (3 Years Straight Line)		\$ 8,638
Closing Accumulated Amortization	\$ -	\$ 8,638
Opening Net Fixed Assets	\$ -	\$ -
Closing Net Fixed Assets	\$ -	\$ 43,192
Average Net Fixed Assets	\$ -	\$ 21,596

5. PILs

4. Smart Meter Rate Calc



2007 EDR SMART METER RATE CALCULATION MODEL

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**FEBRUARY 9, 2007**

**Sheet 6. SM Avg Net Fixed Assets & UCC**

**For PILs Calculation**

**UCC - Smart Meters**

CCA Class 47 (8%)	2006	2007
Opening UCC	\$ -	\$ -
Capital Additions	\$ -	\$ 90,687
UCC Before Half Year Rule	\$ -	\$ 90,687
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 45,344
Reduced UCC	\$ -	\$ 45,344
CCA Rate Class 47	8%	8%
CCA	\$ -	\$ 3,627
Closing UCC	\$ -	\$ 87,060

5. PILs

**UCC - Computer Equipment**

CCA Class 45 (45%)	2006	2007
Opening UCC	\$ -	\$ -
Capital Additions Hardware	\$ -	\$ 2,500
Capital Additions Software	\$ -	\$ 51,830
UCC Before Half Year Rule	\$ -	\$ 54,330
Half Year Rule (1/2 Additions - Disposals)	\$ -	\$ 27,165
Reduced UCC	\$ -	\$ 27,165
CCA Rate Class 45	45%	45%
CCA	\$ -	\$ 12,224
Closing UCC	\$ -	\$ 42,106

5. PILs