Contents

Overview of the PEG Working Papers	3
TFP and BM Database Calculations	3
BM Model	6
Detailed Data Reference for TFP and BM Databases	6
Summary of Variables in the BM and TFP Databases	
BM Database (Sheet in Workbook "TFP and BM database calculations.xlsx")	
Capital Cost	
OM&A Cost	10
Total Cost	13
Capital Cost Share	13
OM&A Cost Share	13
Capital Price Index	13
OM&A Price Index	13
Customers Numbers	13
Deliveries	13
Summer Peak kW	13
Winter Peak kW	13
Annual Peak kW	13
System Capacity Proxy	14
Circuit km	14
Average Circuit km	14
% of km that is underground	14
Percentage of customers added in last 10 years	14
2012 Service Territory Area	14
TFP Database (Sheet in Workbook "TFP and BM database calculations.xlsx")	15
Capital Cost	15
Gross Plant	15
OM&A Cost	15
Total Cost	15
Capital Cost Share	15
OM&A Cost Share	15
Capital Price Index	15
OM&A Price Index	15
Customers Numbers	15

Deliveries	15
Summer Peak kW	15
Winter Peak kW	15
Annual Peak kW	15
System Capacity Proxy	15
Circuit km	15
Average Circuit km	15
% of km that is underground	15
Percentage of customers added in last 10 years	15
2012 Service Territory Area	15
Summary of Changes to Electricity Distributor Data	16
Source Data (Posted on the Board's Web Site)	18
Low Voltage Charges	18
2012 Total Gross Plant	18
2012 Total Accumulated Depreciation	18
2012 Contributions in Aid of Construction [Contributions and Grants - Credit].	18
2012 HV-related O&M expenditures booked in accounts 5014, 5015, and 511	218
2012 OM&A Cost Data	18
2012 Smart Meters - OM&A DVA 1556	18
2012 HV-related O&M expenditures booked in accounts 5014, 5015, and 511	219
Mergers & Name Changes	19
1989-2011 Total Gross Plant	19
1989-2011 Total Accumulated Depreciation	19
The individual distributor filings in response to the Board's February 26, 2013	
1999-2011 Contributions in Aid of Construction [Contributions and Grants - C	
1999-present Cost of Capital Parameters	-
2005-2011 Retirements	
2002-2011 OM&A Cost Data	
2002-2011 Salary and Wages (industry level summary)	21

Overview of the PEG Working Papers

These working papers contain the data and calculations undertaken to produce the productivity and cost performance results contained in PEG's final report, and are comprised of three parts: Documentation for Working Papers (this file): TFP¹ and BM² Database Calculations; and BM Model.

TFP and BM Database Calculations

These working papers take the source data provided by the OEB and aggregate the data to produce a consistent time series for each current distributor. They also use the forgoing data, non-company specific data provided by the OEB, and publicly available data from Statistics Canada to produce databases for use in econometric research. The productivity trend results are also calculated here.

In order to make transition from the source data to the results more transparent, additional worksheets have been added that will allow the reader to see how individual accounts are used to produce the definitions of OM&A and Gross Plant used in the study. These are parallel calculations that will allow the user to see how these variables are constructed on a single worksheet.

Table 1: Contents of file named "TFP and BM database calculations.xlsx"

Worksheet Name	Worksheet Number	Туре	Description
Industry TFP Calculations	1	Result	Uses calculations from supporting worksheets to calculate the industry TFP trend for Ontario for use in informing the board about the choice of an X Factor.
BM Database	2	Result	Uses calculations from supporting worksheets to assemble a database for use in the benchmarking models contained in Part III of the working papers.
TFP Database	3	Result	Uses calculations from supporting worksheets to assemble a database for use in the econometric models used to determine the proper weights to be used in the

¹ Total Factor Productivity

² Benchmarking

Worksheet Name	Worksheet Number	Туре	Description
			calculation of the output quantity trend of the industry. The models are contained in Part III of the working papers.
OM&A Calculation	4	Supporting Calculations	Calculates the adjusted OM&A expenses for use in worksheets 1-3.
Capital Calculations for TFP	5	Supporting Calculations	Calculates the capital quantity and capital cost for use in worksheets 1 and 3.
Capital Calculations for BM	6	Supporting Calculations	Calculates the capital quantity and capital cost for use in worksheet 2.
OM&A Price	7	Supporting Calculations	Calculates the OM&A input price index
smart meter OM&A adjustment	8	Supporting Calculations	Calculates the OM&A adjustment required due to the deferral of smart meter cost. For use in worksheet 8. Please see section 4.3 of the report for a description of the method.
Z variables	9	Supporting Calculations	Aggregates and makes corrections to the business condition variables for use in worksheets 2 and 3.
Q Capital Data	10	Supporting Calculations	Aggregates gross plant data and makes corrections
Q OM&A	11	deleted	This worksheet is no longer used and has been deleted
Q Output	12	Supporting Calculations	Aggregates customer and kWh data for 2002-2011
Q Business Conditions	13	deleted	This worksheet is no longer used and has been deleted
AWE cansim	14	Source Data	Source Data from Statistics Canada
gdpipi fdd can	15	Source Data	Source Data from Statistics Canada
GDPIPI Ontario	16	deleted	This worksheet is no longer used and has been deleted
Historical Asset Price	17	Source Data	Source Data from Statistics Canada
data request responses	18	Source Data	Data request responses as processed by PEG
2012DR	19	Source Data	Source data from supplemental data request for 2012
Late DR companies	20	Supporting Calculations	Identifies those companies that did not complete the data smart meter data request

Worksheet Name	Worksheet Number	Туре	Description
Aggregate HV charges	21	Source Data	Aggregated version of the HV charges in worksheet 27
HV-Related O&M Exp	22	Source Data	Source data on HV O&M charges provided by OEB staff
LV Charges included in BM	23	Source Data	Revised LV charges
2012 data	24	Supporting Calculations	Takes the 2012 data from worksheet 15, transposes the values and makes calculations for use in worksheets 4-6.
2012 data raw	25	Source Data	2012 data as provided by OEB staff
data0211	26	Supporting Calculations	Brings together the data from 2002-2011
2011 data	27	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
2010 data	28	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
2009 data	29	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
2008 data	30	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
2007data	31	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
2006 data	32	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
2005 data	33	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
2004 data	34	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
2003 data	35	Source Data	Adds lines to the source data file to calculate relevant

Worksheet Name	Worksheet Number	Туре	Description
			OM&A and references other variables in a consistent format for later use.
2002 data	36	Source Data	Adds lines to the source data file to calculate relevant OM&A and references other variables in a consistent format for later use.
Gross Plant (2012)	37	Source Data	Adds columns to source data to add up relevant individual PP&E accounts
Gross Plant	38	Source Data	Adds columns to source data to add up relevant individual PP&E accounts
1860 2012	39	Source Data	Total meter plant in service for 2012 for use in worksheets 5-6
1860 meter data	40	Aggregated Source Data	Source data aggregated by final company name
Output data	41	Supporting Calculations	Makes corrections to customer and kWh data
peer group data	42	deleted	Worksheet 42 is no longer used and has been deleted

BM Model

These working papers contain the data and programming code used to estimate the parameters of the econometric models used to produce the cost performance benchmarks. The detailed output of the models is also provided.

The authors anticipate that those reviewing this work will gain the most benefit from the TFP and BM Database Working Papers. The BM Model contains relatively technical statistical modeling and computer programming. Chapter 6 in the report describes the methodology used in developing the benchmarking model.

Detailed Data Reference for TFP and BM Databases

The purpose of the following tables is to link the TFP and BM databases to the electricity distributor data that is posted on the Board's website (list in last section of this document). Readers will be able to see what electricity distributor data has been used in the TFP and BM calculations. Any adjustments made to the data are also identified.

The following variable summary table provides brief descriptions of each of the variables found in the econometric databases. Some variables not directly used in the final econometric model are also included here. Some are listed here because they should be familiar to the reader and are used to derive other variables that are used. Others are included because they have been included in recent models, but did not make the final model. The variables actually used in the model are identified.

Summary of Variables in the BM and TFP Databases

Column	Label	Used in Final BM Model	Description
Α	PEGID	N	PEG Assigned ID Number
В	Company Name	N	Name of Company
С	Year	N	Year of Data
D	Observation Used in TFP Work	N	Identifies if value is used in TFP work (1 = Yes)
E	Capital Cost	N	Capital Cost as calculated by PEG
F	OM&A Cost	N	OM&A Cost as calculated by PEG
G	Total Cost	Υ	Total Cost =Capital Cost [E] + OM&A Cost [F]
н	Capital Cost Share	Υ	Percent of Total Cost that is Capital; Equals Capital Cost [E] / Total Cost [G]
1	OM&A Cost Share	Υ	Percent of Total Cost that is OM&A Equals OM&A Cost [F] / Total Cost [G]
J	Capital Price Index	Υ	Service Price of Capital as described in the report
K	OM&A Price Index	Y Equals [W] x [X]	
L	Customers Numbers	Υ	Number of customers as calculated by PEG from RRR data
M	Deliveries	Y	Delivery volume as calculated by PEG from RRR data
N	Summer Peak kW	N	Summer peak demand as reported on the RRR
0	Winter Peak kW	N	Winter peak demand as reported on the RRR
Р	Annual Peak kW	N	Equal to the greater of the Summer Peak [N] and Winter Peak [O]
Q	System Capacity Proxy	Υ	Variable designed to measure distribution system capacity. It is equal to the maximum of the current year peak kW [P] and all previous year values of peak kW [P]
R	Circuit km	N	Total reported circuit km of line on the RRR
S	Average Circuit km	Υ	Average of [R] for each company from 2002-2012
т	% of km that is underground	N	The ratio of reported underground km / total km
U	Percentage of customers added in last 10 years	Y	The total change in customers from 2002-2012 as a percent of 2002 customers
V	2012 Service Territory Area	N	Variable equal to the 2012 reported square km of service territory.
W	OM&A Price Level	N	Price level to account for price levels among service territories
Х	OM&A Price Index	N	OM&A Price Index as calculated on the OM&A Price worksheet

BM Database (Sheet in Workbook "TFP and BM database calculations.xlsx")

Variable in Benchmarking Database			Variable Worksheet	Column (letter) or Row (number) Reference	Source Worksheet Reference(s)	Column (letter) or Row (number) Reference or Formula	Formula Description or Source Data Citation
Ca	pital	Cost	BM Database	Е	Capital Calculations for BM	AI	The formula picks out the capital cost [AI] for the appropriate company and year of data. It aggregates companies into the final company being benchmarked if necessary.
=	Capit	al Cost	Capital Calculations for BM	Al	Capital Calculations for BM	AH x AF	Equal to capital price [AH] x capital quantity [AF]
	=	Capital Service Price	Capital Calculations for BM	АН	Capital Calculations for BM	AG (t- 1) x X + X x Z	Capital Service Price = [Asset Price [X] t-1 x WACC [AG] + Depreciation Rate x Asset Price]
	Х	Capital Quantity Index	Capital Calculations for BM	AF	Capital Calculations for BM	AF(t-1) - AF*Z + Y	Equal to previous year capital quantity [X] less depreciation [AF*Z] plus quantity of capital added during year [Y]
		Weighted Average Cost of Capital	Capital Calculations for BM	AG	Electricity Cost of Capital Summary 1999-2013.xlsx		This is a weighted average of the cost of capital data as posted to create a calendar year value. The number of months divided by 12 under each WACC serve as the weights.
		Asset Price Index	Capital Calculations for BM	Х	Statistics Canada		This is the Electric Utility Construction Price Index as published by Statistics Canada.
		Depreciation Rate Calculations for BM		Z			Calculated by PEG. Please see table 4 of the report for details on the calculation of this depreciation rate.
		Quantity of Additions	Capital Calculations for BM	Y	Capital Calculations for BM	S/X	Equal to dollars of gross additions [S] divided by the asset price index [Y]
		Gross Additions (adjusted)	Capital Calculations for BM	S	Capital Calculations for BM	J+R	Gross additions after adjusting for smart meters. Please see section 4.3 of the report for a description of the method.
		Gross Additions	Capital Calculations for BM	J	Capital Calculations for BM	H + I x F(t-1)	Equal to Net Additions [H] plus estimated retirements [I x F (t-1)

iable ir abase	n Benchmarking	Variable Worksheet	Column (letter) or Row (number) Reference	Source Worksheet Reference(s)	Column (letter) or Row (number) Reference or Formula	Formula Description or Source Data Citation
	Smart Meter Additions	Capital Calculations for BM	R	Data Request Responses: www.rds.ontarioenergyboard.c a/webdrawer/	N + P + Q	Equals smart meter additions as reported in response to the data request [N]. Several companies either responded late or not at all. Those that were late were incorporated [P]. Those that did not report were estimated using a ratio of smart meter capex to PP&E of those that did respond [Q].
	Net Additions	Capital Calculations for BM	Н	Capital Calculations for BM	F - F(t- 1)	Equals change in gross plant [F]
	Gross Plant	Capital Calculations for BM	F	Capital Calculations for BM, Q Capital Data	E	The formula picks out the gross plant for the appropriate company and year of data. It aggregates companies into the final company being benchmarked if necessary. It also adjusts for restatements of HV PP&E and removes smart meter plant.
	Gross Plant for BM Capital Calculation BM, Q Cap Data		Е	Gross Plant	Е	References the gross plant from a worksheet formerly of Part I of the working papers. Please see worksheet 44 for the accounts that comprise this measure.
	Gross Plant BM	Gross Plant	Е	Gross Plant (Company Totals) 1989-2011 Version 2.xlsx		Sum of Distribution and General Plant Accounts less Subtransmission Plant > 50 kV. Individual account data taken from OEB source data file.
	Gross Plant (2012)	Capital Calculations for BM	F	2012 data	DZ	2012 Gross Plant data taken from 2012 data sheet.
Benchmark Capital Quantity (1989 or 2002 as noted in column AE)		Capital Calculations for BM	AF	Capital Calculations for BM		Equals Net Plant / a historical weighted average of the asset price index. Net plant is equal to gross plant after being reduced by the amount of accumulated amortization.
Gross Additions from 1998- 2002		Capital Calculations for BM	J	Capital Calculations for BM		The net additions for the period for which no data existed was estimated by one of two standard methods. Method 1 uses the difference in gross plant as is done normally. Method 2 is used in the cases in which there is an implausible change in gross plant in which case the 2002 value is assumed to be net plant. The only exception to this rule was done for Entregus. In this case, neither method resulted in reasonable estimates and a linear interpolation was used.

	Variable in Benchmarking Database			Variable Worksheet	Column (letter) or Row (number) Reference	Source Worksheet Reference(s)	Column (letter) or Row (number) Reference or Formula	Formula Description or Source Data Citation
ON	1&A (Cost		BM Database	F	OM&A Calculation	М	Equals OM&A cost as adjusted for LV, HV and Deferred OM&A related to Smart Meters
=	OM&A by Final Company Aggregation			OM&A Calculation	М	data0211	Н	For each final company to be evaluated, add up the OM&A expense by year for all companies that make up the company (e.g. CNPI = Fort Erie + Port Colbourne + Eastern Ontario Power)
	= OM&A Constructed from RRR Account Data by Year			data0211	E	2011 data (and prior years)	8	Calculate relevant OM&A expense as the sum of seven categories. This intentionally excludes capital related items such as taxes, depreciation, and amortization. It also excludes bad debt which is significantly beyond LDC control. The 2012 format differs from the 2002-2011 worksheets and is documented separately. Please see worksheet 45 for the accounts that comprise this measure.
		=	Operation	2011 data (and prior years)	90	Comparison of Distributors_Sep 26, 2012_without TB.xls	36	Source data
		+	Maintenance	2011 data (and prior years)	91	Comparison of Distributors_Sep 26, 2012_without TB.xls	37	Source data
		+	Billing and Collection	2011 data (and prior years)	92	Comparison of Distributors_Sep 26, 2012_without TB.xls	38	Source data
		+	Community Relations	2011 data (and prior years)	93	Comparison of Distributors_Sep 26, 2012_without TB.xls	39	Source data
		+	Administrative and General Expenses	2011 data (and prior years)	95	Comparison of Distributors_Sep 26, 2012_without TB.xls	41	Source data
		+	Insurance Expense	2011 data (and prior years)	96	Comparison of Distributors_Sep 26, 2012_without TB.xls	42	Source data
		+	Advertising Expenses	2011 data (and prior years)	98	Comparison of Distributors_Sep 26, 2012_without TB.xls	44	Source data

	Variable in Benchmarking Database			Variable Worksheet	Column (letter) or Row (number) Reference	Source Worksheet Reference(s)	Column (letter) or Row (number) Reference or Formula	Formula Description or Source Data Citation
	=		A Constructed from Account Data by	2012 data	D	2011 data (and prior years), 2012 data	=AQ+ AR+A S+AT+ AV+A W+AY	The 2012 format differs from the 2002-2011 worksheets and is documented separately.
		=	Operation	2012 data	AQ	Comparison of Distributors OMA updated PBR_July-29- 2013.xls		Source data
		+	Maintenance	2012 data	AR	Comparison of Distributors OMA updated PBR_July-29- 2013.xls		Source data
		+	Billing and Collection	2012 data	AS	Comparison of Distributors OMA updated PBR_July-29- 2013.xls		Source data
		+	Community Relations	2012 data	AT	Comparison of Distributors OMA updated PBR_July-29- 2013.xls		Source data
		+	Administrative and General Expenses	2012 data	AV	Comparison of Distributors OMA updated PBR_July-29- 2013.xls		Source data
		+	Insurance Expense	2012 data	AW	Comparison of Distributors OMA updated PBR_July-29- 2013.xls		Source data
		+	Advertising Expenses	2012 data	AY	Comparison of Distributors OMA updated PBR_July-29- 2013.xls		Source data
+	LV Expense filed with Data Request aggregated by company		OM&A Calculation	Н	Data Request Responses in webdrawer http://www.rds.ontarioenergybo ard.ca/webdrawer/		Source data	
+	LV Expense from HON database aggregated by company		OM&A Calculation	1	Summary of Hydro One Low Voltage Charges to Distributors 2002-2011.xls		Source data	
-	HV C	_	aggregated by	OM&A Calculation	J	HV-related O&M expenditures (Company Totals) 2002- 2011.xlsx		Source data

	Variable in Benchmarking Database			Variable Worksheet	Column (letter) or Row (number) Reference	Source Worksheet Reference(s)	Column (letter) or Row (number) Reference or Formula	Formula Description or Source Data Citation
-	Previ	ously D	Amortization eferred by company)	OM&A Calculation	L	smart meter OM&A Adjustment	М	Removes an estimate of the smart meter amortization amount cleared to OM&A
	=		ated Amortization art Meter Capital	smart meter OM&A Adjustment	М	smart meter OM&A Adjustment	IxJ	Estimated beginning of year smart meter accumulated amortization [J] x percent of account cleared [I]
		=	Percent of Account 1556 Cleared	smart meter OM&A Adjustment	I	smart meter OM&A Adjustment	H/E	Equal to the ratio of the OM&A amount cleared [H] to the beginning of year balance of account 1556 [H]
		x	Estimated beginning of year smart meter accumulated amortization	smart meter OM&A Adjustment	J	smart meter OM&A Adjustment	L (t-1)	Equal to end of the previous year accumulated amortization balance
			OM&A cleared	smart meter OM&A Adjustment	Н	smart meter OM&A Adjustment	- MIN(F- E,0)	Equal the negative of any reduction in the balance of account 1556 or else zero
			Beginning of Year Balance of 1556	smart meter OM&A Adjustment	E	smart meter OM&A Adjustment	F (t-1)	Equals the previous year end of year balance
			End of Year Balance of Account 1556	smart meter OM&A Adjustment	F	Smart Meters Account 1556 (Company Totals) 2006- 2012.xlsx		Source Data
			Estimated end of year smart meter accumulated amortization	smart meter OM&A Adjustment	L	smart meter OM&A Adjustment	L(t- 1)+K- M (t-1)	Equal to estimated annual smart meter amortization [K] less estimated amortization cleared [M] plus previous year estimated accumulated amortization [L]
			Estimated annual smart meter amortization	smart meter OM&A Adjustment	К	smart meter OM&A Adjustment	0.0459 x O(t- 1)	Equal to 4.59% depreciation rate x estimated smart meter plant
			Estimated smart meter plant	smart meter OM&A Adjustment	0	smart meter OM&A Adjustment	O,P	Equal to previous year smart meter plant [O] plus reported smart meter capex [P]
			Smart Meter Capex	smart meter OM&A Adjustment	Р	Data request responses: http://www.rds.ontarioenergybo ard.ca/webdrawer/		Source data

Variable in Benchmarking Database	Variable Worksheet	Column (letter) or Row (number) Reference	Source Worksheet Reference(s)	Column (letter) or Row (number) Reference or Formula	Formula Description or Source Data Citation
Total Cost	BM Database	G	BM Database	E+F	Equals sum of Capital and OM&A cost
Capital Cost Share	BM Database	Н	BM Database	E/G	Capital cost as a percent of total cost
OM&A Cost Share	BM Database	I	BM Database	F/G	OM&A cost as a percent of total cost
Capital Price Index	BM Database	J			Please see the details of this calculation above as presented as part of the capital cost calculation
OM&A Price Index	BM Database	К	OM&A Price	М	This index combines the labor and materials prices into a single measure
OM&A Price index	OM&A Price		OM&A Price	L(t-1) x exp(ch ange in index)	The index value is equal the previous value (100 in 2002) times the anti-log (exp) of the change in the index. The anti-log operation is similar to adding 1 to a percentage change (i.e. 0.02 + 1 = 1.02).
Change in index	OM&A Price		OM&A Price	JxE+ KxH	Equal to a 70% / 30% weighted average of the growth in labor and non-labor prices respectively. The weights were provided by OEB staff.
Labor Price Growth	OM&A Price		OM&A Price	LN(G/ G(t-1))	Equal to the logarithmic growth in the labor price index in column G
Non-Labor OM&A Price Growth	OM&A Price		OM&A Price	LN(D/ D(t-1))	Equal to the logarithmic growth in the price index in column D
Customers Numbers	BM Database	L	Output Indexes, Q Output, data0211		References Output Index sheet which makes some data corrections as noted on the data changes table. The Output Index worksheet references "Q Output" which is in turn linked back to data0211 and the source data.
Deliveries	BM Database	М	Output Indexes, Q Output, data0211		See notes for customers numbers above
Summer Peak kW	BM Database	N	data0211, Z variables, Q Business Conditions		References Z Variables sheet which makes some data corrections as noted on the data changes table. This references "Q Business Conditions" which is in turn linked back to data0211 and the source data.
Winter Peak kW	BM Database	0	data0211, Z variables, Q Business Conditions		See notes for summer peak
Annual Peak kW	BM Database	Р	BM Database	=max (N, O)	Larger of summer [N] or winter [O] peak

Variable in Benchmarking Database	Variable Worksheet	Column (letter) or Row (number) Reference	Source Worksheet Reference(s)	Column (letter) or Row (number) Reference or Formula	Formula Description or Source Data Citation
System Capacity Proxy	BM Database	Q	BM Database	=max(Q(t-1), P)	Equal to the maximum of the current year peak kW [P] and all previous year values of peak kW [Q (t-1)]. In 2002 the value of this variable is the annual peak [P].
Circuit km	BM Database	R	data0211, Z variables, Q Business Conditions		See notes for summer peak
Average Circuit km	BM Database	S	data0211, Z variables, Q Business Conditions		See notes for summer peak
% of km that is underground	BM Database	Т	Z variables	Under ground km [R]/ Circuit km [P]	Ratio of underground km [R] to total km [P]. The column references here refer to the columns on the Z variable sheet and not the BM database columns.
Percentage of customers added in last 10 years	BM Database	U	BM Database	= Chang e in Custo mers / Custo mers in 2002.	Equal to the total net new customers [L(2012) – L(2002)]] over the 2002-2012 time period as a ratio of customers in 2002 [L(2002)]. The variable has different values for each company but the same value for each year of company data.
2012 Service Territory Area	BM Database	V	2012 data		The 2012 value is used for all years

TFP Database (Sheet in Workbook "TFP and BM database calculations.xlsx")

Variable in Benchmarking Database	Variable Worksheet		Source Worksheet Reference(s)	_	Formula Description or Source Data Citation
	WOIRSHEEL	Column (letter) or Row (number) Reference	Relefence(S)	Column (letter) or Row (number) Reference or Formula	
Capital Cost	TFP Database	E			Please see table 5 in the report for a summary of the differences between the TFP and BM cost specifications.
Gross Plant		Capital Calculations for TFP			Please see table 5 in the report for a summary of the differences between the TFP and BM cost specifications. Please see worksheet 44 for the accounts that comprise this measure.
OM&A Cost	TFP Database	F	OM&A Calculation	O = E - K	Equals same column E OM&A as BM less smart meter OM&A. Please see table 5 in the report for a summary of the differences between the TFP and BM cost specifications. Please see worksheet 45 for the accounts that comprise the OM&A measure in column E.
Total Cost	TFP Database	G		E+F	Equals OM&A plus Capital
Capital Cost Share	TFP Database	Н	TFP Database	E/G	Percent of total cost
OM&A Cost Share	TFP Database	I	TFP Database	F/G	Percent of total cost
Capital Price Index	TFP Database	J			Same as BM Database
OM&A Price Index	TFP Database	K			Same as BM Database
Customers Numbers	TFP Database	L			Same as BM Database
Deliveries	TFP Database	M			Same as BM Database
Summer Peak kW	TFP Database	N			Same as BM Database
Winter Peak kW	TFP Database	0			Same as BM Database
Annual Peak kW	TFP Database	Р			Same as BM Database
System Capacity Proxy	TFP Database	Q			Same as BM Database
Circuit km	TFP Database	R			Same as BM Database
Average Circuit km	TFP Database	S			Same as BM Database
% of km that is underground	TFP Database	Т			Same as BM Database
Percentage of customers added in last 10 years	TFP Database	U			Same as BM Database
2012 Service Territory Area	TFP Database	V			Same as BM Database

Summary of Changes to Electricity Distributor Data

The following table summarizes any changes that PEG made to reported data. Any special techniques used to estimate missing data are noted on the specific worksheets in which the techniques are used.

Company Name	Year	Data Adjustments
ALGOMA POWER INC.	2005	kW and kWh data are transposed for non-residential. They were reversed and totals recalculated
ATIKOKAN HYDRO INC.	2006	KWh are shifted from 2006 to 2007. Average values by customer class for 2006-2007 were substituted. Residential inferred from total and other categories.
ATIKOKAN HYDRO INC.	2007	KWh are shifted from 2006 to 2007. Average values by customer class for 2006-2007 were substituted. Residential inferred from total and other categories.
BLUEWATER POWER DISTRIBUTION CORPORATION	2005	75% drop in System Peak; estimated using previous and subsequent years
CANADIAN NIAGARA POWER INC.	2002	Reversal of OH and UG reporting for Fort Erie; Switched such that OH is dominant
CANADIAN NIAGARA POWER INC.	2003	Reversal of OH and UG reporting for Fort Erie; Switched such that OH is dominant
CANADIAN NIAGARA POWER INC.	2004	Reversal of OH and UG reporting for Fort Erie; Switched such that OH is dominant
E.L.K. ENERGY INC.	2002	System peak units problem, multiply reported data by 1000
E.L.K. ENERGY INC.	2003	System peak units problem, multiply reported data by 1000
ENWIN UTILITIES LTD.	2002	System peak units problem, multiply reported data by 1000
ENWIN UTILITIES LTD.	2003	System peak units problem, multiply reported data by 1000
ENWIN UTILITIES LTD.	2004	System peak units problem, multiply reported data by 1000
ERIE-THAMES	2008	Includes 511,638 of missing OM&A data for Clinton as per company request.
FORT FRANCES POWER CORPORATION	2005	kWh data were transposed for non-residential. They were reversed and totals recalculated
HALTON HILLS HYDRO INC.	2005	Missing system peak values; estimate based on 2004 and 2007 values
HALTON HILLS HYDRO INC.	2006	Missing system peak values; estimate based on 2004 and 2007 values
HYDRO ONE BRAMPTON NETWORKS INC.	2008	System peak units problem, multiply reported data by 1000
HYDRO ONE NETWORKS INC.	2003	99% drop in system peak, impute using 2002 and 2005 data

Company Name	Year	Data Adjustments
HYDRO ONE NETWORKS INC.	2004	99% drop in system peak, impute using 2002 and 2005 data
NIAGARA PENINSULA	2008	OM&A reduced by 324,286 as per company request to correct for the classification of bad debt expenses.
PARRY SOUND POWER CORPORATION	2005	System peak units problem, multiply reported data by 1000
PUC DISTRIBUTION INC.	2002	System peak units problem, multiply reported data by 1000
PUC DISTRIBUTION INC.	2003	System peak units problem, multiply reported data by 1000
PUC DISTRIBUTION INC.	2004	System peak units problem, multiply reported data by 1000
THUNDER BAY HYDRO ELECTRICITY DISTRIBUTION INC.	2002	Units problem; multiply km of line by 10
THUNDER BAY HYDRO ELECTRICITY DISTRIBUTION INC.	2005	System peak units problem, multiply reported data by 1000
THUNDER BAY HYDRO ELECTRICITY DISTRIBUTION INC.	2011	OM&A revised upward by 184,997 as per company request to reflect the companies amended RRR
WEST COAST HURON ENERGY INC.	2002	System peak units problem, multiply reported data by 1000
WEST COAST HURON ENERGY INC.	2003	System peak units problem, multiply reported data by 1000
WEST COAST HURON ENERGY INC.	2004	System peak units problem, multiply reported data by 1000
WEST COAST HURON ENERGY INC.	2005	System peak units problem, multiply reported data by 1000
WEST COAST HURON ENERGY INC.	2006	System peak units problem, multiply reported data by 1000
WESTARIO POWER INC.	2002	Missing system peak values; impute based on corrected 2003 values
WESTARIO POWER INC.	2003	Units problem for summer and winter peak, divide by reported values by 10, 100

Source Data (Posted on the Board's Web Site)

ate	Web Posting								
Oct 17-13	Based on the Octol	ber 7 Works	shop Summ	nary (posted bel	low), Boar	d staff posted a summary of the lo			
	voltage charges use	ed in total c	ost benchr	narking.					
					T				
	Information	Time	Data Source		Link				
	0110.1	frame							
	OM&A	2002-			511 1 G				
	2011 1 01000			ydro One etworks, Inc.	 Summary of Hydro One Low Voltage Charges to Distributors 				
	Charges	2012	IN	etworks, inc.	Voltage Charges to Distributors 2002–2012 (07Oct13).xlsx				
					ZUUZ-ZU1Z (U/UCC13).XISX				
ct 10-13	The Board has post	ted addition	nal electrici	ty distributor da	ata to supp	port the empirical analysis.			
	Informati	on	Time	Data Sour	200	Link			
	Illormati	OII	frame	Data Sour	ce	LIIIK			
	Capital				J				
	2012 Total Gros	ss Plant	2012	• The c	urrent	Gross Plant (Industry			
				RRR f	iling	Total) by Account			
				syster	m.	<u>2012.xlsx</u>			
						 Gross Plant (Company 			
						Totals) by Account			
	2012 Total Accu	······latad	2012			<u>2012.xlsx</u>			
	Depreciation	ımulateu	2012	The control RRR fi	urrent	 Accumulated Amortization (Industry 			
	Depreciation			syster	_	Total) by Account			
				3,3101		2012.xlsx			
						Accumulated			
						Amortization (Company			
						Totals) by Account			
						<u>2012.xlsx</u>			
	2012 Contribut		2012		urrent	 Contributions in Aid of 			
	Aid of Construc			RRR f	iling	Construction (Company			
	[Contributions			syste	m.	Totals) 2012.xlsx			
	Grants - Credit OM&A								
	2012 HV-relate	d 0&M	2012	• The c	urrent	HV-related O&M			
	expenditures be			RRR fi		expenditures (Company			
	accounts 5014,			syster	_	Totals) 2012.xlsx			
	and 5112			5,555.					
	2012 OM&A Cos	st Data	2012	• The c	urrent	• Comparison of			
				RRR f	iling	Distributors OMA update			
				syster	m.	PBR July-29-2013.xls			
	2012 Smart Me		2006-		urrent	• Smart Meters Account			
	OM&A DVA 155	6	2012	RRR f	iling	1556 (Company Totals)			
				syster	m.	2006-2012.xlsx			

	Web Posting									
Mar 21- 13		d has posted additional electricity distributor data to su Information Time Data Source frame				planned empirical analysis. Link				
	OM&A									
	2012 HV-related 08 expenditures booke accounts 5014, 5015 5112	2002 – 2011	DQF data i from 2002 2004; andThe curren	-	HV-related O&M expenditures (Company Totals) 2002-2011.xlsx					
		5112				2002 2011.NISA				
Mar 18- 13	Staff has posted a workly workbook contains a sureported in the audited Spot Check on Gross	mmary of pre financial state	-2002 gross ements of s	plant and accur ome electricity	mulate distrib	ed depreciation balances				
Mar 18- 13						corrections to the "Mergers &				
	Plant and Total Accumu	-				ose changes, the Total Gross run.				
-5	_	-	ation data			=				
	Plant and Total Accumu Information General	Time frame	ation data	extracts have be		run.				
-0	Plant and Total Accumu Information	Time	Da	extracts have be		Link Amalgamated Companies 20130315				
-0	Information General Mergers & Name Changes	Time frame	Da	extracts have be	en re-	Link Amalgamated				
	Information General Mergers & Name	Time frame	Boar MUE from DQF 2002 The offiling	extracts have be	en re-	Link Amalgamated Companies 20130315				

Date	Web Posting										
Mar 18-		l distrib	utor filinį	gs in re	espo	onse to the Board's Fe	bruary 26,	2013 data			
13	request.	T	1								
	Information	Time	Data So	urce			Link				
		frame									
	Smart	2006		/idual	•	http://www.rds.onta	<u>ioenergybo</u>	ard.ca/webdrawer/			
	Meters HV Data	2011		ibuto							
	LV Data	2011		ngs in							
	LV Data	2002	to th	onse							
		2011	Boar								
		2002 -		uary							
		2011	26, 2								
			Data								
			Requ	uest.							
		nequesti									
Feb 20-13	The Board has p	osted ad	ditional ele	ectricity	dis	tributor data to support	planned em	pirical analysis.			
	Info	rmation		Time	:	Data Source		Link			
					2						
	Capital			T							
	1999-2011 (tions in	1999	-	 Mudbank data is 		butions in Aid of			
	Aid of Consti		monto	2011		from 1989-1998;		ruction (Company			
	Credit]	ns and G	irants -			DQF data is from	lotals) 1989-2011.xlsx			
	Credity					2002-2004; and					
						 The current RRR filing system is 					
						from 2005-2011					
Jan 8-13	Roard staff has	nosted O	ntario Flo	ctricity	/ Di	stributors' Data Files f	rom 2000 s	and 2001. The			
Jan 0 15		•		•		the availability of this d					
						Full Time Head Count is					
	of Customers in			Wilcie		Tan Time Tread Council	· Suna, or	Where the number			
				utors' [<u>a</u> ta	File (redacted) (.xls)					
			-			File (redacted) (.xls)					
1			.,			()					

 <u>Cover Letter</u> 	-		
Information	Time frame	Data Source	Link
General			
Mergers & Name Changes	1999 – present	Board Decisions.	<u>Amalgamated</u> <u>Companies_20121206.xlsx</u> (superseded on Mar 18-13)
1999-present Cost of Capital Parameters	1999 – present	Board Decisions.	Electricity Cost of Capital Summary 1999-2013.xlsx
Capital			
Total Gross Plant	1989 – 2011	 Mudbank data is from 1989-1998; DQF data is from 2002-2004; and The current RRR filing system is from 2005-2011. 	Gross Plant (Industry Totals) 1989-2011.xlsx (superseded o Mar 18-13) Gross Plant (Company Totals) 1989-2011.xlsx (superseded o Mar 18-13) Mar 18-13)
Total Accumulated Depreciation	1989 – 2011	 Mudbank data is from 1989-1998; DQF data is from 2002-2004; and The current RRR filing system is from 2005-2011. 	Accumulated Amortization (Industry Totals) 1989-2011.x (superseded on Mar 18-13) Accumulated Amortization (Company Totals) 1989-2011. (superseded on Mar 18-13)
2005-2011	2005 –	The current RRR	Retirements (Company Totals
Retirements	2011	filing system.	<u>2005-2011.xlsx</u>
OM&A			
2002-2011 OM&A Cost Data	2002 – 2011	 DQF data is from 2002-2004; and The current RRR filing system is from 2005-2011. 	Comparison of Distributors S 26, 2012 without TB.xls
2002-2012 Low Voltage Charges	2002 – 2011	Hydro One Networks, Inc.	Summary of Hydro One Low Voltage Charges to Distributo 2002–2011.xls
2002-2011 Salary and Wages (industry level summary)	2002 – 2011	The current RRR filing system.	Salaries and Wages (Industry Totals) 2002-2011.xlsx