Energy Probe Compendium

Panel 10

EGI Customer Attachment Policies / Miscellaneous Service Charges (Extra Length Charge)

EB-2022-0200 Phase 1 Oral Hearing

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I. OVERVIEW - PURPOSE AND OBJECTIVE OF THE GUIDELINES

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The Ontario Energy Board ("OEB", "Board") Guidelines for Assessing and Reporting on Natural Gas System Expansion In Ontario ("The Guidelines") provide a common analysis and reporting framework to be applied by regulated Ontario Local Distribution Companies - Union Gas Limited and The Consumers' Gas Company Ltd. ("the utilities") to natural gas distribution system expansion. The principles upon which the Guidelines are based reflect the Board's conclusions in its Distribution System Expansion Reports under Board File No. E.B.O. 188. (Interim Report[12JM1-0:1] dated August 15, 1996; Final Report[1] dated January 30, 1998).

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Portfolio Approach

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The main change from prior policy and practice is the use of a portfolio approach, as opposed to a project-by-project approach, to the planning, analysis, management and reporting of distribution system expansion projects. The intent of the portfolio approach is to provide the utilities a greater degree of flexibility in determining which projects to undertake, while the Board retains overall regulatory control to ensure no undue cross subsidy or rate impacts result from distribution system expansion.

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Financial Feasibility Analyses

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The Guidelines provide the utilities with direction with respect to the structure of their system expansion portfolios and the methods for conducting financial feasibility analyses at both the individual project level and the portfolio level. The Guidelines standardize the elements to be used in the discounted cash flow ("DCF") analysis as well as establish the parameters for the costs and revenues that are the inputs to that analysis.

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Reporting

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The Guidelines establish a mechanism to evaluate the performance of each of the utilities' distribution expansion activities on a portfolio basis and on an individual project basis. The Guidelines also outline reporting requirements for system expansion plans and post expansion impacts. The forecast rate impacts of a utility's expansion plans will be presented in rates case filings on a prospective test year basis.

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These reporting requirements are intended to provide the Board and interested parties with sufficient information to monitor the utilities' expansion activities and their associated rate impacts. The performance of the utilities related to implementation of these Guidelines will be evaluated as part of each utility's rates case.

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Customer Connection Policies

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Part of the utilities' management of distribution system expansion will be the provision of common customer connection policies. These will include policies relating to service line fees, customer contributions to otherwise financially unfeasible projects and for projects dominated by one or more large volume customers.

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Environmental Considerations

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To ensure that the utilities plan and construct system expansion facilities in an environmentally acceptable manner, the Guidelines also address the routing and environmental planning, documentation and reporting requirements for distribution expansion projects.

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1. SYSTEM EXPANSION PORTFOLIOS

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1.1 Investment Portfolio

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Each of the utilities will group into a portfolio (the "Investment Portfolio") the costs and revenues associated with all new distribution customers who are forecast to attach in a particular test year (including new customers attaching to existing mains). The Investment Portfolio is to include a forecast of normalized system reinforcement costs.

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The Investment Portfolio will be designed to achieve a profitability index ("PI") *greater* than 1.0.

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1.2 Rolling Project Portfolio

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Each of the utilities will maintain a rolling 12 month distribution expansion portfolio (the "Rolling Project Portfolio") updated monthly, as an ongoing management tool for estimation of the future impacts of capital expenditures associated with distribution system expansion. The Rolling Project Portfolio will exclude those customers requiring only a service lateral from an existing main.

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The utilities will calculate monthly the cumulative result of project-specific DCF analyses from the past twelve months for the Rolling Project Portfolio. It will include all future customer attachments, revenues and costs on the basis of the life cycle of each of the projects making up the Portfolio.

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2. STANDARD TEST FOR FINANCIAL FEASIBILITY

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The standard test for determining the financial feasibility at both the project and the portfolio level will be a DCF analysis, as set out below.

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2.1 DCF Calculation and Common Elements

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The DCF calculation for a Portfolio will be based on a set of common elements. For revenue fore-casting, the common elements will be as follows:

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(a) for the Rolling Project Portfolio, total forecasted customer attachments over the Customer Attachment Horizon for each project;

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(b) for the Investment Portfolio, a forecast of all customers to be added in the Test Year;

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(c) an estimate of average use per added customer which reflects the mix of customers to be added;

(d) a factor which reflects the timing of forecasted customer additions; and

(e) rates derived from the existing rate schedules for the particular utility, net of the gas commodity component. Was Appendix, page 4

For capital costs, the common elements will be as follows:

(a) an estimate of all costs directly associated with the attachment of the forecast customer additions, including costs of distribution mains, services, customer stations, distribution stations, land and land rights;

(b) an estimate of incremental overheads applicable to distribution expansion at the portfolio level; and

(c) an estimate of the normalized system reinforcement costs.

For expense forecasting, the common elements will be as follows:

(a) gas costs as used in revenue forecasts (excluding commodity costs);

(b) incremental operating and maintenance costs;

(c) income and capital taxes based on tax rates underpinning the existing rate schedules; and

(d) municipal property taxes based on projected levels.

2.2 Specific Parameters

Specific parameters of the common elements include the following:

(a) a 10 year customer attachment horizon;.

(b) a customer revenue horizon of 40 years from the in service date of the initial mains (20 years for large volume customers);

(c) a discount rate equal to the incremental after-tax cost of capital based on the prospective capital mix, debt and preference share cost rates, and the latest approved rate of return on common equity;

301 (d) discounting reflecting the true timing of expenditures. Up-front capital expenditures will be discounted at the beginning of the project year and capital expended throughout the year will be mid-year discounted, as will revenue, gas costs, and operating and maintenance expenditures; and

302 (e) gas costs based on the weighted average cost of gas ("WACOG") excluding commodity costs.

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3. MONITORING PORTFOLIO PERFORMANCE AND SHORT-TERM RATE IMPACTS

304

3.1 Rates Case Filings

305 The following information will be filed in each rates case:

306 **Test Year**

307 (a) the Investment Portfolio, including NPV, the total capital in the portfolio and the portfolio PI;

308 (b) an estimate of the aggregate NPV of all new facilities requiring a new franchise and/or certificate of public convenience and necessity and of all "infills" (i.e. main extensions and service attachments in existing service areas excluding service lines to customers off existing mains) based on extrapolated historical data;

309 (c) an estimate of the Test Year rate impacts of the Investment Portfolio based on the:

310 (i) contribution to annual revenue requirement;

311 (ii) Rate Impact Measure presented as the ratio of added revenue to costs for each customer class; and

312 (iii) class-specific estimated percent rate and annual average bill increases.

313 (d) estimates of the NPV and the benefit-cost ratio for the Investment Portfolio using a Societal Cost Test ("SCT"), defined in the Report of the Board, E.B.O. 169 III, as an evaluation of the costs and/or benefits accruing to society as a whole, due to an activity. The SCT analysis should be consistent with that used for the utilities' DSM programs. The benefit-cost ratio shall be presented with and without monetized externalities.

Historic Year:

(a) the Historic Year Investment Portfolio, including the NPV, total capital in the portfolio, and the portfolio PI;

(b) the aggregate NPV, the total capital, and the portfolio PI for:

(i) the Rolling Project Portfolio at the end of the historic year;

(ii) all completed projects with negative NPVs;

(iii) all completed projects with positive NPVs;

(c) upon the request of the Board, a list of the projected results of individual extensions included in the Rolling Project Portfolio;

(d) actual expenditures on reinforcement projects; and

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(e) the rate impact of the Historic Year Investment Portfolio reflecting actual capital expenditures and customer related data.

3.2 Ongoing Monitoring Information

The utilities shall establish a process to allow the Board to monitor the performance of their distribution system expansion project portfolios including financial and environmental requirements.

A. Financial Monitoring

In consultation with Board Staff, the utilities shall select projects from their Rolling Project Portfolios on an annual basis and shall file the following with respect to the sample:

(a) the cumulative number of customers attached at the end of the 3rd full year and the associated revenues and costs; and

(b) the corresponding year 3 customer attachment forecasts and associated revenues and costs.

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B. Environmental Monitoring

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In consultation with Board Staff, the utilities shall select a set of completed projects and file data on those projects on an annual basis as described below. The projects chosen should be selected in a random, stratified manner, reflecting the range of environmental impacts encountered in the time period and the various levels of environmental planning, documentation and reporting required. The selection should be reviewed by an independent auditing group within the utility, which group shall include (a) trained environmental auditor(s). The utility shall file the following with respect to each sample:

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1. a description of how the project complied with the Board-approved environmental screening, planning, documentation and reporting requirements;

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2. a table of significant features, how they were avoided or mitigated, and resulting impacts;

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3. a table displaying the concerns raised by affected parties including member ministries of the Ontario Pipeline Coordination Committee, how they were addressed, and reasons for any outstanding concerns;

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4. issues of significance arising from any post-construction monitoring;

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5. where alternatives were investigated, a display of alternatives (routes/sites) which show the various trade-offs between customer attachments, and environmental, social and financial costs and a discussion of how the preferred alternative was chosen;

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6. evidence that all necessary approvals (permits, licences) were obtained; and

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7. forecast versus actual costs of the environmental planning.

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3.3 Risks of Non-performance

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In the event that the actual results of the Investment Portfolio do not produce a positive NPV or a PI of at least 1.0, the following will occur:

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(a) the utility will be required to provide a complete variance explanation in its rates case and the Board will determine whether or not an acceptable explanation has been provided; and

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(b) the implications of a negative NPV or PI less than 1.0 will be determined by the Board on a case by case basis.

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4. CUSTOMER CONNECTION AND CONTRIBUTION POLICIES

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The utilities will maintain a clear set of common Board-approved Customer Connection and Contribution in Aid Policies.

344

The criteria for contributions in aid of construction for service lines and mains will apply to all customer classes. If there is a reasonable expectation of further expansion, the contribution in aid of construction will take into account the future load growth potential and timing of any such expansion.

345

The Customer Connection and Contribution in Aid Policies shall, as a minimum, include the following:

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- Requirements for payment for all, or part, of a customer service line connection, including the specific criteria and the quantum of, or formula for calculating, the total or excess service line fees and other charges.

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- Requirements for contributions in aid of construction for connection of individual customers, subdivisions or communities requiring main extensions that would not otherwise be included in the Investment or Rolling Project Portfolios.

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- Requirements for contributions in aid of construction for expansion projects dominated by one or more large volume customers.

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5. ENVIRONMENTAL REQUIREMENTS FOR DISTRIBUTION FOR SYSTEM EXPANSION PROJECTS

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The planning principles described in the Board's "Environmental Guidelines for the Location, Construction, and Operation of Hydrocarbon Pipelines and Facilities In Ontario (1995)" shall also apply to distribution expansion projects undertaken by the utilities. The level of detail required, the degree of public consultation and the level of alternative route/site evaluation should be determined based on a review of the environmental (biophysical and socio-economic) significance of features potentially impacted by a proposed project.

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The utilities shall apply environmental screening criteria to determine when significant features may be impacted during the construction or the operation of the facility. Corresponding planning, documentation, and reporting requirements are to be applied depending on the impacts expected as determined through the screening process.

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Once the study area for the project is determined, a regional officer of the utility who is familiar with the study area and has been trained in environmental matters, shall identify potential impacts through the screening process and determine the level of planning required. Depending on the

significance of the potential impacts anticipated, the planning requirements may involve environmental specialists of the utility, external consultants or other affected parties.

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All provincial and local agency requirements (permits, licences) shall be obtained where necessary and the utilities shall apply their standard guidelines, drawings, and specifications.

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6. DOCUMENTATION, RECORD KEEPING AND REPORTING

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The utilities will maintain documentation for all projects which are to be included in the Rolling Project Portfolio. A record of the DCF analysis conducted for each project in the Rolling Project Portfolio shall be available for review upon request of the Board. The performance tracking of individual projects shall be as described in Section 3 of these Guidelines.

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The utilities will maintain a record of the environmental planning, documentation and reporting requirements associated with all projects and Environmental Reports for those projects deemed to have significant environmental impacts.

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For all expansion projects in the Rolling Project Portfolio with a capital cost greater than $500,000 ("major projects") the utilities shall file the NPV and DCF analysis in each rate case and shall keep a record of forecast and actual customer attachments for a period of three years after construction is completed. In addition, the utilities shall also file in each rate case, the NPV and DCF analysis for all major projects planned for the test year. Upon request of the Board, the utilities shall file forecast and actual customer attachments for major projects.

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The utilities shall file quarterly with the Board Secretary, the updated monthly Rolling Project Portfolio results immediately upon completing the calculations.

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SCHEDULE1 DISCOUNTED CASH FLOW METHODOLOGY

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Net Present Value ("NPV") = *Present Value ("PV") of Operating Cash Flow + PV of CCA Tax Shield - PV of Capital*

Profitability Index ("PI") = $\frac{\textit{PV of Operating Cash Flow + PV of CCA Tax Shield}}{\textit{(PV of Capital)}}$

361

1. PV of Operating Cash Flow = *PV of Net Operating Cash (before taxes) - PV of Taxes*

a)	PV of Net Operating Cash	=	PV of Net Operating Cash Discounted at the Company's discount rate for the customer revenue horizon. Mid-year discounting is applied.
	Net Operating Cash	=	*(Annual Gas Revenue - Annual Gas Costs - Annual O&M)*
	Annual Gas Revenue	=	*Customer Additions * Consumption Estimates per Customer * Revenue Rate per m^3*
	Annual Gas Cost	=	*Customer Additions * Consumption Estimates per Customer * Gas Costs per m^3 net of commodity costs*
	Annual O&M	=	*Customer Additions * Annual Marginal O&M Cost/customer*

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b)	PV of Taxes	=	PV of Municipal Taxes + PV of Capital Taxes + PV of Income Taxes (before Interest tax shield)
	Annual Municipal Tax	=	*Municipal Tax Rate * (Total Capital Cost)*
	Total Capital Cost	=	*(Mains Investment + Customer Related Investment + Overheads at portfolio level)*
	Annual Capital Taxes	=	*(Capital Tax Rate) * (Closing Undepreciated Capital Cost Balance)*
	Annual Capital Tax	=	*(Capital Tax Rate) * (Net Operating Cash - Annual Municipal Tax - Annual Capital Tax)*

The Capital Tax Rate is a combination of the Provincial Capital Tax Rate and the Large Corporation Tax (Grossed up for income tax effect where appropriate).

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Note: Above is discounted, using mid-year discounting, over the customer revenue horizon.

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2. PV of Capital = *PV of (Total Annual Capital Expenditures - Annual Contributions)*

a) PV of Total Annual Capital Expenditures

Total Annual Capital Expenditures over the customer's revenue horizon discounted to time zero

Total Annual Capital Expenditure	=	*(Mains Investment + Customer Specific Capital + Overheads at the Portfolio level)*

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b) Annual Contributions

Annual Contributions	=	*Cash payments (or principal portions of payments over time) received as Contributions in Aid of Construction*

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Note: Above is discounted to the beginning of year one over the customer addition horizon.

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3. PV of CCA Tax Shield

PV of the CCA Tax Shield on [Total Annual Capital]

The PV of the perpetual tax shield may be calculated as:

PV at time zero of : $\dfrac{[(\text{Income Tax Rate}) * (\text{CCA Rate}) * \text{Annual Total Capital}]}{(\text{CCA Rate} + \text{Discount Rate})}$

or,

Calculated annually and present valued in the PV of Taxes calculation.

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Note: An adjustment is added to account for the $^{1}/_{2}$ year CCA rule.

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4. Discount Rate

PV is calculated with an incremental, after-tax discount rate.

Tab 2

Distribution System Code, APPENDIX B Methodology and Assumptions for An Economic Evaluation

APPENDIX B

Methodology and Assumptions for

An Economic Evaluation

Last Revised October 21, 2009

B.1 COMMON ELEMENTS OF THE DISCOUNTED CASH FLOW MODEL

To achieve consistent business principles for the development of the elements of an economic evaluation model, the following parameters for the approach are to be followed by all distributors.

The discounted cash flow (DCF) calculation for individual projects will be based on a set of common elements and related assumptions listed below.

Revenue Forecasting

The common elements for any project will be as follows:

(a) Total forecasted customer additions over the Customer Connection Horizon, by class as specified below;

(b) Customer Revenue Horizon as specified below;

(c) Estimate of average energy and demand per added customer (by project) which reflects the mix of customers to be added - for various classes of customers, this should be carried out by class;

(d) Customer additions, as reflected in the model for each year of the Customer Connection Horizon; and

(e) Rates from the approved rate schedules for the particular distributor reflecting the distribution (wires only) rates.

Capital Costs

Common elements will be as follows:

(a) An estimate of all capital costs directly associated with the expansion to allow forecast customer additions.

(b) For expansions to the distribution system, costs of the following elements, where applicable, should be included:
- distribution stations;
- distribution lines;
- distribution transformers;

- secondary busses;
- services; and
- land and land rights.

Note that the "Ownership Demarcation Point" as specified in the distributor's Condition of Service would define the point of separation between a customers' facilities and distributor's facilities.

(c) Estimate of incremental overheads applicable to distribution system expansion.

(d) A per kilowatt enhancement cost estimate – the per kilowatt enhancement cost estimate shall be set annually and shall be based on a historical three to five year rolling average of actual enhancement costs incurred in system expansions.

(d.1) paragraph (d) shall cease to apply to a distributor as of the date on which the distributor's rates are set based on a cost of service application for the first time following the 2010 rate year.

(e) For residential customers, the amount the cost of the basic connection referred to in section 3.1.4 of the Code.

(f) For non-residential customers, if the distributor has chosen to recover the non-residential basic connection charge as part of its revenue requirement, a description of, and the amount for, the connection charges referred to in section 3.1.5 of the Code that have been factored into the economic evaluation.

Expense Forecasting

Common elements will be as follows:

(a) Attributable incremental operating and maintenance expenditures - any incremental attributable costs directly associated with the addition of new customers to the system would be included in the operating and maintenance expenditures.

(b) Income and capital taxes based on tax rates underpinning the existing rate schedules.

(c) Municipal property taxes based on projected levels.

Specific Parameters/Assumptions

Specific parameters of the common elements include the following:

(a) A maximum customer connection horizon of five (5) years, calculated from the energization date of the facilities.[1]

(b) A maximum customer revenue horizon of twenty five (25) years, calculated from the in service date of the new customers.[2]

(c) A discount rate equal to the incremental after-tax cost of capital, based on the prospective capital mix, debt and preference share cost rates, and the latest approved rate of return on common equity.

(d) Discounting to reflect the true timing of expenditures. Up-front capital expenditures will be discounted at the beginning of the project year and capital expended throughout the year will be mid-year discounted. The same approach to discounting will be used for revenues and operating and maintenance expenditures.[3]

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[1] For customer connection periods of greater than 5 years an explanation of the extension of the period will be provided to the Board

[2] For example, that the revenue horizon for customers connected in year 1, is 25 years while for those connected in year 3, the revenue horizon is 22 years.

[3] For certain projects Capital Expenditures may be staged and can occur in any year of the five year Connection Horizon.

B.2 DISCOUNTED CASH FLOW (DCF) METHODOLOGY

Net Present Value ("NPV")	=	Present Value ("PV") of Operating Cash Flow + PV of CCA Tax Shield - PV of Capital
1. PV of Operating Cash Flow	=	P V of Net Operating Cash (before taxes) - P V of Taxes
a) PV of Net Operating Cash	=	PV of Net Operating Cash Discounted at the Company's discount rate for the customer revenue horizon. Mid-year discounting is applied. Incremental after tax weighted average cost of capital will be used in discounting.
Net (Wires) Operating Cash	=	(Annual(Wires) Revenues - Annual (Wires) O&M)
Annual (Wires) Revenue	=	Customer Additions * [Appropriate (Wires) Rates * Rate Determinant]
Annual (Wires) O&M	=	Customer Additions * Annual Marginal (Wires) O&M Cost/customer
b) PV of Taxes	=	PV of Municipal Taxes + PV of Capital Taxes + PV of Income Taxes (before Interest tax shield)
Annual Municipal Tax	=	Municipal Tax Rate * (Total Capital Cost)
Total Capital Cost	=	Distribution Capital Investment + Customer Related Investment + overheadsd at the project level
Annual Capital Taxes	=	(Capital Tax Rate) * (Closing Undepreciated Capital Cost Balance)
Annual Capital Tax	=	(Capital Tax Rate) * (Net Operating Cash - Annual Municipal Tax B Annual Capital Tax)

The Capital Tax Rate is a combination of the Provincial Capital Tax Rate and the Large Corporation Tax (Grossed up for income tax effect where appropriate).

Note: Above is discounted, using mid-year discounting, over the customer revenue horizon.

2. PV of Capital	=	P V of Total Annual Capital Expenditures
a) PV of Total Annual Capital Expenditures		
Total Annual Capital Expenditures over the customer's revenue horizon discounted to time zero		
Total Annual Capital Expenditure	=	(for New Facilities and/or Reinforcement Investments + Customer Specific Capital + Overheads at the project level). This applies for implicated system elements at the utility side of the “Ownership Demarcation Line”.

Note: Above is discounted to the beginning of year one over the customer addition horizon

3. PV of CCA Tax Shield

P V of the CCA Tax Shield on [Total Annual Capital]

The PV of the perpetual tax shield may be calculated as:

PV at time zero of: $$\frac{[(\text{Income tax Rate}) * (\text{CCA Rate}) * \text{Annual Total Capital}]}{(\text{CCA Rate} + \text{Discount Rate})}$$

or,

Calculated annually and present valued in the PV of Taxes calculation.

Note: An adjustment is added to account for the ½ year CCA rule.

4. Discount Rate

PV is calculated with an incremental, after-tax discount rate.