

APPENDIX 2.1.4.1 – Economic Model

METHODOLOGY AND ASSUMPTIONS FOR AN ECONOMIC EVALUATION 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	=	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. 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 + overheads 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 - 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.

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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: [(Income tax Rate) * (CCA Rate) * Annual Total Capital] / (CCA Rate + 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.

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Example of Economic Evaluation Model for Distribution System Expansion

Summary of Financial Net Present Value Calculations (Year 1-25)

Project Name _____.

Date _____.

Discount Rate (Decimal)
i = 0.045 EnWin's nominal after-tax incremental weighted-average cost of capital

Annual Inflation Rate (Decimal) e = 0.012 Average rate of inflation expected over 25 year period.

Capital Contribution Calculation	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Yr 6-25
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Total Revenues from Customers		17650	11150	15900	15691	19358	8075
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NPV of Revenues A =	\$174,793	16890	10333	14270	13638	16293	103370
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Total of Capital Expenditures		94000					
NPV of Capital Expenditures B =	\$94,000	94000					

Total of O&M Expenditures		2250	2250	2250	2250	2250	2250
NPV of O&M Expenditures C =	\$38,980	2223	2085	2019	1956	1894	28803

Shareholder Equity Costs		5000	4000	4500	3000	3500	3000
NPV of Equity Costs D =	\$56,643	4941	3707	4039	2607	2946	38404

Capital Contribution	14,829	0	0	0	0	0	0
NPV of Capital Contributions E =	\$14,829	0	0	0	0	0	0

NPV Economic Calculation (\$00.00) (+A - B - C - D + E)
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Comments :

Signature: _____.

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Details of Project Revenues	Year 1	Year 2	Year 3	Year 4	Year 5	Yr 6-25
Residential Customers	0	60	90	135	175	225
Monthly Distribution Fee	25	25	25	25	25	25
Additional Customers Expected	60	30	45	40	50	3
- Customer Av. Connect Charge	250	250	250	250	250	250
- Av. Mths New Customer Connected	8	8	8	8	8	8
Forecasted Revenue	16000	9500	14250	14042	17708	6425
Commercial Customers	1	1	1	1	1	1
Monthly Distribution Fee	25	25	25	25	25	25
Additional Customers Expected	3	3	3	3	3	3
- Customer Av. Connect Charge	250	250	250	250	250	250
- Av. Mths of Customer Connection	8	8	8	8	8	8
Forecasted Revenue	825	825	825	825	825	825
Industrial Customers	1	1	1	1	1	1
Monthly Distribution Fee	25	25	25	25	25	25
Additional Customers Expected	3	3	3	3	3	3
- Customer Av. Connect Charge	250	250	250	250	250	250
- Av. Mths of Customer Connection	8	8	8	8	8	8
Forecasted Revenue	825	825	825	825	825	825

Details of Project Expenditures	Year 1	Year 2	Year 3	Year 4	Year 5	Yr 6-25
Expected Capital Expenditures						
- Engineering	3000					
- Administration	1000					
- Construction Labour	30000					
- Construction Vehicles	30000					
- Construction Materials	30000					
Forecasted Capital Expenditures	94000					

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Expected O&M Expenditures

Labour (include burdens)	500	500	500	500	500	500
Materials	500	500	500	500	500	500
Administration burden	100	100	100	100	100	100
Leasing/Rent	0	0	0	0	0	0
Subcontractors	0	0	0	0	0	0
Interest & Charges on Debt	200	200	200	200	200	200
Debt Retirement	500	500	500	500	500	500
Depreciation	300	300	300	300	300	300
Insurance	100	100	100	100	100	100
Licenses & Taxes	50	50	50	50	50	50
Forecasted O&M Expenditures	2250	2250	2250	2250	2250	2250

Shareholder Equity Costs	5000	4000	4500	3000	3500	3000
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