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ESTIMATOR

NEW CUSTOMER CONTRIBUTIONS

SEPTEMBER 2012

An appropriate citation for this paper is: Estimator new customer contributions September 2012

TRIM Reference: C/12/

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Introduction

Purpose of the Model

The model calculates the quantum of capital contribution(s) required for a development.

The model calculates three types of capital contribution:

- a standard per-customer contribution;
- a whole-of-development up front contribution; and
- a “custom” contribution.

For the “custom” contribution, the user can enter the number of contributions to be paid in each year and the model calculates the quantum of the contribution necessary.

The model estimates the net present value (NPV) of development cash flows, excluding capital contributions. If the NPV of development cash flows is positive, no capital contribution is required. If the NPV of development cash flows is negative, the model calculates the capital contribution necessary to make the development NPV=0.

Status of the Model

This model is an illustrative working tool intended to aid stakeholder understanding on the new NCC framework. The Commission does not prescribe use of this model.

The model calculations demonstrate how costs, revenues and other benefits may be accounted for in calculating NCC charges. It provides a proof of concept for the minimum NCC pricing principles that NCC must:

i. have regard to the incremental infrastructure and associated costs in one or more of the statutory cost categories attributable to a given connection
ii. have regard to the incremental future revenues that will be earned from customers at that connection.

The model is not intended to be a prescribed model that water businesses and stakeholder must use. Instead, these parties should develop their own models or amend this sample to achieve calculations that are fit-for-purpose within the new NCC framework and specific circumstances and negotiating framework of a given water business and connection situation.

Label Conventions used in the Model

Red Text	Red text denotes model inputs where users are free to enter any value in the field.
Brown Text	Brown text denotes model inputs where users must select from a list of options.
Blue Text	Blue text denotes a reference to notes or assumptions, a comment or error check.
Green Text	Green text denotes model outputs: the capital contributions value for each type of modelled contribution.
Black Text	Black text denotes model calculations.

Where dollar values are input into the model, values should be nominal dollars (money of the day).

Period of Cash Flows Considered in Calculation of Capital Contribution

The model contains three worksheets that calculate capital contributions considering cash flows over different time periods:

- 35 Year Model
- 30 Year Model
- 20 Year Model

All models consider terminal value of cash flows at the end of the specific forecast period. The terminal value generally assumes that the cash flow will continue to grow at the rate it has grown over the last five years of the specific forecast period. For example, the terminal value of tariff revenue in the 20 Year Model considers the average growth rate in tariff revenue between years 15 and 20.

Because the model uses the last five years of specific forecasts to estimate a long-run growth rate, the length of the specific forecast should be at least five years greater than the fill time of the development. For example, the 20 Year Model should only be used where a development is expected to be completely filled by year 15. If incremental customers are expected to connect after year 15, a longer period model should be used.

The terminal value is calculated as growing perpetuity as follows:

terminal value=(cash flow)/(discount rate-growth rate)

In the special case that the cash flow is growing at or faster than the discount rate, the terminal value is calculated as a perpetuity growing at the rate of inflation.[1]

Where the development is filled within 15 years there is usually very little difference between the models (less than 2% difference in the calculated capital contribution values). However, in some cases where investments result in changes to cash flows between years 20 and 35, then truncating the cash flows at year 20 can yield significant differences in the calculation. For example where an investment defers a treatment plant upgrade from year 10 to year 21, the year 21 cash flow impact is not captured in the 20 year model.

The "Comparison of Models" sheet allows the user to check the difference between the models for various scenarios. **Note that the "35 Year Model", "30 Year Model" and "20 Year Model" sheet inputs are not linked. The user is required to ensure that the inputs in each of the sheets are identical in order to make meaningful comparisons between the models and draw conclusions regarding the appropriate period for calculation.** It is envisaged that once a standard calculation period is selected, the other sheets (and the comparison sheet) will be deleted.

Inputs

Service Selection

This input specifies the type of development is being considered:

- water supply;
- wastewater;
- recycled water.

The purpose of the input is to set correct labels for other model inputs – it does not affect any calculation.

The service names (and labels for associated bulk tariffs) are defined in a "Service Lookup Data" input table at the bottom of the model.

Asset Class Life Inputs

The user may enter labels for three asset classes (e.g. "Pipes", "Pumps" and "Meters" or "50 Year Assets", "25 Year Assets" and "10 Year Assets). In addition to the user-defined classes, there is a "Temporary Asset" class.

This section then allows the user to enter the asset lives for each asset class. Asset lives are used only for tax depreciation purposes so tax lives should be entered.

[1] In practice if the growth rate is within 2% of the discount rate (so an extremely large PV would be generated under the average growth formula), the lower "rate of inflation" formula is used.

Development note: At present (for simplicity) the model has only three user defined asset classes. These three asset classes must be used for both development capital expenditure and bring-forward/deferral expenditure. More asset classes could be added if required.

Financial Inputs

The model requires various financial inputs:

- inflation;
- tariff escalation;
- post tax nominal rate of return on investment;
- value of franking credits as a proportion of their face value; and
- water business tax rate.

Development note: At present (for simplicity) the model uses a single inflation and return on investment / WACC assumption. This could be changed to an assumption for every year if required.

Incremental Capital Expenditure (excluding Gifted Assets)

The model requires an estimate of incremental capital expenditure for the development. This is intended to be only additional capital expenditure specifically related to the development that is incurred (or paid for) by the water business. There are separate sections for:

- gifted assets; and
- expenditure that is brought forward or deferred as a result of the development.

Incremental capital expenditure is specified in five asset classes, with user defined asset lives. Information about asset life is required to estimate tax depreciation allowed on the new assets.

The five asset classes are:

- three user-defined asset classes;
- temporary assets; and
- non-depreciating assets.

Non-depreciating assets are assets for which no tax depreciation is allowed. Examples include land and water allocation purchases.

The model does not automatically generate a replacement asset programme. That is, if the user enters a $1,000 asset in year 1 with 20-year life, the model does **not** automatically also add inflation-adjusted replacement expenditure in year 21. The user must input any replacement expenditure manually.

Gifted Assets

Gifted assets are treated as income for tax purposes. The model therefore requires a forecast of gifted assets to estimate tax cash flows. Again, assets are decomposed into asset classes to allow the model to the estimate tax depreciation allowed on the gifted assets.

Note that value of gifted assets does not appear in the cash flow NPV calculation because the water business makes cash payment to acquire them. This is equivalent to reducing the RAB by the amount of the gifted asset (plus the NPV of associated tax cash flows).

Government Contributions

This section allows the user to enter an amount for any Government contributions to the project. Government contributions are not taxable incomes so Government contributions do not appear in the tax calculation. However, Government contributions do form part of the cash flows, reducing the revenue required from customer/developer capital contributions.

Works Brought Forward or Deferred

The model provides a section for the user to input two "upstream" capital programmes. The first block of capital expenditure is the system capital expenditure that would be required if the particular development did not go ahead. The second block of capital expenditure is the system capital expenditure that would be required if the particular development did go ahead. The difference between these two expenditure programmes is the "bring forward" or "deferral" associated with the particular development.

Only the differences between the "with development" and "without development" capital expenditure programmes are incremental costs or benefits of the development. Therefore only expenditures that change between the two cases need be input.

For example, a large housing development might require the construction of a local reservoir to be brought forward from 2020 to 2015. In the first block of capital expenditure, the user would input the "without development" forecast expenditure (say $10.5m) in the column for 2020. In the second block of capital expenditure, the user would input the "with development" forecast expenditure (say $10.1m)[2] for the brought-forward asset in the column for 2015.

Note that the O&M implications of any brought forward or deferred expenditure should be included in the "other O&M" input discussed below.

Incremental Tariff Revenue

The model considers the tariff revenue expected from incremental customers. The draft model allows for four different types of customer per development (i.e. it allows for four tariffs).

Each tariff is assumed to be a rate block tariff with a fixed charge and three rate blocks.

For each tariff the user must enter:

- the expected number of new connections on that tariff in each year;

[2] Model inputs are in nominal dollars, so we would expect that the cost of building an asset in 2015 would be less than the cost of building the same asset in 2020.

- the number of standard customers per customer in this particular tariff class (explained further below);
- the forecast consumption per customer in each rate block;
- the current tariff (fixed charge and three rate blocks); and
- a real tariff escalation factor.

Where a business's tariff structure has a single variable rate, enter the variable rate in rate block 1 (and volume in the forecast for rate block 1) and leave the other rate block tariffs blank. Similarly, where a business's tariff structure has a two rate block structure, leave the rate block 3 tariff blank.

The number of standard customers per customer in the tariff class is used where a per-customer contribution is required and to scale the per customer operating and maintenance cost allocation. Some connections may be the equivalent of many residential customers and therefore the retailer may choose a "standard customer" factor to scale the required capital contribution. The scale factor may be based on measures such as:

- connection capacity (multiples of typical residential connection capacity);
- expected revenue (multiples of typical residential revenue); or
- number of toilets.

The real tariff escalation factor allows the user to enter the appropriate price path from recent (or forecast) regulatory determinations. For example, a regulatory decision might restrict average price movements to CPI-1% for 5 years and the business may forecast 0.5% real annual price increases thereafter. The user would enter "-1%" in the first 5 columns and "+0.5%" in remaining years.

The tariffs should be water supply, wastewater tariffs or recycled water tariffs depending on the development type (selected at the service selection input).

Development note: There are many ways of modelling tariff revenue from a development. The way that water retailers model new connections may be different from this approach. We expect that it will be necessary to refine this section to match business's existing price modelling approaches.

Incremental Bulk Water Purchases, Bulk Wastewater Charges or Bulk Recycling Costs

Depending on the service selection input, the user may enter a bulk water tariff (and real tariff escalation) a wastewater tariff (and real tariff escalation) to capture incremental Melbourne Water charges or bulk recycled water processing/disposal charges (and real escalation).

Incremental Operations and Maintenance Expenses

The user may enter incremental operating and maintenance (O&M) expenses under two classes:

- on-going O&M; and
- temporary asset O&M.

On-going O&M is input in three categories:

- incremental per-customer expenses;
- incremental volumetric expenses; and

- other incremental expenses.

Incremental per-customer and volumetric expenses are escalated at a user defined real rate. That is, if the per-customer O&M expense in year 1 is $50, CPI is 2% and the user-input for real escalation in year 2 is 3%, the per customer O&M expense for year 2 is:

per customer O&M (year 2) = per-customer O&M (year 1) x (1 + CPI) x (1 + real change)

= $50 x (1+2%) x (1+3%)

= $52.53

Examples of incremental per-customer expenses include the variable cost of meter reading and billing.

Examples of incremental volumetric expenses include additional treatment and pumping required to deliver additional water/wastewater volumes.

A specific forecast (rather than escalated first year) is required for each year because "other" costs may be one-off or periodic. Examples of costs that may be included in other incremental expenses are:

- O&M expenses associated with brought forward capital expenditure (O&M savings associated with deferred expenditure can be entered as a negative value);
- periodic asset inspections;
- fixed cost of operation of incremental assets (electricity fixed charges, operator labour, etc.).

Temporary asset O&M is assumed only to have fixed and variable components.

Other Benefits

Other benefits are considered in two categories:

- benefits that are considered taxable income; and
- benefits that are not considered taxable income.

The model allows the user to enter up to four "other benefits" in each of the two categories.

"Other Benefits (Taxable Income)" are benefits for which the benefit is treated as taxable income. For example, the development capital expenditure on a local storm water management may defer the requirement for a local government storm water system upgrade. The local government could pay the water business the deferment benefit.

"Other Benefits (Not Taxable Income)" are benefits for which the benefit is treated as taxable income. For example, the development may have an environmental benefit that the water business wishes to value but for which it will not receive taxable income from any party.

Custom Capital Contributions

For the "custom" contribution, the user can enter the number of contributions to be paid in each year and the model calculates the quantum of the contribution necessary.

For example, if the developer and retailer agree that the developer should pay four annual payments (one payment per year in each of the first four years of the development), then the user should enter a "1" in each of the first four years of the "payments" row.

Similarly, if the retailer wanted to charge customers on a "per residential equivalent capacity" basis, the user should enter a forecast of residential equivalent capacity connections in the payments row.

Outputs

The model calculates three types of capital contribution:

- a standard per-customer contribution;
- a whole-of-development up front contribution; and
- a "custom" contribution**.**

The per-customer contribution and custom contribution are assumed to increase at the rate of inflation. That is, if a customer in year 1 was required to pay a $100 contribution and inflation is assumed to be 3%, a customer in year 2 would be required to pay $103.