

Setting price controls for 2015-20: PR14 financial model rule book

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1. Introduction

- 1.1 We published our methodology for the price review in ‘[Setting price controls for 2015-20 – final methodology and expectations for companies’ business plans](#)’ (the ‘methodology statement’). In order to provide transparency about the approach to assessing business plans, we are publishing the financial model and associated rule book and user guide.
- 1.2 **This rule book is a not a policy statement and users are referred to the methodology statement and associated documents for further information.** This rule book explains the principles adopted in the financial model that we will use to conduct the risk-based review of business plans, to assess financeability at the appointee level of a company, to determine price controls for wholesale water and wastewater services, and to determine the retail price controls.
- 1.3 The principles and logic outlined in this document are applicable to all companies. The calculations in the financial model are generic. This rule book describes the calculations performed by the financial model. It does not explain how the input values are derived.
- 1.4 The general principle of setting price controls is that charges to customers are sufficient to allow an efficient company to operate its existing assets, fund new obligations and provide a reasonable return on equity and debt capital.
- 1.5 The main purpose of the financial model is to determine the wholesale price controls, to calculate the revenues arising from the retail price controls and to assess financeability of the appointee.
- 1.6 For the purpose of calculating the wholesale price controls, the financial model calculates the revenue requirement in each year. Section 10 explains the wholesale revenue requirement in more detail.
- 1.7 The retail price controls are held within the retail module in the financial model. This module calculates the allowed revenue for household retail customers and the expected revenue from non-households customers. Section 7 explains the retail price controls in more detail.

- 1.8 The relationship between the wholesale and retail price controls is handled through the wholesale charge from the wholesale price control to the retail price controls and the impact on the working capital requirements for both wholesale and retail services. Section 8 explains the retail and wholesale interaction in more detail.
- 1.9 The financial model for the 2014 price review (PR14) has changed since the 2009 price review to reflect the following key changes (this list is not exhaustive).
- Separation of single price control into four price controls across wholesale and retail.
 - Inclusion of PR14 incentive mechanisms.
 - Move to a totex approach for cost assessment and cost recovery
 - Retirement of the PR09 capital expenditure incentive scheme (CIS) mechanism.
 - Discontinued use of the construction output price index (COPI) for cost recovery.
 - Incorporation of a simplified tax approach.
 - Regulatory depreciation – depreciation of totex additions (totex multiplied by 1 minus the PAYG ratio) to the regulatory capital value (RCV) and 2015 RCV run-off.
 - UK GAAP harmonisation with IFRS.
 - Removal of the June return reporting requirement.

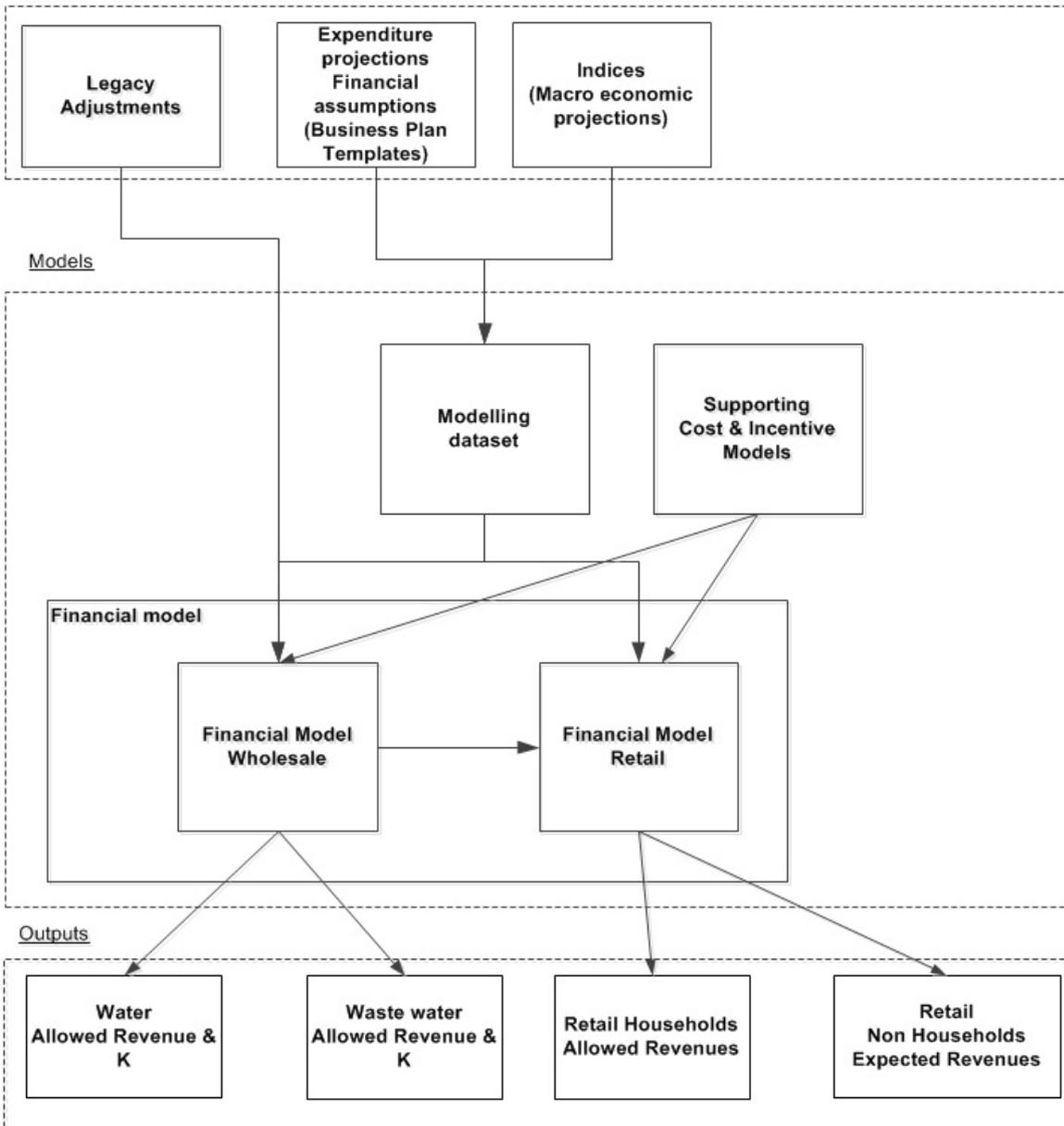
2. Modelling suite

- 2.1 The financial model has been developed as part of the modelling suite to support the price setting process for the 2014 price review.
- 2.2 The structure of the modelling suite is shown in flowchart F1. The financial model inputs come from the following sources:
- supporting business plan templates;
 - supporting models in modelling suite; and
 - manual input assumptions.
- 2.3 The PR14 financial model is a development of that which was used to model the price limits in the 2009 review. It has been adapted to reflect the key changes noted in section 1. The PR14 model is built in Microsoft Excel 2010.

- 2.4 The remainder of this document provides an outline of the principles adopted in the financial model with flowcharts to illustrate the logic. The flowcharts are cross referenced where appropriate.
- 2.5 The section numbering in the financial model, termed ‘the model’ in the remainder of this document, is consistent with the flowchart numbering in this rulebook unless otherwise required for clarity.

F1. The model suite

Inputs



3. Financial model overview

- 3.1 The model calculates price controls for the periodic review period. These include:
- wholesale price controls for water and wastewater services, embodied in service specific initial allowed revenues and associated 'K factors'; and
 - retail price controls for household and non-household customers, embodied in allowed revenues from 'average cost to serve' and expected revenues from 'default tariffs' approaches respectively.
- 3.2 The model constitutes two components – the wholesale module and the retail module. The outputs of both components are combined to produce integrated financial statements for the appointee for the purposes of financeability testing.
- 3.3 The model caters for water only companies (WoCs) and water and sewerage companies (WaSCs). Where the company is a WaSC there will be four price controls:
- wholesale – water;
 - wholesale – wastewater;
 - retail – household; and
 - retail – non-household.
- 3.4 For a WoC there are three price controls – there is no wholesale wastewater price control. The wastewater calculations are effectively disabled in the model.
- 3.5 The model uses a model user input parameter to confirm what type of company is being modelled.

4. Model timeframe

- 4.1 The model is based on and calculated on an annual timeline. It works on the financial year, that is, from 1 April to 31 March.
- 4.2 The base year for indexation purposes is 2012-13.

- 4.3 The base year for opening balance positions will be projections for the year end 31 March 2015. The opening balance positions are taken from a company's projected year end data provided in the business plan submission.
- 4.4 The model produces financial statements for the periodic review period and the following periodic review period. This covers a ten-year period for the given set of inputs (2015 to 2025).

5. Indexation

- 5.1 The model calculates financial statements and financial indicators in a nominal outturn price base because a number of our financeability tests require data in nominal terms.
- 5.2 For wholesale price controls the model calculates allowed revenues in a real price base and derives K factors based on real allowed revenues because the form of control uses RPI indexation.
- 5.3 For retail price controls the model sets allowed revenues and default tariffs in a nominal price base because there is no indexation used for the forms of control used.
- 5.4 The model aggregates the retail nominal financial statements and the wholesale nominal financial statements to form the appointee nominal financial statements. The financial indicators calculated from the appointee nominal statements are the indicators used in testing the consequences of price controls.
- 5.5 Year average prices are calculated with reference to the arithmetic average of the twelve monthly RPI values for the financial year. The growth in the average RPI index between the years is referred to as the annual average RPI.
- 5.6 For PR14 there is no explicit allowance for the effect of COPI and relative price effects within the model. Any relative price effects allowed must be captured in the input data to the model.

5.7 The model uses the terms:

- 'revenue' – to denote revenue in 2012-13 real prices; and
- 'inflated revenue' – to denote revenue in outturn, or nominal, terms.

Retail – indexation

5.8 The retail business plan table inputs will be submitted to the model in a 2012-13 price base. For retail controls the model assumes no indexation.

5.9 Therefore, once set, the household retail price control (the average cost to serve, or 'ACTS') and the non-household default tariffs will not be indexed in the model throughout the price control period reflecting the retail PR14 methodology.

5.10 For example, if the ACTS for 2017-18 is 100 as input in a 2012-13 price base, then in 2017-18 outturn nominal prices the control will also be 100. The same principle applies for default tariffs.

5.11 The wholesale allowed revenues passed to the retail service will be the nominal wholesale allowed revenues. This reflects the expected wholesale charge (in nominal terms) the retail business will need to pay to the wholesale water and wastewater service providers. The retail service will need to finance these expenditures.

5.12 There is a headroom check in the retail model which is designed to check that the retail service can finance its functions. This check is a nominal headroom check.

Wholesale – indexation

5.13 The model sets the wholesale allowed revenues for water and wastewater and the K factors by service, in 2012-13 prices.

5.14 The following elements of the revenue requirement are calculated directly in 2012-13 prices.

- Return on RCV (section 16).
- Regulatory depreciation (section 13).
- Pay as you go (PAYG).
- Other income.

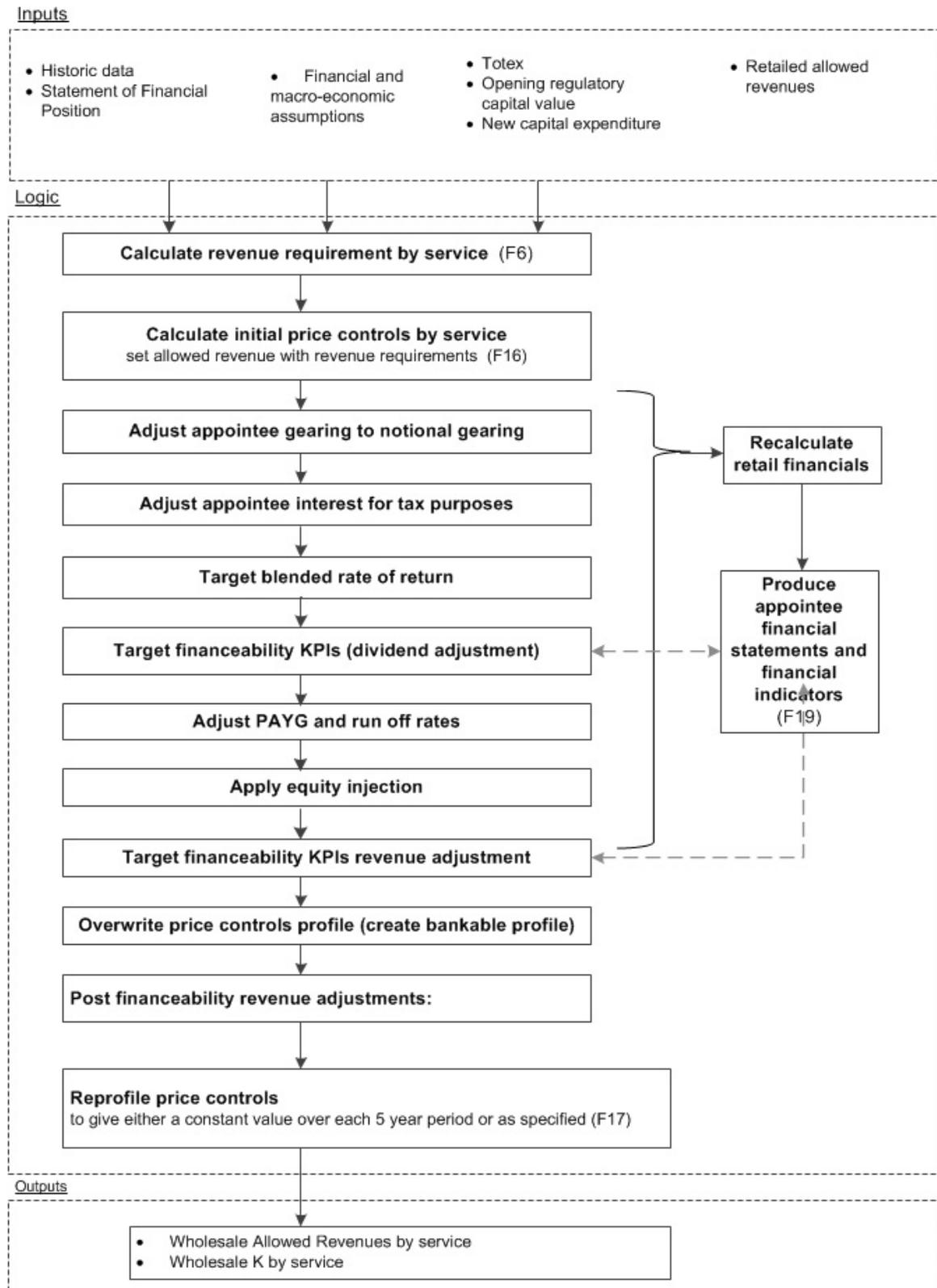
- Operating income.
 - Revenue adjustments (section 22).
- 5.15 In addition to the above components of the revenue requirement the model calculates a wholesale tax charge to be recovered which is subsequently apportioned to water and wastewater services. The tax charge to be recovered is calculated in nominal terms to take into account interest and capital allowances which are modelled on a nominal basis based on the input actual capital structure of the company. This overcomes the additional complexities that would otherwise be presented when modelling debt balances, cash balances and cashflows on a real basis. The calculated tax charge is then deflated to 2012-13 prices for deriving the revenue requirement and setting allowed revenues in 2012-13 prices.
- 5.16 The following elements of the revenue requirement are calculated in a nominal price base before being deflated by annual average RPI for the purposes of determining the revenue requirement in 2012-13 prices.
- Tax charge.
 - Solved adjustments to allowed revenues.
- 5.17 Inputs to the model are in a constant 2012-13 price base, with the exception of the following wholesale/appointee inputs which are to be input in nominal prices.
- Balance sheet opening positions.
 - Debt drawdowns and repayments.
 - Input interest profiles.
 - Preference share issues and repayments.
- 5.18 Since the opening year of the model is 2015-16 and the real price base is 2012-13 the real and nominal opening values will differ.
- 5.19 The nominal revenue requirement is calculated by indexing those model inputs which are provided in a real 2012-13 price base to a nominal price base which then feed the model revenue requirement calculations. The model uses annual average RPI for this purpose.
- 5.20 Model inputs which are already provided to the model in a nominal price base – for example, balance sheet line items – are brought directly into the model and are not subject to the previously mentioned indexation stage.

- 5.25 K will be calculated as the year-on-year movement derived from real allowed revenues. K is calculated through indexing the real allowed revenues using year average RPI and adjusting the indexed allowed revenues to account for the change in annual November to November RPI as required by the appointee licence for wholesale charges.

6. Wholesale model overview

- 6.1 The wholesale price controls for PR14 controls total wholesale revenues. The wholesale component of the model derives limits to wholesale revenues for each service. In the first year allowed revenues are determined that meet the company's revenue requirement. Thereon a company is allowed, under the terms of its licence, to increase revenues every year by the change in RPI and an adjustment factor known as K. The K factor is set such that annual allowed revenues meet the annual revenue requirements.
- 6.2 The model calculates allowed revenues based on inputs from the business plan templates and supporting models.
- 6.3 These inputs can be categorised as base year position, investment/expenditure projections and financial assumptions.
- 6.4 The model checks to ensure that the resultant financial projections are financeable at the appointee level. These checks are performed by setting financial indicator values. Section 23 explains this in more detail.
- 6.5 Where financial ratios indicate that the appointee financial projection is inconsistent with requirements for financeability based on the allowed revenues the model has functionality to explore alternative allowed revenues to satisfy specified financial indicators for example, through revising PAYG ratios. The model produces a dashboard to expose how the allowed revenues have been refined from initial determination through to determined allowed revenues. Section 23 explains this in more detail.
- 6.6 When the wholesale price controls are revised, the financial statements and associated reports are recalculated accordingly.
- 6.7 Section 23 explains the initial wholesale price control calculations and profiling of K factors in more detail. Flowchart F2 sets out an overview of this.

F2. PR14 financial model overview – wholesale



7. Retail model overview

- 7.1 The household retail price controls for PR14 are intended to protect retail customers without choice (households), using an average cost to serve approach (ACTS). This will set a different cost to serve for measured household water customers, measured household sewerage customers, measured water and sewerage customers and unmeasured customers. Unmeasured customers are not split out by service. The unmeasured cost to serve is considered to be the reference number, with the other (metered) costs to serve having adjustments to reflect the difference in costs of serving a metered customer.
- 7.2 The non-household retail controls are intended to provide a backstop form of protection for retail customers with choice (non-households), using a default tariff approach. The non-household retail control sets an average allowed revenue per customer for each tariff band for the retail part of customer bills. Companies will then set their default tariff charges so that they recover no more than this revenue on average.

Household retail price controls

- 7.3 Household ACTS is determined outside of the model in a supporting model which carries out any necessary adjustments to the allowed revenues (for example, for metering). The supporting model outputs the company specific cost to serve for the purpose of individual controls (the lower of the ACTS and the company's own CTS).
- 7.4 As described in the methodology statement we will assess retail margins proposed by companies on a pre-tax basis (EBIT). In the business plans we have asked companies to submit margins based on their 'retail revenues', which is the same as total revenues. This assessment is performed outside of the financial model. Based on that assessment we will add a net margin onto the CTS.
- 7.5 The household net margin applied is an input assumption to the model.
- 7.6 In line with the wholesale controls the household retail control will limit total allowed household revenues. This gives companies more responsibility and accountability for the household retail charges they set.

- 7.7 Total allowed household revenues (excluding the wholesale revenues) are calculated as:

$((\text{Cost to serve unmeasured customers}) / 1\text{-net margin}) * \text{unmeasured customers} +$
 $((\text{Cost to serve measured water only customers}) / 1\text{-net margin}) * \text{measured water only customers} +$
 $((\text{Cost to serve measured sewerage only customers}) / 1\text{-net margin}) * \text{measured sewerage customers} +$
 $((\text{Cost to serve measured water and sewerage customers}) / 1\text{-net margin}) * \text{measured water and sewerage customers}.$

Note: in practice there will be an annual adjustment to take into account the difference between projected and actual customer numbers.

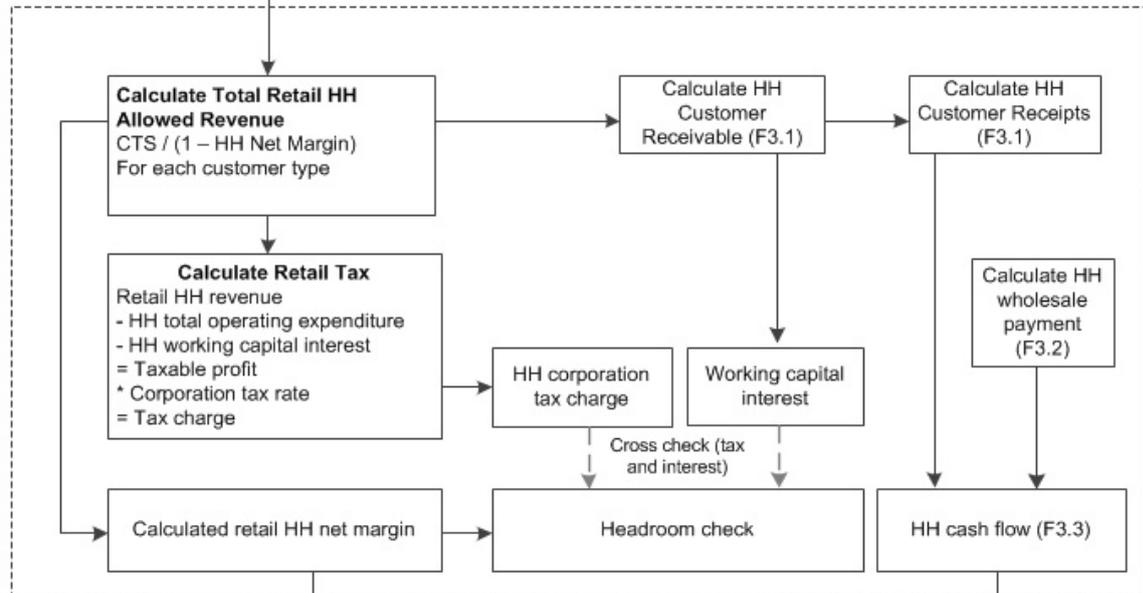
- 7.8 Flowcharts F3 to F3.4 explain how the retail household control is calculated. The household retail controls assume that the retail service provider would start off with a zero opening cash position in 2015-16.
- 7.9 We assume that the wholesale service providers will be paid in arrears in this model. We have also taken a simplified cash flow approach for the majority of cash movements; we have assumed that all payments except those to the wholesale service providers will take place in the middle of each month for the purposes of calculating the interest on working capital. Payments to the wholesale service providers have been calculated on a monthly basis. The wholesaler/household retailer payment terms are inputs.

F3. Retail – household allowed revenues

Inputs

- Cost to serve per customer by customer type (CTS) (Business plan table R3)
- HH net margin (Business plan table R5 / Ofwat view)
- HHs connected for each service (measured and unmeasured) (Business plan table R3)
- Total HH retail service costs (R5) (retail service expenditure + depreciation costs)
- Company forecast wholesale revenue water and wastewater (Business plan A1)
- Projected wholesale revenue from HHs (measured and unmeasured) (Business plan A1)
- HH trade debtors (days) (measured and unmeasured) (Business plan A12)
- Annual wholesale charge (outturn prices) (from the wholesale financial model)
- HH working capital interest rate (Annual interest rate equivalent) (Net margins model)
- Tax rate (from the wholesale financial model)
- HH advance receipt creditor days (unmeasured and measured) (Business plan A13)
- HH measured income accrual rate (Business plan A13)
- Wholesale unmeasured charge (Business plan A19)
- Wholesale measured charge (Business plan A19)
- Weighted average debtor days (Business plan A12)
- Retail service revenue (See F3.1 for calculation)
- Apportioned wholesale charge (from Wholesale calculations see F3.1 for calculation)

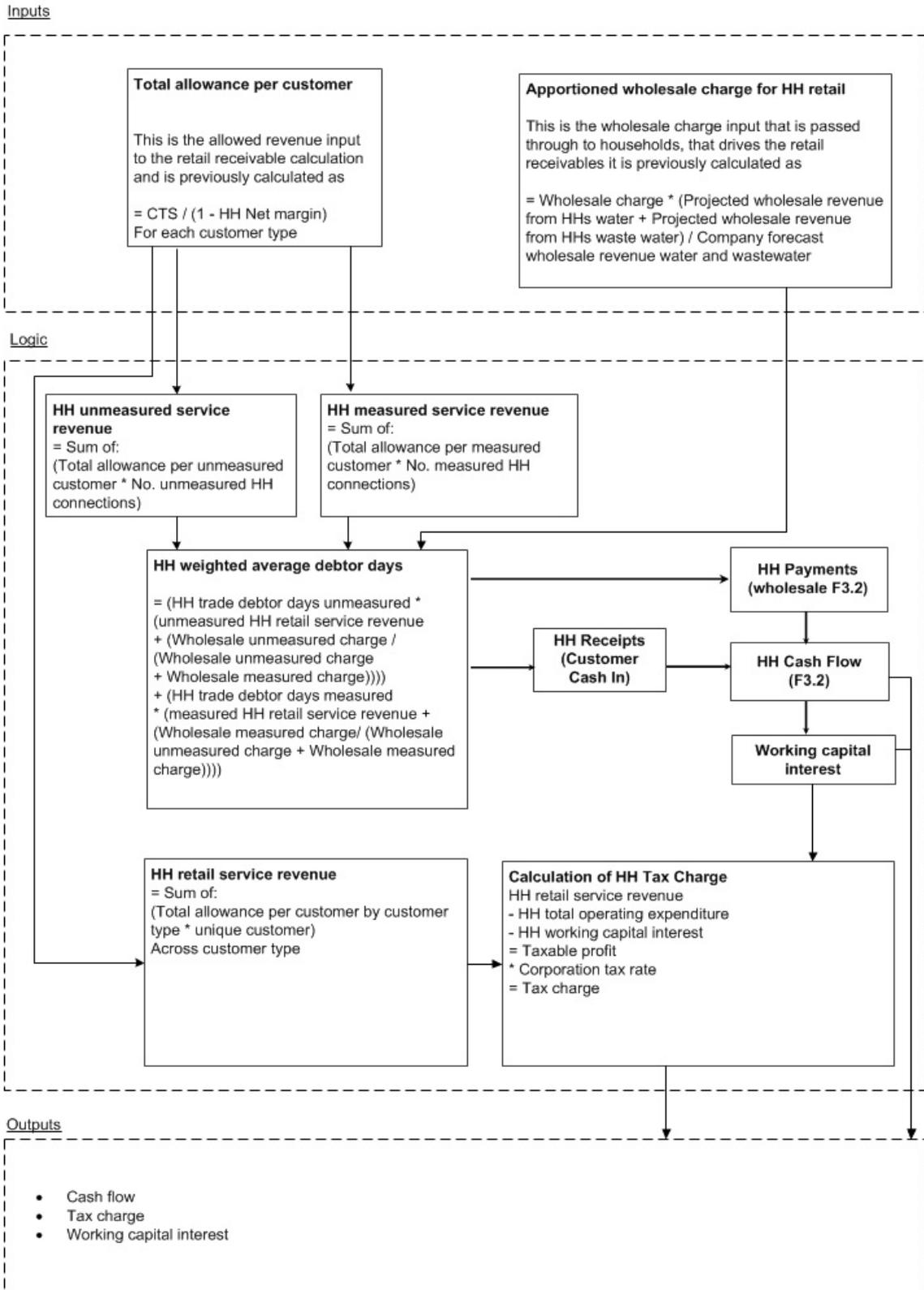
Logic



Outputs

- Allowed retail service revenue per customer (by type)
 - Total allowed HH revenue
- Financial Statements**
Calculated expected revenues, interest, tax, and pass through costs:
- Income Statement
 - Balance sheet
 - Statement of Financial position
 - Cash flow statement (Consolidated cash flow)

F3.1 Retail – household cash flow: retail receivable

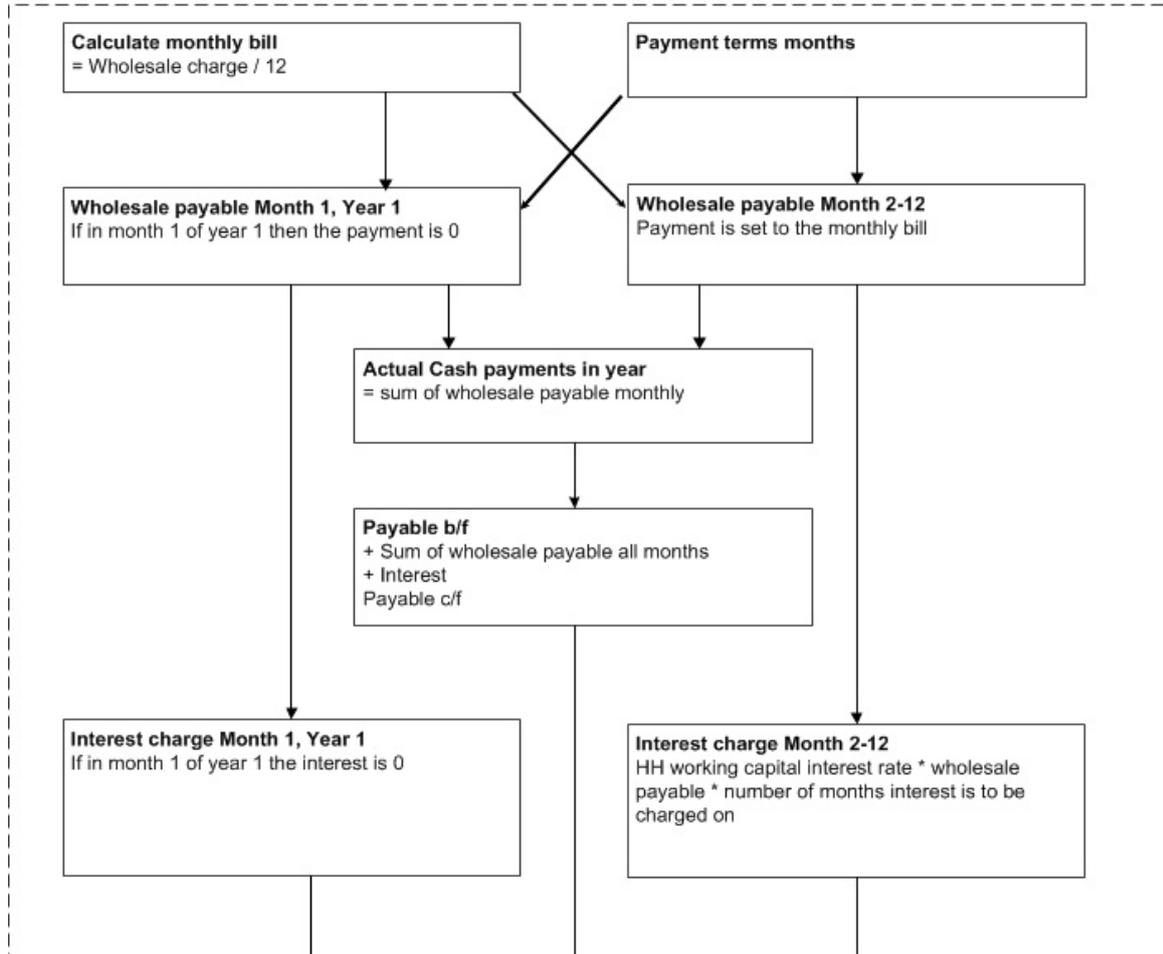


F3.2 Retail – household cash flow: wholesale payable

Inputs

- Payment terms (creditor months) (from BPT)
- Wholesale charge (from Wholesale calculations)
- HH Working capital interest rate (user input)
- Opening wholesale payables (from BPT)
- HH Projected wholesale revenue (water) (from BPT)
- HH Projected wholesale revenue (waste) (from BPT)
- Projected wholesale revenue (water) (from BPT)
- Projected wholesale revenue (waste) (from BPT)

Logic



Outputs

- **Total retail HH interest payable = sum of interest charge all months + charge based on opening balance**
- **Retail HH payment to wholesale**

F3.3 Retail – household cash flow

Inputs

- Cash opening balance = Last year's closing balance
- HH cash receipts (from retail calculations see F3.1)
- HH cash payments (from retail calculations see F3.2)
- Working capital interest rate (from BPT)
- Corporation tax rate (from BPT)

Logic

Calculate cash (before interest & tax)

HH Cash opening balance
= Last year's HH closing cash balance
+ HH cash receipts
- HH capital expenditure
- movement in trade creditor
- movement in capex creditor
- HH retail service opex
= HH Balance before interest and tax

Calculate interest income/expense

= (Opening balance + Closing balance before paying or receiving interest and/or tax) / 2
* HH monthly working capital interest rate
= HH Interest income/expense

Calculate cash (post interest & tax)

= HH Balance before interest and tax
+ HH Interest received/paid
- HH Tax paid
= HH Closing cash balance

Outputs

- HH Closing cash balance after interest and tax

F3.4 Retail – household headroom check

HH Headroom check (absolute £)

The headroom check uses the following absolute information:

- HH retail net margin = (Total HH retail service revenue - Total HH retail service expenditure)
- HH retail interest on working capital
- HH retail tax
- HH headroom = HH retail net margin - HH retail tax - HH retail interest on working capital

HH Headroom check (%)

The above information is used to calculate the following in relative terms:

- **HH retail net margin %**

This calculates net margin as a % of retail service revenue
 = HH retail net margin £ / Total HH retail service revenue

- **HH retail interest as % net margin**

This calculates interest as a % of net margin
 = If there is HH retail working capital interest payable
 Then HH retail working capital interest payable / HH retail net margin
 Else return zero

- **HH retail tax as % of net margin plus interest receivable**

This calculates tax as a % of net margin plus interest receivable
 = HH retail tax / (HH retail net margin + (If there is HH retail working capital interest receivable then include HH retail working capital interest receivable))

- **HH headroom check % plus interest receivable**

This calculates headroom as a % of net margin plus interest receivable
 = HH headroom / (HH retail net margin + (If there is HH retail working capital interest receivable then include HH retail working capital interest receivable))

Checks will be done for HH and NHH; and are also available at tariff level for NHH

Non-household retail price controls

7.10 Non-household retail price controls will take the form of average revenue per customer revenue controls for each proposed default tariff. The average revenue per customer controls will be specified for different tariff bands. There are likely to be many tariffs reflecting factors such as type and size of customers.

7.11 The aggregate of retail non-household expected revenues is calculated as the sum of the charges that make up the tariffs (with the Ofwat calculated net margins) multiplied by the multipliers. Multipliers are the aggregated basis on which tariffs are charged. For example, standing charges are charged on a per customer basis, so the multipliers for standing charges will be the number of customers that are charged that particular standing charge. Whereas for volume based charges the multipliers will be the total volumes that are charged on that tariff.

7.12 As described in the methodology statement we will assess retail margins proposed by companies on a pre-tax basis (EBIT). In the business plans we have asked companies to submit margins based on their 'retail revenues', which is the same as total revenues. This assessment is performed outside of the financial model. Based on that assessment we will add a net margin onto the tariffs.

7.13 Algebraically this is represented as:

$$\text{Aggregate expected revenues} = \sum (C1*M1)+(C2*M2)+\dots(Cn*Mn),$$

where C is a charge from the default tariffs and M is the associated multiplier.

7.14 The retail non-household control sets out the maximum average revenue per customer that companies can collect for a set default level of service.

7.15 Flowcharts F4 to F4.4 explains how the retail non-household control is calculated.

7.16 The model assumes that the retail service provider starts off with a zero cash position in 2015-16 for retail. This assumption may be changed at a later date.

7.17 We have assumed that the wholesale service providers will be paid in arrears in this model.

7.18 We have also taken a simplified cash flow approach for the majority of cash movements. The model assumes payment will take place in the middle of each month for the purposes of calculating the interest on working capital. The exception to this is payments to the wholesale service provider which has been calculated on a monthly basis. The wholesaler/non-household retailer payment term is an input.

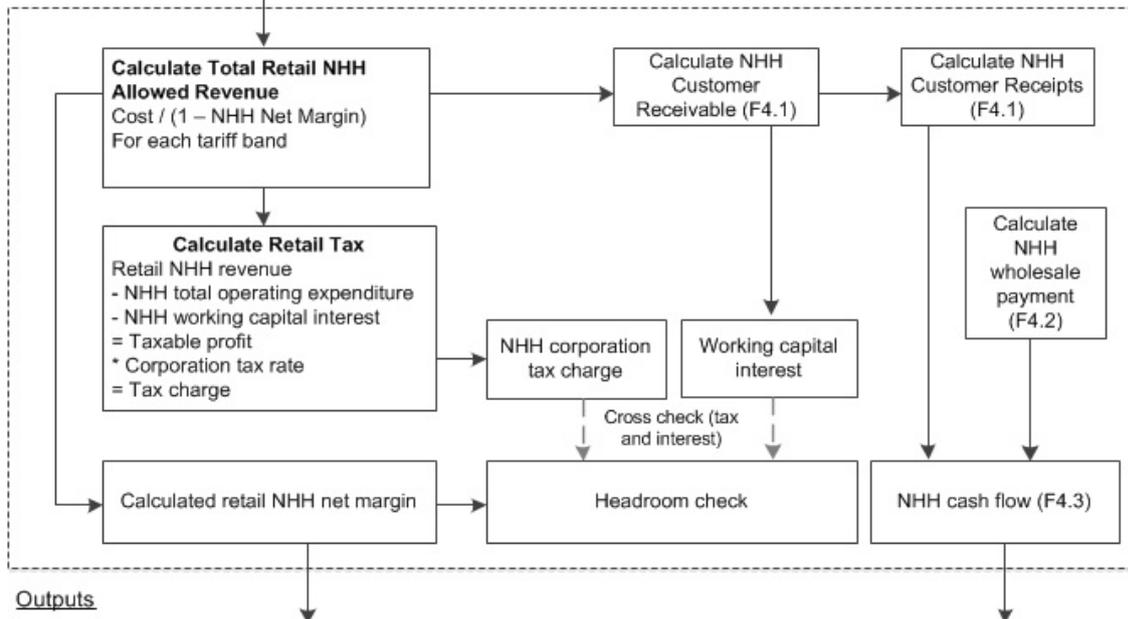
7.19 The model calculates headroom in the margin after taking into account of finance costs and corporation tax.

F4. Retail – non-household allowed revenues (default tariffs)

Inputs

- Tariffs excluding net margins (proposed) (Default Tariffs), consists of 5 charges each (from Business plan table R4 / feeder model R6)
- NHH net margin by tariff band (Business plan R4 / Ofwat view)
- Charge multipliers (Business plan R4)
- Total NHH retail service cost (Business plan R4)
- Company forecast wholesale revenue water and wastewater (Business plan A1)
- Projected wholesale charge by tariff band (measured and unmeasured) (Business plan A1)
- Wholesale charge by tariff band (Business plan R4)
- NHH debtor days (by tariff band) (Business plan R4)
- Customer numbers on this tariff band (unmeasured and measured) (Business plan R4)
- Annual wholesale charge (outturn prices) (from the wholesale financial model)
- NHH working capital interest rate (Annual interest rate equivalent) (User input)
- Tax rate (from the wholesale financial model)
- NHH advance receipt creditor days (Business plan A13)
- Total retail costs per tariff (Business plan R4)
- NHH measured income accrual rate (Business plan A13)
- Measured advance receipts weighting (User input)
- Unmeasured advance receipts weighting (Calculated as 1-Measured advance receipts weighting)
- Weighted average debtor days (from Business plan R4 see F4.1 for calculation)
- Retail service revenue (See F4.1 for calculation)
- Apportioned wholesale charge (from Wholesale calculations see F4.1 for calculation)

Logic



Outputs

- Allowed retail service revenue by tariff band
- Total allowed NHH revenue

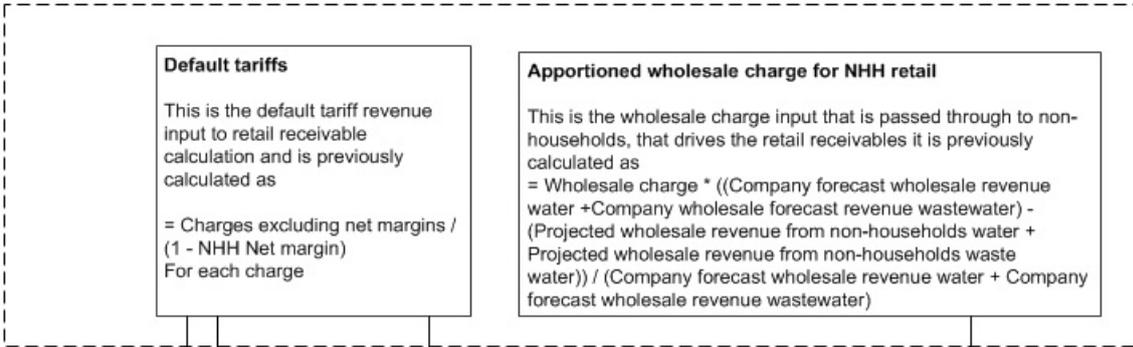
Financial Statements

Calculated expected revenues, interest, tax, and pass through costs:

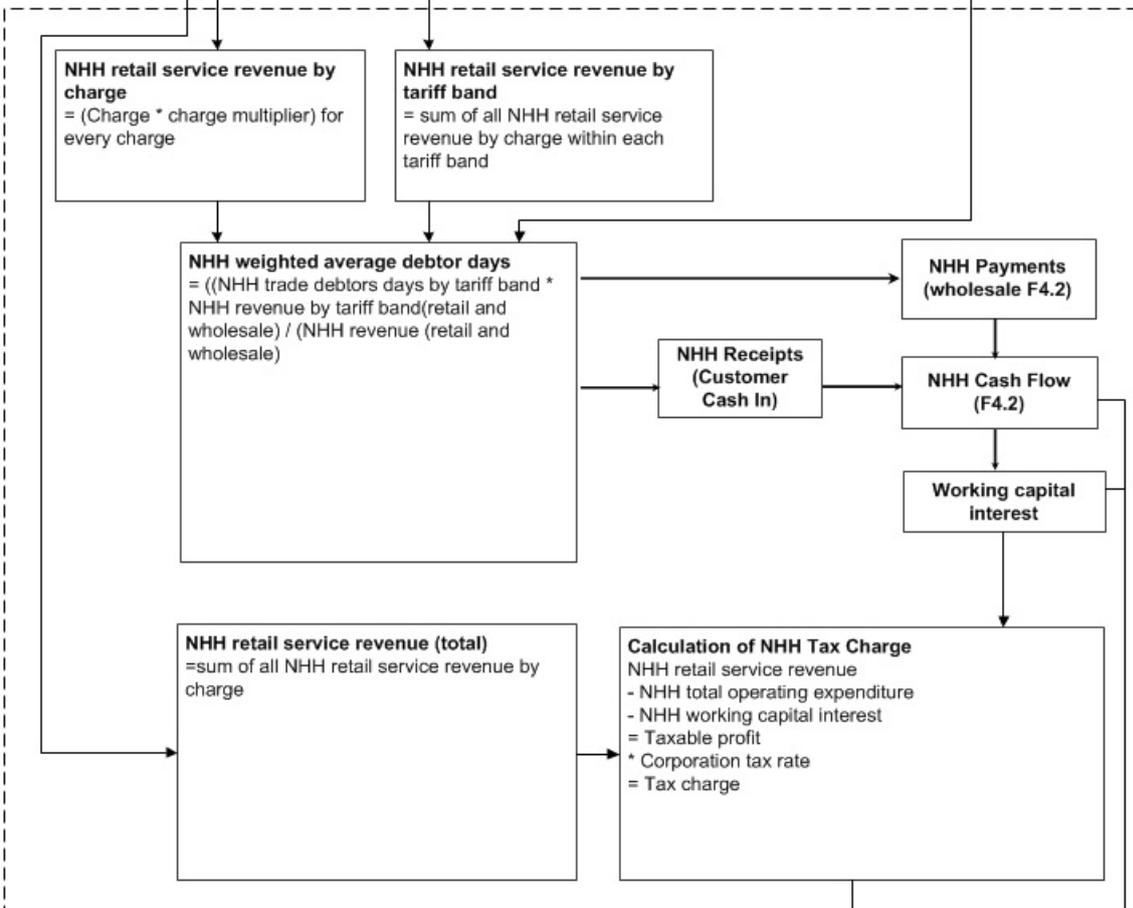
- Income Statement
- Balance sheet
- Statement of Financial position
- Cash flow statement (Consolidated cash flow)

F4.1 Retail – non-household cash flow: retail receivable

Inputs



Logic



Outputs

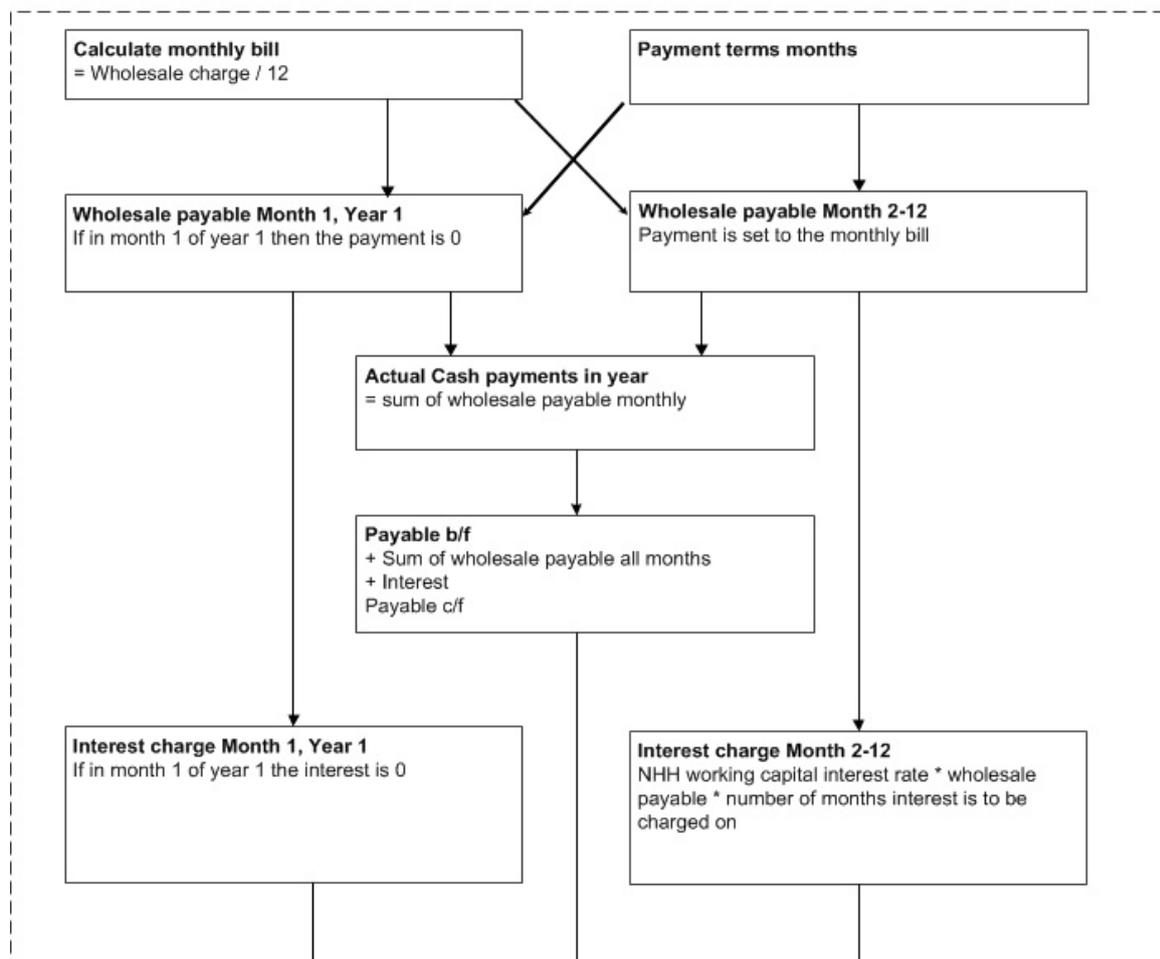
- Cash flow
- Tax charge
- Working capital interest

F4.2 Retail – non-household cash flow: wholesale payable

Inputs

- Payment terms (creditor months) (from BPT)
- Wholesale charge (from Wholesale calculations)
- NHH Working capital interest rate (user input)
- Opening wholesale payables (from BPT)
- NHH Projected wholesale revenue (water) (from BPT)
- NHH Projected wholesale revenue (waste) (from BPT)
- Projected wholesale revenue (water) (from BPT)
- Projected wholesale revenue (waste) (from BPT)

Logic



Outputs

- Total retail NHH interest payable = sum of interest charge all months + charge based on opening balance
- Retail NHH payment to wholesale

F4.3 Retail – non-household cash flow

Inputs

- Cash opening balance = Last year's closing balance
- NHH cash receipts (from retail calculations see F4.1)
- NHH cash payments (from retail calculations see F4.2)
- Working capital interest rate (from BPT)
- Corporation tax rate (from BPT)

Logic

Calculate cash (before interest & tax)

NHH Cash opening balance
= Last year's NHH closing cash balance
+ NHH cash receipts
- NHH capital expenditure
- movement in trade creditor
- movement in capex creditor
- NHH retail service opex
= NHH Balance before interest and tax

Calculate interest income/expense

= (Opening balance + Closing balance before paying or receiving interest and/or tax) / 2
* NHH monthly working capital interest rate
= NHH Interest income/expense

Calculate cash (post interest & tax)

= NHH Balance before interest and tax
+ NHH Interest received/paid
- NHH Tax paid
= NHH Closing cash balance

Outputs

- NHH Closing cash balance after interest and tax

F4.4 Retail – non-household headroom check

NHH Headroom check (absolute £)

The headroom check uses the following absolute information:

- NHH retail net margin = (Total NHH retail service revenue - Total NHH retail service expenditure)
- NHH retail interest on working capital
- NHH retail tax
- NHH headroom = NHH retail net margin - NHH retail tax - NHH retail interest on working capital

NHH Headroom check (%)

The above information is used to calculate the following in relative terms:

- **NHH retail net margin %**

This calculates net margin as a % of retail service revenue

= NHH retail net margin £ / Total NHH retail service revenue

- **NHH retail interest as % net margin**

This calculates interest as a % of net margin

= If there is NHH retail working capital interest payable

Then NHH retail working capital interest payable / NHH retail net margin

Else return zero

- **NHH retail tax as % of net margin plus interest receivable**

This calculates tax as a % of net margin plus interest receivable

= NHH retail tax / (NHH retail net margin + (If there is NHH retail working capital interest receivable then include NHH retail working capital interest receivable))

- **NHH headroom check % plus interest receivable**

This calculates headroom as a % of net margin plus interest receivable

= NHH headroom / (NHH retail net margin + (If there is NHH retail working capital interest receivable then include NHH retail working capital interest receivable))

Checks will be done for HH and NHH; and are also available at tariff level for NHH

7.20 Section 8 describes the modelled interactions between the retail and wholesale businesses.

Checks within the retail model

7.21 A number of checks are built into the retail model as follows.

- Check that the household revenue limit (total retail service revenue for households) is equal to the change factors (allowed revenue per customer by customer type) multiplied by the unique customer numbers (customer connected).
- Check that the household revenue limit is equal to the income statement revenue for households.

- Check that the output household net margin when calculated in reverse (revenue minus cost) is equal to the input net margin. The reverse calculated net margin is calculated as part of the headroom checks.
- Check that the sum of non-household price limits (average revenue per customer by customer type) multiplied by the number of customers on each tariff band is equal to the non-household (NHH) revenue from the income statement and Calc NHH sheet.
- Check that the non-household net margins by tariff band that are reverse calculated (revenue by tariff band divided by cost by tariff band) are equal to the input net margins by tariff band. This also validates the non-household headroom checks.
- Check that the interest from the consolidated cash flow (for household and non-households separately) is equal to the working capital interest from the Calc sheets.

Single margin rule

- 7.22 Retail assets owned by companies (as at 31 March 2015) will be included in the wholesale RCV. Companies earn a return on these assets through the wholesale control, therefore we do not allow companies to make a return on these assets in the retail control. This is the single margin rule.

Retail capital expenditure and accounting depreciation

- 7.23 To avoid any double counting of depreciation in the financial statements and for simplicity, legacy retail fixed assets are included in the wholesale service provider fixed asset register.
- 7.24 The opening retail service provider fixed assets are assumed to be nil. New capital expenditure on retail fixed assets sit in the retail service provider's fixed asset register as retail allowed depreciation on new assets is recovered through the retail price controls.
- 7.25 Depreciation for the retail service provider's new capital expenditure is set following an allowed depreciation approach. The retail service provider has an set amount of depreciation it is allowed to recover in each year.
- 7.26 The depreciation charge is used in conjunction with the input retail average asset lives on a straight line basis to back calculate the

associated fixed asset register. The model assumes no disposals of retail assets.

- 7.27 The model assumes capital allowances for retail assets are identical to the allowed depreciation; as such it is not modelled. Following this assumption there is no calculation of deferred tax for the retail service provider.
- 7.28 The movement in the fixed asset register is used to calculate the capital expenditure implied by the allowed depreciation. This capital expenditure is calculated for both the household and non-household aspects of the retail service provider and is included in the respective cash flow statements and balance sheets.
- 7.29 The net margin applied in the model to the household control is an input. It may be adjusted to take into account the single margin rule and this will be reflected in the values input to the model.

Tax calculation

- 7.30 Tax is allowed for in the net margin for both the household and non-household retail controls (that is, it is a pre tax net margin). However, the model also calculates the amount of tax payable to complete the financial statements.
- 7.31 Tax is calculated for both the household retail business and the non-household retail business.
- 7.32 The calculation for the household retail business is:

Allowed household revenue
- Accounting household retail opex
- Interest (on household working capital requirement)
= Taxable profit
* Corporation tax rate
= Tax charge.

The calculation for the non-household retail business is:

Expected non-household revenue
- Accounting non-household retail opex
- Interest (on non-household working capital requirement)
= Taxable profit
* Corporation tax rate
= Tax charge.

To aid evaluating the net margins set for each tariff band per company, the tax charge is apportioned across tariff bands for non-household retail for the purposes of calculating the headroom (the amount of net margin allowed for future investment) on a tariff band level.

8. Retail and wholesale interaction

- 8.1 For PR14, retail and wholesale price controls are separated. However, there remains a relationship between the price controls. The retail revenue is a function of the wholesale allowed revenues and retail specific costs, as the retail business purchases services of the wholesale service providers and passes on the cost to customers. The wholesale debtor is therefore a component of the retail creditor.
- 8.2 These interactions are depicted conceptually in flowchart F5.
- 8.3 As the retail controls are in essence considered to be retail costs plus a net margin (EBIT on total retail revenues) the retail and wholesale controls within the model are effectively independent from a calculation perspective. The model assumes the wholesale charge is passed on in its entirety to its respective retail business and therefore impacts the retail business' working capital requirement through the wholesale trade creditor.
- 8.4 Therefore due to the independence in the calculations between the retail and wholesale retail price controls, the retail calculations use a headroom check to see whether the retail net margins are sufficient to cover the working capital interest costs and the retail tax charge. The retail headroom checks are updated as a result of any changes to wholesale revenues.
- 8.5 However, the retail price controls are independent and so the model does not recalculate the retail price controls. As such, when the wholesale price controls adjust, the net margin may be squeezed and the headroom check will capture the effect of this.

- 8.6 After any manual changes to the net margin in retail controls, the wholesale price controls must be recalculated to help ensure that the optimum wholesale price control is in effect. If net margins are increased and the wholesale price control is not recalculated the wholesale price controls may be set at an excessive level when considering appointee financeability.

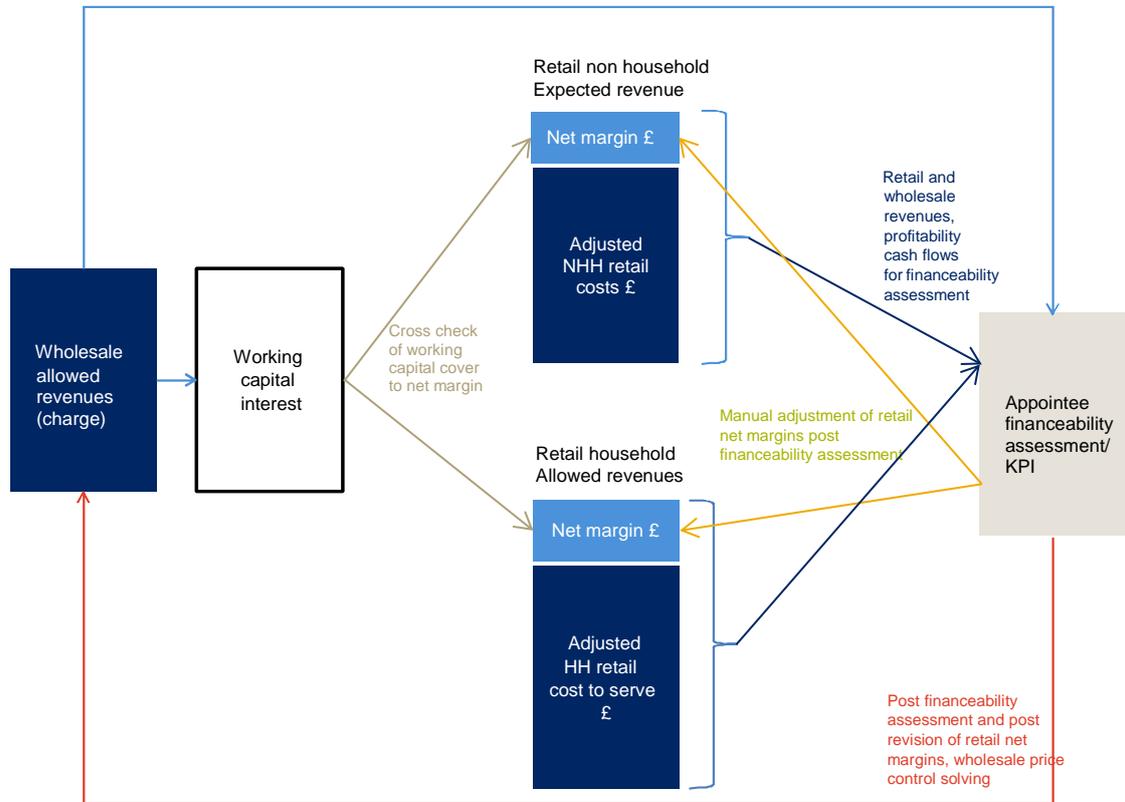
Working capital interaction

- 8.7 The retail working capital interest is calculated on an annual basis for receivables and retail service costs. Wholesale related working capital costs (the cost of purchasing wholesale services from wholesale service provider) are calculated on a monthly basis. This is part of the cash flow section of the model. The model assumes that the retail service provider is invoiced at the end of each month. Payment terms to the wholesale service provider are on a monthly basis from the invoice date. Interest is calculated on the average annual cash balance. The interest forgone on a monthly basis as a result of paying the wholesale service is calculated separately and is deducted from the interest on the average retail service cash balance. The calculation is carried out separately for households and non-households (as shown in flowcharts F3 and F4).
- 8.8 To calculate the working capital requirements related to the wholesale charge, the charge needs to be allocated to the retail household and retail non-household businesses. This is done using apportionment percentages.
- 8.9 The household/non-household apportionment percentages are calculated in the model and are derived using:
- company projections of wholesale total revenue (from business plan tables);
 - company projections of household wholesale revenue (input from business plan tables);
 - company projections of non-household wholesale revenue = company projections of wholesale total revenue – company forecast household wholesale revenue;
 - household apportionment = company forecast household wholesale revenue / company projections of wholesale total revenue; and
 - non-household apportionment = (company projections of wholesale revenue – company projections of household wholesale revenue) / company forecast wholesale total revenue

- 8.10 Average debtor days for households and for non-households by tariff are an input into the model from the business plan tables.
- 8.11 Payment terms between the retailer and the wholesaler is an input into the model. The model assumes there is only one wholesale service provider and therefore creditor for the retail service provider. Therefore only one invoice is expected and the payment terms are considered to be exact payment terms (as opposed to an average set of creditor days).
- 8.12 The non-household working capital interest is calculated in the same way as the household working capital interest. This is then apportioned between each tariff based on the debtor days and revenue from each tariff band. This is used to facilitate the headroom analysis in the model.
- 8.13 The costs of financing the retail working capital requirement are assumed to be recovered by the net margin set within the retail price controls. As such, the working capital costs are not an explicit building block in the retail revenue requirement when determining the retail price control.
- 8.14 The margins received on the retail controls should be reviewed by the user to check that the working capital costs are sufficiently met and that the residual margin is appropriate for financing future retail activity. This model outputs a headroom analysis to inform this manual review.
- 8.15 If through the manual review the retail net margins are deemed to be insufficient then the user must manually revise the net margins within retail inputs.
- 8.16 Once the retail net margins have been revised the wholesale price controls must be re-solved to mitigate over recovery of wholesale costs.
- 8.17 As the working capital requirements adjust there is a further impact on both wholesale and retail revenues as the respective interest tax shields adjust. The interest tax shield is calculated specifically for each control and consists in part of the interest on financing the working capital requirement which is tax deductible. The working capital requirements are discussed in section 19. The retail module makes a simplifying assumption that all tax and interest is paid at the end of the financial year for household and non-household controls.

F5. Retail and wholesale interaction

Retail and wholesale interaction



9. Wholesale model inputs

- 9.1 The majority of the inputs cover the review periods, and for some inputs also the base year.
- 9.2 Inputs are entered into a single input sheet in the model.
- 9.3 The broad categories of inputs are:
 - opening financial positions for 2015-16 (as captured in the business plan templates);
 - total expenditure projections (beyond base year as captured in the business plan templates/produced by feeder models);
 - performance adjustments from the prior review period;
 - financial assumptions; and
 - indexation assumptions.

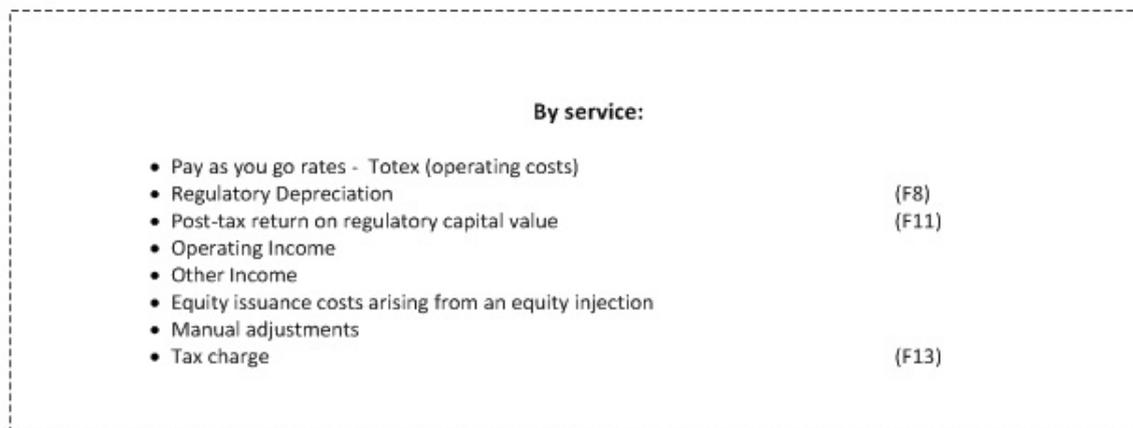
10. Wholesale revenue requirement

- 10.1 The wholesale revenue requirement represents an estimate of the income that would allow a reasonably efficient company requires to meet the cost of running its wholesale business for each service and to borrow to deliver its investment programme for each service. It is calculated on an annual basis in real terms.
- 10.2 For PR14 the model adopts a totex approach to cost recovery which drives the wholesale revenue requirement.
- 10.3 How much of totex is recovered in each year is determined by the pay as you go (PAYG) ratio. The PAYG ratio is an input to the model. The proportion of totex expenditure which is not treated as PAYG operating costs are added to the RCV and enters the wholesale revenue requirement via regulatory depreciation and the return on RCV.
- 10.4 The main components of the wholesale revenue requirement are:
- pay as you go element of totex (operating costs);
 - regulatory depreciation - existing RCV and new additions;
 - return on capital; and
 - taxation.
- This is shown in flowchart F6.
- 10.5 The wholesale revenue requirement is calculated at the service level for water and wastewater and is aggregated to form the total wholesale revenue requirement.
- 10.6 Totex and the pay as you go ratio are inputs to the model.
- 10.7 See section 13 for the calculations and logic for regulatory depreciation that drive the revenue requirement.
- 10.8 Return on capital is a post-tax return (equal to the weight average cost of capital) on the regulatory capital value (RCV). The RCV calculations are explained in more detail in section 12 and the return on capital in section 16.
- 10.9 The price setting methodology used in all the previous reviews and in the 2014 price review assumes that the return required by investors and

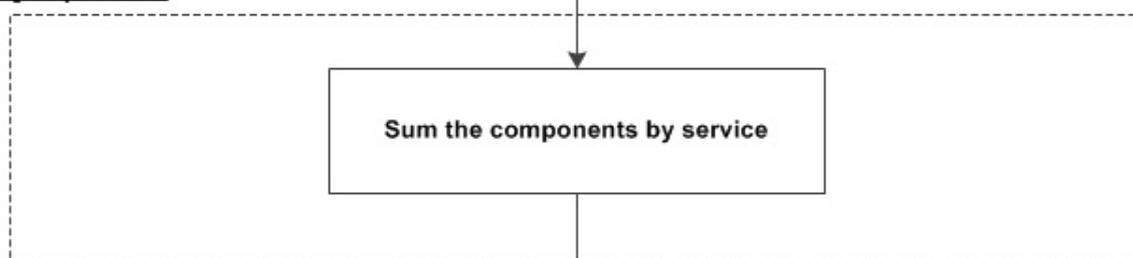
lenders is set by the cost of capital. The model calculates the return directly on a post-tax basis and includes the additional tax cost in the wholesale revenue requirement. The amount allowed for tax is calculated specifically for each service based on the projected taxable profit of each service. Sections 7 (retail) and 20 (wholesale) explain the tax calculations in more detail.

F6. Wholesale revenue requirement

Inputs

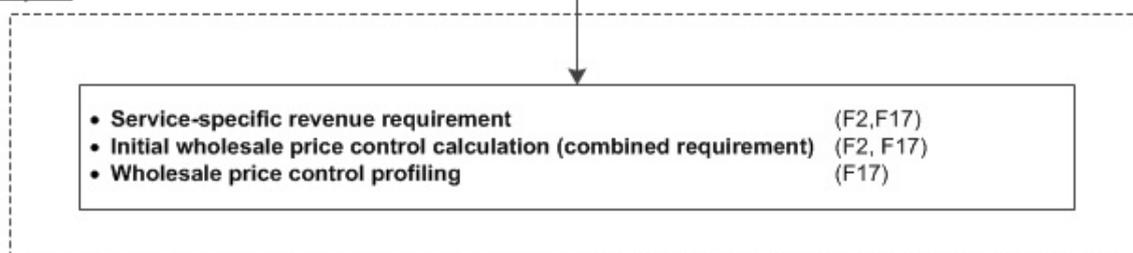


Logic by Service



Total of components

Outputs



11. Wholesale efficiencies

- 11.1 All projected expenditure is assumed to be input to the model net of efficiencies. This is different to the approach taken in the 2009 price review whereby the PR09 financial model applied efficiency assumptions.

12. Wholesale regulatory capital value

- 12.1 The regulatory capital value (RCV) represents the capital base which is remunerated at the relevant wholesale service cost of capital. The cost of capital is explained in section 16.
- 12.2 RCV is calculated separately for each service, water and wastewater.
- 12.3 RCV is calculated on both a real and nominal price basis. For calculation of nominal financeability indicators we calculate RCV on a nominal basis. For calculation of real allowed revenues RCV is calculated on a real basis.
- 12.4 The opening value of the RCV in the base year is an input to the model. This will be input as valued as at 31 March 2015 and input in the base indexation year prices (2012-13 average prices) and in nominal prices (2015-16 average prices).
- 12.5 Opening 2015 RCV is input by service.
- 12.6 The value of additions to RCV is based on non pay as you go totex, that is, totex (multiplied by 1 minus the PAYG ratio) for each year.
- 12.7 Any capital grants or contributions towards the cost of the RCV additions are deducted before addition to RCV.
- 12.8 The model assumes that RCV additions are purchased half way through the year.
- 12.9 Regulatory depreciation is deducted from the RCV each year. Regulatory depreciation is explained in section 13.
- 12.10 The overall approach to RCV is set out in flowchart F7.
- 12.11 For calculating the real allowed revenues a real RCV is used to calculate regulatory depreciation and return on capital in a real price base.
- 12.12 A real RCV schedule is calculated in two components.
- Legacy RCV – this is brought forward as input in 2012-13 prices and is subsequently depreciated in each period using a choice of a reducing balance or straight line basis.

- Additions to RCV – this uses totex (multiplied by 1 minus the PAYG ratio) as input in real 2013-13 annual average prices and is subsequently depreciated in each period using average asset life on a straight line basis.

12.13 The real return on RCV is calculated from this real RCV register.

12.14 RCV is indexed in the model for purposes of calculating:

- nominal returns on capital; and
- nominal regulatory depreciation.

Both are required for:

- calculating allowed revenues and feeding nominal financial statements;
- calculating nominal financial indicators; and
- deriving the real tax charge for the real revenue requirement.

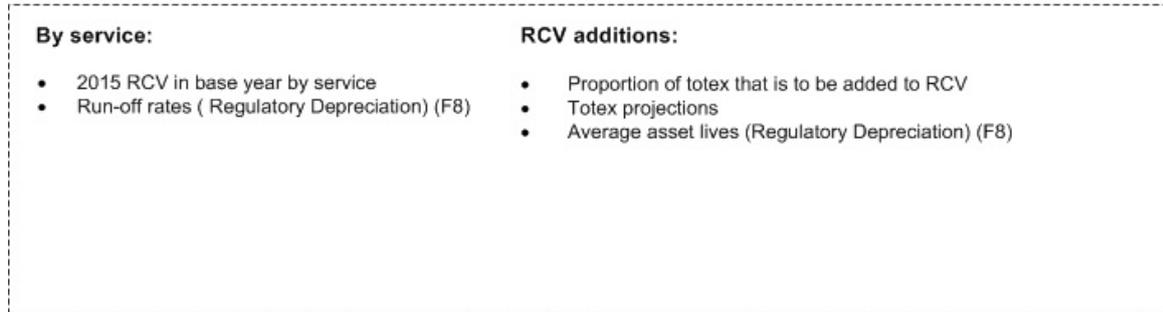
12.15 A nominal RCV schedule is calculated in two components.

- Legacy RCV – this is brought forward as input in nominal 2015-16 annual average prices. Each period the brought forward balance is indexed for the annual average RPI. The indexed brought forward balance is subsequently depreciated in each period using a choice of a reducing balance or straight line basis.
- Additions to RCV – this uses totex (multiplied by 1 minus the PAYG ratio) as input in 2013-13 prices which is inflated in the model using compound annual average RPI to calculate nominal additions. The nominal additions are then subsequently depreciated in each period using average asset life on a straight line basis. Each period the brought forward balance is indexed for the annual average RPI. The indexed brought forward balance and nominal additions are subsequently depreciated in each period on a straight line basis.

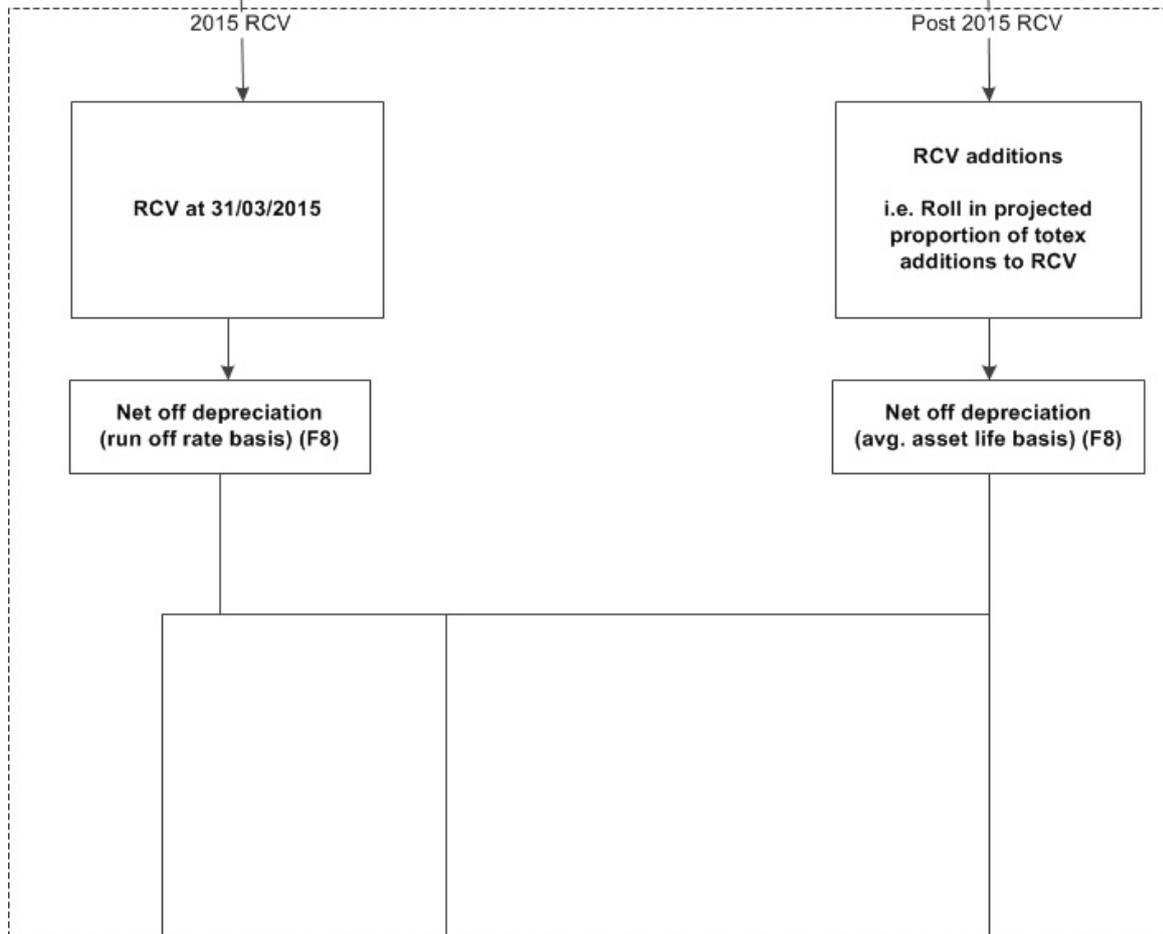
This approach produces nominal regulatory depreciation for the purpose of calculating nominal revenue requirement which in turn drives the tax charge that is used in calculating the real and nominal revenue requirement.

F7. Wholesale regulatory capital value

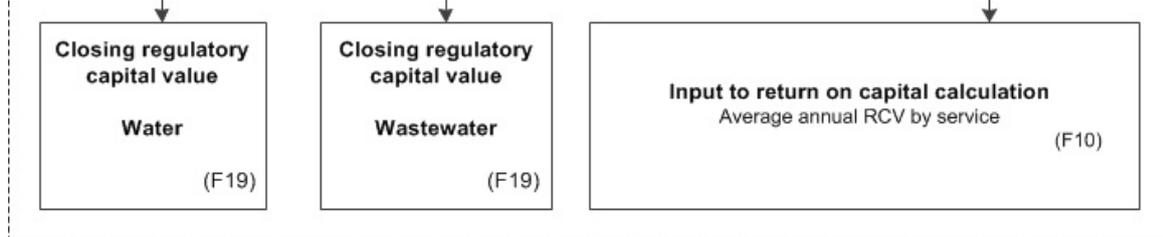
Inputs



Logic by Service



Outputs



13. Wholesale regulatory depreciation

- 13.1 The fixed assets of water companies are broadly divided into two categories – underground (or infrastructure) assets and surface (or non-infrastructure) assets.
- 13.2 The model implements the cost recovery for expenditure based on a totex approach from April 2015 onwards.
- 13.3 The model calculates depreciation separately for:
- 2015 RCV; and
 - RCV additions.

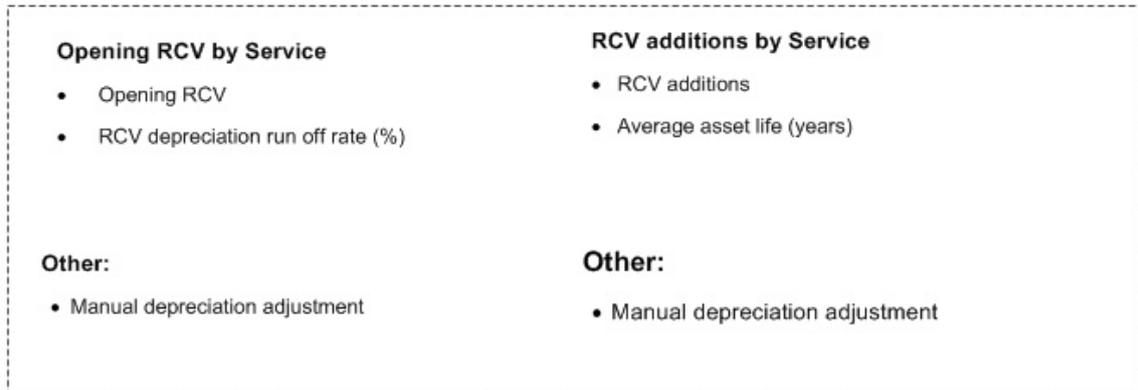
The total depreciation charge is included in the wholesale revenue requirement and reflected in the calculation of the RCV.

- 13.4 Depreciation is calculated separately for each service, water and wastewater.
- 13.5 For the 2015 RCV, the model allows the user to enter their chosen run-off rate percentage, to be applied either on a reducing balance or a straight line basis.
- 13.6 The model includes the option of reducing balance depreciation on the 2015 RCV to manage the impact on customers' bills from the depreciation profiles on the 2015 RCV and the totex additions. The user will need to specify if the run-off rate is to be applied on a straight line or reducing balance basis (captured in the business plan tables).
- 13.7 Depreciation on totex additions is calculated using average asset life on a straight line basis only. The totex additions are the residual totex net of the PAYG element. The addition is then depreciated by service, using a service specific average asset life assumption.
- 13.8 The model assumes that RCV additions are purchased half way through the year and hence calculates half a year of new investment depreciation in the year in which capital expenditure is incurred.

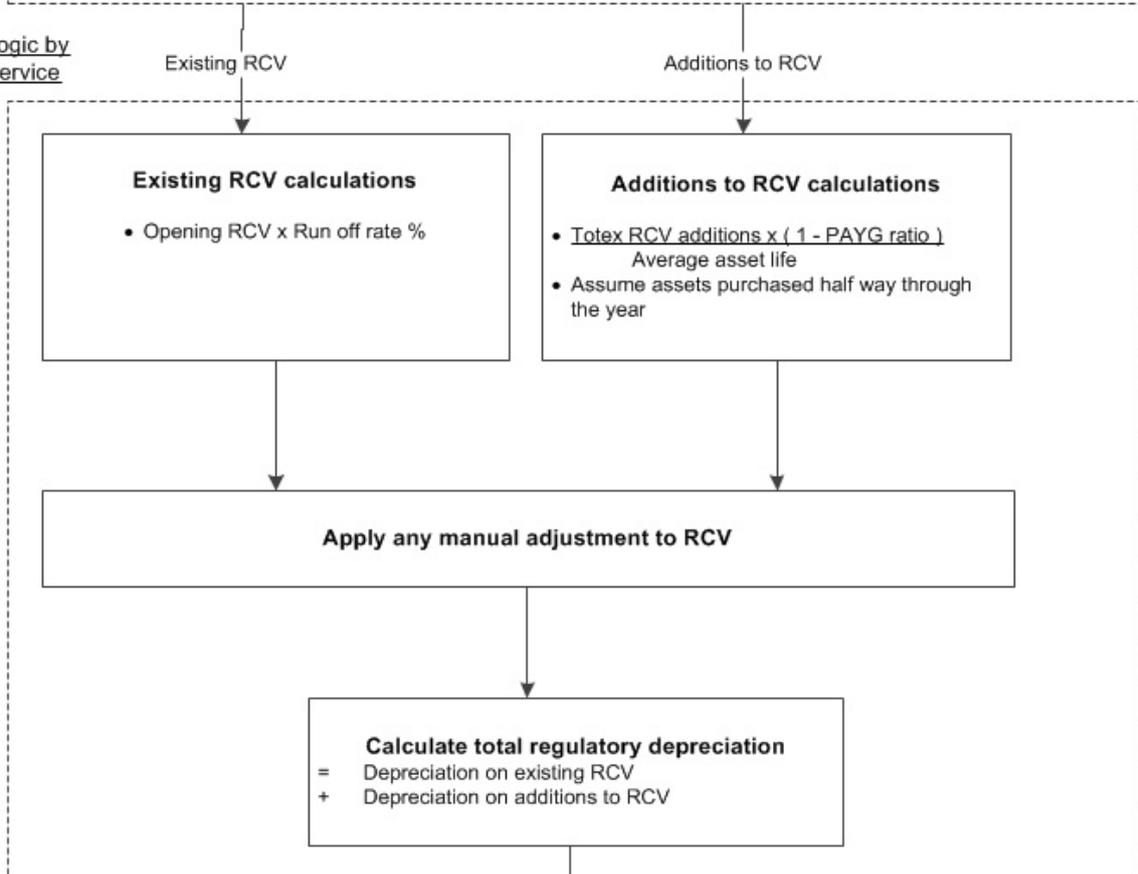
- 13.9 There is flexibility in the model to manually adjust the depreciation calculated from the specified run-off rates. Separate adjustments for depreciation on existing RCV and depreciation on additions to RCV are inputs to the model.
- 13.10 The work in progress assumption for bringing assets into use has been retired as a simplification for this review.
- 13.11 All costs items are input to the model net of grants and contributions.

F8. Wholesale regulatory depreciation

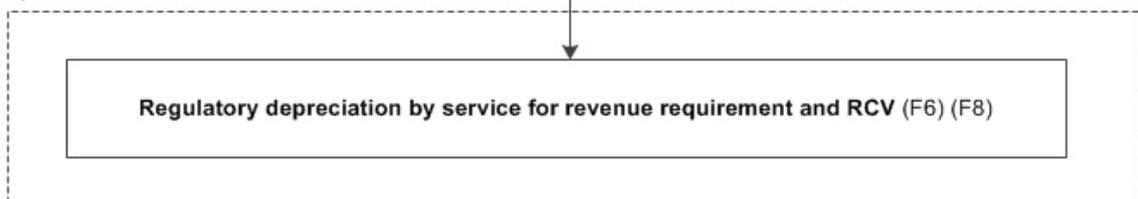
Inputs



Logic by Service



Outputs

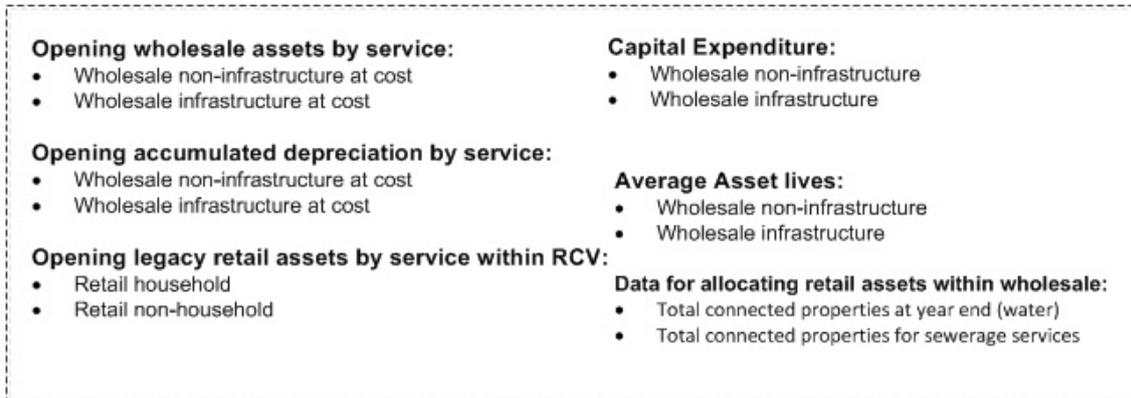


14. Wholesale accounting depreciation

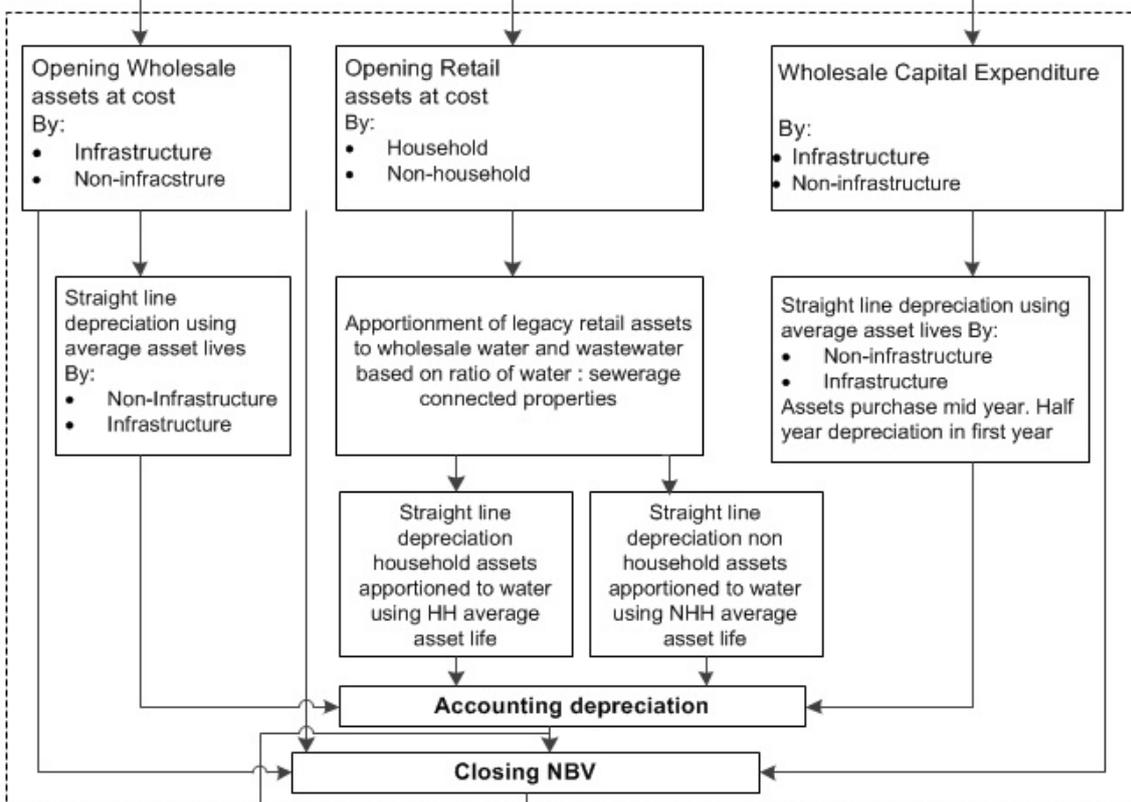
- 14.1 The wholesale revenue requirement is based on the regulatory depreciation as described in section 13. For completeness the model also calculates accounting depreciation, which is used solely to produce the appointee statement of financial position, income statement and cash flow statement.
- 14.2 The accounting depreciation does not enter the revenue requirement or tax calculations. The revenue requirement is based on regulatory depreciation of totex additions. Tax is based on the written down capital allowances.
- 14.3 Accounting depreciation is calculated separately for each service, water and wastewater, by fixed asset category as set out in flowchart F9.
- 14.4 The model caters for four fixed asset categories:
- wholesale non-infrastructure;
 - wholesale infrastructure;
 - retail household; and
 - retail non-household.
- 14.5 The brought forward assets, accumulated depreciation and net book value as at 31 March 2015 are inputs to the model. They are captured by fixed asset category in the business plan templates.
- 14.6 Accounting depreciation is calculated on a straight line basis using weighted average asset life inputs to the model as captured by fixed asset category in the business plan templates.
- 14.7 The model assumes that additions are purchased half way through the year and hence calculates half a year of new investment depreciation in the year in which capital expenditure is incurred.
- 14.8 For the purpose of calculating accounting depreciation, the model uses the following allowed expenditure categories:
- wholesale non-infrastructure;
 - wholesale infrastructure;
 - retail household; and
 - retail non-household.

F9. Wholesale accounting depreciation

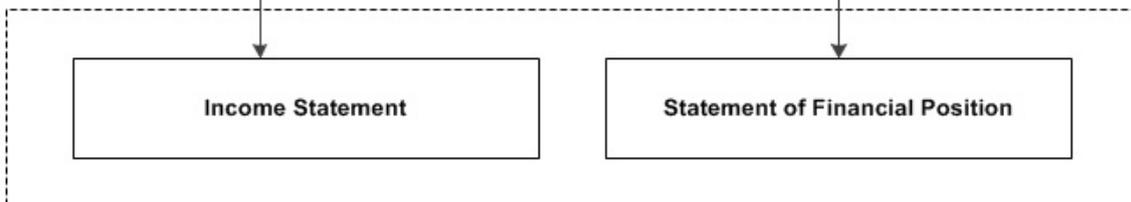
Inputs



Logic by Service



Outputs



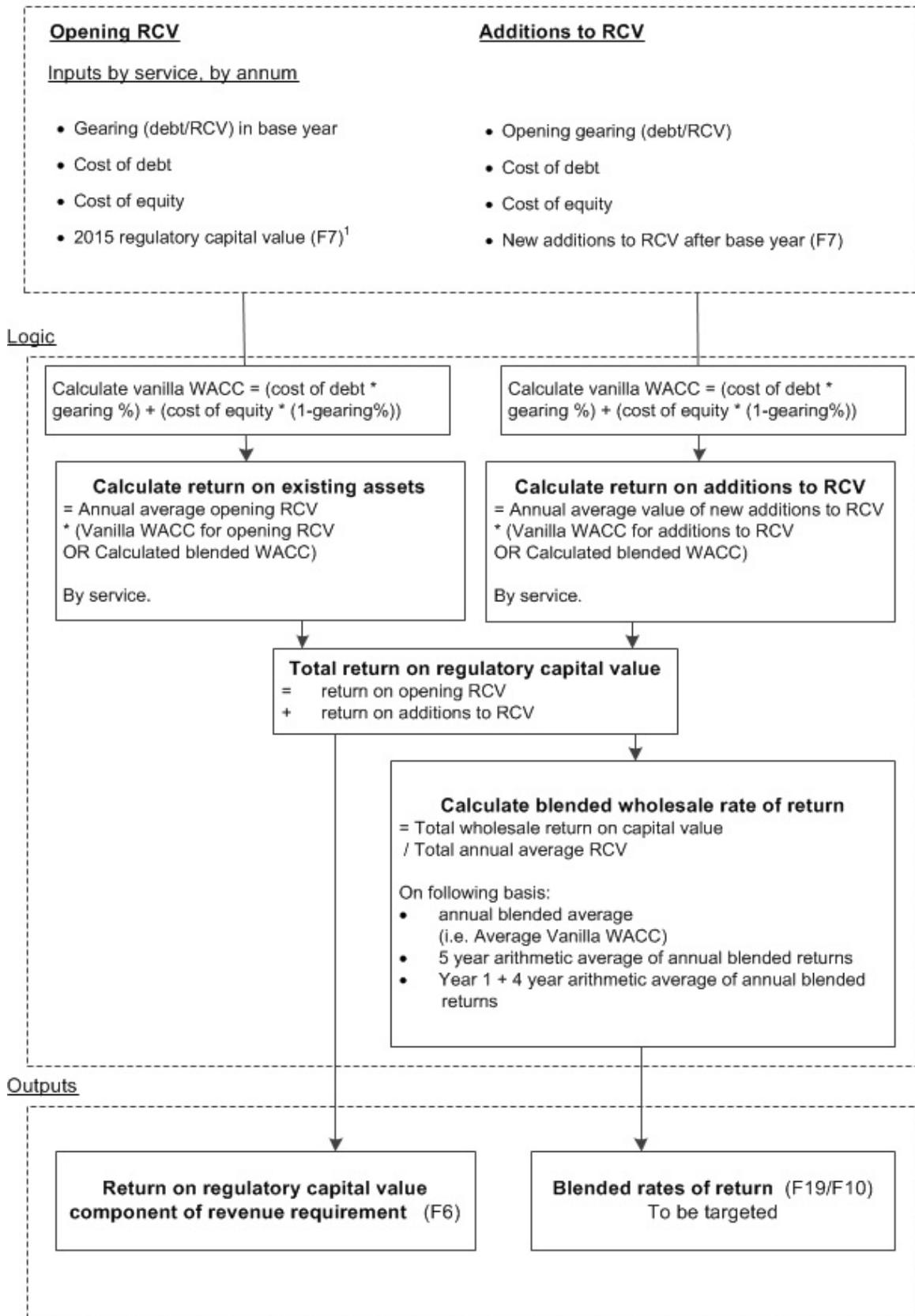
15. Wholesale infrastructure renewals charge

- 15.1 The infrastructure renewals charge is mentioned here for completeness only.
- 15.2 In PR09 infrastructure renewals accounting was used for underground assets rather than conventional depreciation. An infrastructure renewals charge (IRC) was made each year against profits. The IRC reflected the average of infrastructure renewals expenditure (IRE) over a period of time.
- 15.3 The move to a simplified depreciation approach for PR14 has resulted in the retirement of the infrastructure renewals accounting for the purposes of price determination. The simplified depreciation approach based on totex does not distinguish between above and below ground assets or base and enhancement expenditure. As such, the infrastructure renewals accounting approach for calculating charges for underground assets is no longer suitable or required.

16. Wholesale return on capital

- 16.1 The rate of return to be earned on the RCV for each wholesale service is determined by reference to the post-tax cost of capital for that service.
- 16.2 The post-tax cost of capital is set from the vanilla weighted average cost of capital (WACC). The model has the flexibility for WACC to be varied by service on an annual basis. The model calculates the WACC based on the input values for the cost of debt, cost of equity, and a user input gearing level (expected to be the notional gearing) for the period.
- 16.3 Interest payable on debt is deducted when calculating the taxable profit (the 'tax shield') and hence the tax costs included in the wholesale revenue requirement are lower. In order to avoid double counting of this tax shield, the cost of capital input to the model is the vanilla WACC. This is the weighted average of the pre-tax cost of debt and the post-tax cost of equity.
- 16.4 The vanilla cost of capital is an input to the model which has the flexibility to apply different values for the cost of capital for existing assets and for new assets. This is shown in flowchart F10. Our default when setting price controls will be the blended annual average vanilla WACC.

F10. Wholesale return on capital



1. Adjusted before input to the model for legacy performance in prior AMP.

17. Wholesale interest

- 17.1 Interest receivable is calculated on the average cash balance for the year plus any other interest receivable that has been input to the model.
- 17.2 Interest payable on overdraft, fixed rate and index-linked debt are calculated by the model on the average amount of debt in the year. Interest on floating rate debt is an input to the model.
- 17.3 Interest costs are made up of a number of elements:
- interest on overdraft;
 - interest on fixed rate debt;
 - interest on floating rate debt;
 - interest on index-linked loans; and
 - indexation to the principal of the index-linked loans.
- 17.4 Interest is assumed to always be paid in the year. There is no interest accrual.
- 17.5 For the purposes of taxation the interest charge on borrowings embedded in the 2014-15 balance sheet is assumed to reside wholly within wholesale.
- 17.6 The model considers borrowings at the wholesale service level and assumes the retail business finances any working capital requirements through an overdraft. The wholesale business relies on the above elements for its financing needs and does not distinguish between current and non-current liabilities. The retail business for simplicity relies on an overdraft for its financing requirements.
- 17.7 The amount of opening fixed rate debt, opening index-linked debt, new fixed rate loans taken out or repaid, new index-linked loans taken out or repaid, and the rate at which interest is charged on these loans are inputs to the model. Interest on floating rate debt and the charge to the profit and loss account for the indexation to the principal of the index-linked loans are inputs to the model. The model also has the capability to override the input indexation on the index-linked loan in favour for calculating the indexation using an indexation assumption.
- 17.8 The amount of opening floating rate debt and new floating rate loans taken out or repaid and the interest are inputs to the model.

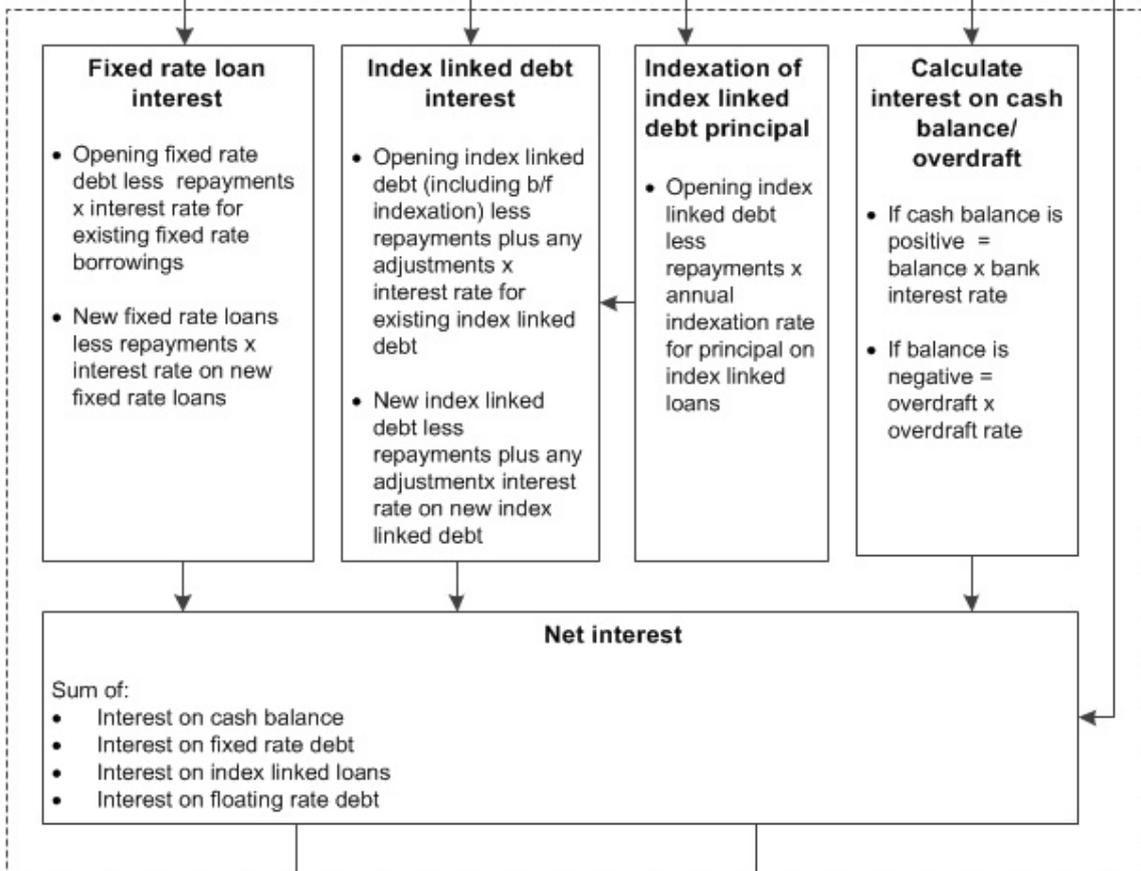
- 17.9 If there are no new loans input to the model, the model will assume that all additional borrowings are funded by the overdraft.
- 17.10 The user may if they wish manually enter new fixed rate or floating rate borrowings to reduce the overdraft. If the user chooses to enter new floating rate borrowings the user will need to input the associate interest charges.
- 17.11 The interest on all borrowings impact on the financial statements and the company's tax position. The model provides the ability to adjust a company's opening financial position to ensure the level of gearing is consistent with our view of the weighted average cost of capital. Our assumptions about the level of interest reflected in the cash flow and the financial statements will also reflect this view. However, the amount of interest taken into account in the tax calculations may be set to reflect the company's actual or notional gearing. The model includes a switch to enable us to adjust the amount of interest which flows through the tax calculation to reflect either a view of efficient notional capital structure or the actual capital structure.
- 17.12 The respective interest charges are apportioned between the water and wastewater services according to the split of debt between services, by the type of debt.

F11. Interest

Inputs

- Opening Fixed rate debt
- Opening index linked debt
- Fixed rate debt taken out and repayments
- Index linked debt taken out and repayments
- Interest rate for existing fixed rate borrowings
- Interest rate for new fixed rate debt
- Interest rate for existing index linked debt
- Interest rate for new index linked debt
- Opening Average cash balance / overdraft (F19)
- Bank deposit rate
- Bank overdraft rate
- Interest paid on floating rate debt
- Indexation rate for principal on the index linked loans

Logic



Outputs

Tax (F13)

Financial statements (F19)

18. Wholesale financing assumptions

- 18.1 Where a company requires additional borrowings the default assumed by the model is that it is financed through the overdraft. Should the user wish to change debt structure this should be done via the model inputs.
- 18.2 The model has the functionality to create a notional financing structure through setting the gearing level in the base year. The model can either target the opening gearing or a five year average. It achieves through adjustments to the opening debt position with a corresponding movement in reserves. The targeting of the gearing is based on the nominal gearing indicators. Any further changes to gearing may be achieved through adjustments to input data, these must be calculated outside of the model.
- 18.3 The target gearing functionality in the model achieves the desired gearing level through adjusting the net debt position and retained earnings.

19. Working capital requirements (retail and wholesale)

- 19.1 Working capital requirements drive the working capital interest costs. For the wholesale interest costs these are used to derive the tax recovered in the revenue requirement. The calculated interest does not directly enter the revenue requirement, as financing costs are recovered through the return on regulated capital. For retail interest costs these are assumed to be recovered through the net margin set.
- 19.2 Retail debtors are calculated within household and non-household using specific debtor day payment terms for each control/tariff band.
- 19.3 Wholesale debtor is calculated to be equivalent to the retail wholesale creditor.

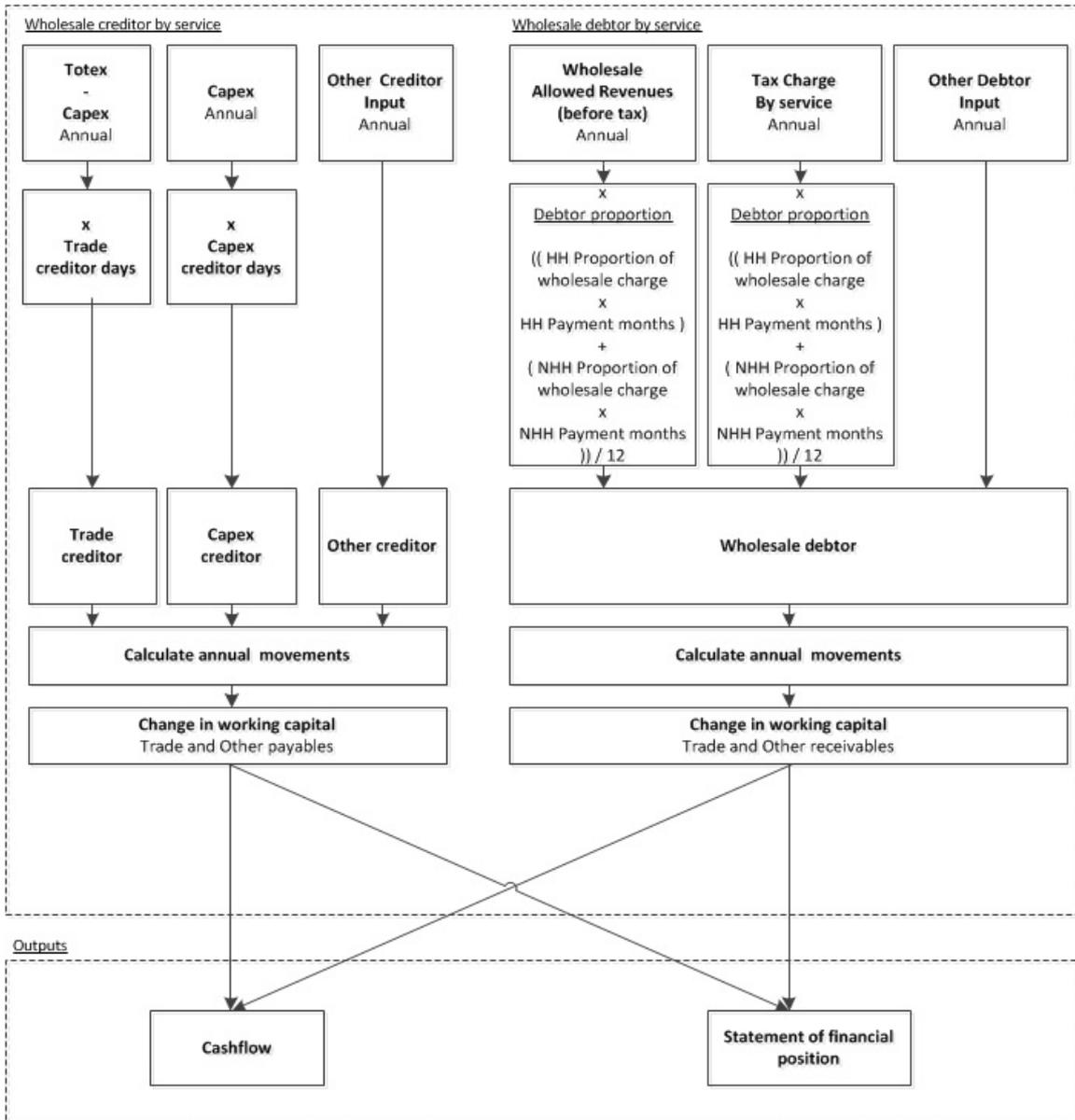
- 19.4 Retail wholesale creditor is calculated based on the wholesale charge to the retail business and the retail wholesale creditor days. The model converts the retail wholesale creditor days to creditor months as the wholesale business is assumed to invoice the retail business at the end of each month. At year end there are no related accruals as the invoicing is fully up to date, by the previous assumption. The year end debtor in the wholesale balance sheet is then the total of unpaid invoices, which varies depending on debtor months. The model expects the retail business to pay the wholesale business in arrears.
- 19.5 Wholesale creditor is calculated using capex and trade creditor balances and the respective capex and other trade creditor days.
- 19.6 Other creditors are an input to the model at the appointee level they are apportioned to wholesale water and waste. The apportionment is done on the basis of the calculated wholesale trade creditor split.
- 19.7 For retail controls the net margins set are expected to cover the cost of financing costs and corporation tax. The model includes a check called the head room check to assess where the retail business is earning a sufficient margin to cover the working capital interest costs and tax charges.
- 19.8 To mitigate circularities with the wholesale calculations, the model separately calculates the trade debtor using the same inputs used to calculate the retail wholesale creditor.
- 19.9 The wholesale working capital requirements are calculated in real terms for the purposes of calculating the real revenue requirement.
- 19.10 The retail working capital requirements use a nominal wholesale charge to help ensure that the net margin covers the wholesale creditor in cash terms.
- 19.11 Bad debts are dealt with outside the financial model.

F12.1 Working capital – wholesale

Inputs

- Wholesale water allowed revenues
- Wholesale waste water allowed revenues
- Wholesale average trade creditor days
- Wholesale average capex creditor days
- Wholesale charge household / non household apportionment
- Totex
- Capex
- Retail HH payment months
- Retail NHH payment months

Logic

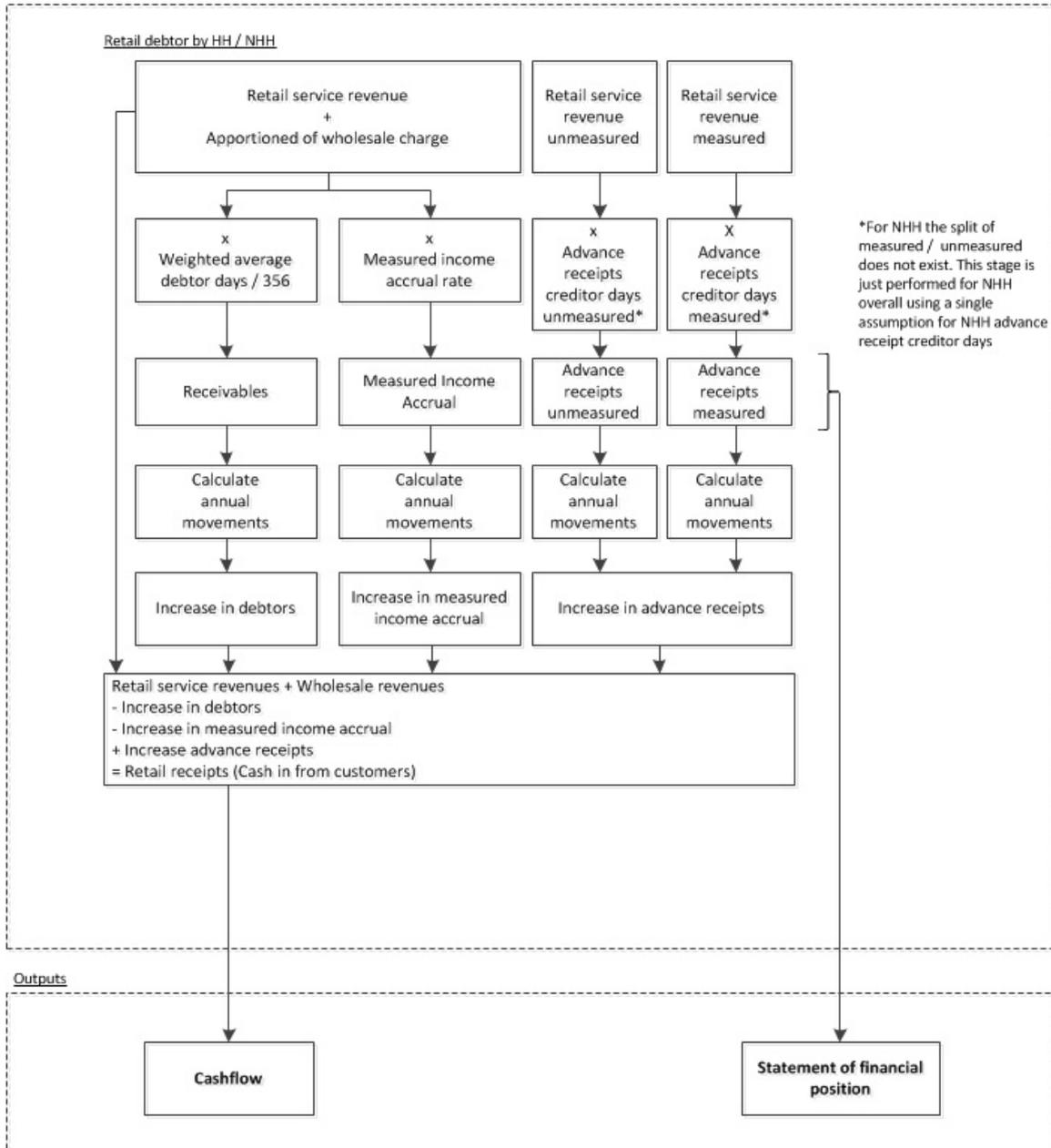


F12.2 Working capital – retail debtor

Inputs

- Retail service revenues by HH unmeasured / HH measured / NHH
- Apportioned wholesale charge by HH / NHH
- Weighted average debtor days by HH / NHH
- Measured income accrual rate by HH / NHH
- Advance receipts creditor days unmeasured
- Advance receipts creditor days measured

Logic



Outputs

Cashflow

Statement of financial position

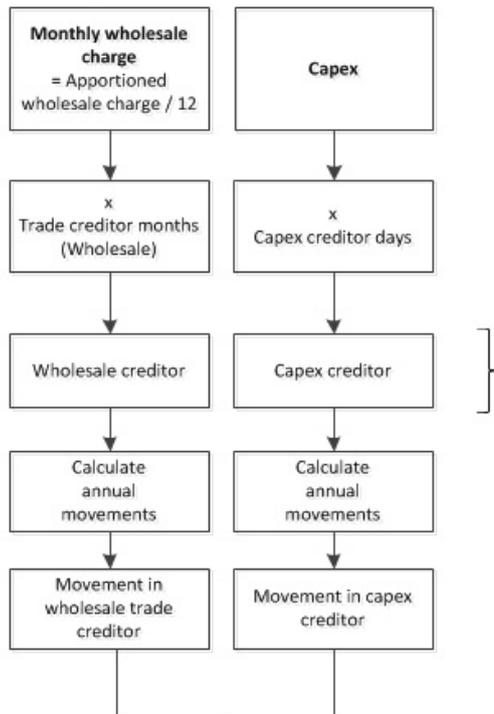
F12.3 Working capital – retail creditor

Inputs

- Wholesale charge (allowed revenues)
- Trade creditor months (Wholesale)
- Average capex creditor days

Logic

Retail creditor by HH / NHH



Outputs



20. Wholesale tax

- 20.1 The allowed corporation tax charge is included in the wholesale revenue requirement. The model calculations reflects the corporation tax regime as at April 2013.
- 20.2 It assumes that the regulated business is a free-standing company, for example, dividends paid to the group are assumed to be paid to the ultimate shareholders.
- 20.3 The tax calculations performed in the model will reflect the individual circumstances of the company. (This includes the gearing and interest position.) This is shown in flowchart F13.
- 20.4 The tax position regarding brought forward capital allowance pools in the base year is input to the model it is assumed to reside entirely within wholesale. This is in line with the approach taken for RCV and on the basis that the opening tax positions for retail are not expected to be material for price determination purposes.
- 20.5 To help ensure that the wholesale business pays the appropriate tax taking into account complexities such as tax losses, wholesale tax is calculated at the wholesale level rather than at the service level.
- 20.6 To reflect the PR14 approach to separate price controls, tax needs to be recovered by the respective price controls. Wholesale tax is therefore apportioned to the respective services.
- 20.7 The model applies the following approach to apportion tax losses:

The model calculates:

- how much tax 'should' be paid by each wholesale service by applying the tax rate to the profit (if any) for each service;
- how much tax that 'should' be paid by both services together by applying the tax rate to the overall wholesale profit (taking into account tax losses between the wholesale services);
- the tax that 'should' be paid by both services together is then apportioned, such that it tends toward the overall amount of tax that 'should' be paid by each wholesale service; and
- the apportionment basis is based on tax due at the service level.

To enable this to work, shadow tax calculations are performed at the service level independent of the aggregate wholesale position to generate the apportionment keys. These service specific tax calculations do not drive the tax charge which is derived at the aggregate wholesale level.

20.8 The apportionment basis is derived based on the minimum of:

- the individual services share profit before tax for the period;
- the difference between the cumulative tax the service should have paid to date and the tax they have previously paid adjusted for differences in the prevailing tax rate; and
- the minimum of the appointee tax due.

This approach over time seeks to ensure that:

- the wholesale business pays that tax it should pay in each year taking into account for tax loss relief and varying tax rates; and
- over time each service shares its burden of tax based on cumulative profit before tax, tax paid to date and tax losses incurred.

20.9 If the tax rate changes between years, cumulative tax paid would no longer equate to tax charged. This is a known limitation of the model which is dealt with as follows.

- If tax rate changes while tax losses are being carried forward, then the losses will no longer be apportioned entirely to the services which accrue them.
- In the first year possible, an adjustment is made for this, equivalent to the amount required to enable solving in future years.
- The adjustment relates to the difference in the tax rate from year-to-year, and the scale of losses.
- This is a viable approach because tax policy is assumed to be unlikely to result in large changes in the tax rate after 2015.

20.10 Tax loss relief is always assumed to be made available between the water and wastewater services in the wholesale business. It is assumed that if the wholesale services make a taxable loss in aggregate then this tax loss is carried forward to be offset against future aggregate wholesale taxable profits. Tax loss relief from wholesale service provision is not made available to the retail business taxable profits.

20.11 The impact of tax calculations on the statement of financial position, income statement and cash flow statement can be summarised as follows.

- The mainstream corporation tax charges are calculated separately for wholesale and retail:
 - within wholesale, charges are calculated at the wholesale level and apportioned to water and wastewater; and
 - within retail, charges are calculated separately for households (ACTS) and non-households (default tariff).
- The mainstream corporation tax liability (or asset) is included in the statement of financial position along with the deferred tax liability.
- The tax charge in the income statement includes movements in deferred tax liabilities.
- The tax entry in the cash flow is mainstream corporation tax paid.

20.12 Tax calculations can become circular in financial modelling. Incorporating tax within the wholesale revenue requirement is an additional complication. The effects of taxation associated to price control adjustments including gearing adjustments, equity adjustments and revenue uplift adjustments are further considered throughout the rulebook. In order to address the circularities some simplifying assumptions have been introduced.

20.13 The corporation tax calculations in the model contain a number of necessary assumptions and simplifications. In calculating tax, the model makes the following key assumptions.

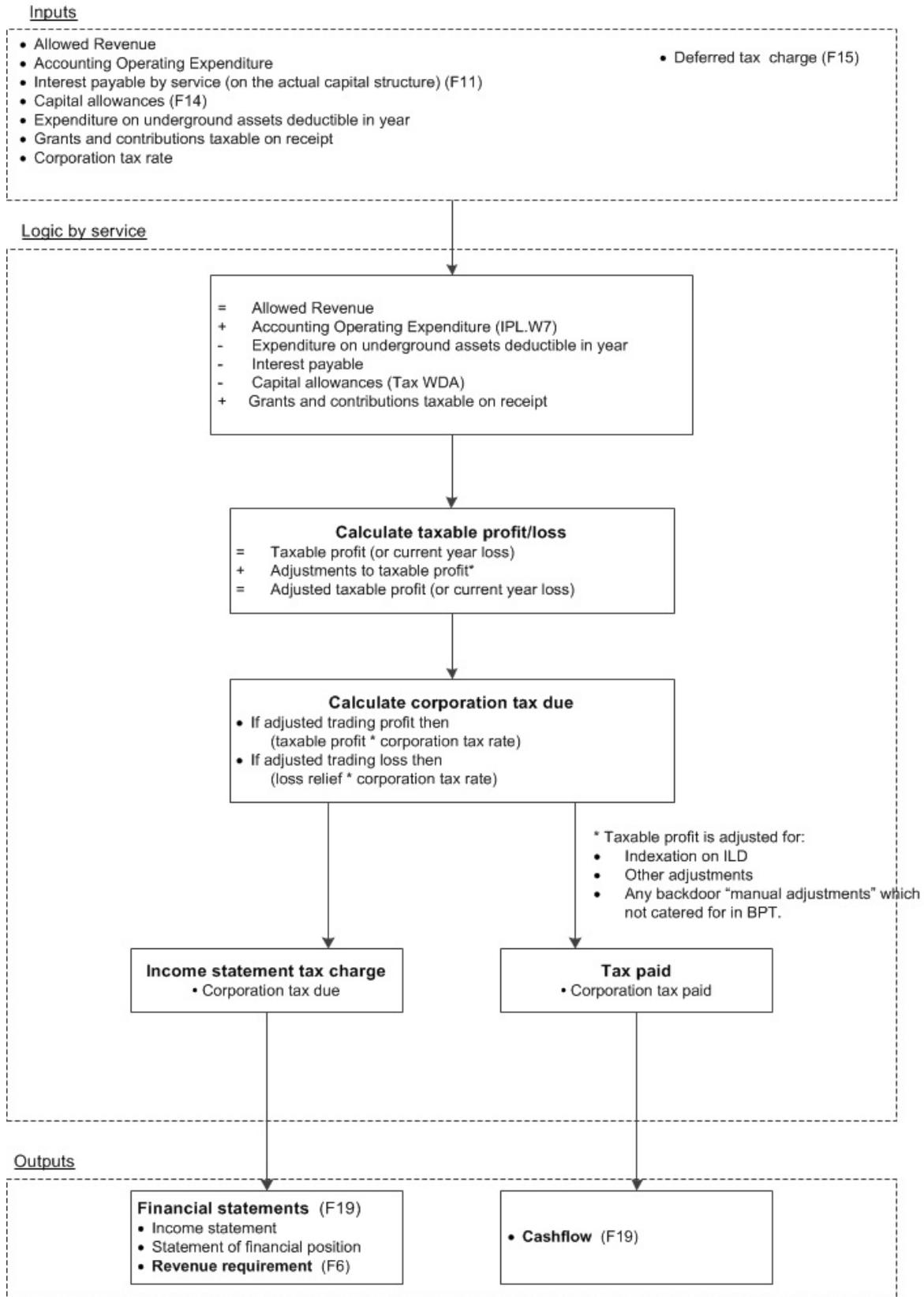
- Tax is assumed to be paid annually in arrears.
- When a company has a tax loss within wholesale in the current year but a taxable profit in the following year, it may elect to carry the loss forward and set it against the profit of the following year. The model assumes that this election is always made.
- The model does not allow for wholesale tax losses to be offset against retail taxable profits. This is a simplifying assumption to help reduce the circularity of the price control solving process through maintaining independence between the retail and wholesale price controls.
- The model does not cater for the eventuality of tax losses within retail, due to the design of the retail price controls.

- It is possible that a company may have a trading loss but a taxable profit for tax purposes (for example, if it has a chargeable gain). The model does not deal with this situation.

20.14 The corporation tax calculations in the model are not designed to cater for every conceivable eventuality.

20.15 VAT is not considered by the model.

F13. Wholesale taxation



Capital and other allowances

- 20.16 The model reflects the prevailing capital allowance regime as set out in flowchart F14. There are capital allowance categories for the following.
- Brought forward capital pools.
 - New capital expenditure:
 - maintenance non-infrastructure;
 - enhancement infrastructure; and
 - enhancement non-infrastructure.
 - Expenditure on underground assets deductible in year.
- 20.17 Capital allowances are calculated separately for water and wastewater. Allowances are based on the brought forward capital allowance pool and new capital expenditure using the respective average capital expenditure writing down allowance rates.
- 20.18 The brought forward assets allowances are be calculated based on apportioning the brought forward balance between water and wastewater using the base year end RCV split.
- 20.19 For new capital expenditure apportionment is not be necessary as capital additions are known by service.
- 20.20 The proportion of base expenditure on underground assets which is treated as opex in the financial accounts under IFRS, FRS101 or FRS102 as tax deductible is input to the model. The proportion is multiplied by the infrastructure renewals expenditure (IRE) to determine the deduction to taxable profit. For the purposes of continuity, base expenditure on underground assets is still referred to as IRE. All infrastructure enhancements are assumed to be capitalised.
- 20.21 The inputs to and calculations in the model give it the flexibility to reflect the current tax regime; this flexibility is achieved by allowing a tax adjustment to be input to the model as appropriate.

20.22 For retail taxation see section 7. The net margin in retail is expected to cover retail tax charges as such retail tax is not an explicit component of the retail cost recovery and price controls. Tax is calculated for the retail controls solely for the purposes of producing the financial statements and for manually cross checking that the net margin is sufficient to cover the tax charge alongside the working capital costs which the net margin also needs to cover.

F14. Capital allowances

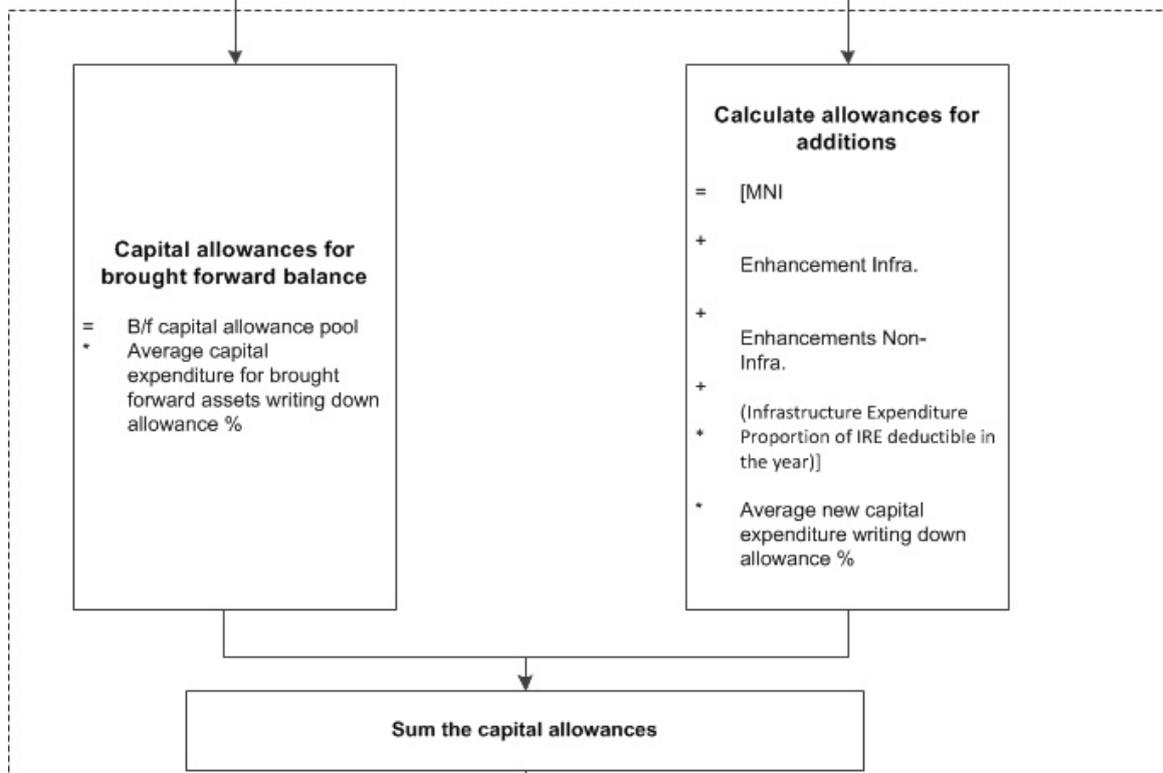
Inputs

- Brought forward capital allowance pool balance by service
- Average capital expenditure writing down allowance % for pool brought forward assets by service

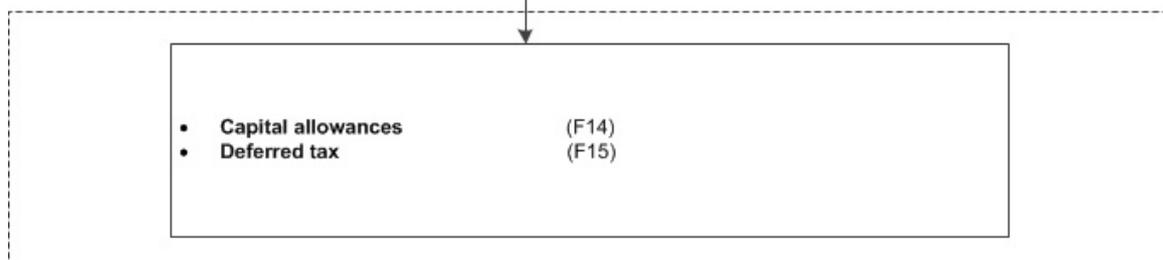
- New capital expenditure additions net of grants:
 - Maintenance Non Infrastructure (MNI) by service
 - Enhancements – infrastructure by service
 - Enhancements – non-infrastructure by service
 - Infrastructure Expenditure by service
 - Proportion of IRE deductible in the year by service

- Average capital expenditure writing down allowances % for additions by service

Logic



Outputs



21. Wholesale deferred tax

- 21.1 The deferred tax treatment reflects the requirements of UK accounting standards applicable from 2015-16, so there is no discounting applied to the deferred tax calculations.
- 21.2 The model calculates the change in the deferred tax provision. The model includes the following capital expenditure types in the accelerated capital allowances calculation:
- maintenance non-infrastructure;
 - infrastructure enhancements;
 - non-infrastructure enhancements; and
 - non-deductible amounts of expenditure on underground assets.

The change in the deferred tax provision is reflected in the profit and loss account in the tax charge.

F15. Deferred tax

Inputs

- Capital allowances (F14) by service
- Accounting Depreciation (F9) by service
- Finance Lease Depreciation by service
- Pension Charge by service
- Pension Contribution by service
- Grants by service
- Corporation tax rate
- Brought forward deferred tax for 2015
- RCV share by service

Logic by Service

Calculate change in deferred tax provision

= (Total capital allowances utilised
 - Accounting depreciation less finance lease depreciation
 - Pension charge in excess of pension contribution
 - Grants and contributions taxable on receipt)
 * Corporation Tax Rate

Calculate Deferred tax provision carried forward

= Change in accelerated capital allowances
 + Deferred Tax Provision brought forward*

* in the base year, the deferred tax brought forward =
 The Deferred Tax brought forward 2015
 * The RCV Share by service

Outputs

Income Statement
(F19)

Statement of financial position
(F19)

22. Legacy performance and delivery incentive adjustments

- 22.1 When price limits were set for 2010-15 at the 2009 review, a number of mechanisms (legacy tools) were included to:
- manage risks to customers and companies from uncertainty in costs and changes in the outputs companies must deliver; and
 - provide incentives to encourage outperformance and penalise companies that perform poorly.
- 22.2 The final outcome of the legacy tools in the light of outturn costs and benefits is to be assessed when we set price limits for 2015-20 and, where appropriate, to make adjustments to allowed revenue.
- 22.3 The model applies the revenue adjustments from assessing performance in the 2010-15 period (referred to here as ‘legacy tools’) and those required to reflect the ex ante elements of the new delivery and service incentives introduced for PR14 in the allowed revenues.
- 22.4 The revenue adjustments from the legacy tools include the following.
- Service incentive mechanism (SIM) – an incentive to reward good customer service performance. This is an evolution of the overall performance allowance.
 - Revenue correction mechanism (RCM) – a tool to deal with differences between actual revenue collected and assumptions set at the 2009 price review.
 - Opex incentive allowance – a balancing incentive for savings in operating expenditure designed to counter the effect of five-year price controls.
 - Capital expenditure incentive scheme (CIS) – an incentive used for capital expenditure, designed to reward both cost out-performance and accurate business plans.
- 22.5 All the revenue adjustments are inputs into the model and the model allows input on an annual basis.

- 22.6 The model determines allowed revenues and K factors for the financeable wholesale revenue requirements before considering revenue adjustments. The revenue adjustments applicable to wholesale are then added to the financeable wholesale revenue requirements. The model then recalculates the allowed revenues and K factors to take account of the legacy revenue adjustment(s).
- 22.7 The overall performance allowance from previous price reviews was expressed as a percentage K adjustment which applied in year 1 of the review period. For setting price controls for 2015-20 the legacy adjustment in respect of the PR09 SIM is considered as a monetary value.
- 22.8 In addition to the above legacy adjustments, the model inputs provide flexibility to assess the impact of ex ante adjustments to allowed revenues, covering both outcome delivery incentives (ODI) and the treatment of additional income from wholesale totex menus.
- 22.9 For outcome delivery incentive rewards and penalties, companies have been asked to propose how and when the associated incentives shall be applied. Within the model these can be applied as either adjustments to the revenue requirement or as post-financeability revenue adjustments.
- 22.10 With the wholesale totex menus, similar to the treatment of the CIS menus, there will be an additional income adjustment. This is an input to the model and is ultimately dependent on a company's final position on the totex menu. Within the model the default will be to apply any additional income as a post-financeability revenue adjustment in the 2015-20 period.

23. Solving wholesale price controls

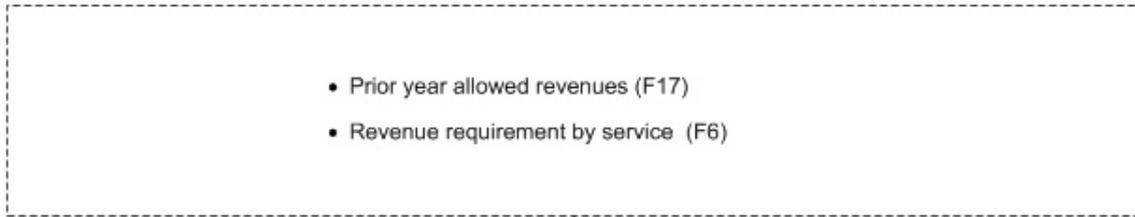
- 23.1 The overall process for solving wholesale price controls is shown in flowchart F17.
- 23.2 Each time a price control is adjusted the model recalculates the respective financial statements and the financial indicators.

Initial wholesale price control calculation

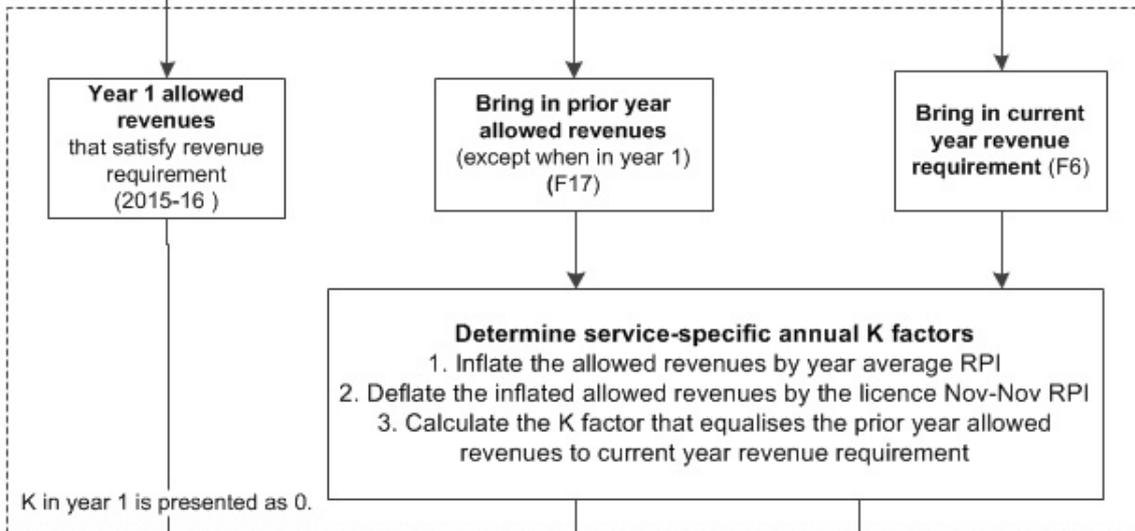
- 23.3 The model derives the allowed revenues and associated K factors. The model initially assumes that the established allowed revenues are equal to the revenue requirement in each year. This produces the initial price control profiles as shown in flowchart F16. The K factors are calculated as the year-on-year movement in the real allowed revenues as explained in section 5.
- 23.4 The initial price control profiles provide sufficient rate of return to match the returns targeted for each service (the annual weighted average cost of capital).
- 23.5 Beyond the determination of the initial price control profiles the model allows other further adjustments and refinements before reaching final price control profiles. These adjustments include the ability to:
- adjust the gearing (opening and average);
 - adjust interest for tax purposes as a result of gearing adjustment;
 - adopt different profiles of the blended average cost of capital;
 - seek the appropriate appointee dividend to satisfy target financial indicators;
 - manually adjust the PAYG ratio by service;
 - manually adjust the run-off rates by service;
 - manually apply an equity injection to the appointee;
 - seek the revenue adjustments across the services required to price controls to satisfy target financial indicators;
 - manually override the price control profiles by service;
 - apply legacy revenue adjustments; and
 - re-profile K to smooth over the period.
- 23.6 The model has the option to solve the appointee dividend payments and allowed revenue adjustments to give the minimum change required to satisfy the target financial indicators.

F16. Initial wholesale price controls calculation

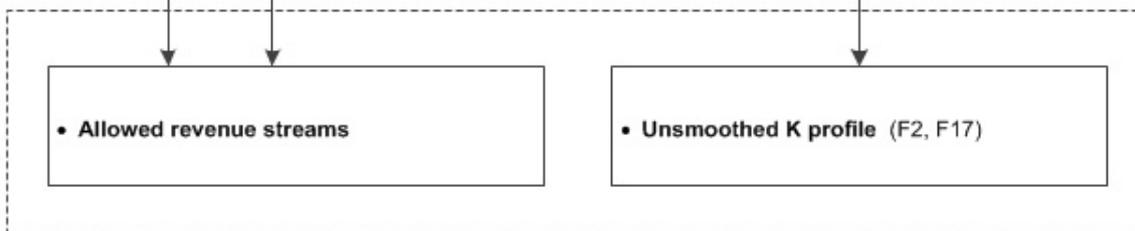
Inputs



Logic by Service

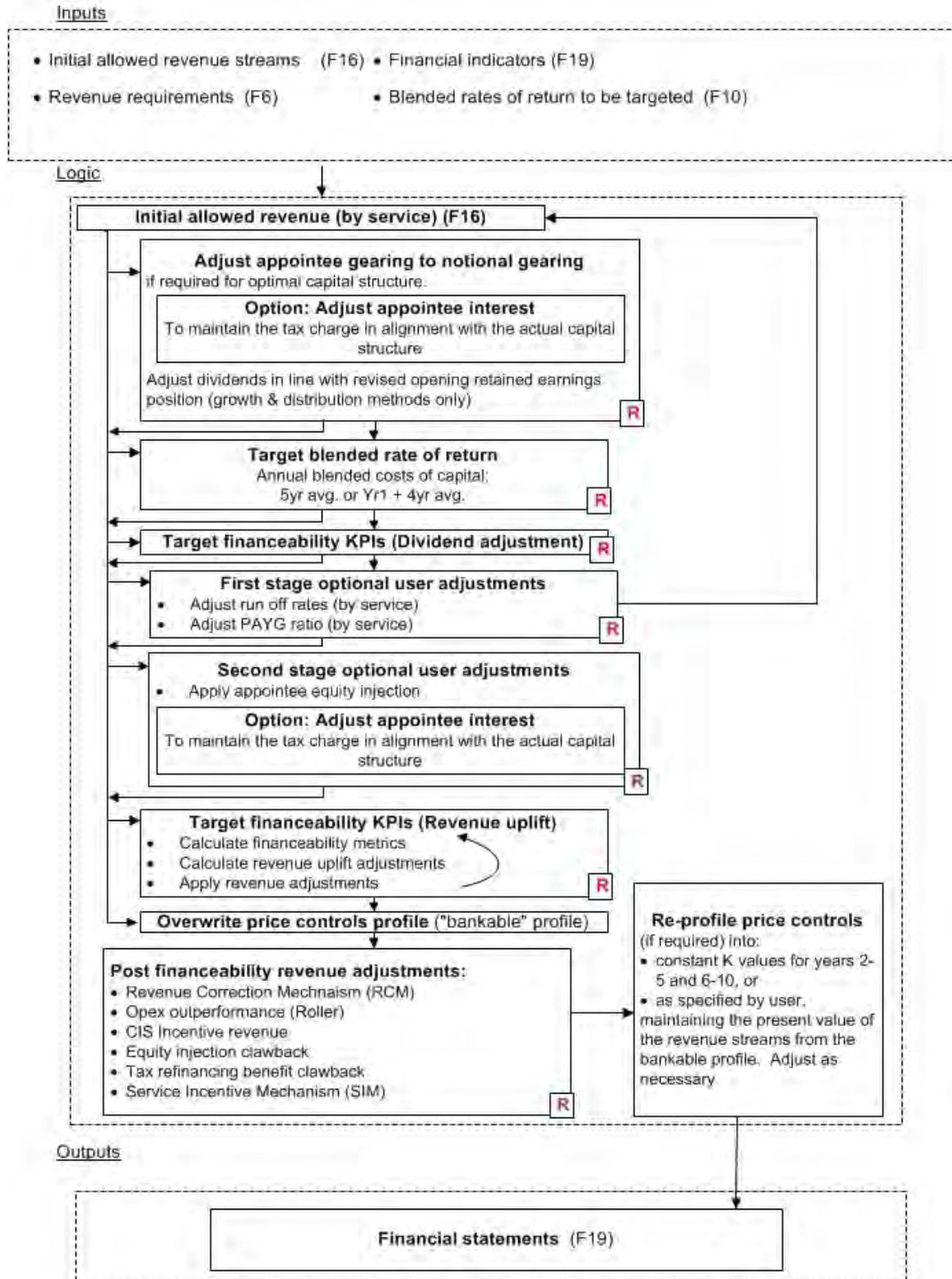


Outputs



23.7 Flowchart F16 shows the initial wholesale price control determination. Subsequent refinement and solving of wholesale price controls can occur after this initial determination. The process for further solving the price controls is shown flowchart F17 which is described further in the subsequent sections.

F17. Solving wholesale price controls



23.8 All stages in the price control solving process are optional with the exception of the post-financeability revenue adjustments whereby any revenue adjustments input into the model will automatically be applied. Therefore, although the solving stages are in a set sequence the the user has the flexibility to skip price control stages in order to run later stages. The availability of options in the model is intended to support analysis and does not represent policy, which is set out in the methodology statement.

Calculating financial performance indicators

23.9 The model produces financial performance indicators at each appropriate stage in the price control solving process. They are intended to help assess appointee financeability and guide the price control solving process. This is illustrated in F17 at the appropriate stages annotated 'R'.

23.10 The key financial indicators are calculated at the appointee level. The model calculates nominal financial indicators which are used for the purpose of financeability targeting.

23.11 Before addressing the target financial indicators via the wholesale component of the model, the user has the opportunity to revisit the retail allowed revenues (by adjusting the inputs to the retail module of the model).

23.12 For purposes of targeting financial indicators the model assumes that retail margins are sufficient to finance the retail activities. As such, they are not automatically refined as part of the price control solving process for appointee financeability. However, retail margins are taken into account in assessing appointee financeability.

23.13 As the wholesale price controls are adjusted to satisfy the financial indicators the wholesale charge passed on to retail is affected. When the wholesale price controls adjust the retail price controls are impacted via working capital requirement.

23.14 Once the retail controls are set, the model then allows the user to commence the wholesale price control solving process.

23.15 The nominal financial performance indicators are used as hard constraints in two automated stages of the price control solving process, firstly during the dividend adjustment stage and secondly in the revenue adjustment stage. Whereby the model aims to find the optimum dividend and revenue adjustments that satisfy the key financial performance indicator targets.

23.16 The key financial indicators which can be targeted during automated price control solving for the periodic review are as follows:

- cash interest cover (FFO);
- adjusted cash interest cover;
- debt payback (FFO/debt);
- debt payback (RCF/debt);
- gearing (ratio of net debt to RCV);
- dividend cover;
- regulated equity / regulated earnings;
- RCV / EBITDA; and
- RCF / capex.

23.17 In addition, the following indicators are calculated for information. These are not available as price control solving target constraints.

- Return on capital employed (RoCE).
- Return on regulated equity (RoRE).

Gearing adjustment (optional)

23.18 The gearing adjustment is an optional step in solving wholesale price controls. Where necessary, the company's opening financial position can be adjusted to ensure the level of gearing is consistent with the notional capital structure in the weighted average cost of capital.

23.19 Gearing in this context is defined as the ratio of net debt to RCV based on nominal indicators.

23.20 The target gearing level is an input to the model. If gearing is outside the target range, the model will suggest an adjustment to the opening financial position in the base year that has been input to the model.

23.21 The gearing adjustments allow the base year gearing to be targeted or to target a five year gearing average for the review period.

23.22 The gearing adjustment can be used to gear up or gear down the financial position.

23.23 It adjusts the cash and reserves in the opening financial position inputs by increasing them when gearing down or decreasing them when gearing up.

- 23.24 As result of adjusting the gearing, the capital structure of the company is now on a notional basis. Changing the gearing alters the net debt position, this impacts the interest charge and consequently the tax in the revenue requirement. At this point the tax included in the revenue requirement is based on the notional structure and will therefore not reflect the actual tax charge that the company will face.
- 23.25 The model adjusts interest costs (see the next section) to keep the tax in the revenue requirement based on the actual gearing level but set financing costs consistent with the regulatory costs of capital.
- 23.26 As part of the gearing adjustment the model recalculates the dividend in the opening year so that it is consistent the new gearing and distributable reserves. This recalculation of the dividend is only performed under the distributable dividend method. Since the recalculated dividend will further impact the net cash position, the company's tax will further recalculate regardless of being under a notional capital structure.
- 23.27 If the gearing adjustment has been applied any changes to the revenue requirement – for example, through changing the PAYG ratio or run-off rates – will affect the company's gearing and therefore mandate the gearing adjustment to be reapplied for the gearing to be preserved.

Gearing interest adjustment (optional)

- 23.28 As the model adjusts to the target gearing level interest is recalculated against the new notional capital structure. The interest calculated results from the gearing level specified this may be different to the company's actual interest charge based on the actual capital structure. As a consequence the tax charge no longer reflects what the company will face based on the company's actual capital structure.
- 23.29 The user has the option to adjust the interest now such that the tax charge calculated remains at the level prior to the gearing adjustment that is, the actual tax charge. This results in the tax charge in the revenue requirement remaining consistent with the company's actual tax charge.
- 23.30 The model includes a switch that if:
- **enabled**: the model adjusts the interest charge on loan interest that flows through the tax calculation to maintain the tax charge consistent with the level prior to the gearing adjustment; or

- **disabled**: the model makes no adjustment and the tax charge is based on the target gearing, notional capital structure.

23.31 This has the effect of allowing interest in the model can be calculated on the following basis.

- Actual capital structure interest and actual tax (that is, no gearing adjustment and no interest adjustment).
- Notional capital structure and notional tax (that is, gearing adjustment and no interest adjustment).
- Notional capital structure and actual tax (that is, gearing adjustment and interest adjustment).

23.32 If the interest adjustment has been applied any changes to the revenue requirement for example, through changing the PAYG ratio or run-off rates, will affect the company's gearing and therefore mandates the interest adjustment to be reapplied for the tax charged to be preserved.

Target rate of return (optional)

23.33 The initial price controls are determined on the basis of service-specific annual costs of capital – for example, return on water RCV and a return on additions to water RCV generate the return to water required for the water revenue requirement.

23.34 The model always blends the cost of capital between existing RCV and new additions on a service specific annual basis for producing the initial wholesale price controls in the first instance. The model gives an optional stage to blend the costs of capital used in deriving the wholesale revenue requirement.

23.35 This stage provides the ability to adopt different profiles of the blended average cost of capital. The model offers:

- a profile blended for wholesale either as a whole or by service; and
- different profiles for blending over time.

23.36 The model provides the option to continue to use the cost of capital as entered without blending or for the user to select which profile to take forward to the next stage in the K determination process.

23.37 The target rate of return selection affects the wholesale revenue requirement and therefore impacts the K profiles.

Target financial indicators – dividend adjustment (optional)

23.38 There are three approaches to dividend calculation in the model as outlined in section 24:

- manual method;
- growth method; and
- distribution method.

23.39 The first control the user has to help achieve appointee financeability is to reduce the dividends that the company pays therefore improving the cash position of the company and reducing interest charges.

23.40 This stage aims to solve financeability through attempting to find the minimum reduction in the dividend payments such that the financial indicators are satisfied (that is, they fall within user-defined ranges).

23.41 This is an iterative process which applies a Newton–Raphson algorithm to find the appointee dividend payments (below those initially input by the user) that will achieve the wholesale revenue requirement and the specified appointee financial indicator targets.

23.42 Only dividend charged can be changed (dividends paid follow the solved adjusted charge). That is:

- interim dividends due, which are paid mid year in the current year; and
- final dividends due, which are paid mid year in the following year.

23.43 This solving process is applied on an annual basis, starting with year 1 and solving subsequent years successively.

23.44 Indicators are targeted on an individual basis, that is, the model requires every indicator to have a target value specified. Regardless of whether the indicator is switched on or off for targeting purposes if a target is not specified (that is, a blank cell) the model assumes there is no target.

23.45 There are two ways to specify the target values:

- input to the input sheet a default target value for each indicator, which applies in all years; or

- enter an annual target for each indicator in each year on the price control solving sheet which takes priority over the default target values on the input sheet.
- 23.46 The dividend adjustment is solved at the wholesale level, rather than by service. This is consistent with the approach that the dividend is calculated on the basis of wholesale distributable profits (excluding retail). The solved appointee dividend is then apportioned back to each service in order to calculate the impact on their revenue requirements.
- 23.47 The reduction in the dividend required to achieve financeability is apportioned to each service base on their respective shares of the original dividend in each year. This approach, unlike other options, ensures that should the dividend need to be reduced to zero when solving financeability neither service shall ever encounter the position of a negative dividend.
- 23.48 The solving of the dividend payments is constrained between the original dividend and zero.
- 23.49 Due to the existence of interim dividends (paid in year) when targeting financial metrics changing the declared dividend charge will affect the both the current and subsequent year's dividend payment.
- 23.50 As a result, when targeting the nominal financial metrics in a given year via a dividend adjustment the model will first reduce the dividend charge in the prior year (with the exception of the first year in the model) as the final dividend of the prior year affects the target year. If the financial metric target is not met the model then adjusts the dividend charge in the target year, whereby the interim dividend affects the target year. The model therefore always solves the dividend adjustment working forward through each year.
- 23.51 If the financial metric target cannot be met then the user must result to other price control solving options to help achieve financeability.
- 23.52 Following completion of the solving, the key financial indicators are reported to the user as these may not have reached acceptable levels in years where dividends are no longer being paid.
- 23.53 As a result of solving the dividend, the tax in the model is recalculated based on the revised net cash position that results from altering the dividend.

First stage manual adjustments: run-off rates and PAYG ratio (optional)

- 23.54 If the user has not elected to solve financial indicators through adjustments to the dividend payments or these adjustments have not been sufficient, then there are two further solving mechanisms that are available to the user. They are:
- run-off rates; and
 - PAYG ratio.
- 23.55 The user must perform this stage ahead of the later equity injection stage should they wish to alter either the run-off rates or PAYG ratio since doing so affects any earlier target gearing adjustment applied. Performing these adjustments post the equity injection is not viable if the user has previously applied a target gearing adjustment, as such a gearing adjustment would be rendered invalid.
- 23.56 For each of these controls, the user is given the option to revise the inputs originally entered into the model. No automatic solving takes place to identify the optimum values of these controls.
- 23.57 If any changes are made to these controls the underlying revenue requirement will change. As such, the net debt position and the gearing will change. To help ensure that the target gearing is maintained along with the desired tax charge the model will revert the user back to the gearing adjustment stage. The user is required to step through all of the subsequent steps again either reconfirming their original decisions or updating their decisions at each stage. The previously selected values are given as defaults but these must be confirmed by the user if no changes are required.

Second stage manual adjustments: equity injections (optional)

- 23.58 If the financial indicators have not been solved through prior adjustments then the equity injection control mechanism is presented to the user.
- 23.59 The user is given the option to apply an equity injection at the appointee level over any year within the timeframe of the model. No automatic solving takes place to identify the optimum values for this control.

- 23.60 The user is also prompted to enter the associated equity issuance cost this is considered as an additional element to the revenue requirement and is treated as if it were PAYG expenditure.
- 23.61 In the case of an equity injection the net debt position will change and also the gearing. To prevent the user from re-running the target gearing stage, which would mitigate the purpose of an equity injection, the user is not reverted to the gearing adjustment stage.
- 23.62 If prior to applying an equity injection a gearing adjustment and associated interest adjustment has been applied for the purposes of holding tax in line with the actual capital structure, then following on from an equity injection the model provides the option to run a further interest adjustment to account for the equity injection.
- 23.63 As a result of injecting equity the net cash position and associated interest is recalculated, impacting the tax charge. The tax charge calculated by the model will no longer be consistent with the actual capital structure sought from the early initial interest adjustment associated to the gearing adjustment. As such there is the option at this stage to adjust the interest associated to the equity injection to bring the tax charge back in line with the tax charge based on the actual capital structure.
- 23.64 If the interest adjustment is applied at this stage the interest impact from the equity injection is ignored and the tax charge is held unchanged.
- 23.65 If the interest adjustment is not applied at this stage the equity injection leads to a reduction in interest which will lead to a greater tax charge, this is then recovered through the revenue requirement.

Target financial indicators – allowed revenue adjustment solving (optional)

- 23.66 For completeness of the functionality of the model, the model enables the user to seek appointee financeability by providing functionality to adjust revenues.
- 23.67 Targeting the nominal financial indicators through a revenue adjustment is an optional stage.
- 23.68 This stage aims to solve financeability through attempting to find the minimum increment in revenue such that the financial indicators are satisfied (that is, they fall within user-defined ranges).

- 23.69 The allowed revenue adjustment is solved at the wholesale service level.
- 23.70 As financeability is assessed at the appointee level through a single set of financial ratios constraints the service specific price controls are interrelated. From perspective of price control solving the services are not independent and therefore require a simultaneous solving approach. We assume that each service and each allowed revenue profile is adjusted such that parity is retained between the allowed revenues in order to consistently share the financeability burden.
- 23.71 The model applies a two variable Newton–Raphson approach to identify the minimum revenue adjustments (water and wastewater).
- 23.72 Through adjusting the allowed revenues the corresponding movement in the tax charge is automatically calculated and applied to the revenue requirement. The model does not provide an option at this stage for the user to further hold the tax charge consistent with the original tax charge based on the actual capital structure, via an interest adjustment. Since the additional revenues now required to solve financeability shall lead to a greater tax charge.
- 23.73 This solving process is applied on an annual basis, starting with year 1 and solving subsequent years successively.
- 23.74 Indicators are targeted on an individual basis, that is, the model requires every indicator to have a target value specified. Regardless of whether the indicator is switched on or off for targeting purposes if a target is not specified (that is, a blank cell) the model assumes there is no target.
- 23.75 There are two ways to specify the target values:
- input to the input sheet a default target value for each indicator, which applies in all years; or
 - enter an annual target for each indicator in each year on the price control solving sheet which takes priority over the default target values on the input sheet.
- 23.76 To converge the solving of the price control on a solution a tolerance range must be entered into the model for each targeted metric. In the absence of a user specified tolerance the model assumes a default tolerance. This default is also a model input.

- 23.77 Once the targets have been specified the model then solves the revenue adjustment required until a profile is found that satisfies the target criteria.
- 23.78 Once the revenue profile has been solved for the financeability targets, they will appear in the 'bankable' allowed revenue adjustment profiles. By bankable we mean K factors and allowed revenues that take into account financeability which are before post-financeability adjustments, reprofiling and contributions for connection charges
- 23.79 The model also displays the resultant key financial indicators for the 'bankable' allowed revenue adjustment profiles.
- 23.80 From these allowed revenue profiles the K factors are determined.
- 23.81 Following completion of the solving, the financial indicators and K factors are reported to the user.
- 23.82 Refer to the appendix for the logic flow diagrams that underpin the price control solving functionality.
- 23.83 The user has the ability to overwrite the allowed revenue adjustments solved by the model. This is discussed in the next section.

Overwriting bankable allowed revenue adjustments (optional)

- 23.84 Optionally the allowed revenue adjustments can be overwritten by the user. This flexibility is introduced after financial indicator targeting.
- 23.85 The user can specify allowed revenue adjustments for each subsequent year of the review period, by service.
- 23.86 The model recalculates the key financial indicators and financial statements based on the user specified values.
- 23.87 If the model is at a later stage in the price control solving process – for example, post-financeability revenue adjustments or price control smoothing – then this stage allows the model to return to the earlier bankable profile without requiring the need to run the whole price control solving process from the beginning.

Applying revenue adjustments (optional)

- 23.88 This section refers to the application of the post-financeability revenue adjustment.
- 23.89 The approach for applying the revenue adjustments will be decided as part of determining price controls during the final determination. As such the model has the flexibility to cater for applying annual adjustments.
- OPA (the predecessor to SIM in earlier price reviews) has previously been applied as one-off adjustment in the first year of the review period.
 - Opex incentive mechanism has previously been applied over multiple years.
 - CIS and the RCM adjustment are new for PR14.
 - Equity injection claw back is designed for those companies who Ofwat assumed may have needed to raise further equity in the prior review at the time they were allowed revenues to cover the issuance costs. The claw back is designed to recover revenue allowed in the prior review period where the companies did not in the end raise equity for the amount assumed.
 - Tax refinancing benefit claw back is designed for those companies whose actual capital structure has changed over the last review period to give rise to a tax benefit that had not been catered for when price controls were determined at the prior review.
 - Any ex ante adjustments to wholesale allowed revenues in respect of the review period for:
 - outcome delivery incentive; and
 - totex menus (additional income).
- 23.90 Once the bankable wholesale price controls have been established the model applies the post-financeability revenue adjustments.
- 23.91 All the post-financeability revenue adjustments are derived outside of the model and any profiling of these adjustments is also calculated outside of the model.

23.92 The adjustments are inputs into the model by service and the model allows input on an annual basis as monetary values.

23.93 These are added to the bankable allowed revenue. K factors are then recalculated.

Determining K factors

23.94 The model reports nominal allowed revenues at each stage in the price control solving process.

23.95 The model derives real allowed revenues after the allowed revenue adjustment stage these are then used to derive K factors.

23.96 K factors are determined for each year of the model.

23.97 K factor for the first year of the price control period is set to zero.

23.98 K is calculated as the year-on-year movement derived from real allowed revenues. K is calculated through indexing the real allowed revenues using year average RPI and adjusting the indexed allowed revenues to account for the licence annual November to November RPI.

Re-profiling price controls (optional)

23.99 This is the final stage in solving the wholesale price controls.

23.100 There is an optional facility in the model to re-profile the allowed revenues and recalculate K. This solves constant service specific price controls for each year that maintains the present value of the service specific revenues arising from the active price control profiles from the checks on the financial indicators and the automatically applied post-financeability revenue adjustments.

23.101 Re-profiling applies to the five years of the current and the five years beyond the current pricing review. For 2015-16, K is held at the value of zero.

23.102 The calculated re-profiled allowed revenues can be manually overwritten to any profile required by the user, the implied K is subsequently recalculated.

23.103 The user may also enter specific allowed revenue profile by service. The model can then solve any blanks in the user specified allowed revenue profile by service, such that the solved allowed revenue profile minimises the difference between the present value of the service specific revenues arising and the present value of the service specific revenues associated with the active price control profiles prior to the re-profiling stage being started. The blanks are then solved.

23.104 Re-profiling of price controls only re-profiles the allowed revenues and recalculates K. The underlying financial statements and indicators are not re-profiled.

24. Appointee dividends

24.1 The model assumes that appointee dividends are driven and covered entirely from wholesale distributable profits. Profits and losses from retail are not considered. The model assumes that the retail business always makes a profit due to the design of the price control, as such retail losses are not considered when setting dividends. The model also assumes that the retail business units do not pay dividends. As such appointee dividends are equivalent to the dividend from the wholesale business.

24.2 The model accommodates three dividend policies:

24.3 User input – a user input dividend profile where values are entered for 'opening ordinary dividends' in all years at the appointee level.

24.4 Growth method – annual growth from a given starting point. To establish a starting point for the growth method, the model can calculate a "recommended dividend" for the year prior to the review period. This is calculated as a percentage yield (input) on the implied equity portion of the regulatory capital value (the RCV less net debt).

24.5 Distribution method – or the distribution of a proportion of profits available for the year.

24.6 The policy applied by the model depends on the way that input values are populated. When the inputs required for one method are not populated, the model checks the inputs required for the next method. This is set out in flowchart F18. The general order of priority is as follows.

- User input values for ‘opening ordinary dividends’.
 - Growth method – previous year’s dividends multiplied by inflation plus real growth (input) and the growth in the number of shares.
 - Distribution method – distributable profit multiplied by percentage distributed (input).
- 24.7 Dividends are calculated at the wholesale level, this ensures that the dividend paid is reflective of the overall wholesale business’ performance. This mitigates the issue when using the distribution method whereby if dividends were to be calculated at a service level (and therefore independent of one another) then the aggregate dividend of the services could exceed that expected of wholesale service activities as a whole. For example, when one of the services is operating at a loss, the loss would reduce the wholesale distributable profits and accordingly reduce the overall dividend. However, if the dividend were to be calculated at the service level, independent of one another, then the profitable service would not take into account the loss in the underperforming service and would pay out an excessive dividend.
- 24.8 The wholesale dividend is then apportioned between the services to allow the respective cash positions and interest to be calculated, and to calculate the service specific tax for the revenue requirement.
- 24.9 Dividends are apportioned between the services on the following basis.
- 24.10 User input – based on a user input apportionment assumption.
- 24.11 Growth – based on the respective number of shares of each service for the year in which the dividend is declared. Where the specific service does not have sufficient retained earnings to fund the dividend charge, the model caps the dividend in the respective service. The balance of this dividend is declared and paid by the counter service.
- 24.12 Distribution – based on the respective distributable profits of each service for the year in which the dividend is declared.
- 24.13 The opening 2015-16 dividend creditor is assumed to be included entirely within wholesale services. It is expected to have an opening value of nil. This reflects the assumption that all dividends for 2014-15 are assumed to have already been paid.

24.14 If a dividend adjustment is made as part of the price control solving process to meet user defined financeability targets (see section 23), the model calculated dividend adjustment will be overlaid at the user's request on to the input/calculated dividend in each year. It is possible that depending on the original dividend profile and the user defined financeability targets that:

- there may not be a solution. Where this is the case the model will propose to remove as much of the dividend declared as possible, where required;
- the model may propose excessive dividend adjustment(s) in any year to help meet the following year's financeability targets. In the worst case scenario the model will remove the maximum amount of dividend that it can which could be excessive for a given year's target. In this situation it still remains possible for the model to either meet or fail to meet the user defined targets. This is notable where the dividend has been entirely removed for a year and that all of that year's target metrics' have been outperformed as opposed to being met; or
- the model will always inform the user whether solving has been able to meet the target metrics. Those metrics which cannot be met will be highlighted in the user interface.

24.15 The model can calculate interim dividends as a proportion of the ordinary dividend for the full year (input), or an input value can be entered. As with opening ordinary dividends, input values take priority over calculations.

24.16 There are two checks on dividend payments such that:

- no dividends will be paid if the share inputs are not populated; and
- the model will not allow the dividend to exceed the total funds available for distribution.

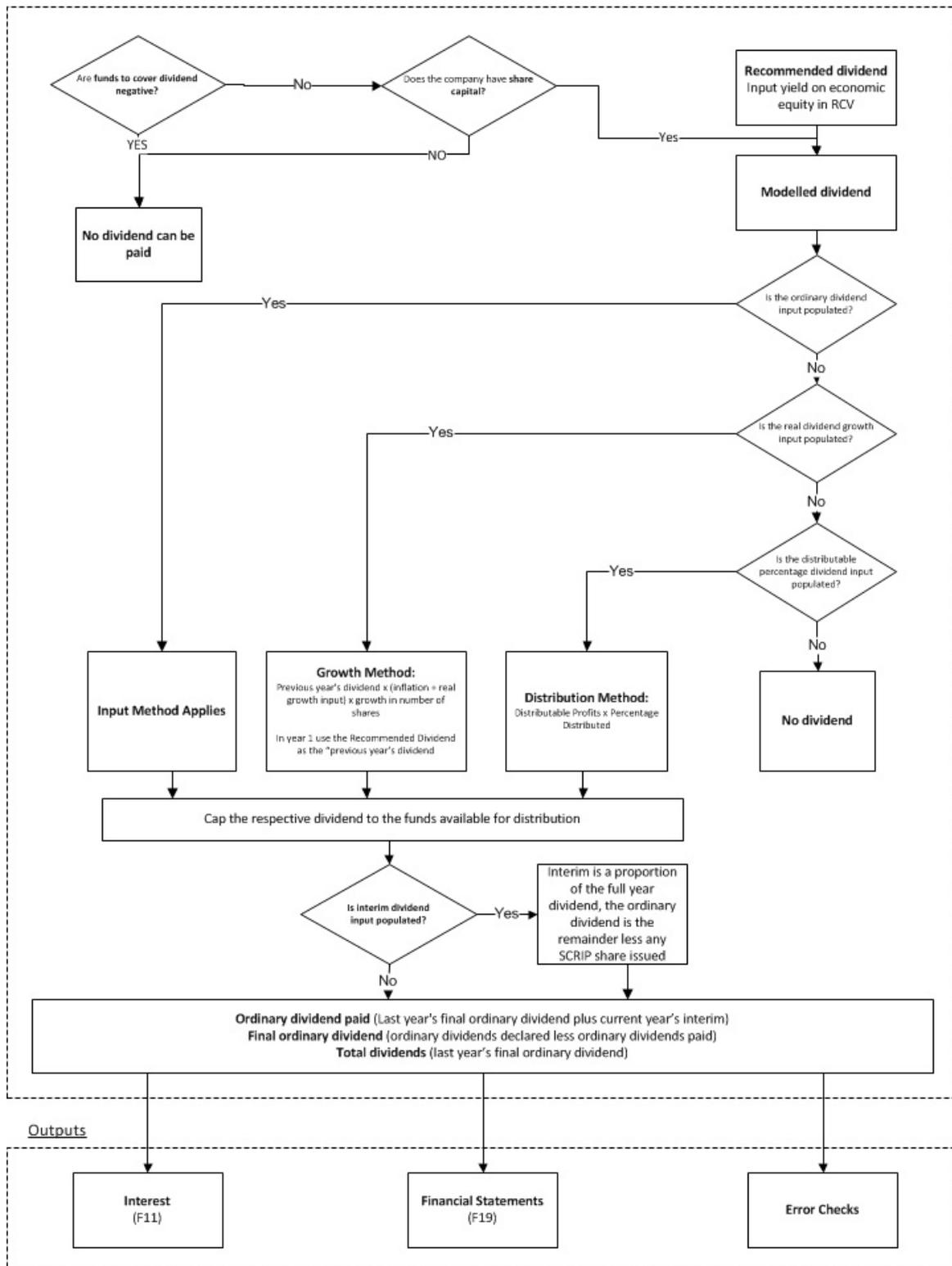
24.17 There are further input options allowing the payment of special dividends, a percentage of ordinary dividends to be paid as scrip shares and other share issues.

Dividends are recalculated after a gearing adjustment and after the application of the interest adjustment for tax purposes.

24.18 Scrip share issues are only issued with the final dividend (not with the interim dividend).

F18. Dividends

Logic



25. Appointee financial statements and financial indicators

- 25.1 The model calculates the total turnover for the appointee by service. This, in conjunction with the cost components of the wholesale revenue requirement, is then used to construct the cash flow, statement of income and statement of financial position for each year. These are then used to calculate relevant financial indicators. This is illustrated in flowchart F19.

Accounts

- 25.2 The financial statements in the model are indicative for the purpose of determining the price controls. They are not intended to fulfil statutory accounting requirements.
- 25.3 The financial statements are produced consistent with the regime that will form UK GAAP for 2015-16 onwards. While individual company approaches may differ (if a company is FRS101 or FRS102) then there may be some inbuilt differences to actual company reported results. However, the abolition of infrastructure accounting has been taken into account so there are unlikely to be material differences for forecasting financial results.

Financial indicators

- 25.4 We recognise that finance providers and commentators use past and future performance, as set out in accounting and cash flow statements, to assess company performance. We use a selection of nominal financial indicators to assess the financeability of the allowed revenues and price control profiles.
- The model calculates a number of key financial indicators. These are available to be targeted in the wholesale price control solving process (explained in section 23 and defined in the glossary).

In addition the following indicators are calculated for information. These are not available as price control solving target constraints.

- Return on capital employed (RoCE).
- Return on regulated equity (RoRE).

Average bills

- 25.5 The model calculates average household bills using the allowed revenues from wholesale services, retail household allowed revenue and the number of household customers. The customer numbers are inputs to the model.
- 25.6 The model produces separate average household bills for water and wastewater. This requires the retail allowed revenues to be split between water and wastewater services. The apportionment reflects the unique customer breakdown of costs within the total ACTS.
- 25.7 The average bill is calculated as:

Wholesale water – average household bill

= (Wholesale water allowed revenue * household wholesale water apportionment) / Number of household water customers.

Wholesale wastewater – average household bill

= (Wholesale wastewater allowed revenue * household wholesale wastewater apportionment) / Number of household wastewater customers.

Retail – average household bill

= (Household allowed revenue) / Number of household retail customers.

Average water-only bill

= wholesale water component + adjusted retail allowed revenue per customer.

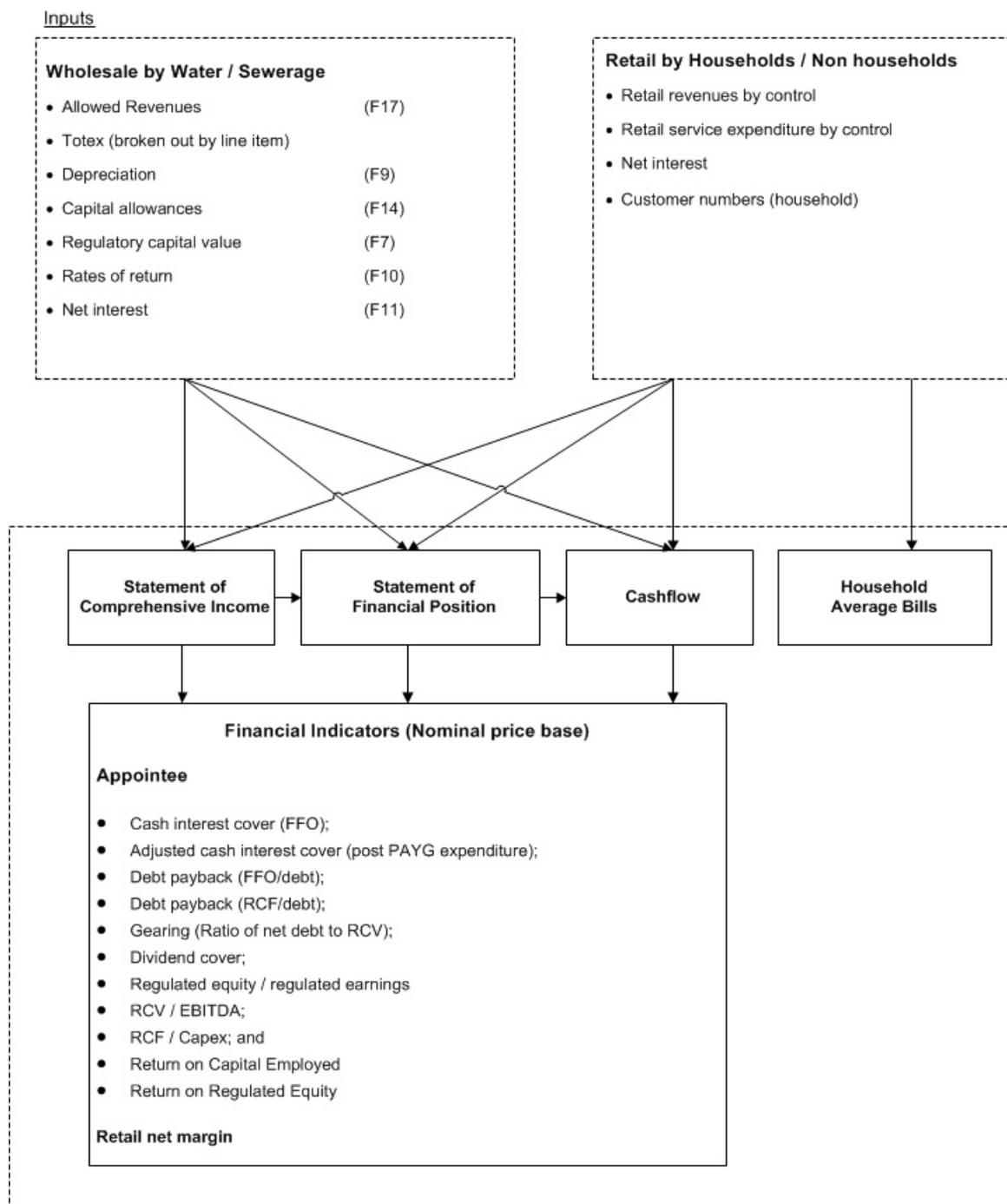
Average sewerage-only bill

= wholesale wastewater component + adjusted retail allowed revenue per customer.

Average combined bill

= wholesale wastewater component + wholesale water component + (adjusted retail allowed revenue per customer * economies of scope).

F19. Financial statements and financial indicators



26. Cash flows

- 26.1 The statement of cash flows is the key financial statement linking the statement of income with the statement of financial position. The size of the capital programme in the water industry places great emphasis on understanding cash flows. The statement of cash flows in the model follows the conventional format.
- 26.2 Operating profit is adjusted for non-cash items such as depreciation to calculate the net cash flow from operating activities. Other cash flow items such as interest paid or received, taxation, purchase or sale of fixed assets and dividends are then added or subtracted from the net operating cash flow. Any issue or repayment of loans, or issue of shares, is then taken into account – the net result being the increase or decrease in cash for the period.
- 26.3 The following assumptions are made regarding the timing of cash flows.
- Non-deductible expenditure on underground assets is treated as an investing activity rather than part of operating cash flow.
 - Deductible expenditure on underground assets is treated as part of operating cash flow.
 - Interest is paid or received mid year in the year it is incurred.
 - Interim dividends are paid mid year in the year to which they relate.
 - Final dividends are paid mid year in the following year.
 - Capital expenditure is paid mid year in the year it is incurred.
 - The level of stock is assumed to be immaterial and not change from period to period.

27. Technical requirements

- 27.1 The model is designed to operate on a Pentium i5 computer with a minimum of 4GB of RAM.
- 27.2 The model is designed to operate on Windows 7.
- 27.3 The model is built and tested in Excel 2010 only.
- 27.4 The model requires macros to be enabled.

27.5 The model requires the Excel Analysis ToolPak add-in to be installed.

28. Assumptions

28.1 VAT is not considered by the model.

28.2 Tax losses: if the tax rate changes while tax losses are being carried forward, the benefit associated with these tax losses are shared between the two services for compatibility with the tax apportionment approach.

28.3 Tax losses: it is assumed the retail business never makes a tax loss. Wholesale tax loss relief is not made available to the retail business. Tax loss relief is always carried forward within the wholesale business.

28.4 Tax payments: it is assumed that all tax payments are being made a year in arrears.

28.5 Opening inventories, provisions, trade creditors, capex creditors, deferred tax and pensions are apportioned within wholesale on the basis of brought forward RCV.

28.6 Calculated balance sheets items which are apportioned between water and wastewater on an average RCV basis use the average RCV calculated taking into account the changes made to the PAYG and run-off rates during price control solving.

28.7 Fixed assets: the model does not assume any disposals of fixed assets in the period.

28.8 Trade payables: balances are calculated based on expenditure in the year. No adjustment is made for salary costs which are likely to be payable monthly.

28.9 Dividends are recalculated post a gearing adjustment and post the application of the interest adjustment for tax purposes.

28.10 The model assumption for the opening 2015-16 dividend creditor is nil, this reflects the assumption that all dividends for 2014-15 are assumed to have already been paid.

- 28.11 Scrip share issues are only issued with the final dividend (not with the interim dividend)
- 28.12 If an equity adjustment is made then this remains as an adjustment (and similarly for the issuance costs). This ensures that the equity adjustment does not run through the gearing adjustment phase of the price control solving process.

29. Limitations

- 29.1 The model does not include scenario or what-if functionality within it.
- 29.2 The model reports are limited to:
- appointee – financial statements (nominal price base);
 - executive summary (including average household bills);
 - dashboard; and
 - tax reconciliation.
- 29.3 If the tax rate changes while tax losses are being carried forward, the benefit associated with these tax losses is shared between the two services due to the apportionment approach adopted in this model.
- 29.4 Changing the allowance for pension deficit recovery functionality is possible in the current model through using adjustment lines to the revenue requirement (cash recovery in period).
- 29.5 When calculating the effects of each price control solving phase, the model may move from an overdraft position to a positive cash position or vice versa. Since interest is calculated on the net cash position, whether the net cash position is an overdraft or a positive cash balance cannot be determined until the effects of the price control solving phase have been applied. This leads to a circularity, as the model needs to know which interest rate to apply to the net cash position for each price control solving phase. To help resolve this issue the interest rate applied to net cash is based on whether the brought forward cash position is positive or negative. Based on this forecast the model decides which interest rate to apply to the net cash position.

- 29.6 If a dividend adjustment is made as part of the price control solving process to meet user defined financeability targets (see section 23), the model calculated dividend adjustment will be overlaid at the user's request on to the input/calculated dividend in each year. It is possible that depending on the original dividend profile and the user defined financeability targets that:
- there may not be a solution. Where this is the case the model will propose to remove as much of the dividend declared as possible, where required;
 - the model may propose excessive dividend adjustment(s) in any year to help meet the following year's financeability targets. In the worst case scenario the model will remove the maximum amount of dividend that it can which could be excessive for a given year's target. In this situation it still remains possible for the model to either meet or fail to meet the user defined targets. This is notable where the dividend has been entirely removed for a year and that all of that year's target metrics' have been outperformed as opposed to being met; or
 - the model will always inform the user whether solving has been able to meet the target metrics. Those metrics which cannot be met are highlighted in the user interface.
- 29.7 The model does not include functionality to hold gearing at the notional gearing level post the user running any adjustments to wholesale allowed revenues.
- 29.8 The model does not include functionality to automatically hold tax charge consistent with that of a notional capital structure as a result of the user manually adjusting index-linked debt.

30. Glossary

Accounting depreciation: A measure of the consumption, use or wearing out of balance sheet assets over the period of their useful economic life.

Appointed business: The business providing the water (and wastewater) services. Typically the appointed business is carried out in a subsidiary company known as the 'appointed company' which acts under an instrument of appointment (or licence).

Capital base: See regulatory capital value.

Capital programmes: Planned construction work to build new assets or replace or renovate existing assets such as wastewater treatment works and water mains.

Charge multipliers: The basis for aggregating non-household revenue from each component part of the default tariff. This includes the non-household retail costs and the wholesale charge for each tariff band.

Cost of capital: The minimum return that providers of capital require to prompt them to invest in or lend to the appointed business, given its risks (see weighted average cost of capital).

Current cost accounting: A method of accounting originally designed to deal with the problem of showing the effect of inflation on business profits. Instead of showing assets at their historic cost (that is, their original purchase price), less depreciation where appropriate, the assets are shown at their current cost (modern equivalent asset value) at the time of producing the accounts.

Enhancement expenditure: Expenditure to enhance and grow the asset base to better the level of service delivered.

Equity: The risk-sharing part of a company's capital. This is commonly referred to as ordinary share capital.

Financial indicators: Financial ratios used to measure the financial performance of a company.

Gearing: A company's net debt expressed as a percentage of its total capital. A common measure of gearing is the ratio of net debt to net debt plus equity expressed as a percentage. The measure of gearing we use in the water industry is net debt as a percentage of the regulatory capital value.

Historic cost accounting: The traditional form of accounting, in which assets are shown in financial positions at their costs to the organisation (historic cost), less any appropriate depreciation.

Household: A domestic or residential setting that is, typically referring to production of water for and its usage by customers in a domestic or residential setting (non-business or non-commercial use).

Indexation: A technique to adjust income payments by means of a price index such as the retail price index or other measures of prices (inflation).

Infrastructure assets: Mainly underground assets, such as water mains and sewers and also dams and reservoirs that last for a long time. A distinction is drawn between infrastructure and non-infrastructure assets because of the way in which the assets are managed, operated and maintained by the companies.

Infrastructure renewals charge: An annual accounting provision for expenditure on the renewal of infrastructure (that is, mainly underground) assets charged to the profit and loss account.

Infrastructure renewals expenditure: Expenditure incurred in the financial year to maintain the operating capability of infrastructure assets through renewal or renovation of underground (or infrastructure assets).

K: The amount by which a company can increase (or must decrease) its charges is controlled by the price limit formula $RPI \pm K + U$. K is a number determined by us at a price review every five years for each company, for each year, to reflect what it needs above inflation, in order to finance the provision of services to consumers. U is the amount of unused K not taken up in previous years.

Licence: The water (and wastewater) companies operate under instruments of appointment, also referred to as 'appointments' or sometimes as 'licences'. The instruments of appointment impose conditions on the companies, which we enforce. They are not the same as a 'water supply licence' introduced by the Water Act 2003. The licences impose conditions on the companies which Ofwat is required to enforce.

Maintenance non-infrastructure expenditure: Capital expenditure to replace and renew non-infrastructure assets.

Net debt: The sum of cash and cash equivalents and total borrowings excluding finance leases, where total borrowings include fixed rate loans, floating rates loans, overdraft and index-linked loans.

Net present value: The economic value of a project, at today's prices, calculated by netting off its discounted cash flow from revenues and costs over its full life.

Newton–Raphson algorithm: The Newton–Raphson algorithm is used to iterate to a value X such that $f(X) = 0$, and is particularly useful in solving functions where it is impossible (or very difficult) to do so algebraically but finding the inverse of the function. The algorithm is:

$$X_{n+1} = X_n - f(X_n)/f'(X_n).$$

Where $f'(X)$ is the gradient of the function f at X . Within the PR14 financial model it is not be possible to define the gradient of $f(X)$ mathematically, so it is calculated empirically by changing the value of X slightly. The algorithm is considered to have converged once the $f(X)$ is within the prescribed tolerance or 0.

Non-household: A business setting that is, typically referring to production of water for and its usage by customers in a non-domestic or non-residential setting (for business or commercial use).

Non-infrastructure assets: Mainly above-ground assets such as water and wastewater treatment works, pumping stations and company laboratories, depots and workshops.

Operating income: Historical cost operating income includes profits or loss on disposal of fixed assets; income arising from exceptional items should also be included. Normally a positive number, but a loss should be negative.

Other income: Includes rental income and income from investments (for example, share income); excludes net interest and profit on disposals on fixed assets.

PAYG: The proportion of totex that will be recovered in the year the costs are incurred and the remaining totex will then be added to the RCV.

Rate of return: The annual income and capital growth from an investment, expressed as a percentage of the original investment.

Regulatory accounts: Financial statements that the appointed water companies submit to Ofwat in respect of the regulated business. They are different to the statutory accounts. They are always produced to a 31 March year-end. Companies are required to put their regulatory accounts on their websites.

Regulatory capital value: The capital base used in setting price limits. The value of the regulated business which earns a return on investment. It represents the initial market value (200 day average), including debt, plus subsequent net new capital expenditure as assumed at the time of initial price setting and including new obligations imposed since 1989. The capital value is calculated using Ofwat's methodology.

Regulatory depreciation: A measure of the consumption, use or wearing out of RCV over the period of its useful economic life. The regulatory depreciation is considered in two parts. First there is the depreciation of legacy RCV which is the opening RCV for the AMP which is run off during the price control period. The second is the regulatory depreciation of additions to the RCV during the price control period which are depreciated using an average asset life.

Retail: Purchase of a wholesale supply of water from the appointed water company and its resupply to a customer's eligible premises, in line with section 17A[4] of the Water Industry Act 1991.

Retail net margin: This margin is calculated before interest and tax and should be sufficient to remunerate retail capital employed for bearing retail risks. This is used for household net retail margins and as an input into setting the default tariff for non-households.

Retail price controls: This includes the allowed revenues from household customers and expected revenues from non-household customers.

Return on capital: A financial measure that quantifies how well a company generates cash flow relative to the capital it has invested in the business.

Returns on investment and servicing of finance: Receipts and payments resulting from the ownership of an investment, excluding those classified under operating, investing or financing activities.

Review period: The years for which the price controls are to be determined in a price review.

Rights issue: This is a way in which a company can sell new shares in order to raise capital. Shares are offered to existing shareholders in proportion to their current shareholding. The price at which the shares are offered is usually at a discount to the current share price, which gives investors an incentive to buy new shares.

Special dividends: Dividends paid by the company which are not part of the usual dividend stream arising in the usual course of business.

Successive over-relaxation: A method in linear numerical algebra used for solving a linear system of equations that helps to establish convergence for a solving process that overshoots possible solution(s). This has been applied to the Newton–Raphson solving algorithm that is used in solving the dividend adjustment, gearing adjustment and re-profiling of allowed revenues.

Totex: Total of all expenditure incurred on the regulated wholesale business activities.

Weighted average cost of capital (WACC): For an appointed company, the average of its cost of debt and cost of equity capital (see cost of capital), weighted according to the balance of debt and equity which finances the company's assets.

Wholesale: Supply of water to a licensee by an appointed water company for the purposes of retail by the licensee to its customers' premises.

Wholesale price controls: This includes the allowed revenues and associated K factors throughout the review period.

Financial indicators

Cash interest cover: This measures the ability to meet interest payments from operational cash flows and is a key financeability metric. It is defined as the net cash flow from operating activities before payment of interest but after payment of tax, adjusted to remove the impact of changes in working capital levels, divided by net interest paid.

$$= (\text{funds from operations} + \text{net interest paid}) / \text{net interest paid}.$$

Adjusted cash cover ratio: This is similar to cash interest cover (above) but measures the scope to make interest payments specific charges as described below.

= (funds from operations + cash interest paid -2015 RCV Run off - depreciation on totex additions to RCV) / net interest(expense) excluding indexation of index-linked loans.

Funds from operations: debt: This measures the debt burden in relation to operational cash flows. Funds from operations is cash generated from operating activities , adjusted to remove the impact of changes in working capital, less interest paid and current tax paid.

= funds from operations / average net debt.

Retained cash flow: debt: This metric assesses ability to repay (rather than service) debt. It is calculated as the ratio of the cash generated in the year after payment of tax, interest payable and dividends divided by net debt.

= movement in retained cashflow / net debt.

Gearing net debt / RCV: This is a measure of the capital structure of the company and is calculated as net debt divided by RCV.

= net debt / year end RCV.

Dividend cover: This provides a measure of the ability to pay dividends and calculates the number of times a company's dividends to ordinary shareholders could be paid out of net profits after tax in the same period. It is calculated as the profits for the year after tax, but before dividends divided by the dividend declared for the year.

= profit after tax / dividend declared.

RCV / EBITDA:This measure provides information on the operating cost structure of each company and allows comparison of the sustainability and trend of earnings across companies.

= average RCV / EBITDA.

Regulated equity/regulatory earnings for the regulated company: This ratio provides a measure of the value of the equity component of the RCV relative to the level of a company's earnings. Both regulatory equity and retained earnings are calculated with respect to the notional capital structure.

$$= (\text{average RCV} - \text{average net debt}) / \text{retained profit for the year}$$

Return on capital employed (RoCE): This represents the return due to providers of finance and allows the assessment of overall returns against the weighted average cost of capital (WACC). This is used for water and wastewater wholesale price controls. We calculate it as:

$$(\text{EBIT} - \text{tax}) / \text{Average RCV}.$$

Return on regulated equity (RoRE): This is used to assess returns made by the equity providers against the assumed cost of equity. This is used for water and wastewater wholesale price controls. This is calculated in relation to the notional amount of equity within the notional capital structure set within the WACC calculation. We calculate it as:

$$(\text{EBIT} - \text{tax} - \text{cost of debt} * \text{average net debt}) / (\text{Average RCV} - \text{Net debt}).$$



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