

Proposed amendment

Electricity distribution network service providers

Post-tax revenue model handbook

October 2014



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Shortened forms

ARR	annual revenue requirement
AER	Australian Energy Regulator
ΑΤΟ	Australian Tax Office
сарех	capital expenditure
CPI	consumer price index
DNSP	distribution network service provider
IRR	internal rate of return
NEL	National Electricity Law
NER	National Electricity Rules
NPV	net present value
орех	operating expenditure
PTRM	post-tax revenue model
PV	present value
RAB	regulatory asset base
RFM	roll forward model
ТАВ	tax asset base
WACC	weighted average cost of capital
WAPC	weighted average price cap

1 Nature and authority

1.1 Introduction

This handbook sets out the Australian Energy Regulator's (AER) post-tax revenue model (PTRM) to be used as part of the building block determinations for standard control services of electricity distribution network service providers (DNSPs). The PTRM is a series of Microsoft Excel spreadsheets developed in accordance with clause 6.4.1 of the National Electricity Rules (NER).

1.2 Authority

Clause 6.4.1(a)(c) of the NER requires the AER to develop and publish the PTRM, in accordance with the distribution consultation procedures.

1.3 Role of the model

DNSPs are required to submit a completed PTRM to the AER as part of their regulatory proposals. However, the AER recognises that there may be a need for some flexibility in applying the PTRM in order to account for the p articular circumstances a DNSP may face. A num ber of elements of the PTRM where this may be the case have been identified in this handbook. A DNSP will need to propose and justify a dep arture from any element of the PTRM for the pu rposes of add ressing its specific circumstances as part of its regulatory proposal, which will be considered and assessed by the AER on a case-by-case basis in making its distribution determination.

The PTRM is used by the AER to determine the DNSP's annual revenue requirements (ARR) using the building block approach as specified in clause 6.4.3 of the NER. The PTRM's purpose is to perform calculations of building block revenue requirements to derive X factors that form part of the control mechanisms for direct control services under clause 6.2.6 of the NE R. The PTRM has not been developed with respect to alternative direct control services. Where a DNSP intends to propose multiple control mechanisms, it should consult with the AER on how the PTRM will apply.

1.4 Confidentiality

The AER's obligations regarding confidentiality and the disclosure of information provided to it by a DNSP are governed by the *Competition and Consumer Act 2010* (Cth), the National Electricity Law (NEL) and the NER.

1.5 Process for revision

The AER may amend or replace the PTRM from time to time in accordance with clause 6.4.1(b) of the NER and the distribution consultation procedures in clause 6.16 of the NER. The AER will publish a revised version of this handbook to accompany each new version of the PTRM it amends or replaces in the future.

1.6 Version history and effective date

A version number and an effective date of issue will identify each version of this handbook.

2 The model

The PTRM is a set of Microsoft Excel spreadsheets that perform iterative calculations to derive the ARR, expected revenue and X factors for each regulatory year of the regulatory control period from a given set of inputs.¹ The PTRM allows the user to vary the inputs to assess their impact on output data such as the ARR, X factors and other derived parameters.

The PTRM is configured:

- to perform the interim calculations automatically whenever an input is recorded
- to perform revenue smoothing calculations and equity raising cost updates manually via buttons that will trigger built in macros.

2.1 Input sheet

The **Input** sheet provides for key input variables to be entered in the PTRM. These are automatically linked to corresponding cells in the relevant sheets. Values should be entered into each cell that has light blue shading. This sheet comprises of the following sections:

- opening regulatory asset base (RAB) and opening tax asset base (TAB)
- forecast real capital expenditure (capex)—as incurred
- forecast real asset disposals—as-incurred
- forecast real customer contributions—as incurred
- forecast real net capex—as incurred
- forecast operating expenditure (opex)
- revenue adjustments from previous regulatory control period
- revenue adjustments from other use of standard control services assets
- expected taxation rate
- cost of capital
- debt and equity raising costs—transaction costs
- price/revenue constraint for the current year
- energy delivered forecast
- current prices by tariff component
- current and forecast quantities by tariff component.

¹ The set of Microsoft Excel spreadsheet s which constitute the PTRM w ere created in Microsoft Excel 2007. The AER recommends this or a later version of Microsoft Excel be used in applying these spreadsheets.

Some inputs may need to be specified outside of the **Input** sheet to capture a specific situation (e.g. tax loss carried forward in the **Analysis** sheet or selection of X factors in the **X factors** sheet). These cells are also marked with light blue shading and are addressed when they arise.

Figure 1, Figure 2 and Figure 3 provide examples of the Input sheet.



Figure 1 Input sheet–first screenshot

Figure 2 Input sheet–second screenshot

	adr F	F	0	u l			V		м	N	0	P	0 P
175	Forecast Operating and Maintenance Expense	liture (Sm	Real 2007)				K		ini	14			× n
176	Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
177	Controllable opex		50.00	50.00	50.00	50.00	50.00						Insert new opex row
178	Corporate		10.00	10.00	10.00	10.00	10.00						
179	Other		2.00	2.00	2.00	2.00	2.00						
180	EBSS carryover		5.00	3.00	1.00		2.50						
181	Debt raising costs		1.09	1.19	1.26	1.31	1.36			-			
182	Total		68.03	66.19	64.26	63.31	60.86	-	-	-	-	-	_
183													see.7/
184	Revenue Adjustments from Previous Regulat	ory Contr	ol Period (\$m R	al 2007) 🐧									
185	Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
186	Carryover from previous regulatory contol period - 6.4.	3[4][6]	5.00	5.00	5.00	5.00	5.00						Insert new adjustment row
187													-
188													
189	l otal		5.00	5.00	5.00	5.00	5.00		•	-			
190												,	1 25.00
191	Revenue Adjustments from Other Use of Sta	ndard Con	trol Services A:	isets (\$n Real 20	007)								
192	Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
193	Decrement from shared assets - 6.4.3(a)(6A)		- 3.00	- 3.00 -	3.00 -	3.00 -	3.00						Insert new adjustment row
194													
195	Tabl		2.00	2.00	2.00	0.00	2.00						
196	i otai		- 3.00	- 5.00 -	3.00 -	3.00 -	3.00						
197													t 15.00
198	Expected Taxation Bate (per cent)		2002	2009	2010	2011	2012	2012	2014	2015	2016	2017	
200	Corporate Tax Bate		30.002	2005	2010	2011	2012	2015	2014	2015	2010	2011	
201	Cost of Canital												
203	Year		2008-12										
204	Inflation Rate	f	2.50%										
205	Return on Equity Value of importantian and the (manual)	Re	8.90%										
206	Proportion of Debt Funding	n v	60.00%										
208	repetition of Debet and ng	DIV											
203			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
210	Trailing Average Portfolio Return on Debt		7.50%										
211													
213			The trailing avera	ge portfolio return o	n debt must be er	stered up to the u	ear of update fie	vear 1 at the final	decision, vear 2 ir	the first annual u	pdate etc). Future	vears can be lef	t blank.
									.,		. ,		
214	Debt and Equity Raising Costs - Transactio	n Costs (r	er cent)										
216			Yalue										
217	Imputation Credit Payout Ratio	PR	70.00%										
218	Subsequent Equity Raising Cost	SEO	3.00%										
219	Dividend Reinvestment Plan Cost	DRPC	1.00%										
220	Dividend Reinvestment Plan Take Up	DRPT	30.00%										
221	Debt Haising Gost	DRC	0.08%										
222													
223	Price/Revenue Constraint for 2007 (\$ Nomin	al)											
224			Value										
225	Maximum Allowed Revenue [million] Revenue viold (\$250%b)		233.55										
221													

	-	-									-	-	-	-
- /EC	E E E E E E E E E E E E E E E E E E E	F	G	н		J	К	L	M	N	0	Р	Q	R
229	Year Energy	2007 10,720,000	2008 10,630,620	2003 10,661,616	2010 10,632,993	2011 10,604,753	2012 10,576,901	2013 10,549,440	2014 10,522,375	2015 10,435,710	2016 10,463,443	2017 10,443,597		
232	Base Year Prices per Tariff Component fo	r 2007												
233		Standing Charge (\$ per customer	Non TOU Energy (c/kWh)	Peak Energy (c/KWh) BLK 1	Peak Energy (c/KWb) BLK 2	Off Peak Energy (c/kWh) BLK 1	Off Peak Energy (c/kWh) BLK 2	Peak Demand (\$/k¥a) BLK 1	Peak Demand (\$/k∀a) BLK 2	Off Peak Demand (\$/k¥a) BLK 1	Off Peak Demand (\$/k¥a) BLK 2			
234		2007	2007	2007	2007	2007	2007	2007	2007	2007	2007			
236 237 238 238 240 241 242 243 244 243 244 245 243 246 247 248 246 247 248 248 248 248 248 248 249 250 251 255 256 256 258 258 258 258 258 258 261	Recidential A Recidential E Recidential C Small Buriness 0 Small Buriness 0 Small Buriness 0 Large Buriness A Large Buriness B Large Buriness C	200.00 200.00 500.00 500.00 500.00 1,000.00 1,000.00 1,000.00	10.00	20.00 20.00 30.00 30.00 50.00 50.00 50.00	10.00 10.00 10.00 10.00 10.00 10.00 10.00	15.00 15.00 15.00 15.00 15.00 15.00 15.00	10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00	15.00 15.00 15.00 15.00 15.00 15.00 15.00	10.00 20.00 20.00 20.00 30.00 30.00 30.00	10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00	5.00 5.00 5.00 5.00 5.00 5.00 5.00			
262	Forecast Sales Quantities (Years 1-5, inclu	iding final year	of previous	regulatory co	trol period)	•								
264	Tariff Quantities			Castone	Numbers					Nos TOU F	eran (k¥k)			
265 266 267 268 270 271 272 273 274 275 276 277 278 279	Yarin vasakrites Projektaria Recidential B Recidential C Small Business A Small Business B Small Business A Large Business A Large Business B Large Business C 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2007 400,000 100,000 20,000 20,000 20,000 10,000 10,000 10,000	2008 408,000 102,000 20,400 20,400 20,400 10,200 10,200 10,200	2009 416,160 104,040 104,040 20,808 20,808 20,808 10,404 10,404	2010 424,483 106,121 106,121 21,224 21,224 21,224 10,612 10,612 10,612	2011 432,973 108,243 21,649 21,649 21,649 21,649 10,824 10,824 10,824	2012 441,632 110,408 22,082 22,082 22,082 22,082 22,082 11,041 11,041	2007 1,000,000,000	2008 336,000,000 0 0 0 0 0 0 0 0	20100 2003 332,016,000 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2010 368,047,336 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2011 384,035,744 0 0 0 0 0 0 0 0 0 0	2012 380,153,361 0 0 0 0 0 0 0 0 0 0	2007 5,000,000 5,000,000 5,000,000 5,000,000 5,000,000 5,000,000 5,000,000
280 281 282 283 284 285 286 285 286 286 288 288 288 288 289 290 291 292		590.000	703 844	747 0.74	799 994	746 070	761 014	1000.000 000	995 000 000	999 016 000	900 017 914	994 095 7/4	980 159 221	40.000.000
280 281 282 283 284 285 286 285 286 285 286 285 288 289 290 291 292 293	Total	690,000	703,800	717,876	732,234	746,878	761,816	1,000,000,000	396,000,000	992,016,000	988,047,936	984,095,744	980,159,361	40,000,000
280 281 282 283 284 285 285 285 285 285 285 288 289 290 231 232 233 234	Total	630,000	703,800	717,876	732,234	746,878	761,816	1,000,000,000	996,000,000	392,016,000	986,047,936	384,095,744	980,153,361	40,000,000

Figure 3 Input sheet–third screenshot

The PTRM can accommodate input data for up to a 10-year regulatory control period. Input cells outside of the relevant regulatory control period should be left blank.

The PTRM is configured to use the straight-line method as the default position for calculating depreciation for regulatory and tax purp oses. After consultation with the AER, DNSPs may propose that depreciation profiles other than the straight-line method be accommodated within the PTRM as part of pre-lodgement discussions and subject to satisfying the requirements at clause 6.5.5(b) and 6.5.3 of the NER respectively.

2.1.1 Opening regulatory asset base and opening tax asset base

The opening RAB is the value of assets on which a return will be earned. The opening TAB is used to calculate depreciation for tax purpo ses. The **Input** sheet requires a value f or the op ening RAB (broken into asset classes in rows 7 to 36) and opening TAB at the start of the first regulatory year of the next regulatory control period. The RAB and TAB will differ each regulatory year to reflect forecast capex, asset dispo sals, customer contributions and regulatory depreciation (for the RAB) or tax depreciation (for the TAB).

The recorded input values are linked to the **Assets** sheet, which a lso calculates depreciation for the next regulatory control period. Notes have also been included for various cells with specific comments and explanations about the relevance of the inputs.

Asset class name

The asset classes/names are recorded in column G. It is important that the asset classes recorded in the RAB section match the asset classes for which cap ex, disposals and capital contributions are reported in other input sections. This allows the PTRM to model depreciation consistently across the asset classes.

The PTRM is configured to a ccommodate up to 30 asset classes.² The number of a sset classes used in the PTRM will vary between businesses.³ However, for each business the asset classes used in the PTRM must be consistent with that used in the AER's roll forward model (RFM). This allows the closing RAB values determined in the RFM to be used as inputs to the opening RAB values in the PTRM. RAB values by asset class derived from the RFM may be aggregated or disaggregated when forming inputs for the PTRM where this demonstrably improves the accura cy or admini strative convenience of asset calculations.

Opening asset value

The opening asset values for each asset class are re corded in column J and are manually sourced from the closing asset value for each asset class as determined in the RFM.

Assets under construction

The value of assets under construction for each asset class, where relevant, is recorded in column K.⁴ The total value of assets under construction as at the start of the first regulatory year of the next regulatory control period (cell K37) is rolled into the opening RAB value (cell J37).

Average remaining life

The average remaining life of the asset classes is recorded in column L, based on the economic life of the assets.⁵

Standard life

The standard life of the asset cla sses is recorded in colum n M and m easures how long the infrastructure would physically last had it just been built.

Opening tax value

The opening tax values for each asset class are sourced from the closing tax asset values which have been determined in the RFM and are reco rded in column N. Assets valued for r tax purposes should include the value of contributed assets.

Average tax remaining life

The average tax remaining lives of each asset class for taxation purposes are recorded in column O based on the tax lives specified by the Australian Tax Office (ATO) for the category of a ssets and commissioning dates.

² The PTRM can be expanded to accommodate additional asset classes, when necessary.

³ The 30th asset class is designed to be used only with the 'Equity raising costs' asset class. Several defined name ranges use this asset class to implement the iterative equity raising cost update when smoothing total revenue.

⁴ Inputs for assets under construction will only be relevant for any DNSPs that previously recognised capex on an ascommissioned basis.

⁵ Generally these can be derived based on the weighted average remaining life of all individual assets in the class.

Tax standard life

The tax standard lives of each asset class are recorded in column P.

Base regulatory year

The regulatory year for the start of the next regulatory control period is recorded in cell Q7.

Length of regulatory control year

The number of years in the next regulatory control period is recorded in cell R7.

2.1.2 Forecast real capital expenditure—as-incurred

Forecast capex values for the next regulatory control period are recorded for each regulatory year in rows 41 to 70⁶ (by asset class).⁷ Capex is rolled into the RAB when spending is incurred. These inputs must be reported in real terms based on start of year one dollar terms.

2.1.3 Forecast real asset disposals—as-incurred

Forecast asset disposal (as-incurred) values are recorded for the regulatory year in which the disposal is expected to take place, in rows 75 to 104 (by asset class). These inputs must be reported in real terms based on start of year one dollar terms.

2.1.4 Forecast real customer contributions—as-incurred

Forecast customer contributions (as-incurred) values are recorded for the regulatory year in which the contribution is expected to be made, in rows 10 9 to 138 (by asset cla ss). These inputs must be reported in real terms based on start of year one dollar terms.

2.1.5 Forecast net real capital expenditure—as-incurred

This section on forecast net capex does not require inputs to be recorded. For each asset class, forecast net capex is calculated based on the recorded forecast capex less forecast asset disposals and forecast customer contributions. Forecast net capex (as-incurred) values are displayed in rows 143 to 172 and form part of the roll forward of projecting the RAB in the **Assets** sheet. These inputs are assumed to be in real terms based on start of year one dollar terms.

2.1.6 Forecast real operating and maintenance expenditure

Opex typically includes items such as wages and salaries, leasing costs, costs associated with maintaining assets, input costs and other service contract expenses paid to third parties. The forecast opex values for each ye ar are re corded in rows 177 to 180, including a ny carryover amounts determined according to the efficiency benefit sharing scheme developed by the AER. Ro w 181 displays benchmark debt raising cost and does not require inputs to be recorded because the calculation is formula-driven, and is based on the practice of treating the allowance as an o pex line item. Additional op ex inputs can be recorded by adding rows to this section—click on the button labelled 'Insert new opex row'.

These inputs must be reported in real terms based on start of year one dollar terms.

⁶ Row 70 (asset class 30) is designed to be used for equity raising costs only.

⁷ The button at the left of row 71 may be pressed to display/hide rows 41 to 70 (asset classes 1 to 30).

The forecast total opex values (row 182) are linked to the **Analysis** sheet to calculate the ARR.

2.1.7 **Revenue adjustments from previous regulatory control period**

Any additional revenue adjustments arising from the previous regulatory control period are recorded in rows 186 to 188.⁸ These are linked to the total building block revenue calculations in the **Analysis** sheet.

2.1.8 Revenue adjustments from shared assets

Any revenue (decrement) adjustments arising from the shared use of standard control services assets are recorded in rows 193 to 1 95.⁹ These are linked to the intermediate building block revenue calculations in the **Analysis** sheet and affect the tax calculations.

2.1.9 Expected taxation rate

The expected corporate tax rates are recorded for each year in row 200. The tax rates are linked to the **WACC** sheet to calcu late the average tax rate and to the **Analysis** sheet to estimate the tax payable, as part of calculating the ARR.

2.1.10 Cost of capital

The cost of capital section (rows 204 to 207 and row 210) records the following parameters:

- inflation rate¹⁰
- return on equity
- gamma—value of imputation (franking) credits
- proportion of debt funding
- trailing average portfolio return on debt for each year of the regulatory control period.

Each of the se parameters is linked to the **WACC** sheet to cal culate the weighted average cost of capital (WACC). The approach or method for determining each parameter is specified in clause 6.5.2 of the NER or the AER *Rate of return guideline*.¹¹ Rows 211 to 212 contain content driven help which will display cautions or guidance based on input to this sheet and the **X factors** sheet.

2.1.11 Debt and equity raising costs—transaction costs

The debt and equity raising costs section (rows 217 to 221) records the following parameters:

- imputation credit payout ratio
- subsequent equity raising cost
- dividend reinvestment plan cost

⁸ There is also a button which allows new rows to be inserted.

⁹ There is also a button which allows new rows to be inserted ¹⁰ Characteristic of the NED to state the AED to specify

¹⁰ Clause 6.4.2(b)(1) of the NER requires the AER to specify in the PTRM a method ology that is likely to result in the best estimate of expected inflation. The AER uses an approach that ca lculates the geometric average based on the inflation forecasts for two years sourced from the latest available Reserve Bank of Au stralia's (RBA's) *Statement of monetary policy* and the mid-point of the RBA's target inflation band for eight years (see AER, *Final decision, TransGrid transmission determination 2009–10 to 2013–14*, 28 April 2009, pp. 60–64).

¹¹ AER, *Better regulation: Rate of return guideline*, December 2013.

dividend reinvestment plan take up

debt raising cost.

The values for the imputation credit payout ratio, equity raising and dividend reinvestment costs, and the dividend reinvestment take u p are linked to t he **Equity raising cost** sheet to calculate the allowance for bench mark equity raising costs associated with capex. The de bt raising cost value represents the unit allowance and is linked to row 181 of the **Input** sheet to calculate the overall benchmark debt raising costs to be included in the opex allowance.

2.1.12 Price/revenue constraint for the current regulatory year

Cells G225 and G226 record current values of total revenue and revenue yield for DNSPs subject to these forms of control and may not be required depending on the form of control me chanism determined by the AER. These values are linked to the **X factors** sheet and a re used for projecting smoothed expected revenues based on the ARR.

2.1.13 Energy delivered forecast

Row 230 records total forecast energy delivered. Energy delivered forecasts may be obtained from the most recent Australian Energy Market Operator's *National electricity forecasting report*, a DNSP's annual planning report or other relevant industry sources. These data are used in calculating the price constraint under a revenue yield form of control in the **X factors** sheet. They are also used in the **Revenue summary** sheet to calculate the average price impact.

2.1.14 Current prices by tariff component

Prices by tariff component for the final regulato ry year of the cu rrent regulatory control period are recorded in rows 236 to 2 61. These data are used in the PTRM's calculation of a weighted average price cap (WAPC) and may not be required depending on the form of control mechanism determined by the AER. Where used, this section of the model and its dependent calculations in the **Forecast revenues** sheet may need to be amended to incorporate the components and tariff structures of each DNSP.

2.1.15 Forecast sales quantities by tariff component

Forecast quantities relative to each tariff com ponent for the next regulatory control period are recorded in rows 267 to 292 (years 1 to 5) and rows 301 to 326 (years 6 to 10). These data are used in the PTRM's calculation for the WAPC and may not be required depending on the form of control mechanism determined by the AER. As for pricin g data discussed above, this section of the model and its dependent calculations may need to be amended to suit each DNSP. Where quantities are not available or appropriate for the entire regulatory year (e.g. customer numbers) they will need to be approximated using a method agreed to by the AER.

2.2 WACC sheet

The **WACC** sheet determines for each regulatory year of the next regulatory control period the required return on equity, return on debt and the WACC using the relevant cost of capital parameters from the **Input** sheet. Some of these will be constant across the regulatory control period, the return on debt (and therefore the overall WACC) may now vary year-by year.

The effective tax rates derived from the cash-flow analysis are also reported in the **WACC** sheet, including various measures of the WACC calculated from the forecast cash-flows in the **Analysis**

sheet. The nominal pre-tax return on d ebt (row 15) and the nominal post-tax cost of equity (ro w 12) are multiplied by the debt and equity comp onents of the RAB to determine the return on capital building block.¹²

In addition, there is a button labelled 'Set Te and Td' which is linked to a macro that should be pressed after all inputs have been finalised for establishing the ARR at the start of the next regulatory control period. This will copy the cash -flow derived effective tax rates for equity and debt from the **Analysis** sheet to the app ropriate location in the **WACC** sheet (cells G28 and G29). The cash-flow derived rates shown in column R are designed as checks to ensure certain parameters are internally consistent with those derived by form ula at the time of the fin al decision. Because the cash-flow derived rates are based on the use of a constant WACC, there is no need to press the 'Set Te and Td' button again as part of the annual return on debt update process during the regulatory control period. This process is discussed further in chapter 3.

Figure 4 provides an example of the **WACC** sheet.

Figure 4 WACC sheet

1	A B C	DΕ	F	G	Н		J	K (R R	S	Т	U	
1													
2	Cost of Capital Parameters - DNSP PTRM -	versi	on 3 (draft)										
3	M			0000	0000	0040	0044	0040		_			
4	Year			2008	2009	2010	2011	2012	Final decision checks				
5	Latin Data		0	0.500/	0.500/	0.500/	0.500/	0.50%	This solution contains coloulations				
07	Inflation Rate	T	Constant	2.50%	2.50%	2.50%	2.50%	2.50%	that procume a constant MACC				
1	Value of Imputation Credits (gamma)	-Y	Constant	50%	50%	50%	50%	50%	They are therefore to be used at the				
0	Proportion of Equity Funding		Constant	40%	40%	40%	40%	40%	start of the regulatory period (prior to				
9	Proportion of Debt Funding Reat tay Naminal Return on Favity (unrounded)	DIV	Constant	00%	00%	00%	00%	00%	any annual debt updates).				
10	Post-tax Nominal Return on Equity (unrounded)	D-	Constant	0.30%	0.30%	0.30%	0.50%	0.30%	0.000/				
10	Post-tax Nominal Return on Equity (rounded)	Re	Constant	0.9%	0.9%	0.9%	0.9%	0.9%	0.90%				
12	Post-tax Real Return on Equity	Rie	Constant	0.24%	0.2470	0.2470	0.24%	0.2470	0.24%				
14	Corporate Tax Rate	т	Varying	30.0%	30.0%	30.0%	30.0%	30.0%					
15	Nominal Pre-tax Return on Debt	Rd	Varying	7.50%	7.50%	7.50%	7.50%	7.50%					
16	Real Pre-tax Return on Debt	Rrd	Varying	4.88%	4.88%	4.88%	4.88%	4.88%					
17													
18					Formula app	roximations	of WACC	•	Cashflow derivations of WACC				
19	Nominal Vanilla WACC		Varying	8.06%	8.06%	8.06%	8.06%	8.06%	8.06%				
20	Real Vanilla WACC		Varying	5.42%	5.42%	5.42%	5.42%	5.42%	5.42%				
21	Post-tax Nominal WACC		Varying	6.30%	6.30%	6.30%	6.30%	6.30%	7.68%				
22	Post-tax Real WACC		Varying	3.70%	3.70%	3.70%	3.70%	3.70%	5.05%				
23	Pre-tax Nominal WACC		Varying	8.43%	8.43%	8.43%	8.43%	8.43%	8.43%				
24	Pre-tax Real WACC		Varying	5.78%	5.78%	5.78%	5.78%	5.78%	5.78%				
25	Nominal Tax Allowance		Varying	0.37%	0.37%	0.37%	0.37%	0.37%	0.37%				
26	Real Tax Allowance		Varying	0.36%	0.36%	0.36%	0.36%	0.36%	0.36%				
27													
28	Effective Tax Rate for Equity (From Relevant Cash flows	Te		18.60%	18.60%	18.60%	18.60%	18.60%	18.60%				
29	Effective Tax Rate for Debt (Effective Debt Shield)	Td		31.09%	31.09%	31.09%	31.09%	31.09%	30.76%				
30													
31				A	t the start of t	ne regulatory	control period	l, use this buttor	to copy across the cashflow-calculated Te	and T	'd.		
32				Set H	owever, thes	e calculations	presume a c	constant WACC	so the Te/Td should not be updated during	a regi	ulatory cont	rol perio	d
33				w	hen you anni	ually update th	ne return on d	lebt - just use th	e same Te/Td from the final decision.				
34													
35	Numbers	in Whit	e cells are calc	ulated on this	s sheet fron	n input para	meters.						
36	Nu	mbers i	in Orange cells	are transferre	ed from rele	evant sheet							

2.3 Assets sheet

The **Assets** sheet calculates the value of the RAB for ea ch regulatory year over the next regulatory control period in real (start of year on e) and nominal dollar terms. It also calculates both regulatory and tax depreciation. The **Assets** sheet displays 55 years of data to allow estimation of the effective tax rate.

Figure 5 provides an example of the Assets sheet.

¹² See rows 24 to 27 in the **Analysis** sheet, which calculate the return on capital and provide a breakdown of the return on equity and return on debt.

Figure 5 Assets sheet

4	А	В	C	D	E	F	G	H		J	K	L	M	N	0	P
1		Assot Boll Forward		Vor	ion 3	(draft)										
2		Asset Roll Forward -	DINSPERIN	- vers	aon s	(urait)										
4		Year				2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
5 6 7		Inflation Assumption (CPI 9 Cumulative Inflation Index (% increase) CPI end period)	2.509	%	100%	2.50% 102.5%	2.50% 105.1%	2.50% 107.7%	2.50% 110.4%	2.50% 113.1%	2.50% 116.0%	2.50% 118.9%	2.50% 121.8%	2.50% 124.9%	2.50% 128.0%
9 10 41 72		Opening Regulatory Asset Real Net Capital Expenditu Nominal Net Capex	Base (RAB) ire (capex)			2,302.0	340.3 348.8	284.4 298.8	233.1 251.0	233.1 257.3	335.8 379.9	-	-	-	:	-
73		Real Asset Values														
74 75 466 467 468		Real Straight-line Depreciat Real Residual RAB (end pe Real Residual RAB (start p	tion eriod) eriod)			2,302.0	135.07 2,507.2 2,302.0	143.65 2,648.0 2,507.2	125.24 2,755.8 2,648.0	114.14 2,874.7 2,755.8	119.70 3,090.8 2,874.7	127.32 2,963.5 3,090.8	126.50 2,837.0 2,963.5	126.29 2,710.7 2,837.0	125.35 2,585.3 2,710.7	124.86 2,460.5 2,585.3
469		Nominal Asset Values														
470 471 472 473 474 475 476		Inflation on Opening RAB Nominal Straight-line Depre Nominal Regulatory Deprec Nominal Residual RAB (env Inflated Nominal Residual R	eciation siation d period) RAB (start period)			2,302.0	57.6 138.4 80.9 2,569.9 2,359.6	64.2 150.9 86.7 2,782.0 2,634.1	69.6 134.9 65.3 2,967.7 2,851.6	74.2 126.0 51.8 3,173.2 3,041.9	79.3 135.4 56.1 3497.0 3,252.5	87.4 147.7 60.2 3,436.7 3,584.4	85.9 150.4 64.4 3,372.3 3,522.6	84.3 153.9 69.6 3,302.7 3,456.6	82.6 156.6 74.0 3,228.7 3,385.3	80.7 159.8 79.1 3,149.6 3,309.4
477		Nominal Tax Values														
478 479 870 871		Tax Depreciation Residual Tax Value (end pe	eriod)			2,241.8	155.1 2,438.7	147.0 2,590.1	130.4 2,711.7	135.8 2,834.2	141.3 3,070.8	120.3 2,950.6	118.9 2,831.6	117.6 2,714.0	116.9 2,597.2	116.9 2,480.3
872		Summary of Asset Roll F	orward (\$m Nor	ninal)												
873 874 875 876 876 877 878 878		Opening RAB Net Capex Straight-line Depreciation Inflation on Opening RAB Closing RAB					2,302.0 348.8 138.4 - 57.6 2,569.9	2,569.9 298.8 150.9 64.2 2,782.0	2,782.0 251.0 134.9 69.6 2,967.7	2,967.7 257.3 126.0 74.2 3,173.2	3,173.2 379.9 135.4 79.3 3,497.0	-	-	-	-	- - -
880		Check					ok	ok	ok	ok	ok	ok	ok	ok	ok	ok

2.3.1 Rolling forward the RAB and depreciation

For consistency, depreciation in a period must equal the difference between the asset value at the start and end of the period. Further, as depreciation is intended to represent the return of capital over the life of the asset, accumulated depreciation should not exceed the initial actual capital cost of the infrastructure.

The opening RAB (cell F9) and real forecast net capex values (rows 10 to 40) displayed in this sheet are sourced from the **Input** sheet. Nominal forecast net capex values are displayed in rows 41 to 71. The modelling of capex in the PTRM is based on a full as-incurred approach. Under this approach the return on capital and the return of capital are calculated based on as-incurred forecast net capex.

Capex is a ssumed to be incurred evenly throughout the regulatory year and therefore a timing assumption is adopted that on average places capex half-way through the year. However, the PTRM calculates the return on capital based on the opening RAB for each regulatory year and capex is not added to the RAB until the end of the eregulatory year in which the expenditure on the asset is incurred. To address this timing difference of modelling the real capex, a half-real vanilla WACC is provided (capitalised and recovered over the life of the assets) to com pensate for the six-month period before capex is included in the RAB.¹³ This is calculated using the specific half-real vanilla WACC applying to the year in which the expenditure is incurred.

Real asset values are displayed in rows 75 to 467. Real straight-line depreciation is calculated in rows 75 to 465. It uses the opening RAB, forecast capex values and asset lives from the **Input** sheet. The individual depreciation profiles for each asset class can be viewed by expanding rows 76 to 465. The roll forward of the closing RAB in real dollar terms (start of ye ar one) for each regulatory year is calculated in row 466.

¹³ The half-real va nilla WACC is calcul ated as the square root of (1 + real vani lla WACC) – 1 to account fo r the compounding effect on an annual rate.

Nominal asset values are displayed in rows 471 and 475. To compensate the DNSP for inflation, the residual value of the RAB at the end of each regulatory year is a djusted upwards for the amount of expected inflation in that regulatory year. This adjustment is calculated in row 471. The change in the nominal value of the RAB from regul atory year to year is calculated by adjusting the closing RAB (row 474) for forecast net capex and the regulatory depreciation allowance. Regulatory depreciation (row 473) is calculated as the nominal straight-line depreciation (row 472), less the inflation adjustment on the opening RAB (row 471).

Depreciation for tax purposes and the tax asset value over time is calculated in rows 479 to 870 and is based on the tax asset values, ca pex values and tax asset li ves from the **Input** sheet. Capex recognised for tax purposes is net of disposals but includes the value of customer contributions. The individual tax depreciation profiles for each asset class can be viewed by expanding rows 480 to 869. Tax depreciation is calculated separately because asset values and asset lives for tax purposes generally differ from those for regulatory purposes.

A summary of the roll forward of the RAB is set out in rows 874 to 878.

2.4 Analysis sheet

The **Analysis** sheet itemises the basic costs, or building blocks, of the DNSP, which are then added together to calculate the ARR. In other words, the **Analysis** sheet is where the data from the **Input** sheet is combined with the calculations in the **Assets** and **WACC** sheets to estimate a DNSP's revenue requirement. The **Analysis** sheet displays 55 years of data so that the effective tax rate can be estimated.

The **Analysis** sheet also includes an analysis of the forecast cash flows. This analysis provides rate of return measures estimated from forecast revenues and costs, including: expected pre and post-tax returns on equity, effective tax rates, the effective cost of debt and selected measures of the WACC.

Figure 6 and Figure 7 provide an example of the **Analysis** sheet.

Figure 6 Analysis sheet–first screenshot

- A	В	С	D	E	F	G	H	1	J	K	L	M	N	0	P
1															
2	Cash Flow Analysis - I	DNSP	PTRM -	versio	n 3 (drafi	1) 1									
3															
4	Year				2007	200\$	2009	2010	2011	2012	2013	2014	2015	2016	2017
5															
6	Inflation Assumption (CPI % inc	rease)				2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
7	Cumulative Inflation Index (CPI	end peri	iod)		100.0%	102.5%	105.1%	107.7%	110.4%	113.1%	116.0%	118.9%	121.8%	124.9%	128.0%
8	T : U · · · · · · · · · · · · · · · · · ·														
3	Time Yarying WACC					7.50%	3 505	3.50%	7.505	7.505	3.50%	7.50%	3.50%	7.50%	7.50%
10	Time Varying Return on Debt	Acc.				1.504	1.504	1.504	1.504	1.504	1.504	1.504	1.504	1.504	1.504
12	Cumulating Discount Easter	rnee			100.0%	108.12	116.8%	106.00%	136.42	147.32	159.0%	172.12	185.97	200.9%	217.12
13	Inverse Cumulative Discount Fa	ctor			100.02	32.52	85.62	79.32	73.32	67.92	62.82	58.12	53.82	43.82	46.12
14															
15	Annual Building Blocks (\$m No	minal)												
16															
17	RAB (start period)		(nominal va	lue)		2,302.0	2,563.3	2,782.0	2,967.7	3,173.2	3,497.0	3,437	3,372	3,303	3,229
18	- Equity		40.00%			920.8	1,028.0	1,112.8	1,187.1	1,269.3	1,398.8	1,374.7	1,348.9	1,321.1	1,291.5
19	- Debt		60.00%			1,381.2	1,541.9	1,663.2	1,780.6	1,903.9	2,098.2	2,062.0	2,023.4	1,981.6	1,937.2
20															
21	Revenue Building Blocks														
22	Number Of Street					105.5	207.1	224.2	029.0	055.0	001.0	077.0	074.0	266.2	260.2
23	Poture on Accet				1	105.5	201.1	224.2	200.2	255.0	201.3	211.0	211.0	200.2	200.2
25	- Beturn on Fauitu	1	8 902			82.0	915	99.0	105.7	113.0	124.5	122.3	120.1	117.6	114.9
26	- Return on Debt		0.001			103.6	115.6	125.2	133.5	142.8	157.4	154.7	151.8	148.6	145.3
27															
28	Return of Asset (regulatory dep	preciatio	on)			80.9	86.7	65.3	51.8	56.1	60.2	64.4	69.6	74.0	79.1
29					-										
30	 Opex (includes EBSS carryover 	r amount	s)			69.8	69.5	69.2	69.9	68.9	-	-	-	-	-
31															
32	Tax Payable			-		6.0	12.5	13.5	9.2	11.4	22.7	24.0	25.4	26.4	27.2
33	Less Value of Imputation Credit	ts	50.00%		1	- 3.0	- 6.2	- 6.8	- 4.6	- 5.0	- 11.4	- 12.0	- 12.0	- 13.2	- 13.6
34	Baildia a Black Cabbasal					229.32	269 69	265 50	965 A6	206 42	959 46	252 42	254 0.0	252.26	253 97
36	Denting Dioce sebiotar				1	333.23	303.35	303.30	303.40	500.45	030.40	030.40	334.00	030.00	552.51
37	Additional Tax Income														
38	- Customer Contributions					12.3	7.4	7.5	7.7	7.9	-	-	-	-	-
33	- Revenue Adjustments for Sha	red Ass	ets			- 3.1	- 3.2	- 3.2	- 3.3	- 3.4	-	-	-	-	-
40															
41	Tax Expenses														
42	- Opex					69.8	69.5	69.2	69.9	68.9					
43	- Tax Depreciation					155.1	147.0	130.4	135.8	141.3	120.3	118.9	117.6	116.9	116.9
44	- Interest					103.6	115.6	125.2	133.5	142.8	157.4	154.1	151.8	148.6	145.3
45	lotallar Expenses				1	320.4	332.2	324.0	333.3	352.3	211.6	213.6	203.4	200.0	262.2
40	Tax Calculation														
48	Corporate tax rate					30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
49	Taxable Income					20.0	41.6	45.0	30.6	38.0	75.8	79.9	84.7	87.9	90.8
50	- Pre-tax Income					20.0	41.6	45.0	30.6	38.0	75.8	79.9	84.7	87.9	90.8
51	- Tax Loss Carried Forward				· · · ·	-	-	-	-	-	-	-	-	-	
52	Tax Payable			-		6.0	12.5	13.5	9.2	11.4	22.7	24.0	25.4	26.4	27.2
53	Value of Imputation Credits		50.00%			3.0	6.2	6.8	4.6	5.7	11.4	12.0	12.7	13.2	13.6
54			(intermedia	te tax calc	ulation)	6.0	12.5	13.5	3.2	11.4	22.7	24.0	25.4	26.4	27.2

Figure 7 Analysis sheet–second screenshot

	A B C D	E	F	G	Н	1	J	К	L	M	N	0	Р
56	Cash Flow Analysis Below This Line												
57	N												
58	Ret Present Values RAB (start period) Project MD	V Cha	(0.0)	2 302 0	2569.9	2 782 0	2 967 7	3 173 2	3 497 0	3 4 3 6 7	3 372 3	3 302 7	3 2 2 8 7
60	PV for Returns on and of Asset Only		3,520.2	266.4	293.8	289.6	291.0	311.9	342.1	341.4	341.4	340.2	339.3
61	PV for Capex Only		1,224.1	348.8	298.8	251.0	257.3	379.9			•	•	•
62	PV for end of period assets		5.9	-	-	-	•	-	-	-	-	-	
63													
65	Rominal Cash Flow Analysis Capital Expenditure	Г	2 302	348.8	298.8	251.0	257.3	379.9					
66	Interest Payments			103.6	115.6	125.2	133.5	142.8	157.4	154.7	151.8	148.6	145.3
67	Repayment of Debt		(1,381) -	160.7 -	127.3 -	111.4 -	123.3 -	194.3	36.1	38.7	41.7	44.4	47.5
68													
70	Pre-tax Pre-tax Te = 18.602	3,782	(921) -	22.2	12.9	315	28.1 -	10.8	160.0	160.1	160.6	160.4	160.2
71	- Post-tax	7.36%	(321) -	28.2	0.4	18.0	18.9 -	22.2	137.2	136.1	135.2	134.0	133.0
72	 Post-tax + Value of Imputation Credits 	8,90%	(921) -	25.2	6.6	24.8	23.5 -	16.5	148.6	148.1	147.9	147.2	146.6
73	Real Cash Flow to Equity	2.405	(900)	01.7	40.0	09.0	05.4		107.0	404.7	404.0	100.4	105.0
75	- Pre-tax - Post-tax	5.332	(321) -	21.1	04	23.3	20.4 -	19.7	118.3	114.5	10.9	107.3	103.9
76	- Post-tax + Value of Imputation Credits	6.24%	(921) -	24.6	6.3	23.0	21.3 -	14.6	128.1	124.6	121.4	117.8	114.5
77	Net Cash Flow to Debt												
78	Cash flow to debt before Tax calculation	7.50%	(1,381) -	57.1 -	11.6	13.8	10.3 -	51.5	193.5	193.3	193.5	193.0	192.8
80	Unutilised Deductions Carried Forward			103.6	- 115.6	125.2	133.5	142.8	D1.4	134.1	151.8	140.0	145.3
81	Net Cash Flow to Debt Td = 30.762	5.192	(1,381) -	88.2 -	46.3 -	23.8 -	29.8 -	94.3	146.3	146.9	148.0	148.4	149.2
82	Nominal Cash Flows to Assets												
83	Cash flow to Asset	8.43%	(2,302)	(79.4)	1.2	45.3	38.3	(62.3)	353.5	353.4	354.1	353.4	353.0
84	Cash flow to Asset Post-tax Cash flow to Asset Post	7.68%	(2,302)	(85.4)	(11.2)	31.8	23.1	(13.7)	330.7	323.5	328.7	327.0	325.7
86	Cash flow to Asset Real Post-tax	5.05%	(2,302)	(83.3)	(10.7)	29.5	26.4	(65.2)	285.2	277.2	269.8	261.8	254.5
87	Check on Vanilla WACC Cash Flow (nom)	8.06%	(2,302)	(82.4)	(5.0)	38.6	33.7	(68.0)	342.1	341.4	341.4	340.2	339.3
88	Check on Vanilla WACC Cash Flow (real)	5.42%	(2,302)	(80.3)	(4.8)	35.8	30.5	(60.1)	235.0	287.2	280.2	272.4	265.1
83	Further Discussion of Cash Flows												
91	Turcer Dissection of Gase Flows												
92	Return on Equity		_										
93	Cash flow with Imputation			(25.2)	6.6	24.8	23.5	(16.5)	148.6	148.1	147.9	147.2	146.6
94	Add back Capex Loss Newigal Depresistion of PAB			348.8	238.8	251.0	257.3	379.9	(60.2)		(69.6)	(74.00)	(79.1)
35	Add Debt Repayment			(160.3)	(127.3)	(111.4)	(123.3)	(194.3)	(60.2) 36.1	(04.4) 38.7	41.7	44.4	47.5
97	Gives Nominal Return to Equity			82.0	91.5	99.0	105.7	113.0	124.5	122.3	120.1	117.6	114.9
98	Less Inflation in Equity Component			(23.0)	(25.7)	(27.8)	(29.7)	(31.7)	(35.0)	(34.4)	(33.7)	(33.0)	(32.3)
33	Gives Real Return to Equity			58.9	65.8	71.2	76.0	81.2	89.5	88.0	86.3	84.5	82.7
101	%ROE (Tyear) %real ROE (Tyear)			6.24%	6.24%	6,24%	6.24%	6.24%	6.24%	6.24%	6.24%	6.24%	6.24%
102	(-,,												
103	Equity at Start of Period			920.8	1,028.0	1,112.8	1,187.1	1,269.3	1,398.8	1,374.7	1,348.9	1,321.1	1,291.5
104	Peopletore Control Period Applecic												
106	Required a control Period Analysis												
107	Revenue	ſ	•	339.2	369.6	365.5	365.5	386.4	353.5	353.4	354.1	353.4	353.0
108	Less Opex		-	(69.8)	(63.5)	(63.2)	(63.3)	(68.9)		-	-		
103	Less interest Less Tax			(103.6) (6.0)	(15.6) (12.5)	(125.2) (13.5)	(133.5) (9.2)	(142.8) (11.4)	(157.4) (22.7)	(104.7) (24.0)	(151.8) (25.4)	(148.6) (26.4)	(145.3) (27.2)
111	Plus Imputation Credits		-	3.0	6.2	6.8	4.6	5.7	11.4	12.0	12.7	13.2	13.6
112	Less Capex		(2,302.0)	(348.8)	(298.8)	(251.0)	(257.3)	(379.9)	•	•	•	•	
113	Less Loan Repayments		1,381.2	160.7	127.3	111.4	123.3	194.3	(36.1)	(38.7)	(41.7)	(44.4)	(47.5)
114	RAD Residual Value Post-tax Beturn on Equitu		(320.8)	(25.2)	6.6	24.8	23.5	1,336.6					
116			()	()									
117	IRR (during regulatory control period)	8.902											
118	Target (during regulatory control period)	8.902											
120													
121	Additional disaggregation												
122	Return on Capital			185.5	207.1	224.2	239.2	255.8	281.9	277.0	271.8	266.2	260.2
123	Opex (excluding EBSS carryover)			64.7	66.4	68.1	69.9	71.7		-	-	-	-
124	Revenue Adjustments 1			5.1	5.3	5.4	5.5	2.0					
126	Revenue Adjustments 2			3.1 -	3.2 -	3.2 -	3.3 -	3.4					
127	Carryover & Adjustments Subtotal			7.2	5.3	3.2	2.2 -	0.6	· .		•	•	•
128	Return of Capital Nut Tau Capita			80.9	86.7	65.3	51.8	56.1	60.2	64.4	69.6	74.0	79.1
123	wet rax costs Building Block total			3.0 341 3	3717	5.8 367 7	4.6	5.f 388 7	353.5	12.0 353 4	12.1 354 1	13.2 353 4	13.5 353 P
131	Strang Divis (via)								030.3	0.0.4		0.0.4	0.0.0
132	Revenue Forecasts in Absen	ce of Cor	porate Tax	338.3	365.4	360.9	363.1	383.0	342.1	341.4	341.4	340.2	339.3

2.4.1 Building block approach to deriving cash flows

Clause 6.4.3 requires the AER to apply the building block approach to assess the revenues required by a DNSP to re cover the full cost of p roviding the regulated distribution (standard control) service. The revenue requirement includes a commercial return on its investment.

The key building blocks are:

- the return on capital (row 23) comprising:
 - the post-tax return on equity (row 25)
 - the return on debt (or the interest payments incurred) required to service borrowings (row 26)
- the regulatory depreciation or return of capital (row 28)
- opex including carry-over amounts (row 30)

 net tax liabilities paya ble—the figure is net in the sense that it is the an nual tax payable by the DNSP (row 32) less the value of imputation credits available to investing shareholders (row 33).

The costs are determined for each regulatory year of the next regulatory control period to derive the building block subtotal (row 35). There is an additional adjustment to reflect the taxation implications of additional revenues from customer contributions (row 38) and revenue adjustments for shared assets (row 39). Because the costs can fluctuate from year to y ear, the ARR (whi ch includes the additional revenue adjustment for shared assets) is smoothed over the next regulatory control period to give the expected revenue (see section 2.6).

As a result of the PTRM's particular timing assumptions, i.e. all cash flows with the exception of capex are assumed to occur at the end of each regulatory year, there is no need to provide DNSPs an allowance for working capital in the modelling.¹⁴

2.4.2 Taxation and related costs and benefits

Tax is payable on revenue less tax costs recognised by the ATO. Tax-deductible costs include interest or debt servicing, depreciation allowances and opex (rows 42 to 42).

Spreadsheet calculations

Tax payable by the DNSP for each regulatory year is calculated in rows 35 to 54, in three steps:

- 1. Pre-tax income (row 50) is calculated as the building block subtotal plus the additional tax income (rows 38 and 39) less the estimated total tax expense (row 45).
- 2. Tax loss carried forward is calculated (row 51).
- 3. Taxable income (row 49) is then the sum of the above.

The tax costs (rows 44 to 44) u sed in calculating the pre-tax income for the regulatory year are the same as those in the building blocks (rows 26 and 30) with the exception of depreciation. In the case of the revenue building blocks, regulatory depreciation (row 29) is calculated based on the economic life of the a sset (see rows 75 to 465 and 471 to 473 of the **Assets** sheet). Tax dep reciation is generally based on a much shorter tax life or calculated in a different way (see rows 479 to 869 of the **Assets** sheet).

The tax payable is recognised as a building block cost and added to the revenue building blocks (row 35). Offsetting this tax cost is the benefit shareholders receive from imputation credits (gamma). This offsetting benefit is equal to gamma multiplied by the tax payable and is recorded in rows 33 and 53.

2.4.3 Cash flow analysis

Calculations in the cash flow a nalysis section provide a comp rehensive check on the validity of revenue determinations to ensure that the outcomes are consistent with the assumptions forming the basis of the building block approach. The **Analysis** sheet is designed to check the desired rate of return on equity that can be expected from the regulated revenue stream.

¹⁴ The timing of the capex cash flow is assumed to be mid-year.

Net present values

The total returns on and of capital (co mprising the RAB and capex) is calculated in row 60. The present value (PV) for these cash flows at the start of the first regulatory year of the next regulatory control period is calculated in cell F60. The PV for capex is calculated in cell F61 and the PV of the end of period assets is calculated in cell F62. The sum of the PV of the returns on and of the RAB and capex, less the residual value of assets is calculated in cell F59. This project net present value (NPV) for the RAB check cell should be equal to zero, which indicates that the asset is receiving the correct returns.

Net cash flows available to equity holders

Net nominal pre-tax cash flows to equity holders (row 70) are represented by nominal revenues less:

- opex
- capex
- interest payments
- any repayment of debt in the period.

Net nominal post-tax cash flow to equity holders (row 71) is obtained by further deducting the tax expense of the business. Row 72 adds back the value of imputation cr edits to calculate the net post-tax benefits available to equity holders in a period.

The internal rate of return (IRR) of the net cash flows over the life of the assets i s calculated in column E. The key IRR is the net post-tax returns to equity holders inclusive of imputation credits (r_e). The determined r_e should be validated by the estimated cash flows (row 72).

The corresponding real cash flows and the respective IRRs are calculated in rows 74 to 76.

The difference in the IRR applying to pre-tax and post-tax cash flows to equity allows the effective rate of tax ($T_e = 1 - r_{post}/r_{pre}$) to be calculated (cell D70). This can then be used as an input to the formula-based WACC calculations.

It is important to note that the formula-based WACC calculations will only provide an approximation of the actual WACC outcomes implied by the cash flow calculations. In practice, T_e is generally below the corporate tax rate for assets that can be depreciated at a faster rate for tax purposes.

Net cash flows necessary to service debt and the effective debt shield

The cost of debt is reduced by the value of the 'd ebt shield' (row 7.8) in calculating tax liabilities. Where the interest expense in a regulatory year reduces taxable income by a corresponding amount, the net cost of debt for investors is reduced by the corporate tax rate.

However, where the taxable income is so low that the full interest deduction is not required to reduce tax liabilities to zero, the value of the debt shield b enefit is deferred to the following regulatory year. This effect is analysed in rows 78 to 81. That part of interest expense used to defer tax is calculated in each regulatory year (row 79) and the unused part carried forward is embodied in the tax loss carried forward calculation (row 80). This allows the net cost to the firm of paying debt holders, after taking account of the tax concession, to be calculated.

The IRR calculation (cell E81) represents the effective cost of debt, which is generally well below the nominal cost of debt based on the current interest rates.

Nominal cash flows to assets and calculation of WACC estimates

The cash flows to the different sources of capital (debt and equity) have been presented above, but the cash flows to the assets as a whole are of interest since these aggregate numbers characterise the nature of the regulated business.

The IRRs from the se cash flows are the WACC estimates expected from the application of the regulatory framework and have greater validity than any formul a based a pproximations. They are summarised in the **WACC** sheet along with the formula-based approximations. It should be noted that the WACC outcomes are calculated for reporting purposes only. They are not required for setting revenues since the modelling already provides the requisite revenue forecasts.

Regulatory control period analysis

Rows 107 to 115 provide an additional analysis of the cash flow to equity holders over a regulatory control period.

The purpose of this section is to confirm that the desired re target remains throughout the regulatory control period. Rows 107 to 115 are essentially an expansion of the calculations used to derive row 72—that is, cash flow to equity holders inclusive of the value of imputation credits.

Additional disaggregation

Rows 122 to 132 provide additional breakdown of revenue by components in accordance with the categories listed in the NER. These values are referred to in the **X factors**, **Revenue summary** and **Chart 3–Building blocks** sheets.

2.5 Forecast revenues sheet

The **Forecast revenues** sheet is relevant to the calculation of X factors under the WAPC control mechanism. Prices are sourced from the **Input** sheet and escalated by forecast changes of the inflation rate and X factors from the **X factors** sheet to derive notional prices for each year of the regulatory control period. These prices are multiplied by the fore cast quantity data from the **Input** sheet to derive a notional forecast smoothed revenue amount in row 7, which is intended to equal (in NPV terms) the building block requirement in the **X factors** sheet.

The calculations in this sheet are automated and do not re quire inputs. The display of forecast, quantities and revenues has been split into two sections—years 1 to 5, and years 6 to 10. The grouping controls can be used to hide all columns relating to years 6 to 10 (for instance, if the regulatory control period is only 5 years long). This sheet is, however, based on a generic tariff structure and will require amendment by each DNSP to suit its own tariff schedules. DNSPs using the PTRM for forms of control other than a WAPC will not be required to use the **Forecast revenues** sheet. Pricing data in this sheet has no relationship with the information to be provided by DNSPs to the AER under clause 6.8.2(c)(4) or Part I of the NER.

Figure 8 and Figure 9 provide an example of the Forecast revenues sheet.

Forecast Revenues - DNSP PTR	M - version 3 (draft)									
otal Forecast Revenues (\$ Nominal)	2007	2008	2009	2010	2011	2012					
otal Revenue	\$ 299,548,000	\$ 341,279,988	\$ 354,146,212	\$ 367,543,467	\$ 381,494,872	\$ 396,024,585					
orecast sales waartities											
vantities	0007	0000	Customer	Numbers	0044	0040	0007	0000	Non TOU E	eray (kWb)	0044
ear esidential A	400.000	408.000	416.160	424.483	432,973	441.632	1.000.000.000	396.000.000	392.016.000	388.047.336	384.035.744
esidential B	100,000	102,000	104,040	106,121	108,243	110,408	0	0	0	0	0
esidential C	100,000	102,000	104,040	106,121	108,243	110,408	0	0	0	0	0
mall Business A	20,000	20,400	20,808	21,224	21,643	22,082	0	0	0	0	0
mall Business B	20,000	20,400	20,808	21,224	21,649	22,082	0	0	0	0	0
mall Business C van Business A	20,000	20,400	20,808	21,224	21,643	22,082	0	0	0	0	0
rge Business A	10,000	10,200	10,404	10,612	10,824	11.041	ő	ŏ	ŏ	ŏ	ŏ
arge Business C	10,000	10,200	10,404	10,612	10,824	11,041	ŏ	ŏ	ŏ	ŏ	ŏ
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otal	630,000	103,000	111,010	152,254	140,010	101,010	1,000,000,000	336,000,000	332,016,000	300,041,330	304,035,144
orecast Prices											
rices ear	2007	Standi 2008	ng Charge (\$ p 2009	er customer per 2010	2011	2012	2007	2008	Non TOU En 2009	ergy (c/kWh) 2010	2011
esidential A	200	225	231	237	243	249	10	11	12	12	12
esidential B	200	225	231	237	243	249	0	0	0	0	0
esidential C	200	225	231	237	243	243	0	0	0	0	0
nan Dusiness A	500	563	577	592	607	623	0	0	0	0	0
nall Business B	500	563	577	592	607	603	ŏ	ŏ	ŏ	ŏ	ŏ
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Figure 8 Forecast revenues sheet–first screenshot

Figure 9 Forecast revenues sheet–second screenshot

- 1	ü Ε	F	G	н	1	J	К	Q	В	S	т	U	V
77	Forecast Revenues (\$ Nominal)												
78													
79	Revenues			Standing	Charge					Non TOU	Energy		
80	Year	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
81	Residential A	80,000,000	91,885,394	96,111,555	100,532,093	105,155,948	109,992,472	100,000,000	112,154,231	114,552,336	117,001,717	113,503,472	122,058,719
82	Residential B	20,000,000	22,971,349	24,027,889	25,133,023	26,288,987	27,498,118	0	0	0	0	0	0
83	Residential C	20,000,000	22,971,349	24,027,889	25,133,023	26,288,987	27,498,118	0	0	0	0	0	0
84	Small Business A	10,000,000	11,485,674	12,013,944	12,566,512	13,144,493	13,749,059	0	0	0	0	0	0
85	Small Business B	10,000,000	11,485,674	12,013,944	12,566,512	13,144,493	13,749,059	0	0	0	0	0	0
86	Small Business C	10,000,000	11,485,674	12,013,944	12,566,512	13,144,493	13,749,059	0	0	0	0	0	0
87	Large Business A	10,000,000	11,485,674	12,013,944	12,566,512	13,144,493	13,749,059	0	0	0	0	0	0
88	Large Business B	10,000,000	11,485,674	12,013,944	12,566,512	13,144,493	13,749,059	0	0	0	0	0	0
83	Large Business C	10,000,000	11,485,674	12,013,944	12,566,512	13,144,433	13,749,059	0	0	0	0	0	0
30	-) 0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0) 0	0	0	0	0	0	0	0	0	0	0	0
93	0) 0	0	0	0	0	0	0	0	0	0	0	0
94	0) 0	0	0	0	0	0	0	0	0	0	0	0
35	0) 0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0
97	a a a a a a a a a a a a a a a a a a a	0	0	0	0	0	0	0	0	0	0	0	0
38	0) 0	0	0	0	0	0	0	0	0	0	0	0
33	a	0	0	0	0	0	0	0	0	0	0	0	0
100	٥) 0	0	0	0	0	0	0	0	0	0	0	0
101	a	0	0	0	0	0	0	0	0	0	0	0	0
102	a	0	0	0	0	0	0	0	0	0	0	0	0
103	a) 0	0	0	0	0	0	0	0	0	0	0	0
104	a	0	0	0	0	0	0	0	0	0	0	0	0
105	a	0	0	0	0	0	0	0	0	0	0	0	0
106	ă) Ö	ő	Ó	Ó	ő	ő	ō	ō	ō	ō	0	Ó
107	Total	180,000,000	206,742,137	216,250,998	226,197,208	236,600,883	247,483,062	100,000,000	112,154,231	114,552,336	117,001,717	119,503,472	122,058,719
108													

2.6 X factors sheet

The **X factors** sheet reflects the requirements of clause 6.2.6 and 6.5.9 regarding the setting of X factors, namely, that they are to comprise part of the CPI–X constraint on direct control services, and that they must be set such that the following conditions are met:

the ARR and forecast expected revenues are to be equal in NPV terms

 the value of expected revenue and the ARR in the final regulatory year of the period must be as close as reasonably possible.¹⁵

DNSPs must propose X factors in sub mitting a completed PTRM with its building blo ck proposal in accordance with clau se S6.1.3(6) of the NER. The AER will assess this in ac cordance with the provisions listed above, but may also consider other relevant factors such as price stability, cash-flow adequacy and longer term pricing goals.

The PTRM provides for X factor calculations (usually called 'smoothing') under three basic forms of control, namely a WAPC, revenue cap and revenue yield cap. Through these calculations the X factor is simply a price or revenue adjustment mechanism. It does not relate to actu al productivity improvements in the operations of a DNSP. Ho wever, this does not mean that the AER ignore s productivity improvements when assessing a DNSP's building block proposal. Instead, the AER includes any expectation of productivity gains directly into the forecasts of costs.

When smoothing across the regulatory control p eriod, it is necessary to iteratively update equity raising costs as well. This is because the estimate of equity raising costs is dependent on the smoothed revenue (expected revenue) profile, but in turn the expected revenue is dependent on the estimate of equity raising costs. Hence, there are a number of macros built into the PTRM whi ch jointly smooth revenues while iteratively updating equity raising costs. It is possible to stop the automatic updating of equity raising costs using the drop down menu in cell H16.

Across each of the three forms of control (WAPC, revenue cap or revenue yield cap) there are two basic types of smoothing operation:

- Select the 'A pply default smoothing' button that changes all X factors. This default path first entails setting the expected revenue (calculated using the relevant form of control) for the first year equal to the ARR f or that year (this will show as a change to the X factor in year 1, sometimes referred to as P_0). Next, the macro calculates the single (constant) X factor which can be applied to all remaining years of the next reg ulatory control period so that the NPVs of smoothed revenue (expected revenue) and unsmoothed revenue (ARR) across the entire period are equal. Equity raising costs will be updated as well.
- Alternatively, it might be necessary (including during the annual debt update) to adj ust the X factor for a specific year only. This type of smoothing changes just one X factor so that the NPVs of sm oothed revenue (expected revenue) and unsmoothed revenue (ARR) a cross the regulatory control period are equal.

In both ca ses, equity raising co sts will be iteratively updated while smo othing (unless this defaul t option is turned off, as noted above).

The WACC (row 7), values of forecast inflation rates (row 10) and building block annual revenue requirements (rows 30 to 35) are sourced from other sections of the model and are used for the calculations in all three forms of control. All NPV calculations in this sheet now reflect the time varying WACC (row 7) which arises as a result of the return on debt (potentially) varying each ye ar. The cumulative discount rate is calculated in row 8. When the return on debt is updated within the

¹⁵ The AER in its regulatory determinations has considered a divergence of up to 3 per cent between the expected revenue and ARR for the final year of the regulatory control period to be reasonable if this can achieve smoother price changes for customers over the regulatory control period.

regulatory control period, these discount rates will change as a result, and so too will the NPV of the ARR and expected revenue.¹⁶

The process for annually updating the return on debt is described further in chapter 3. There is a drop down menu in cell F21 which allows the user to in put the year of the annual return on debt update. This drop down menu will not affect underlyin g calculations, but instead drives the presentation of content-sensitive help in this sheet (and in the **Input** sheet). Rows 23 to 26, 51, 67 and 87, will display caution notes/guidance based on logical tests of the PTRM.

X factors under a price cap

Under the WAPC form of control, ro w 47 provides the inputs for the profile of X factors. The seare used along with the explored inflation rate to e scalate prices in the **Forecast revenues** sheet and derive the forecast smoothed expected revenues which are listed in row 4. Revenue can be smoothed using the buttons at rows 4.9 to 50, ei ther by applying the default smoothing approach (changing all X factors as described above) or changing a single specific year's X factor. Smoothing operations will equate the NPV of the forecast expected revenue (cell R44) and the NPV of the ARR (cell R39).

The difference between the values of the ARR and forecast expected revenue for the final year of the regulatory control period is listed in cells R41 (nominal dollars) and R42 (percentage of unsmoothed revenue).

X factors under a revenue cap

Under the revenue cap form of control, row 63 provides the inputs for the profile of X factors. The se are used, along with the expected inflation rate, to derive the nominal smoothed expected revenue for each regulatory year of the regulatory control period in row 60. The value of the expected revenue is escalated directly by CPI–X. Revenue can be smoothed using the buttons at rows 65 to 66, either by applying the default smoothing approach (changing all X factors as described above) or changing a single specific year's X factor. Smoothi ng operations will equate the NPV of the forecast expected revenue (cell R60) and the NPV of the ARR (cell R55).

The difference between the values of the ARR and forecast expected revenue for the final year of the regulatory control period is listed in cells R57 (nominal dollars) and R58 (percentage of unsmoothed revenue).

X factors under a revenue yield

Under the revenue yield form of control, row 83 provides the inputs for the profile of X factors. The se are used, along with the expected inflation rate, to derive a nominal revenue yield value for each regulatory year of the regulatory control period in row 78. The value of the revenue yield is multiplied by the fore cast energy throughput to derive a nominal smoothed expected revenue for each regulatory year of the regulatory control period in row 80. Revenue can be smoothed using the buttons at row 85 to 86, either by applying the default smoothing approach (changing all X factors as described above) or changing a single specific year's X factor. Smoothing operations will equate the NPV of the forecast expected revenue (cell R80) and the NPV of the ARR (cell 71).

¹⁶ This is not the only change that flows from a change to the return on debt – the return on capital and return of capital building blocks will change, and therefore so will the tax building block.

The difference between the values of the ARR and the forecast expected revenue is listed in cells R73 (nominal dollars) and R74 (percentage of unsmoothed revenue).

Figure 10 and Figure 11 provide examples of the **X factors** sheet.

Figure 10 X factors sheet–first screenshot

		-	0				K							
1			G	п		J	ĸ	U K S I	U					
2	X Factor Calculations - DNSP PTRM - version 3 (draft)													
3			, ,											
4	Year 20	07	2008	2009	2010	2011	2012							
5	Discount Rates													
6														
7	Nominal Vanilla WACC (varying)		8.06%	8.06%	8.06%	8.06%	8.06%							
8	Cumulative Discount Rate	1.00	1.08	1.17	1.26	1.36	1.47							
10	Inflation Assumption (CPI % increase) (constant)		2.50%	2.50%	2.50%	2.50%	2.50%							
11	Cumulative Inflation Index (CPI end period)	1.00	1.03	1.05	1.08	1.10	1.13							
12														
13	Instructions and Warnings													
14	The buttons below each row of X factors will smooth total r	evenue	while also iter	atively undating	n equity raising	costs								
16	If you do not intend to update equity raising costs, use this of	Irop dow	n menu:	update ERC	when smoothi	ng (default)								
17														
18	The "Default Smooth" option will set year 1 smoothed reven	le equal	to year 1 unsr	noothed reven	ue, and then de	stermine the co	onstant X facto	for all remaining years so that total NPV(smoothed) = NPV (unsi	moothed)					
19	Hence, it should only be used at the start of the regulatory of	ontrol pe	eriod - adjust tr	ne X factor for	individual years	s when updati	ing the return o	debt within a period						
21	Select year of update for annual return on debt	2008	This option or	nly affects whi	ch cautions are	e displayed (sl	hown in this se	ction, the sections below and on the input page).						
22														
23	<u>Cautions</u> This section is blank because no cautions a	are active	в.											
24														
26														
27														
28	Building Block Components (\$m, Nominal)													
29														
30	Return on Capital Return of Capital (regulatory depreciation)		185.54	207.13	224.23	239.20	255.76							
32	Operating Expenditure		64.67	66.39	68.12	69.88	71.69							
33	EBSS Carryover and Other Adjustments		7.18	5.25	3.23	2.21	- 0.57							
34	Net Tax Allowance		3.00	6.24	6.75	4.59	5.71							
35	Annual Revenue Requirement (unsmoothed)		341.28	371.69	367.66	367.67	388.69							
27	Price Cap Calculation (\$m. Nominal)													
38	the cap calculation (and nonlinely													
39	Unsmoothed - Annual Revenue Requirement	299.55	341.28	371.69	367.66	367.67	388.69	\$1,458.96 NPV (unsmoothed)						
40														
41			0.00	First year diffe	erence (\$m)			7.33 Final year difference (\$m)						
42			0.0%	r inst year diffe	sience (%)			1.9% Final year difference (%)						
44	Smoothed - Expected Revenue	299.55	341.28	354.15	367.54	381.49	396.02	\$1,458.96 NPV (smoothed)						
45														
46	X Factors		P_0	X_02	X_03	X_04	X_05	CO OO NDV difference (amouth of the second	a the all					
47	positive Po, A imply real decrease in price/ revenue constra	anue	-9.86%	-0.05%	-0.05%	-0.05%	-0.05%	-30.00 NPV difference (smoothed vs unsmo	ounea)					
49	Apply default smoothing (WAI	PC)	Set P0	Set X2	Set X3	SetX4	Set X5							
50	, , , , , , , , , , , , , , , , , , ,		(price cap)	(price cap)	(price cap)	(price cap)	(price cap)							
51														
52														

Figure 11 X factors sheet–second screenshot

A	C D	E	F	G	Н	1	J	K	Q R	S	Т	U			
53	Revenue Cap	Calculation (\$m, Nominal)													
54 55 56	Unsmoothed	I - Annual Revenue Requirement	299.55	341.28	371.69	367.66	367.67	388.69	\$1,458	.96 NPV (unsmoothed)	-1				
57 58 59				0.00	First year diffe	erence (\$m) erence (%)			1.23 Final year difference (%)						
60 61	Smoothed -	Expected Revenue	299.55	341.28	354.19	367.59	381.49	395.92	\$1,458	.96 NPV (smoothed)					
62 63	X Factors positive P0, X	imply real decrease in price/ revenue	e constraint 🛛 🕇	P_0 -11.15%	X_02 -1.25%	X_03 -1.25%	X_04 -1.25%	X_05 -1.25%	\$0	1.00 NPV difference (smoo	thed vs unsm	oothed)			
64 65 66		Apply default smoothing	(revenue cap)	Set P0 (rev cap)	Set X2 (rev cap)	Set X3 (rev cap)	Set X4 (rev cap)	Set X5 (rev cap)							
67 68															
69	Revenue Yie	ld/Average Revenue Cap Calculat	ion (\$m, Nomina	al)											
70 71 72	Unsmoothed	I - Annual Revenue Requirement	299.55	341.28	371.69	367.66	367.67	388.69	\$1,458	.96 NPV (unsmoothed)					
73 74 75				0.00 0.0%	First year diffe First year diffe	erence (\$m) erence (%)			7. 1.	26 Final year difference (\$r 9% Final year difference (%	1) I				
76 77	Forecast Ener	gy Throughput (MWh)	10,720,000	10,690,620	10,661,616	10,632,993	10,604,753	10,576,901							
78 79	Revenue Yie	ld (\$/MWh)	27.94	31.92	33.22	34.57	35.97	37.43							
80 81	Smoothed - Ex	pected Revenue	299.55	341.28	354.18	367.58	381.49	395.95	\$1,458	.96 NPV (smoothed)					
82	X Factors		_	P_0	X_02	X_03	X_04	X_05							
83	positive P0, X	imply real decrease in price/ revenue	e constraint	-11.46%	-1.52%	-1.52%	-1.52%	-1.52%	\$0	1.00 NPV difference (smoo	thed vs unsm	oothed)			
84 85 86		Apply default smoothing (revenue yield)	Set P0 (rev yield)	Set X2 (rev yield)	Set X3 (rev yield)	Set X4 (rev yield)	Set X5 (rev yield)							

2.7 Revenue summary sheet

The **Revenue summary** sheet o utlines the va rious building blocks, the unsmoothed forecast revenues (or the ARR) and smoothed expected revenues for the next regulatory control period:

- rows 7 to 12 display the building blocks in nominal dollar terms
- rows 17 to 26 display a summary of smoothed revenue amounts in nominal dollar terms and X factors for the three forms of control
- rows 30 to 35 display the building blocks in real dollar terms (start of year one)
- rows 40 to 49 display a summary of smoothed revenue amounts in real dollar terms (start of year one) and X factors for the three forms of control

The **Price Path Analysis** section presents summary values for the forecast price path, which in broad terms is the forecast revenue divided by forecast demand:

- rows 53 and 78 display the DNSP's forecast energy for the regulatory control period
- rows 56 to 74 use the expected revenues for the three forms of control to calculate indicative revenue and price paths in nominal dollar terms
- rows 81 to 99 use the expected revenues for the three forms of control and calculate indicative revenue and price paths in real dollar terms (start of year one).

The price path analysis differs slightly based on the form of control:

- Under a WAPC, the exp ected revenue in ea ch year reflects the tariff bre akdown (forecast quantities x prices) sourced from the **Forecast revenues** sheet. The starting point for the WAPC price path is an indicative price calculated as total revenue divided by forecast total energy demand.¹⁷ To calculate the price path, this starting value is escalated each year of the regulatory control period using the CPI–X pricing formula. Hence, the X factors will align with the real change in this price path (row 85).
- Under a revenue cap, the expected revenue is directly targeted by the form of control and so the X factors will align with the real change in revenue (row 89). The expected revenue is divided by forecast total energy demand to produce the indicative price path. This also illustrates the extent to which the revenue cap will adjust prices in response to changes in (forecast) demand.
- Under a revenue yield cap, the revenue yield is directly targeted by the form of control and so the X factors will align with the real change in the price path (row 99). Hence, the price path is not just illustrative in this case, and is used to then derive the expected revenue (reversing the operation undertaken in the two other forms of control).

Under each form of control, calculations show the percentage change year-on-year (in both nominal and real terms) and the average yearly change across the regulatory control period.¹⁸

¹⁷ This preserves comparability with the other two forms of control.

¹⁸ The average yearly change is calculated as the geometric mean (not the arithmetic mean), and therefore reflects the cumulative impact of year-on-year percentage changes across the regulatory control period. In o ther words, the value shown in column S (where labelled 'Average yearly change') is the percentage change that, if applied to every year in the regulatory control period, would arrive at the total cumulative change across the period.

Figure 12 and Figure 13 provide examples of the Revenue summary sheet.

Figure 12 Revenue summary sheet–first screenshot

	E C D E	F	G	H		J	К	Q	R S	Т	U		
1													
2	2 Revenue and Price Summary - DNSP PTRM - version 3 (draft)												
2	Revenue and thee summary solution that the	i ci si ci si ci si ci si	iang										
3	V	0007	0000	0000	0040	0044	0040	T - 4 - 1					
4	Tear Puilding Plack Company and (for Nominal)	2007	2008	2009	2010	2011	2012	i otai					
5	Building Block Components (\$m Nominal)												
6	Batura an Anallal		105.54	007.40	004.00	000.00							
-	Return on Capital		185.54	207.13	224.23	239.20	255.76	1,111.86					
0	Return of Capital (regulatory depreciation)		60.69	00.07	65.32	51.79	56.10	340.76					
9	Operating Expenditure		04.07	00.39	00.12	09.00	/1.69	340.74					
10	Net Tax Allewages		2.00	0.20	3.23	2.21 -	5.74	17.30					
12	Annual Revenue Requirement (unamoethod)	200 55	244.29	274 60	267.66	4.05	200 60	4 926 00	1 459 06	NDV			
12	Annual Revenue Requirement (unshoothed)	233.55	341.20	571.05	307.00	307.07	300.09	1,030.33	1,430.80	INF V			
14	Revenue Smoothing (\$m Nominal)												
15	Novende Sindodning (en normal)												
16	Weighted Average Price Cap												
17	Expected Revenue (smoothed)	299.55	341.28	354 15	367 54	381.49	396.02	1 840 49	1 458 96	NPV			
18	X factors	200.00 ,	-9.86%	-0.05%	-0.05%	-0.05%	-0.05%	1,010110	1,100.00				
19	A Record		0.0070	0.0070	0.0070	0.0070	0.0070						
20	Revenue Cap												
21	Expected Revenue (smoothed)	299.55	341.28	354.19	367.59	381.49	395.92	1.840.47	1.458.96	NPV			
22	X factors		-11.15%	-1.25%	-1.25%	-1.25%	-1.25%	.,					
23													
24	Revenue Yield												
25	Expected Revenue (smoothed)	299.55	341.28	354.18	367.58	381.49	395.95	1,840.48	1,458.96	NPV			
26	X factors		-11.46%	-1.52%	-1.52%	-1.52%	-1.52%	-	,				
27													
28	Building Block Components (\$m Real 2007)												
29													
30	Return on Capital		181.02	197.15	208.22	216.70	226.05	1,029.14					
31	Return of Capital (regulatory depreciation)		78.92	82.50	60.66	46.92	49.59	318.58					
32	Operating Expenditure		63.09	63.19	63.26	63.31	63.36	316.21					
33	EBSS Carryover and Other Adjustments		7.00	5.00	3.00	2.00 -	0.50	16.50					
34	Net Tax Allowance		2.93	5.94	6.27	4.16	5.04	24.35					
35	Annual Revenue Requirement (unsmoothed)	299.55	332.96	353.78	341.40	333.09	343.55	1,704.78					
36	D 0 (1) (Å D 10007)												
37	Revenue Smoothing (\$m Real 2007)												
38													
39	Weighted Average Price Cap			007.00			050.00	4 700 00					
40	Expected Revenue (smoothed)	299.55	332.96	337.08	341.30	345.62	350.03	1,706.98					
41	X factors		-9.86%	-0.05%	-0.05%	-0.05%	-0.05%						
42	D												
43	Revenue Cap	200 55	222.00	227.42	244.24	245.04	240.04	4 700 07					
44	Expected Revenue (smoothed)	299.55	332.96	337.12	341.34	345.61	349.94	1,706.97					
40	A factors		-11.15%	-1.25%	-1.25%	-1.25%	-1.25%						
40	Povonuo Viold												
47	Expected Bevenue (amosthed)	200 55	222.06	227 44	244.22	245.64	240.06	4 706 07					
40	Expected Revenue (sinoothed)	233.55	332,96	337.11	341.33	345.61	49.96	1,706.97					
49	A lactors		-11.40%	-1.52%	-1.52%	-1.52%	-1.32%						

		E .	E	0	u		1	K	0	D	6	т	
51	Price Dath Anal	E Voic (É Nominal)	r	G	n		J	ĸ	u	R	5		U
52	FILCE FAULA HAI	ysis (\$ Norminal)											
53 54	Forecast Ene	10,720	10,691	10,662	10,633	10,605	10,577						
55	Weighted Averag	e Price Cap								_		_	
56	Expected Rev	299.55	341.28	354.15	367.54	381.49	396.02			32.21%	Total cumulativ	e change	
57	Annual Perce	ntage Impact on Revenues		13.93%	3.77%	3.78%	3.80%	3.81%			5.74%	Average year	change
58	Price Path (\$)		27.94	31.47	32 27	33.09	33.93	34 80			24 53%	Total cumulativ	e change
60	Annual Perce	entage Impact on Prices		12.60%	2.55%	2.55%	2.55%	2.55%			4.49%	Average yeart	y change
61													
62	Revenue Cap	(6-11)	000 65 1	044.00	054.40	007.00	224.42	205.00			00.470/		
64	Annual Perce	venue (\$m) Intage Impact on Revenues	299.00	341.20 13.93%	3 78%	307.59	3 7 8%	395.92			5 74%	Average year	e change
65	Annual refee	intuge imputer on revenues		10.0070	3.1070	0.1070	0.1070	0.1070			0.1470	Arenage year	y chunge
66	Price Path (\$/	MWh)	27.94	31.92	33.22	34.57	35.97	37.43			33.96%	Total cumulativ	e change
67	Annual Perce	entage Impact on Prices		14.24%	4.06%	4.06%	4.06%	4.06%			6.02%	Average yearl	y change
68	Revenue Vield												
70	Expected Rev	venue (Sm)	299.55	341.28	354.18	367.58	381.49	395.95			32.18%	Total cumulativ	e change
71	Annual Perce	entage Impact on Revenues		13.93%	3.78%	3.78%	3.79%	3.79%			5.74%	Average yeart	y change
72			,										
73	Price Path (\$/	MWh)	27.94	31.92	33.22	34.57	35.97	37.43			33.97%	Total cumulativ	e change
75	Annual Perce	intage impact on Prices		14.24%	4.06%	4.06%	4.06%	4.06%			6.02%	Average year	y change
76	Price Path Anal	ysis (\$ Real 2007)											
77													
78	Forecast Ene	rgy (GWh)	10,720	10,691	10,662	10,633	10,605	10,577					
79	Weighted Average	in Price Con											
81	Expected Dev	(enue (Sm)	200.55	332.06	337.08	341 30	345.62	350.03			16 85%	Total cumulativ	e change
82	Annual Perce	entage impact on Revenues	200.00 ,	11.15%	1.24%	1.25%	1.26%	1.28%			3.16%	Average yeart	v change
83													
84	Price Path (\$))	27.94	30.70	30.71	30.73	30.74	30.76			10.07%	Total cumulativ	e change
85	Annual Perce	ntage Impact on Prices		9.86%	0.05%	0.05%	0.05%	0.05%			1.94%	Average year	y change
87	Revenue Can												
88	Expected Rev	venue (Sm)	299.55	332.96	337.12	341.34	345.61	349.94			16.82%	Total cumulativ	e change
89	Annual Perce	entage Impact on Revenues		11.15%	1.25%	1.25%	1.25%	1.25%			3.16%	Average yeart	y change
90													
91	Price Path (\$/	MWh)	27.94	31.14	31.62	32.10	32.59	33.09			18.40%	Total cumulativ	e change
93	Annual Perce	anage impact on Frices		11.4076	1.55 /6	1.52 70	1.52 /6	1.52 /0			3.4470	Average years	y change
94	Revenue Yield									_			
95	Expected Rev	venue (\$m)	299.55	332.96	337.11	341.33	345.61	349.96			16.83%	Total cumulativ	e change
96	Annual Perce	entage Impact on Revenues		11.15%	1.25%	1.25%	1.25%	1.26%			3.16%	Average year	y change
97	Price Path (S)	MWb)	27.94	31.14	31.62	32.10	32.59	33.09			18 41%	Total cumulativ	e change
99	Annual Perce	entage Impact on Prices	2	11.46%	1.52%	1.52%	1.52%	1.52%			3.44%	Average yeart	y change

Figure 13 Revenue summary sheet–second screenshot

2.8 Equity raising cost sheet

In raising new equity capital a business may incur costs such as legal fees, brokerage fees, marketing costs and other transaction costs. These are upfront expenses, with little or no ongoing costs over the life of the equity. While the majority of the equity a firm will raise is typically obtained at its inception, there may be points in the life of a firm—for example, during significant capital expansions—where it chooses additional external equity funding (instead of debt or internal funding) as a source of equity capital, and accordingly may incur equity raising costs.

The benchmark cash flow analysis applied by the AER to determine the extent to which equity raising associated with capex is required has been discussed in detail in previous electricity determinations.¹⁹ Broadly, the analysis uses the PTRM cash flows to calculate the amount of retained earnings (taking account of cash flows such as revenue, opex, interest payment, tax payment dividends, and dividend reinvestment plans). The amount of retained earnings is deducted from the equity comp onent of forecast capex (while maintaining the benchmark level of gearing) to determine any external equity requirement. The **Equity raising cost** sheet sets out the benchmark cash flow analysis.

The opening RAB and capex values (rows 7 and 8) are sourced from the **Assets** sheet. Based on this information the capex rate is calculat ed and displayed in row 9. The capex rate indicates the proportion of the capex relative to the opening RAB but do es not affect the calculation of equity raising costs by itself.

¹⁹ AER, Final decision, Powerlink transmission determination 2012–13 to 2016–17, April 2012, pp. 145–147.

The tax payable values (row 13) are sourced from the **Analysis** sheet and are used in combination with parameters (such as the corporate tax rate and imputation credit payout ratio) from the **Input** sheet to calculate the dividends payable (row 14). A proportion of dividends that are paid out to investors are assumed to be reinvested in the business. The amount of dividends reinvested by investors is displayed at row 16 and is used in the benchmark cash flow analysis to de termine retained cash flows.

The drop down menu in row 19 allows the selection of the form of control so that the smoothed revenue cash flows are sourced from the correct section of the **X factors** sheet. This drop down menu may be automatically updated when running a smoothing macro using the buttons in the **X factors** sheet. If the drop down option to 'update ERC when smoothing (default)' in the **X factors** sheet (cell H16) is selected, then running a smoothing macro will set the drop down menu in the **Equity raising cost** sheet (cell G19) to the relevant form of control (based on which smoothing button was pressed).²⁰

The benchmark cash flow analysis set out in rows 21 to 36 are undertaken in nominal dollar terms and is used to determine the equity raising costs as follows:

- The revenues (row 21) sourced from the X factors sheet less expenses such as opex, interest
 payments, tax payable and other revenue adjustments (rows 22 to 25) sourced from the Analysis
 sheet provides the internal cash flow (row 26).
- The internal cash flow less dividends paid out to shareholders (row 27) provides the retained cash flow (row 28).
- The capex funding requirement (row 32) is sourced from row 8, adjusted to remove the gross-up for the WACC provided in the PT RM to a ccount for the assumed timing of the in currence of capex, which is not relevant for financing purposes. The debt component (row 33) represents the increase in debt funding and is sou rced from the **Analysis** sheet, whereby to maintai n the benchmark level of gearing, the level of debt must equal 60 p er cent of the RAB rather r than capex. The residual of capex funding requirement less the in crease in debt funding gives the equity component (row 34), which represents the amount of capex that must be funded thro ugh retained earnings and then new equity.
 - The equity component less retained cash flow (r ow 35), where it is insuffici ent, indicates the additional equity requirement (row 36).²¹

Rows 40 to 42 display the equity component, retained cash flow and additional equity requirement in real dollar terms (based on start of year one) by converting the nominal dollar equivalents set out in rows 34 to 36. Dividend reinvestment, also in real dollar terms, is displayed in row 44 by converting the nominal dollar equivalent as set out in row 15.

If the total equity requirement over the next regulatory control period is above ze ro, cell Q48 calculates the total dividend reinvestment plan requirement based on the total amount set out at Q44. The total external equity requirement over the next regulatory control period is calculated at cell Q49 by taking the difference between the total equity requirement and the total dividend reinvestment. Cell

²⁰ If the drop down menu to 'do NOT update ERC when smoothing' (X factors sheet, cell H16) is selected, then running a smoothing button will not change the equity raising cost form of control (Equity raising cost sheet, cell G20). This means that the form of control used to smooth the X fact ors and the form of control used to iteratively determine equity raising cost may not align.

Where there is sufficient retained cash flow to cover the equity component of capex, the amounts shown in row 36 would be negative.

Q50 displays the sum of the total dividend reinvestment plan requirement and the total external equity requirement. This is the total equity requirement.

Based on the total amount of dividends reinvested (cell Q48) and the external equity requirement (cell Q49) the cost for each of these component (sourced from the **Input** sheet) is calculated in cells Q52 and Q53 respectively. The sum of these components provides the total equity raising costs in real dollar terms (start of year one) and is displayed at cell Q54. A positive value for the total equity raising costs over the next regulatory control period indicates that the calculated benchmark equity raising costs should be allowed and recovered by the DNSPs.

The equity raising cost calculations must be performed iteratively because they are both an input to and an output from the building block calculation.²² In other words, a change in the equity raising cost will change the ARR and expected revenue, which in turn changes the equity raising cost. Further, the equity raising cost calculation depends on both unsmoothed building block components (for instance, the outgoing cash flows each year) and the smoothed total revenue (for instance, the available revenue each year). Accordingly, changes to the smoothed revenue profile (the expected revenue) can change the required equity raising cost, starting the cycle again.

By default, the smoothing macros in the **X factors** sheet perform these iterative calculations for equity raising costs at the same time. However, this function can be disabled using the drop-down menu in cell H16 of the **X factors** sheet.

Figure 14 provides an example of the Equity raising costs sheet.

This does not mean that the calculation method for the entire workbook needs to be set to manual or iterative (under Options -> Formulas -> Calculation options). The implementation in the PTRM is such that direct values are entered in the **Input** sheet, so there is no circular reference, and the iterative updates are managed via macros when smoothing. Hence, the calculation option can be left as automatic, without iteration.

Figure 14 Equity raising cost sheet

AA	F	G	Н		J	К	L	M	N	0	P	Q	
1													
-													
2	Equity Raising Cost - DNSP PTRM - version 3 (draft)												
~													
3	V.	0000				0040	0040	0044	0045	0040	0047	T ()	
4	Tear	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Iotai	
5	RAB and Capex (\$m Nominal)												
6													
(Opening RAB	2,302.00	2,569.89	2,782.03	2,967.71	3,173.19	-	-	-	-	-	13,794.82	
8	Capex	348.79	298.81	251.00	257.27	379.87	-	-	-	-	-	1,535.74	
9	Capex Rate	15.15%	11.63%	9.02%	8.67%	11.97%	0.00%	0.00%	0.00%	0.00%	0.00%	11.13%	
10													
11	Dividend Assessment (\$m Nominal)												
12													
13	Tax Payable	6.00	12.49	13.51	9.19	11.41	-	-	-	-	-	52.60	
14	Dividends	9.81	20.39	22.06	15.01	18.64	-	-	-	-	-	85.91	
15	Dividend Reinvestment	2.94	6.12	6.62	4.50	5.59	-	-	-	-	-	25.77	
16													
17	Benchmark Cash Flows (\$m Nominal)												
18	_												
19	Select form of control for ERC calculation	Rev	enue yield ca	p	In almost all c	ases, this sho	ould be the s	same form (of control as	s used to si	mooth on the	e X factor tab	
20													
21	Revenue (smoothed)	341.28	354.18	367.58	381.49	395.95	-	-	-	-	-	1,840.48	
22	Opex	64.67	66.39	68.12	69.88	71.69	-	-	-	-	-	340.74	
23	Interest Payment	103.59	115.65	125.19	133.55	142.79	-	-	-	-	-	620.77	
24	Revenue Adjustments	2.05	2.10	2.15	2.21	2.26	-	-	-	-	-	10.78	
25	Tax Pavable	6.00	12.49	13.51	9.19	11.41	-	-	-	-	-	52.60	
26	Internal Cash Flow	164.97	157.56	158.60	166.67	167.79	-	-	-	-	-	815.59	
27	Dividends	9.81	20.39	22.06	15.01	18.64	-	-	-	-	-	85.91	
28	Retained Cash Flow (excl. dividend reinvestment	155.16	137.16	136.54	151.66	149.15	-	-	-	-	-	729.68	
29													
30	Benchmark Capex Funding (\$m Nominal)												
31	benefitinary capex running (ant norminal)												
32	Capey Funding Dequirement	335 53	287.45	241.45	247.49	365.43						1 477 36	
32	Debt Component	160.74	127.28	111.40	123.20	104.26	-	-	-	-	-	716.07	
24	Equity Component	174 70	160.17	120.05	123.23	174.20	-	-	-	-	-	760.37	
25	Potained Caph Flaw (avail dividend reinvestment	165.10	127.16	126.54	124.20	140.15	-	-	-	-	-	700.30	
26	Retained Cash Flow (excl. dividend reinvestment	10.62	22.01	6.40	27.46	148.15	-	-		-	-	20.70	
30	Equity Requirement (SEO)	18.05	23.01 -	0.43	- 27.40	22.02	-	-	-	-	-	30.70	
20	Renchmark Cancer Funding (fm Deal 2007)												
20	benchmark capex running (am Real 2007)												
40	Faulty Component	170.52	152.45	120.76	112.52	151.00						707 55	
40	Equity component	170.55	102.40	120.70	112.02	101.29	-	-		-	-	707.00	
41	Retained Cash Flow (excl. dividend reinvestment	101.00	130.55	120.79	137.40	131.03	-	-	-	-	-	011.95	
42	Equity Requirement	19.15	21.90 -	6.03	- 24.88	19.46	-	-	-	-	-	29.60	
43		0.07	5.00	0.45									
44	Dividend Reinvestment	2.87	5.82	6.15	4.08	4.94	-	-	-	-	-	23.86	
45													
46	Equity Raising Costs (\$m Real 2007)												
47													
48	Dividend Reinvestment Plan Requirement											23.86	
49	External Equity (SEO) Requirement										_	5.74	
50	l otal Equity Requirement											29.60	
51													
52	Dividend Reinvestment Plan Cost											0.24	
53	External Equity Raising (SEO) Cost										_	0.17	
54	Total Equity Raising Cost											0.41	

2.9 Chart 1—Revenue sheet

The **Chart 1–Revenue** sheet displays charts for each form of control that incorporates the:

- nominal and real ARR
- nominal and real forecast expected revenues derived under the three forms of control

This information is sourced from the Revenue summary sheet.

Figure 15 provides an example of the **Chart 1–Revenue** sheet.



Figure 15 Chart 1—Revenue sheet

Note: This screenshot only shows an example chart for the weighted average price cap form of control. How ever, the **Chart 1—Revenue** sheet also includes similar charts for the revenue cap and revenue yield forms of control.

2.10 Chart 2—Price path sheet

The **Chart 2–Price path** sheet displays charts for each form of control that in corporate the value of average prices (approximated by total revenue s divided by total energy de mand forecast, or the revenue yield value) in nominal and real dollar terms (start of year one). This information is sourced from the **Revenue summary** sheet.

Figure 16 provides an example of the Chart 2–Price path sheet.



Figure 16 Chart 2–Price path sheet

Note: This screenshot only shows an example chart for the weighted average price cap form of control. How ever, the **Chart 2—Price path** sheet also includes similar charts for the revenue cap and revenue yield forms of control.

2.11 Chart 3—Building blocks sheet

The **Chart 3–Building blocks** sheet displays the various building block cost components making up the ARR:

- return on capital
- regulatory depreciation
- opex (excluding any carry-over amounts)
- net tax costs
- carry-over and other revenue adjustments.

This information is sourced from the **Analysis** sheet.

Figure 17 provides an example of the Chart 3–Building blocks sheet.



Figure 17 Chart 3–Building blocks sheet

3 **Process for annual return on debt update**

This section sets out the process to set X factors at the time of the final decision, and the default process for annual updates of the return on debt. S ome aspects of this approach will be guided by policy decisions to be made during individual determinations. However, following the process set out below will likely result in the basi s for calculations that is consistent with the requirements of clauses 6.5.2(h)–(l) of the NER.

3.1 Setting X factors for the final decision before the start of the regulatory control period

- Complete all inputs to the Input sheet. This requires a trailing average portfolio return on d ebt value only in G210.²³ By default, the PTRM a pproach adopts the most recent trailing average portfolio return on debt that is entered, where there is no further forecast values entered for other years in the regulatory control period. Accordingly, it is not necessary to enter the return on debt for later years in the regulatory control period at this stage.²⁴
- In the X factors sheet, ensure that the equity raising cost update option (cell H16) is set to 'update ERC when smoothing (default)'. This will ensure the equity raising cost calculations are iteratively updated as part of setting the X factors.²⁵
- 3. In the **X factors** sheet, check that cell F21 is set to the first year of the n ext regulatory control period. This will ensure the correct checks and warnings operate for the model.
- 4. In the **X factors** sheet, apply revenue smoothing in the section relating to the chosen form of control:
 - a. If applying the default X factor path (year 1 ARR = year 1 expected revenue; X2=X3=X4=X5; NPV(ARR) = NPV(exp ected revenue)), press the button labelled 'Apply default smoothing (...)' where '(...)' describes the relevant form of control (either WAPC, revenue cap or revenue yield).
 - b. If applying an alternative smoothing path, in the section relating to your chosen form of control (WAPC, revenue cap or revenue yield), manually enter values for all X factors except one. Then press the relevant button to calculate the final remaining X factor (so that NPV(ARR) = NPV(expected revenue)). This final X factor can be any of the X factors in the reg ulatory control period (including the first year, which is labelled as 'P0' by convention instead of 'X1'). These buttons are located under the relevant X factors and are also labelled with the relevant form of control.
 - c. In either case, it is necessary to consider the resulting difference between the final year ARR and expected revenue for the chosen form of control (shown in cells R41 and R42 for the WAPC; in cells R57 and R58 for the revenue cap; and cells R73 and R74 for the revenue yield). If this difference would not meet the requirements of NER clause 6.5.9(b)(2), return to

²³ Also, the year-by-year tax rates (row 200) only require the first year (cell G200) to be entered; the PTRM will apply this tax rate to later years where there is no explicit tax rate entered.

²⁴ The PTRM will use the return on debt for a given year if entered, so if forecasts we ere entered for later years in the regulatory control period (and these values differ from the year 1 return on debt), this will be reflected in the building block calculations. However, this is not intended to be the def ault operation of the PTRM. If a DNSP was to propose (a t the time of making the final decision) return on debt forecasts for year 2 onwards this would need to be assessed as part of an individual determination.

²⁵ The 'do NOT update ERC when smoothing' option can be selected for certain analysis that seeks to isolate the impact of equity raising cost from the revenue requirement.

step (b) and manually adjust one or more X factors again (ensuring that the final X factor adjustment uses the relevant button so as to jointly smooth the revenue and equity raising cost calculations).

5. In the **WACC** sheet, press the 'Set T e and Td' button to copy the cash-flow derived effective tax rates for equity and debt from the **Analysis** sheet to the appropriate cells in the **WACC** sheet.

3.2 Updating X factors to incorporate the annual update to the trailing average portfolio return on debt

- 1. In the X factors sheet, select the relevant year of update in cell F21.
- In the Input sheet (row 210), enter the trailing average portfolio return on debt values up to and including the relevant year of update, consistent with that selected in cell F21 of the X factors sheet.²⁶ Caution notes will appear in rows 211 to 212 of the Input sheet to show which inputs are necessary. No other inputs should be changed.
- 3. In the **X factors** sheet, ensure the equity raising cost update o ption (cell H16) is set to 'updat e ERC when smoothing (default)'.
- 4. In the X factors sheet, apply smoothing to recalculate the X factor by using the button for the relevant year as identified in step 1 and for the relevant form of control. The correct year for update will be identified by a caution note in the rows (rows 51, 67 and 87) under the smoothing X factor buttons for the three forms of control. Only the relevant form of control should be used. It is important that the X factors for past years in the regulatory control period are not altered, since these X factors reflect the revenue (and price) outcomes from those years. Further, the default approach is that only the X factor for the year of update should be altered (rather than multiple X factors, for this year and remaining years within the regulatory control period).²⁷ This means that the impact of increases/decrease in that year's return on debt will be fully reflected in price changes in that year. For example, under a revenue cap form of control, to re-smooth for a return on debt update in year 2 the button la belled 'Set X2 (rev cap)' would be used, and all other X factors as determined during the final decision process would remain unaltered.

²⁶ By default, the P TRM will use the most r ecent return on debt value as the forecast for later years (where the return on debt is not yet known). Hence, at each annual update the forecast for the remaining years in the regulatory control period will be updated.

²⁷ If a DNSP was to propose an alternative approach (for instance, where multiple X factors were changed in response to a given year's annual return on debt update) this would need to be assessed as p art of an individual determination and approved as part of the final decision.