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This report is not intended to be read or used by anyone other than Ausgrid Operator Partnership (Ausgrid).

We prepared this report solely for Ausgrid's use and benefit in accordance with and for the purpose set out in our engagement letter with Ausgrid dated 22 November 2017 and the report. In doing so, we acted exclusively for Ausgrid and considered no-one else's interests.

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Private & Confidential

Ausgrid Operator Partnership
570 George Street,
Sydney NSW 2000

Attention: Shannon Moffitt, Senior Regulatory Strategy Analyst
Son Truong Vu, Manager Regulatory

30 January 2018

Dear Shannon,

Report on your draft financial models for AER regulatory proposal

We have completed our work under our engagement letter with Ausgrid Operator Partnership (**Ausgrid, you** or **Client**) dated 22 November 2017 and are pleased to provide you with this report on the suite of your financial models for regulatory proposal to the Australian Energy Regulator (**Project**).

The model

In this report 'the model' refers to the suite of Excel spreadsheets and BPC Modules identified below, excluding the worksheets/ranges identified below.

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	<i>Electronic file name</i>	<i>Size (KB)</i>	<i>Last modified (date & time)</i>	<i>MD5 identifier*</i>	<i>Number of versions reviewed</i>
Original models:					
1.	PTRM capex inputs FY19-24 - Master v1.xlsx	1,022	18 December 2017, 5:29pm	007d970512122bbb20dce918d868374	4
2.	RFM capex inputs FY18-19 20171207.xlsx	692	18 December 2017, 5:29pm	593877d8953a0ceec62e2652335e80dc9	4
3.	AER Depn Model - Dx - FY14-19 - 2017 11 09_3rd rnd.xlsx	1,157	18 December 2017, 2:26pm	7ab54d1012725b469b9ff16e77d93966	4
4.	AER Depn Model - Tx - FY14-19 - 2017 11 09_3rd rnd.xlsx	1,333	20 December 2017, 9:29am	5727e290b7e052986b0fb7134eb7a862	4
5.	Compliance Model - 1924 TSS template Non Conf (v4).xslm	2,999	19 December 2017, 4:49pm	91a62ea6e4e7bd9ec72010a3ecb6da05	4
6.	2017 12 11 - Ausgrid CESS calculation (Post-Audit).xlsx	26	11 December 2017, 5:39pm	0481669556a692ff1cef58f30523f28	2
7.	Ausgrid distribution determination 2019-24 - Opex model - Proposal January 2018 for audit v3.xslm	114	18 December 2017, 9:06am	4f696c4a9afa029162d0af3aa37f2262	3
8.	19_12_17 Ausgrid - Public Lighting - Opex Cost Build-up Model FY20-24.xslm	555	19 December 2017, 12:30pm	d035146d1f98968bfoa5a268002f71d3	3
9.	08_01_18 Ausgrid Pre 2009 'Fixed Charge' model FY20-24.xslm	8,652	8 January 2018, 1:09pm	7319c07f4bcc3ad5bd6cd2aa6193270	5
10.	11_12_17 Post June 2009 Annuity Prices FY20-24.xlsx	866	14 December 2017, 10:00am	5c627ae83cf7de4cdea2d767291e7b41	3
11.	Copy of Ausgrid Metering PTRM and pricing model - 191217 - Response to PWC second round findings.xslm	2,888	20 December 2017, 2:13pm	62d7ea62572ac8c44ff1f6a771c7439d	4
12.	01_Metering related ANS - REG DRAFT 19_12_2017.xlsx	982	19 December 2017, 7:36pm	bbbac3be916b7b6f5a83049b10c3ab61	3
13.	02_Design Related Services REG DRAFT 19_12_2017.xlsx	945	20 December 2017, 1:12pm	58175bad9acfo8d118f2d71a74ba2390	4
14.	03_Connection Application Related Services REG DRAFT 19_12_2017.xlsx	926	19 December 2017, 8:10pm	0b366e20279544ca216a7d9155738f51	3
15.	04_Network Commissioning & Decommissioning REG DRAFT 19_12_2017.xlsx	923	19 December 2017, 7:46pm	dc3ab3416582877d999a33daa8bc3030	3
16.	05_Access permit Oversight and Miscellaneous REG DRAFT 19_12_2017.xlsx	938	19 December 2017, 7:47pm	c376004cf9fdf14b471f5d2e92cf715f	3
17.	06_Notices of Arrangements REG DRAFT 19_12_2017.xlsx	905	19 December 2017, 7:48pm	96a8745a2c5f0661c6568d43110b284a	3
18.	07_Network Related Property	899	19 December	9ec92f55356715147d2	3



	<i>Electronic file name</i>	<i>Size (KB)</i>	<i>Last modified (date & time)</i>	<i>MD5 identifier*</i>	<i>Number of versions reviewed</i>
	Services REG DRAFT 19_12_2017.xlsx		2017, 8:12pm	3e64050d20e14	
19.	08_Network Safety Service and Security - REG DRAFT 19_12_2017.xlsx	1,062	19 December 2017, 8:21pm	ca7705a088b4c82c4c06fed77d2b28e8	3
20.	09_Inspection Service REG DRAFT 19_12_2017.xlsx	926	19 December 2017, 7:52pm	oec1fee71a2b8a29836b240659362ba0	3
21.	10_Authorisations of ASPs REG DRAFT 19_12_2017.xlsx	912	19 December 2017, 8:22pm	184b820146db26a92a3968ee555e5cod	3
22.	11_Consultancy and Review Services - REG DRAFT 19_12_2017.xlsx	1,094	19 December 2017, 7:53pm	66af31536d73ba1d1b80c43932d6503b	3
23.	12_Training - REG DRAFT 19_12_2017.xlsx	1,006	19 December 22017, 8:25pm	f111a2c9302dc79531e514e857c0846f	3
AER Template-based Models:					
24.	2017 11 09 - PTRM - Dx - FY20-24.xlsm	1,562	18 December 2017, 5:30pm	898c88f6ed3451c2eee63f0165559608	3
25.	2017 11 09 - PTRM - Tx - FY20-24.xlsm	1,567	18 December 2017, 5:30pm	614a2b0253081a8e095f0f1b61b933dc	3
26.	2017 11 09 - Dx - 2014-19 RFM.xlsm	2,308	4 December 2017, 6:35pm	8e2ddc677447dc299830e598a9ba1717	2
27.	2017 11 09 - Tx - 2014-19 RFM.xlsm	2,331	4 December 2017, 4:32pm	366a809716fa79604fc4021193e51e8e	2
BPC Module: 5 parallel Excel models					
28.	BPC Calculation Logic - PwC Audit.xlsx	116	18 December 2017, 11:13am	b8fe646b30286a6d08faf17881a7855a	3
BPC Area plan module					
29.	ABAP Class ZCL_BPC_AREA_CALC	n/a	n/a	n/a	1

* The MD5 hash of a file can be reconfirmed using tools that are available at: <http://code.kliu.org/hashcheck/>

Excluded worksheets/ranges:

- Copy of Ausgrid Metering PTRM and pricing model - 191217 - Response to PwC second round findings.xlsm: 'LT_ByTariffForecast'
- 1.7_SCS - Capex_Annual_RIN_FY15-17.xlsx



Our procedures

We performed the procedures in appendix A on the 2 to 5 earlier versions of each model you provided for this purpose. After performing the specified procedures on each earlier version of the model, we provided you with lists of the potential errors, queries, undocumented assumptions and design issues we identified (*issues lists*). We discussed each issues list with you and you responded to the issues raised in writing and/or by making changes to the relevant version of the model. We relied on your responses to the issues lists in preparing this report. Certain of these responses to our issues are detailed in appendix B.

At our request, you also provided written clarification of your interpretation of some of the model's key assumptions, input data and source documentation. We have also relied on this clarification in preparing this report. Otherwise, we based this report solely on the interpretation of the model's assumptions, input data and source documentation that was apparent to us. As our services did not include legal services, we did not interpret agreements or other documents as lawyers. Our services did not include any legal, tax or accounting advice and we did not act as your financial advisor.

Please note:

- we did not check whether the model is consistent with any supporting project documentation;
- we did not check whether the accounting assumptions and outputs from the model are in accordance with the relevant accounting standards;
- we did not check whether the tax assumptions and outputs from the model are in accordance with the relevant tax legislation; and
- we did not check the source of any links to other files which the model is linked to, and those links in the model were treated as your assumptions.

Findings

In performing each specified procedure on the final version of the model, we did not identify any further issues that would indicate to us that the objective to which the relevant procedure relates (as identified in appendix A) has not been met.

You are responsible for determining whether the specified procedures meet your needs and for making your own decisions in light of all relevant information available to you. We make no representation that the specified procedures are sufficient for determining whether your model meets your objectives (as identified in appendix A) or that our work will disclose all matters of significance to you. You are also responsible for the model and all assumptions and input data, and for all decisions relating to the Project. We do not express any opinion on how the Project's results may compare with the model's projections.

Because our work did not constitute an audit or review in accordance with Australian Auditing Standards, we do not express any conclusion or provide any assurance on the model or its outputs or its explicit or implicit numerical, commercial, or logical assumptions.

Use of report

We provide this report solely to help you assess whether your financial model meets those of your objectives for the model which are identified in appendix A. It is not intended to be used in connection with any warranties you may give in connection with the Project or in any agreement or for any purpose other than that for which it is provided or by anyone other than you. We do not accept any responsibility or liability to you for the consequences of your use of our report for a purpose other than



that for which it is provided or to any other party for the consequences of use of this report for any purpose.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Ian Bennett'.

Ian Bennett
Partner
PricewaterhouseCoopers



Appendix A – Your objectives for the model and the specified procedures

Table 1: How the Objectives and Procedures have been applied to the model suite

Models \ Objectives	28 models		BPC Module	
	24 original models	4 AER template-based models	5 parallel Excel models	BPC Area plan module
1	In Scope	n/a	In Scope	n/a
2	In Scope	n/a	n/a	n/a
3	n/a	In Scope	n/a	n/a
4	n/a	n/a	In Scope	n/a
5	n/a	n/a	n/a	In Scope

Table 2: Your objectives for the model and our procedures

	Your objectives for the model	Specified procedures
1.	The calculations in the model are in all material respects internally consistent and arithmetically correct.	<p>(a) Use spreadsheet analysis software to identify:</p> <ul style="list-style-type: none"> • inputs, formulas and labels • inconsistencies in formulas replication • hidden, hard coded or hard wired assumptions embedded in formulas • unused inputs • cells returning excel errors • range names and their properties • external links • hidden sheets • similarities between manually selected worksheets and ranges <p>(b) Perform manual code inspection of model formulas and linkages, using Excel trace functions to trace forward from inputs to outputs.</p> <p>(c) Use row and column narratives to indicate the purpose of calculations and units of measure.</p> <p>(d) Check whether the formulas are consistent with the row and column narratives</p> <p>(e) Check whether the mathematical calculation of the formulas is consistent with the model’s row and column narratives based on our understanding of the intended purpose of the model and on the procedures performed.</p>
2.	Agreed macros governing	Agree with you the macros to be reviewed and document



	calculations in the model are working in accordance with their intended purpose.	<p>your intended purpose for each of them and then:</p> <p>(a) perform a manual code inspection, using Excel's VBA editing tool to trace through macro instructions to their respective model interactions</p> <p>use narratives within the code to indicate whether the stated purpose and action of the code is in accordance with our understanding of its intended purpose.</p>
3.	The calculations in the relevant sections of the model are identical to the corresponding AER templates published on the AER website.	<p>For the following models, we will use Spreadsheet Advantage spreadsheet analysis software to compare the calculations in the templates with the corresponding AER templates and report any exceptions:</p> <ul style="list-style-type: none"> • Roll forward model (RFM) - Distribution • Post-tax Revenue Model (PTRM) - Distribution • Roll Forward model (RFM) - Transmission • Post-tax Revenue Model (PTRM) – Transmission • Metering PTRM and pricing model (part of the model)
4.	The five parallel excel models (excluding Area Plan model) are consistent with the corresponding BRD and specified BPC inputs and outputs.	<p>Using the BPC Module Excel Parallel models provided by you, for each of the parallel models:</p> <p>(a) for one project only, we will perform a comparison of the outputs generated by the parallel model, using the specified inputs contained in the parallel model, to the corresponding specified BPC outputs also contained in the parallel model.</p> <p>(b) check whether the model inputs, calculations and outputs are consistent with the model's Business Requirement Document.</p>
5.	The calculations in the Area plan BPC Module are (i) in all material respects internally consistent and arithmetically correct, and (ii) are consistent with the corresponding BRD.	<p>For the Area Plan BPC Module we will perform ABAP Code review; specifically:</p> <p>(a) Analyse BPC input template layouts to identify input parameters and input granularity</p> <p>(b) Perform manual code inspection of the Area Plan calculation (ABAP Class ZCL_BPC_AREA_CALC) in ABAP Workbench to understand the calculation logic, formulas and granularity. Use comments in ABAP code to indicate the purpose of calculations.</p>



		<p>(c) Check whether the model inputs, calculations and outputs are consistent with the model's Business Requirement Document (sections 5.1 Input Requirements, 5.2 Calculation Requirements, 5.3 Master Data Requirements, 5.4 Output Requirements) based on our understanding of the business requirements and on the procedures performed.</p> <p>(d) Document any inconsistencies found between the Business Requirement Document (sections 5.1-5.4) and the Area Plan model.</p>
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Appendix B – Responses to our issues

Please note that the cell references below may refer to a previous version of the model and may have changed.

	Worksheet	Cell reference	Description	Client comments
2017 11 09 - PTRM - Tx - FY20-24.xlsm				
1.	Assets	Sub-transmission lines and cables ('Assets' cells G76:BI76)	<p>Initial Asset Base</p> <p>We note that in the AER template, Initial Asset Base at cell G76 is calculated by referencing the following cells:</p> <ul style="list-style-type: none"> · ('Assets' cell G3), · Asset Class 1 ('PTRM input' cell L7) · Asset Class 1 ('PTRM input' cell J7) <p>However, it is replaced with an external link in the current model version. The replacement is highlighted in yellow to alert the user. It was confirmed on a phone call with the model owner that the replacement is appropriate and expected. We note it here for reference. A similar comment also applies to:</p> <ul style="list-style-type: none"> · ('Assets' rows 89, 102, 115, 128, 141, 154, 167, 180, 193, 206, 219, 258, 284, 297, 310, 323, 336). <p>This also applies to 2017 11 09 - PTRM - Dx - FY20-24.xlsm</p>	No change required. These amendments reflect the alternative depreciation method being proposed by Ausgrid.
2.	X factors	Under/Over-Recovery from	<p>Change in calculations</p> <p>Relative to the AER template, a new input cell was added</p>	No change required. This change has been inserted to



	Worksheet	Cell reference	Description	Client comments
		2014-19 ('X factors' cell F36)	in Under/Over-Recovery from 2014-19 ('X factors' cell F36). It is used to adjust the FY20 value for Unsmoothed - Annual Revenue Requirement ('X factors' cell G55). The change is highlighted to alert the user and confirmed by the model owner on the phone. We note it here for reference.	account for the potential outcome of the re-made decision which is not known at this time.
2017 11 09 - Dx - 2014-19 RFM.xlsm				
3.	Adjustment for previous period	Nominal Net Transfers Tx assets to Dx 2013-14 ('Adjustment for previous period' cells G169:G199)	<p>Inconsistent with AER template</p> <p>We note that this calculation section is newly inserted into the current model, inconsistently with the AER template. These flow to 2013-14 ('Total RAB roll forward' cells G202:G231), 2014-15 ('Total RAB roll forward' cells H8:H37) and 2014-15 ('RAB roll forward' cells H438:H467), which are different to the AER template.</p> <p>We understand the intent of the changes is to account for the reclassified assets. Please confirm.</p> <p>A similar comment also applies to:</p> <ul style="list-style-type: none"> · Nominal Transfers to Metering type 5-6 assets base ('Adjustment for previous period' cells G201:G231) · 2013-14 ('Adjustment for previous period' cells G233:G263) 	These adjustments reflect actual asset movements that affected the opening balances for 2014-15. The RFM did not previously facilitate these types of adjustments so they have been manually entered.



	Worksheet	Cell reference	Description	Client comments
			This also applies to 2017 11 09 - Dx - 2014-19 RFM.xlsm.	
2017 12 11 - Ausgrid CESS calculation (Post-Audit).xlsx				
4.	Scenario 1	Year 1 benefit ('Scenario 1' cells D28:G28)	<p>Discount rate application</p> <p>Previously raised issue: There are 2 queries regarding this The cells refer to both Discount Rate (Nominal Vanilla WACC) ('Scenario 1' cell C22) and Discount Rate (real Vanilla WACC) ('Scenario 1' cells D23:G23) which are in different terms. Please explain why using discount rate in both real and nominal terms at the same time. Should only nominal be used? A similar comment applies to · Various ('Scenario 1' cells E29:G31, I28:L31 and N28:Q31) · Similar cells in Scenario 2 and Scenario 3 worksheet</p> <p>Client comments: Amended cells D28:Q31 to refer to real discount rate only. The financing benefits are earned as a real return on capital so model is now working as it should.</p> <p>PwC response: Thank you for your comments and amending the</p>	<p>Have reviewed calculation as per PwC comments. Calculation is correct, return on capital on capital underspend does not compound, it is calculated separately for each year.</p> <p>Separately, each year's capital over/under-spend is adjusted by 1/2 a year's real return on capital to represent timing assumptions within the underlying regulated revenue flow model. This happens before returns on capital or "financing benefits" are calculated.</p>



	Worksheet	Cell reference	Description	Client comments
			model. The amendments are in line with our expectations. Should the formulae in Year 1 benefit ('Scenario 1' cells D28:G28) reflect accumulated return? E.g. the formula in cell E28 for FY17 value of year 1 benefit reflects Discount Rate (Real Vanilla WACC - Forecast Inflation) ('Scenario 1' cells C24 for FY15 and E24 for FY17). Should it also include a reference to the FY16 value in cell D24? This would be consistent with the logic in Deferred Capex Present Value ('Scenario 1' cells H19:Q19).	
PTRM capex inputs FY19-24 - Master v1.xlsx, RFM capex inputs FY18-19 20171207.xlsx				
5.	ALLOCATION	ORIGINATING SERVICE FORECAST ('ALLOCATION' cells H3:L3)	Years not updated Please update the Year headings, it currently reads 2015 to 2019 instead of 2020-2024. Note that outdated timeline renders the references incorrect as the years do not match. The same comment applies to all Year headings in this sheet.	These have not been updated due to their reliance on named ranges that have the years hard coded. Time constraints have not allowed updating the named range or, as is the preference, removing the indirect formulae that rely on the named ranges. There is no impact to outputs.
6.	PTRM INPUTS	Transmission – Capital	Incorrect lookup The VLOOKUP function in Transmission & Zone land &	These tables refer to Capital Contributions. There are no

	Worksheet	Cell reference	Description	Client comments
	(NominalBASE)	contributions ('PTRM INPUTS (BASE)' cells S30:W53)	easements (tx) ('PTRM INPUTS (NominalBASE)' cell S30) is referring to Subtotal ('SUMMARY' cells K55:R55). As a result it will not pick up the relevant assets (in this case Transmission & Zone land & easements (tx) as the lookup value cannot be found. Please review and amend the formula. Similar comments apply to: · ANS – Metering – Capital contributions ('PTRM INPUTS (NominalBASE)' cells S108:W128) The issue appears to have no impact under the current assumptions.	Capital Contributions for Transmission assets or ANS Metering, therefore no formula will ever return a value. While the workbook is set up in its current form, the best outcome is for all the formulae on this sheet to be sumifs however given the likelihood of the whole workbook being re-configured (or the functionality being programmed into BPC), and that there is no impact, it is not considered to be a necessary change at this time.
Ausgrid distribution determination 2019-24 - Opex model - Proposal January 2018 for audit v3.xlsm				
7.	Calc Opex forecast	Efficiency adjustment final year opex ('Calc Opex forecast' cell N35)	Inconsistent calculation The cell is inconsistent with the rest of cells in the same row. We understand this is an intentional modification, as discussed over the phone with the model owner. We note it here for reference. This also applies to the following blank cells: · Efficiency adjustment final year opex ('Calc Opex forecast' cell M35)	Noted. Differences to original AER Opex model to adjust to recent determination.



	Worksheet	Cell reference	Description	Client comments
			<ul style="list-style-type: none"> · Rate of change ('Calc Opex forecast' cell N39) · Various ('Calc Opex forecast' cells N46, N48, N44, N42 and N39) 	
Copy of Ausgrid Metering PTRM and pricing model - 191217 - Response to PWC second round findings.xlsm				
8.	Forecast opex	Rate of change ('Forecast opex' cells B28:F28)	<p>Application basis potentially incorrect</p> <p>The formula applies Wage price index - REAL (% change) ('Inputs' cells B20:F20) and Adjustment factor (% change) ('Inputs' cells B23:F23) to Base + step changes ('Forecast opex' cells B27:F27). Wage price index – REAL is an annual % change, but adjustment factor is calculated to FY17 basis. This presumes that Metering opex per customer (\$ real FY19) ('Forecast opex' cell H11) is an FY17 value. However, it appears to be FY19.</p> <p>Further, Adjustment factor (% change) ('Inputs' cells B23:F23) should be decreasing total opex, but it is brought over with a plus sign.</p> <p>We understand the calculation should satisfy this note: “Productivity factor = 0.72, i.e. a 1% change in the meter population should result in a 0.72% change in metering opex.” If the impact of Wage price index - REAL (% change) ('Inputs' cells B20:F20) is excluded, the ratio of opex change to population change is not 0.72.</p>	<p>The difference is intentional. The wage price index and the adjustment factor are measuring changes from different points in time. The wage price index is measuring a rate of change on an annual basis.</p> <p>By contrast, the adjustment factor is measuring a rate of change from a fixed point in time (FY2018). Changes to cells D65:H65 should now properly reflect this.</p> <p>The consultant who developed our proposed productivity adjustment factor has confirmed that it has been applied correctly in the model.</p>

	Worksheet	Cell reference	Description	Client comments
			Please review and consider amending.	
9.	X factors	Smoothed - Expected Revenue ('X factors' cells H60:K60)	Calculation intention In AER template, Expected revenue smoothed at these cells are calculated only if the number of the precedent period is less than Length of Regulatory Control Period Asset Class 1 ('PTRM input' cell R7). In the current model it is done only for FY25-30 (columns L:Q). Please consider amending for consistency.	Not required
Compliance Model - 1924 TSS template Non Conf (v4).xlsm				
10.	BILL IMPACT	FY19 ('BILL IMPACT' cells AQ17:AQ32)	Intention for formula inconsistency unclear Please clarify why these cells refer to FY19 ('BILL IMPACT' cells AE17:AE32). We note that the values in cells AQ17:AQ32 will be inconsistent with the values if the formula in FY18 ('BILL IMPACT' cells AP17:AP32) is copied into cells AQ17:AQ32. A similar comment applies to: · FY19 ('BILL IMPACT' cells BC17:BC32)	The Tariff (EA011) does not exist in FY 2018-19 and for bill impact purposes it references the tariff the customers would have originated from i.e. EA010.
11.	Input	Total TUOS - target revenue amount for year t: 2019 ('Input' cell H36)	CPI (Distribution) vs. CPI (Transmission) This cell applies CPI (Distribution) ('Input' cell H17) instead of CPI (Transmission) ('Input' cell H18). Please clarify your intention. We note that cell G36 also considers the Transmission Escalation instead of Distribution Escalation. However, the current value in	Labelling has been corrected. The Undertaking for FY 2018/19 has been assumed to escalate the revenues by one CPI. Hence as a proxy or

	Worksheet	Cell reference	Description	Client comments
			cell H36 is consistent with the SUM of cells H55:H56. A similar comment applies to: · Target revenue as per approved TSS ('TRAN' cell D21) which also indirectly applies CPI (Distribution) ('Input' cell H17).	placeholder only the DUOS CPI has been used. Re-raise
12.	DIST	Opening balance ('DIST' cell E44)	Opening closing balances do not match Please clarify why this cell is not equal to Closing balance of distribution overs/ (unders) account ('DIST' cell D48), i.e. last period closing balance? A similar comment applies to: · Opening balance ('TRAN' cell E45). Should it refer to Closing balance of transmission overs/ (unders) account ('TRAN' cell D49) instead of being hard-coded to zero?	The over recovery for DUOS and TUOS will be recovered through the Remade Determination. The opening balance has been zeroed to take this into account.
13.	TRAN	Target revenue as per Enforceable Undertaking methodology ('TRAN' cell D20)	Labelling unclear The label is incorrect. Note that this cell refers to CPI (Distribution) ('Input' cell H17). A similar comment applies to: · Target Ausgrid Trans MAR as per Enforceable Undertaking methodology ('TRAN' cell H20) · Target revenue as per Enforceable Undertaking methodology ('CCF' cell D22)	The Undertaking for FY 2018-19 has not been finalised. As a proxy and placeholder the CPI of DUOS has been used.
14.	TRAN	Target Ausgrid Trans MAR as per	Incorrect inflation applied This cell is related to Transmission. However, it refers	The Undertaking for FY 2018-19 has not been finalised. As a



	Worksheet	Cell reference	Description	Client comments
		approved TSS ('TRAN' cell H21)	to cells H20 which indirectly references CPI (Distribution) ('Input' cell H17) instead of CPI (Transmission) ('Input' cell H18). This does not appear correct. Cell H20 should refer to CPI (Transmission) ('Input' cell H18) instead. Note that Target Ausgrid Trans MAR as per Enforceable Undertaking methodology ('Input' cell H54) applies CPI (Transmission) ('Input' cell H18). As CPI rates are assumed to be different this issue might have a numeric impact.	proxy and placeholder the CPI of DUOS has been used.
Alternative controls models 1-12				
15.	Model 1: Fee Breakdown	R1 ('Fee Breakdown' cell G153)	<p>Calculation inconsistency</p> <p>Previously within the worksheet, “Time on task (hrs)” is calculated by dividing the FY2019 cost by the “Labour Rate (per hr)”. However, in this cell it is calculated as hard wired “10/60”. We note that attempting to copy the calculations as above leads to circular errors as Distributor arranged outage for purpose of replacing metering - Simple ('AER Summary' cell D32) refers to Totals ('Fee Breakdown' cell H155). However, for some line items proposed fee refers to 'Input data'. Should the approach be consistent?</p> <p>A similar comment applies to:</p> <ul style="list-style-type: none"> · R4 ('Fee Breakdown' cell G154) · Time on task (hrs) ('Fee Breakdown' cells G162:G163) 	<p>Difference in approaches is intentional.</p> <p>The fees “distributor arranged outage” and below are new services which have had a “bottom up build” applied to them. This involved estimating a time for the services to be completed (which has been “hard coded” into the models). The other fees are existing services which have had their fees rolled over from the last period. In doing this, we have</p>

	Worksheet	Cell reference	Description	Client comments
			<ul style="list-style-type: none"> · Time on task (hrs) ('Fee Breakdown' cells G171:G172) · R1 ('Fee Breakdown' cell G180) · Time on task (hrs) ('Fee Breakdown' cells G188:G189) · R4 ('Fee Breakdown' cell G197) · R4 ('Fee Breakdown' cell G205) <p>Furthermore, within other models, "Time on task (hrs)" is a hardcoded input. Please confirm that the variation observed is intended.</p>	<p>calculated the time taken as a function of our last approved fee and our proposed labour rate. This removed any need for hard-coding an assumed "time taken" to deliver each service.</p> <p>More detail about the different approaches we have taken is outlined in our written regulatory submission.</p>
16.	Model 8: AER Summary	Fitting of tiger tails ('AER Summary' cell D12)	<p>Exclusion of "torapoli hire" fee</p> <p>Currently this cell is described as per J12, "Hourly rate (R4) + torapoli hire" however the cell only refers to R4 ('Input Data' cell L42). Accordingly, it appears that the fee being proposed may be understated by the amount equal to the torapoli hire amount. Similarly, Fitting of tiger tails – Totals ('Fee Breakdown' cell H30) does not include values for torapoli hire.</p> <p>We note that corresponding inputs in EACH ONE MTHS ADDT RENTAL ('Torapoli Hire' cells P5:P42) appear to have no dependents in the model.</p> <p>Please confirm that the current approach is correct.</p>	The current approach is correct. It aligns with our last regulatory submission and the AER's control mechanism for quoted based services.
17.	Model 8:	Generator OH	Cell referencing and labelling inconsistency	We can confirm that

	Worksheet	Cell reference	Description	Client comments
	AER Summary	network ('AER Summary' cell D45)	The line item labelling states “Generator OH network” however the cell refers to Connect & disconnect MG to OH mains ('15-19 prices' cell J131). Please confirm that this is the same line item as there is no identically labelled line item on the sheet. If so, please consider amending the labelling for clarity.	“Generator OH network” is the same line item as “connect & disconnect MG to OH mains”.
18.	Model 8: AER Summary	Escalation factor ('AER Summary' cells D213:H215)	Hardcoded escalation factor Within previous models (such as 07_Network Related Property Services REG DRAFT 1_11_2017.xlsx) these cells refer to the “Input Data” sheet. However in this case they are hardcoded. Please confirm that this is acceptable. If so, please consider amending the formatting present to signal that these cells are separate inputs rather than references to other sheets within the workbook.	Can confirm that this is acceptable
19.	Model 9: AER Summary	Inspection of service work by Level 1 ASP's ('AER Summary' cells D64:D69)	Formula referencing These cells are quoted values and are labelled as various hourly rates. However, rather than referring to Rates, Oncosts & Overheads (\$2014-2015) ('Input Data' cells B23:L30) the formulae reference the “15-19 prices” worksheet. For example, Commercial and industrial developments ('AER Summary' cell D64) is stated to be an R2 hourly rate however it refers to ASP inspection services ('15-19 prices' cell J72) which is equal to \$142.91 whereas the	The \$142.91 figure is based on actual CPI. This is shown in cells J72 compared to J71 in “15-19 prices” sheet. Since the \$142.91 is the amount which was actually approved in our annual pricing approval process we have used that figure.



	Worksheet	Cell reference	Description	Client comments
			<p>2014/15 R2 rate as per R2 ('Input Data' cell L27) is \$142.81.</p> <p>Please confirm that the current formulae are correct. A similar comment applies to:</p> <ul style="list-style-type: none"> · L1 - network construction, L2 (NOSW) ('AER Summary' cells D78:D80) · Re-inspection Installation (CoCEW) ('AER Summary' cell D83) · Investigate, review & implementation of remedial actions associated with ASP's connection works ('AER Summary' cell D86) 	
o8_01_18 Ausgrid Pre 2009 'Fixed Charge' model FY20-24.xlsm				
20.	Calc - RAB 2020-24	Indexation on Opening RAB ('Calc - RAB 2020-24' cells AY4:BC6726)	<p>Double escalation applied</p> <p>The formula for FY20 applies FY20 - Inflation ('Inputs - General' cell K8) to FY20 - Inflated nominal Residual RAB (start period) ('Calc - RAB 2020-24' cell AE4). The latter is FY20 - Real Residual RAB (start period) ('Calc - RAB 2020-24' cell X4) with FY19 - Inflation index (base end FY19 / start FY20) ('Inputs - General' cell J11) applied. To summarise, in FY20 indexation is calculated as</p> $\text{FY19 EOP RAB} * \text{FY19 inflation index} * \text{FY20 inflation}$ <p>So inflation is applied twice.</p> <p>Indexation is then deducted from Nominal Depreciation ('Calc - RAB 2020-24' column AS) in</p>	This has come up before. The comment then was "the opening RAB should be nominal instead of real; the inflation should be on the opening RAB rather than taking the difference between nominal and real".



	Worksheet	Cell reference	Description	Client comments
			Nominal Regulatory Depreciation ('Calc - RAB 2020-24' column BE). Please explain the approach and confirm it is as intended.	
BPC: Area plan				
21.	No specific requirement. But one of the business assumptions (section 2.2 <i>Business Assumptions</i>) was that “the monthly forecasted cash-flows rather than the quarterly forecasted cash-flows used for regulatory submission”.		<p>No monthly cash flow</p> <p>It has been noticed that capex and opex which are calculated in the Area Model are stored quarterly rather than monthly.</p> <p>Could you please confirm that quarterly forecast is submitted to the regulator?</p>	Forecasts are submitted in annual cashflows.
22.	EA10 – Standard Sub-Projects EA11 – Non-standard Costs EA20 – Contracted Services Escalation		<p>Cabling costs are missing</p> <p>There is no split between civil and cabling service costs in the system.</p> <p><i>Note:</i> This cost type was removed from them system because it was never used.</p>	Functionality was removed to simplify the input screen as it was deemed redundant by the business.

	Worksheet	Cell reference	Description	Client comments
23.	EA12 – Decommissioning		<p>Please clarify why this functionality is missing.</p> <p>Decommissioning cost type is missing</p> <p>There is no functionality to specify the type of decommissioning cost – capitalised or expensed.</p> <p>Please clarify why this functionality is missing.</p>	Was classified as a low priority requirement and not really needed.
24.	EA113 – Project Project Prioritisation		<p>Project Prioritisation is missing</p> <p>There is ability to prioritise projects from 1 (high) – 5 (low) in the system.</p> <p>Please clarify why this functionality is missing.</p>	Was classified as a low priority requirement and not really needed.
25.	EA115 – Sunk Costs EA66 – Economic Appraisal view		<p>No functionality to identify sunk costs</p> <p>There is no ‘Investigation work’ project (as was proposed by the requirement) in the system to capture sunk costs (investment in a project before it is authorised).</p> <p>Therefore, they cannot be excluded from the Economic Appraisal view.</p> <p>Please clarify why this functionality is missing.</p>	Was classified as a low priority requirement and not really needed.

	Worksheet	Cell reference	Description	Client comments
26.	EA116 – Sub-project Span		<p>Step scaling functionality is missing</p> <p>There is not ability to step scaling of sub-project span by a set amount after the sub-project estimated cost goes above a certain value.</p> <p>Please clarify why this functionality is missing.</p>	Was classified as a low priority requirement and not really needed.
27.	EA28 – Scenario Analysis		<p>Different logic</p> <p>The cost shock % is also applied to spot and land costs (one-off costs), but cost shock sensitivity should be applied only to costs that are linear, but not to absolute one-off costs.</p>	Can confirm that spot costs and land costs are no longer used in modelling, therefore cost sensitivity doesn't apply.
28.	EA29 – Timing Sensitivity Analysis		<p>Timing sensitivity at project level is missing</p> <p>Ability to apply a timing sensitivity to the model at the individual project level is missing. The commission date is always fixed, but need to be able to flex either negatively or positively the cash-flow associated with that project.</p> <p>Please clarify why this functionality is missing.</p>	Timing sensitivity can be done at sub-project (building block) level. No need to add complexity by having a project level adjustment.
29.	EA3- Discounted Cashflow (DCF)		<p>Nominal DCF is missing</p> <p>The system does not calculate Nominal DCF based on</p>	Can confirm that Nominal DCF is no longer a business requirement, as cashflow is



	Worksheet	Cell reference	Description	Client comments
			Nominal dollars. Please clarify why this functionality is missing.	discounted on Real basis only.
30.	EA118 – Additional Dates		Additional dates are missing The system does not calculated any additional dates, e.g. Concept dates, Initiation dates, Consultation Report date, Strategy & Planning dates, Development brief dates, Authorised dates, Commission Dates. Please clarify why this functionality is missing.	Was classified as a low priority requirement and not really needed.