

Final Plan Attachment 1.10

Support for the Population of Regulatory
Models (Victoria and Albury)

A Report by KPMG

16 December 2016

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Australian Gas Networks Ltd

Support for the population of
regulatory models
(Victoria and Albury)

Examination of various models
and subsidiary data supporting the
presentation of regulatory material
to the Australian Energy Regulator

16 December 2016

This report contains 15 pages

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Inherent Limitations

This report has been prepared as outlined in the Scope Section. The services provided in connection with this engagement comprise an advisory engagement, which is not subject to assurance or other standards issued by the Australian Auditing and Assurance Standards Board and, consequently no opinions or conclusions intended to convey assurance have been expressed.

No warranty of completeness, accuracy or reliability is given in relation to the statements and representations made by, and the information and documentation provided by, Australian Gas Networks Limited management and personnel consulted as part of the process.

KPMG have indicated within this report the sources of the information provided. We have not sought to independently verify those sources unless otherwise noted within the report.

KPMG is under no obligation in any circumstance to update this report, in either oral or written form, for events occurring after the report has been issued in final form.

The findings in this report have been formed on the above basis.

Third Party Reliance

This report is solely for the purpose set out in the Scope Section and for Australian Gas Networks Limited's information, and is not to be used for any other purpose or distributed to any other party without KPMG's prior written consent. The Australian Energy Regulator is however, recognised in the Scope section.

This report has been prepared at the request of Australian Gas Networks Limited in accordance with the terms of KPMG's engagement letter/contract dated 18 October 2016. Other than our responsibility to Australian Gas Networks Limited, neither KPMG nor any member or employee of KPMG undertakes responsibility arising in any way from reliance placed by a third party on this report. Any reliance placed is that party's sole responsibility.

1 Scope

1.1 Background

The Australian Energy Regulator (AER) regulates gas network prices for the Victoria and Albury distribution network owned and operated by Australian Gas Networks Limited (AGNL) under the National Gas Law.

The AER requires AGNL to lodge an Access Arrangement Proposal for the Victoria and Albury gas networks on 3 January 2017 for prices in the next regulatory period being 1 January 2018 to 31 December 2022.

As part of the preparation of submission material, AGNL is required to prepare a statutory declaration to be signed by the Chief Executive Officer of AGNL. AGNL has requested that KPMG examine some of the data links between the supporting models as specified in the scope to support the process of the execution of the statutory declaration. The mathematical integrity of certain models supporting the submission is also to be examined and this report, summarising the results of the examination, is to be made available to the AER as part of the final submission.

The scope of the examinations performed and the findings reported through this report have been agreed with AGNL as those processes that would assist AGNL to meet its objectives.

1.2 Purpose

The purpose of this report is to assist AGNL to understand any relevant issues identified in the development and reporting of a specified set of regulatory financial models (as identified in the Scope Section) used to support its Access Arrangement Proposal to the AER for the Victoria and Albury networks.

1.3 Scope of the examination

In accordance with our engagement letter of 18 October 2016, KPMG agreed to:

- Examine linkages from other Excel workbooks to the Opex and Capex models
- Check the unique formulae in the Opex and Capex models
- Examine linkages from other Excel workbooks to the PTRM¹ and RFMs²
- Compare the PTRM and RFMs to the AER's template models and check any differences and the unique formulae in any sheets added to the template model, and
- Check linkages from other Excel workbooks to the final Regulatory Information Notice (RIN) spreadsheet.

as set out below.

¹ PTRM – the Post-tax Revenue Model, a building block model used by the Australian Energy Regulator.

² RFM – Roll-forward Model, a financial modelling approach used by the Australian Energy Regulator in calculating the opening regulated asset base and the tax asset base for the beginning of the next regulatory period. Two models examined – Victoria and Albury.

1.3.1 Opex and Capex models

Our work in relation to the Opex³ and Capex⁴ models was confined to:

- Step 1.1 - By following the spreadsheet links from the populated Opex and Capex models to the source documents, we checked that the nature of the data in those source documents matched the description of that data in the Opex and Capex models.
- Step 1.2 - Using KPMG's proprietary Model Review Tools, we undertook a detailed check of all the unique formulae in each model to identify any issues, queries or inconsistencies which were reported to AGNL in an issues log.

The results are presented in Section 3, and the Appendices.

1.3.2 PTRM and RFM models

Our work in relation to the PTRM and RFMs was confined to the following:

- Step 2.1 - Based on AGNL utilising PTRM and RFM templates from the AER, we performed an automated comparison (using KPMG's proprietary Model Review Tools ('MRT')) between the AGNL models and a clean set of templates obtained from the AER web site, in order to identify any changes made to them. Any unexpected differences between the models were reported to AGNL and the intention of the change checked. The unique formulae in any additional supporting sheets were checked and any queries or inconsistencies were reported to AGNL.
- Step 2.2 - For the PTRM we followed the links to the source for any inputs to the model (e.g. output of the RFM model, demand volume forecasts, Opex/Capex) and checked that the nature of the data in those source documents matched the description of that data in the PTRM.
- Step 2.3 - For the RFMs we followed the links to the source for any inputs to the model (e.g. previous RIN⁵ submissions) and checked that the nature of the data in those source documents matched the description of that data in the RFM.

The results are presented in Section 3.

1.3.3 Regulatory Information Notices (RINs)

Our work in relation to the RINs was confined to:

- Step 3.1 - By following the spreadsheet links from the populated RIN spreadsheets to the source documents, we checked that the nature of the data in those source documents matched the description of that data in the RIN.

The results are presented in Section 3.

³ Opex – the Operating costs of the business

⁴ Capex – the Capital or non-operating costs of the business

⁵ RIN – a Regulatory Information Notice – assembled by the business for the AER

Our engagement letter stated that the Scope excluded the following areas:

- Checks of the integrity of any source models provided to us, and
- Checks of any system based reports provided by AGNL or the APA Group as support for the inputs to any of the models referred to above.

1.4 Limitations on scope

We have not been engaged to, and do not report on consideration of:

- The validity or appropriateness of any accounting or tax assumptions or treatments in the Model
- The completeness or reasonableness of commercial, financial risk management or non-mathematical modelling assumptions and data contained in the Model and supporting information, including hard coded numbers
- The validity, commercial viability or legality of the assumptions on which the Model is based
- The presentation and format of the financial information for financial reporting purposes of AGNL or any other entity
- The accuracy or appropriateness of visual elements (such as graphs) included within the Model, and
- The standard formulae supplied by Microsoft Excel, the accuracy of the processing capabilities of Microsoft Excel or the accuracy of the processing capabilities of any computer on which the Model is run.

AGNL understands and acknowledges it is responsible for:

- The integrity of the Model and the projections contained therein
- Determining the adequacy or otherwise of the procedures performed by us, and
- Determining whether the factual findings reported, in combination with any other information obtained, provide an appropriate basis for any conclusions which AGNL wishes to draw on the Models' integrity.

Any projections of the future financial performance of an entity are based upon judgement and opinion as to the numerous factors that may influence the various components of the projections.

Accordingly, we have not considered, nor do we confirm, underwrite or guarantee that any outcome provided by the Model will be achieved.

Our analysis does not constitute advice on whether the Model is 'fit for purpose' in respect of the operational and financial characteristics of the Model for your purposes.

2 Material provided and process undertaken

2.1 Material provide by AGNL

AGNL provided zip files containing the models to be subject to our review and the associated linked Excel workbooks.

For the Opex, Capex, PTRM and RFM models, the linked inputs were tested on the first version of each model that we were provided with whilst in relation to the mathematical integrity check of the models, we report on the final version provided to us.

For the RINs the linked inputs were tested on the first version of each model that we were provided with then any changes re-tested through to the final version provided to us on which we report below.

The models on which we report are detailed below.

Opex

	Linked inputs	Model Integrity
File name	2016.10.20 Vic_Albury Opex Model_KPMG Review.xlsx	2016.11.11 Vic_Albury Opex Model_Demand.xlsx
Last modified	20 October 2016, 1:48:48 PM	15 November 2016, 4:30:54 PM
MD5 Hash	bd8079759355bf840d1f1fdd3e6fd758	cfa97080c8abc44efe42b4132b57e2a5

Capex

	Linked inputs	Model Integrity
File name	2016.10.20 Vic_Albury Capex Model_KPMG_Review.xlsx	2016.11.11 Vic_Albury Capex Model_Demand v0.1.xlsx
Last modified	20 October 2016, 1:38:32 PM	15 November 2016, 3:35:17 PM
MD5 Hash	727f8ec5115cc422dfadd99a0f1dd185	3d59e7d04366aacf46d50cba98379653

PTRM

	Linked inputs	Model Integrity
File name	Vic Albury PTRM.xlsm	Vic Albury PTRM 111116.xlsm
Last modified	25 October 2016, 12:36:08 PM	14 November 2016, 11:20:30 AM
MD5 Hash	aaf385f20f4ed438635fb96f5147e3b3	73bb208bb6585708192e69f9dcd2b673

RFMs

	Linked inputs	Model Integrity
File name	Albury Roll Forward Model 070916 KPMG.xlsx	Albury Roll Forward Model 111116.xlsx
Last modified	25 October 2016, 3:17:00 PM	14 November 2016, 1:42:59 PM
MD5 Hash	499c1f1f7e41d5454e479affc45a59e6	ddd21b745d24a2de396ac36fce18c108
File name	Vic Roll Forward Model v2.0 Reg Dep Update 070916 kpmg.xlsx	Vic Roll Forward Model 111116.xlsx
Last modified	25 October 2016, 2:57:14 PM	14 November 2016, 1:40:33 PM
MD5 Hash	e338c76fbde8fa382d0606db4fafc84a	965441544c948f612dd50a59009129e3

RINs (Masters – linked inputs only)

	Victoria RINs	Albury RINs
File name	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Victoria Master.xlsm	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Albury Master.xlsm
Last modified	15 December 2016, 11:49 AM	15 December 2016, 11:16 AM
MD5 Hash#	3b0dd0e3929f65208c45d8a400e09f45	9fd071a592309d1657d413c97984e20e

RINs (Subsidiaries – linked inputs only)

	Victoria RINs	Albury RINs
File name	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final AM Victoria.xlsm	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final AM Albury.xlsm
Last modified	8 December 2016, 4:01:52 PM	12 December 2016, 4:28:46 PM
MD5 Hash#	65e3782302012482d2ec72e880b75b9b	4b42c21f17c9635b6449652e2957fec2
File name	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final LF Victoria.xlsm	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final LF Albury.xlsm
Last modified	13 December 2016, 5:32:06 PM	7 December 2016, 6:45:00 PM
MD5 Hash#	db5b2fc773f78e1ad4999ae67e6d72df	e44d240242cf9acac223c723f107a404

RINs (Subsidiaries – linked inputs only)

	Victoria RINs	Albury RINs
File name	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final SM Victoriav1 Capex.xlsm	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final SM Alburyv1.xlsm
Last modified	13 December 2016, 6:05:52 PM	13 December 2016, 6:44:16 PM
MD5 Hash#	9ed04e5214ebfe8ccbbb36dc72d7e34a	e558fe1d7912f2c54963d53db3e818ec
File name	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final SM Victoriav1 Capex 2.xlsm	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final SM Alburyv2.xlsm
Last modified	13 December 2016, 5:31:26 PM	13 December 2016, 6:44:58 PM
MD5 Hash#	59c5e3e042376dd0d9b020733b349397	8cd8fd521274f84d68bef440301044e7
File name	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final SM Victoriav3.xlsm	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final SM Alburyv4.xlsm
Last modified	8 December 2016, 3:18:30 PM	9 December 2016, 4:51:47 PM
MD5 Hash#	587b98e04a477ce4770c7a7546a66293	dbf6da43f17d16eba8cf0f1d6b4f9f66
File name	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final SM Victoriav5.xlsm	AER - Final RIN AGN Vic Albury GAAR 2018-22 Regulatory template Final SM Alburyv14.xlsm
Last modified	8 December 2016, 6:09:10 PM	14 December 2016, 11:55:20 AM
MD5 Hash#	7ab8c69692b05c61bad409a462014259	89e00bb97297d38f5d037d262054e2df

2.2 Process applied

The objective of our examination was twofold:

- a) To test the linkage of numerical and label information between the source data files and the key models provided to us and identify any inconsistencies in the information applied and the nature of that information.

To achieve this objective we:

- Identified each unique formula that linked to data in another spreadsheet through the use of specialised spread sheeting tools available to KPMG
- Tested each unique formula linking the data back to the relevant source and testing the nature of the source
- Tested the replication of the unique formula such that it had been copied across or down as relevant to the process, and

- Reported any identified issues to the AGNL regulatory team for consideration and/or correction.

The response and/or correction of these queries was checked into the latest version of each model provided to us.

For the RINs ONLY, any other linked inputs that had been updated between versions (in addition to changes resulting from our previous queries) were only re-tested to the extent that there had been a change in the name of the linked workbook, worksheet, or cell reference. If the change was only one to the full path to the linked file, this was not re-tested as KPMG had no visibility over the server paths, having only the source file itself to check to.

- b) To test the numerical accuracy of the formulae in each of the key models to identify any issues, queries or inconsistencies in the formulae and to report them to AGNL.

To achieve this objective we:

- Identified each unique formula through the use of specialised spread sheeting tools available to KPMG
- Checked the operation of each unique formula relative to its apparent purpose within the model
- Tested the replication of the unique formula such that it had been copied across or down as relevant to the process, and
- Reported any identified issues to the AGNL regulatory team for consideration and/or correction.

As a further test we compared the PTRM and RFMs used by AGNL to a copy of the template models downloaded from the AER website. This would identify if there had been any changes to the modelling logic used by AGNL as compared to the modelling logic developed by the AER.

In all cases, any queries or inconsistencies identified were provided to AGNL and any corrections made in subsequent versions of the model checked to confirm they had been applied appropriately. The final models provided to us are those that we report on here.

The results of applying these processes are set out in the following section.

3 Findings

3.1 Opex and Capex models

3.1.1 Step 1.1 (Linked inputs)

By following the spreadsheet links from the populated Opex and Capex models to the source Excel workbooks provided, we checked that the nature of the data in those source documents matched the description of that data in the Opex and Capex models. By “nature of the data” we checked the base of the value provided (real or nominal), the unit of measure (units, thousands, millions) and that the description/notation matched between the relevant Opex or Capex model and its source.

For the sake of clarity, we only tested the link from the Opex and Capex models to its source output, and did not test any make up or calculation of the precedents to that source output.

Results

Our testing involved the identification of the links to the Opex and Capex models by utilising KPMG’s proprietary Model Review Tools software (‘MRT’) to list each of the individual links which were then tested by our modelling team.

The MRT analysis identified the following links for the relevant models:

- SA Capex Model.xlsx – 116 unique links to other workbooks
 No differences were identified in this process.
- SA Opex Model.xlsx – 92 unique links to other workbooks
 No differences were identified in this process.

Note – the data links were not retested in the final model.

3.1.2 Step 1.2 (Model integrity)

By using MRT, we undertook a detailed check of all the unique formulae in each model to identify any issues, queries or inconsistencies which were reported to AGNL in an issues log. Responses to the issues raised were assessed and the changes in the updated versions of the models compared (using MRT) to the previous version.

Other than as noted below, no queries remained outstanding in the final versions provided to us and referred to above in Section 2.1.

Model/Worksheet	Address	Comment
Capex Real Cost Escalation	\$E\$25	For certain cost lines the model restricts the cost escalation to 85% of CPI, being the price increase cap contracted for those lines. To do this it applies a negative real cost escalator equal

Model/Worksheet	Address	Comment
		<p>to 15% of CPI to the 2016 costs, each year on a cumulative basis.</p> <p>This escalation adjustment is only applied from the second year of the period (2019) with a nil adjustment being applied in 2018. This means the contract price increase cap is not applied in 2018 and that the compounded price adjustment in subsequent years is similarly short by one year.</p> <p>We understand that that this treatment was proposed by the AER in their decision on the South Australian access arrangement and is therefore being followed by AGNL for their Victoria and Albury proposal.</p>

3.2 PTRM and RFM models

3.2.1 Step 2.1 (Model comparison/integrity)

Based on AGNL utilising PTRM and RFM templates sourced from the AER,

- we have compared the AGNL developed PTRM to a version downloaded from the AER website as “Distribution post-tax revenue model - Version 3 - January 2015 - Appendix B.xlsm”⁶; and
- we have compared the AGNL developed RFM to a version downloaded from the AER website as “Appendix B - Distribution RFM (26 June 2008).xls”.

To assist in making these comparisons, KPMG has employed the use of a “Model Review Tool” (MRT) which assists in the analysis of the process by identifying each unique cell, identifying links to other workbooks and links between spreadsheets, and electronically identifies any differences between Excel workbooks on a cell by cell basis. The MRT outputs have assisted us in reporting the findings set out below.

Results for PTRM

We made a comparison of the AGNL PTRM against the AER downloaded PTRM model sourced from the AER website. A number of differences between the existing sheets and queries relating to formulae on new sheets added by AGNL were identified and provided to AGNL to address.

No queries remained outstanding in the final version provided to us and referred to above in Section 2.1.

⁶ This is the version used by AGNL as the basis for its own PTRM and is the latest version issued by the AER.

Results for RFM

Through the use of the MRT, our comparison of the AGNL RFM to the “Appendix B - Distribution RFM (26 June 2008).xls” to the Albury and Victoria RFMs identified a small number of minor differences which were provided to AGNL to address.

No queries remained outstanding in the final versions provided to us and referred to above in Section 2.1.

3.2.2 Step 2.2 (PTRM – Linked inputs)

For the PTRM we followed the links to the source for any inputs to the model (e.g. output of the RFM model, demand volume forecasts, Opex/Capex) and checked that the nature of the data in those source documents matched the description of that data in the PTRM.

By “nature of the data” we checked the base of the value provided (real or nominal), the unit of measure (units, thousands, millions) and that the description/notation matched between the relevant PTRM input field and its source.

For the sake of clarity, we only tested the link from the PTRM to its source output, and did not test any make up or calculation of the precedents to that source output.

Results

Our testing procedure involved the identification of the data links to the PTRM by utilising the MRT software to list each of the individual links which were then tested by our modelling team.

No queries raised from our testing of the original model remained outstanding in the final version provided to us and referred to above in Section 2.1.

Note – the data links were not retested in the final model.

3.2.3 Step 2.3 (RFM – Linked inputs)

For the RFMs we followed the links to the source for any inputs to the model (e.g. previous RIN submissions) and checked that the nature of the data in those source documents matched the description of that data in the RFM.

By “nature of the data” we checked the base of the value provided (real or nominal), the unit of measure (units, thousands, millions) and that the description/notation matched between the relevant RFM input field and its source.

For the sake of clarity, we only tested the link from the RFM to its source output, and did not test any make up or calculation of the precedents to that source output.

Results

Our testing procedure involved the identification of the data links to the RFM by utilising the MRT software to list each of the individual links which were then tested by our modelling team.

No queries raised from our testing of the original model remained outstanding in the final version provided to us and referred to above in Section 2.1.

Note – the data links were not retested in the final model.

3.3 RIN spreadsheets

3.3.1 Step 3.1 (Linked inputs)

In order to facilitate the production and collation of the necessary information for the RINs, AGNL used a number of RIN templates to collect the data which, together with other source workbooks, were then linked directly into a Master template. Due to the way the inputs to the RINs were structured, we checked the linked inputs into the two ‘Master’ RINs (Victoria and Albury) and to a number of ‘Subsidiary RINs’. This structure is illustrated in Appendix A.

We followed the links to the RIN templates to the source of those inputs and checked that the nature of the data in those source documents matched the description of that data in the RIN.

By “nature of the data” we checked the base of the value provided (real or nominal), the unit of measure (units, thousands, millions) and that the description/notation matched between the relevant RIN input field and its source. We also checked that the value shown in the RIN template was the same as that in the version of the linked source spreadsheet provided to us.

For the sake of clarity, we only tested the link from the RIN to its source output, and did not test any make up or calculation of the precedents to that source output. This is illustrated in Appendix A.

Results

Our testing procedure involved the identification of the data links to the RIN template spreadsheets by utilising the MRT software to list each of the individual links which were then tested by our modelling team.

No queries raised from our checking of the linked inputs to the RIN templates remained outstanding in the final versions of the RINs provided to us and referred to above in Section 2.1.

A Structure of RIN templates

