2014 Non-Financial Reset RIN Audit

ActewAGL Distribution

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Author: Benjamin Ng
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Jacobs SKM
ABN 37 001 024 095

100 Christie Street

St Leonards NSW 2065 Australia

PO Box 164 St Leonards NSW 2065 Australia

T +61 2 9928 2100
F +61 2 9928 2500
www.jacobsskm.com

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Executive summary

The Australian Energy Regulator (AER) is developing a nationally consistent reporting framework that will allow them to benchmark expenditure at disaggregated category level, referred to as category analysis, as well as benchmark on a higher economic level to allow them to analyse the efficiency of Network Service Providers (NSP) over time and compared to their peers.

As part of this framework, NSPs are required to provide information and data to allow this benchmarking to be undertaken. For Economic Benchmarking, the AER requires a higher level of aggregated data for top down analysis. The requirement for Reset data is disaggregated because the AER will use it for lower level comparisons.

For the Reset data, NSPs are required to complete Regulatory Information Notice (RIN) templates that the AER has provided. The current version of the Reset RIN template requires NSPs to provide data for several operational inputs, outputs, asset profiles, and service characteristics.

The AER requires historical data from 2008/09 to 2012/13 as well as forecast data from 2014/15 to 2019/20. Of this data, only years 2008/09 to 2012/13 inclusive is required to be reviewed and audited. Forecast information is not subject to audit or review.

Given the above requirement, ActewAGL Distribution engaged Jacobs SKM to audit the Non-Financial aspects of the Reset RIN response to the AER.

Jacobs SKM have prepared this audit report to provide assurance, as per the RIN requirements, for the data provided between years 2008/09 to 2012/13 inclusive. Apart from a few exceptions, nothing has come to the Auditor's attention that causes it to believe that the historical Non-Financial information is not, in all material respects, presented fairly in accordance with the requirements of the Reset RIN and ActewAGL Distribution Basis of Preparation Report.

The Jacobs SKM audit team includes Phillip Grieshaber, Benjamin Ng and Ryan Dudley. Phillip Grieshaber is taking responsibility as lead auditor and for signing the audit statement.

1. Introduction

1.1 Background

The Australian Energy Regulator (AER) has issued a Reset RIN (or 'Notice') under Division 4 of Part 3 of the National Electricity Law (ACT) (NEL) to ActewAGL on 7 March 2014. This Notice requires ActewAGL to provide, prepare and maintain information in a manner and form specified in the Notice and its associated documents. The AER requires the information for the performance or exercise of a function or power conferred on it under the NEL or the National Electricity Rules (NER), namely:

- to publish network service provider performance reports (annual benchmarking reports) the purpose of which are to describe, in reasonably plain language, the relative efficiency of each Distribution Network Service Provider (DNSP) in providing direct control services over a 12 month period; and

- assess benchmarking operating expenditure and benchmark capital expenditure that would be incurred by an efficient DNSP relevant to building block determinations.

in respect of the distribution services provided by way of electricity distribution network ActewAGL operates in the Australian Capital Territory.

Accordingly, ActewAGL has prepared its Reset RIN submission to the AER. The AER requires the reported data and corresponding Basis of Preparation to be independently audited prior to the final submission. ActewAGL have engaged Jacobs SKM to audit the non-financial data in the Reset RIN templates and the corresponding Basis of Preparation.

1.2 Scope

The scope of this audit corresponds to both the Actual and Estimated Non-Financial information in the RIN and is presented in Table 1: Audit scope for Non-Financial Reset RIN Templates Table 1 . It involves auditing reported data for 2008/09 to 2012/13 regulatory years only. All non-monetary data that is not described or measured in dollar values are classified as Non-Financial information in the RIN.

Table 1: Audit scope for Non-Financial Reset RIN Templates

Tab Heading	Sub-Heading
2.2 Repex	2.2.1 Replacement expenditure, volumes and asset failures by asset category
	2.2.2 Selected asset characteristics
2.3 Augex project data	2.3.1 Augex asset data – subtransmission substations, switching stations and zone substations
	2.3.2 Augex asset data – subtransmission lines
	2.3.3.1 Descriptor metrics
2.4 Augex model	2.4.1 Augex model inputs – asset status – subtransmission lines
	2.4.2 Augex model inputs – asset status – high voltage feeders
	2.4.3 Augex model inputs – asset status – subtransmission substations, subtransmission switching stations, and zone substations.
	2.4.4 Augex model inputs – asset status – distribution substations
	2.4.5 Augex model inputs – network segment data
	2.4.6 Capex and net capacity added by segment group
2.5 Connections	2.5.1 Descriptor metrics
	2.5.2 Cost metrics by connection classification

Tab Heading	Sub-Heading
2.6 Non-network	2.6.2 Annual descriptor metrics – IT and communications expenditure
	2.6.3 Annual descriptor metrics – Motor vehicles
2.7 Vegetation management	2.7.1 Descriptor metrics by zone
	2.7.3 Descriptor metrics across all zones – unplanned vegetation events
2.8 Maintenance	2.8.1 Descriptor metrics for routine and non-routine maintenance
2.11 Labour	2.11.1 Cost metrics per annum
	2.11.2 Extra descriptor metrics for current year
4.1 Public lighting	4.1.1 Descriptor metrics over current year
	4.1.2 Descriptor metrics annually
4.2 Metering	4.2.1 Metering descriptor metric
	4.2.2 Cost metrics
4.3 Ancillary services – fee based services	4.3.1 Cost metrics for fee-based services
4.4 Ancillary services – quoted services	4.4.1 Cost metrics for quoted services
5.2 Asset age profile	5.2.1 Asset age profile
5.3 Maximum demand at network level	5.3.1 Raw and weather corrected coincident MD at network level (summed at transmission connection point)
5.4 Maximum demand and utilization at spatial level	5.4.1 Non-coincident and coincident maximum demand
6.1 Telephone answering	6.1.1 Telephone answering data
6.2 Reliability and customer service performance	6.2.1 Unplanned minutes off supply (SAIDI) Actual, target and proposed reliability
	6.2.2 Unplanned interruptions to supply (SAIFI) – Actual, target and proposed reliability
	6.2.3 Unplanned momentary interruptions to supply (MAIFI) – Actual, target and proposed reliability
	6.2.4 Customer numbers
	6.2.5 Customer service
	6.2.6 Estimated data percentage accuracy – SAIDI
	6.2.7 Estimated data percentage accuracy – SAIFI
6.3 Sustained interruptions to supply	6.3.1 Sustained interruptions to supply (From 1 July 2008)
6.4 Historical major event days	6.4.1 Major Event Day data

Jacobs SKM has undertaken this audit of ActewAGL's reporting as per Clause 32.1(b) of Schedule 1 and Clause 1.4 of Schedule 2 of the Reset RIN and in accordance with the review requirements set out in Clauses 1.1(c), 1.1(d), 2.2 and 3.4 of Appendix C of the Reset RIN.

1.3   Methodology

Provision of information: Jacobs SKM was provided with the Reset RIN data and Basis of Preparation once it had been internally approved by ActewAGL. Additional supporting or underlying information was further provided after meeting relevant ActewAGL staff during the on-site assessment. In most instances, Jacobs SKM obtained sufficient evidence on which to base the audit opinion. While sufficiency is the measure of the quantity

of evidence, appropriateness is the measure of the quality of evidence. Jacobs SKM also considered the relationship between the cost of obtaining evidence, and the usefulness of the information provided. Jacobs SKM used its professional judgement in evaluating the sufficiency and appropriateness of evidence to support its audit opinion.

On-site assessment: Jacobs SKM spent 4 days on site at ActewAGL's Greenway office to meet ActewAGL staff associated with each of the systems or processes pertaining to the recording, processing and reporting of the Non-Financial information in the Reset RIN Templates. Jacobs SKM then attempted to verify the validity and accuracy of the information by tracing data flow through various systems where required. This included an assessment of the data entering the system, followed by evaluating the data manipulation throughout the individual processes. Jacobs SKM conducted reasonable sampling to satisfy itself that the processes are robust, focussing on any instances of manual data manipulation or where anomalies are evident. This allowed Jacobs SKM to appraise ActewAGL's operational processes, business systems, reporting environments and data handling to appreciate the logical flow of information from event occurrence to data presentation.

Off-site assessment: Jacobs SKM conducted desk-top analysis on data and records collected during the audit, and cross-check calculations and processing performed on data by ActewAGL reporting systems. In order to express an opinion, Jacobs SKM reviewed possible sources of error that could reasonably have errors material to an overall system error. Based on the audit scope as described earlier Jacobs SKM has performed a number of audit procedures to form its audit opinions, including:

- Reviewing ActewAGL's internal business procedures, and based on these procedures and Jacobs SKM's knowledge of utility operations and reporting, identifying areas assessed with higher risk of weakness in controls or data accuracy.

- Interview ActewAGL management and staff to query aspects of their systems and processes, test the application of those systems and processes, and to explain any unusual data.

- Reviewing ActewAGL's underlying data used to calculate the figures presented in the Reset RIN, and checks on this data for internal consistency. Data items were identified which appeared to have inconsistencies or were otherwise assessed as higher risk or materiality for inclusion within sampling, alongside random sampling.

- Checking the calculations used to present the final figures in the Reset RIN template from the underlying data.

- Identifying, comparing and corroborating secondary data points against the Reset RIN data, to provide increased assurance of the accuracy and completeness, and to highlight potential weaknesses in controls.

- Testing the Reset RIN data, and assessing the accuracy of the reported data based on a combination of risk based and random sampling.

- Testing the application and the use of the processes, procedures and systems used to produce the data. This involved assessing the reliability of the processes and systems applied to generate and prepare the reported data, and whether these were correctly used by the relevant ActewAGL's staff; and are capable of reliably reporting the Reset RIN data.

In Jacobs SKM's view the audit evidence obtained is sufficient and appropriate to provide a basis for our audit opinions against each of the items in the Reset RIN.

Due to the inherent limitations of any internal control structure it is possible that fraud, error, or non-compliance with laws and regulations may occur and not be detected. Further, the audit was not designed to detect all weaknesses or errors in internal controls so far as they relate to the requirements set out above as the audit has not been performed continuously throughout the period and the procedures performed on the relevant internal controls were on test basis. Any projection of the evaluation of control procedures to future periods is subject to risk that the procedures may become inadequate because of change in conditions, or that the degree of compliance with them may deteriorate.

Reporting: Throughout this report Jacobs SKM has expressed opinions on the information contained in the Reset RIN templates, Basis of Preparation report, and the underlying systems used to derive that information. In forming a view Jacobs SKM has undertaken audit procedures to obtain sufficient and appropriate evidence to warrant the stated opinions. The procedures selected depend on the judgement of the auditors who have primarily considered the risks of material misstatement of the Reset RIN data. In making judgements and risk assessments, Jacobs SKM's auditors have considered ActewAGL's relevant internal controls for collecting and presenting the Reset RIN data.

Jacobs SKM's audit findings are given in the form of a written opinion on the accuracy and reliability of the reported data submitted by ActewAGL. Jacobs SKM has undertaken the audit in line with the AER assurance expectation. It is noted that the auditing requirement for the Financial information is different and explicitly stated by the AER[1]. However, the AER is not so explicit in stating the auditing engagement level for the Non-Financial information. The AER specifies that the ASAE 3000 is applicable for auditing Non-Financial information, but does not differentiate between Actual Non-Financial information and Estimate Non-Financial information. The reporting nature of the ASAE 3000 encompasses both Reasonable Assurance and Limited Assurance auditing engagement as per the Australian Government Auditing and Assurance Standards Board (AUASB). Therefore, Jacobs SKM has assumed Limited Assurance auditing engagement with opinion requiring Negative Assurance to be applicable to both Actual Non-Financial information and Estimate Non-Financial information for all audited years and for all variables.

Jacobs SKM's assessment and opinion currently presented in this report represents the final iteration or version of the RIN response by ActewAGL. Assessment and opinion in the draft reporting stage that subsequently caused revision of the reported data in the RIN templates were therefore excluded from this final version of the audit report.

1.4   Report structure

This report is structured as follows:

Section 1: Introduction, background, methodology and report structure,

Section 2: Audit Findings

Section 3: Auditor's Statement and Qualifications

Appendices   RIN table, interview timetable, evidence list and glossary

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[1] The AER specifies that the Actual Financial information is subject to Reasonable Assurance auditing engagement with the opinion requiring Positive Assurance, and the Estimate Financial information is subject to Limited Assurance auditing engagement with the opinion requiring Negative Assurance.

2. Audit Findings

2.1 Repex

2.1.1 Reported Data

The Reset RIN Template 2.2 – Table 2.2.1 reports ActewAGL's replacement volumes and failures by asset category. The unit of measurement is the number or count of volumes and failures. Data presented in this Table are actuals.

The Reset RIN Template 2.2 – Table 2.2.2 reports ActewAGL's asset volumes currently commissioned and asset replacements for selected assets. The unit of measurement is the number or count of volumes and replacements. Data presented in this Table are actuals.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.1.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- ActewAGL do not capture historical asset replacements within any of their systems. Therefore, asset replacements were estimated by dividing the total expenditure by the unit cost for each asset category. The unit rates used were independently audited by SKM in a previous project. With the exception of poles, all asset replacements were derived using this procedure. In the absence of actual data and based on the information available, the procedure used is a reasonable estimate.

- Pole replacements are captured in ActewAGL's WASP Asset register, however WASP does not capture the number of disposed poles. Typically when a pole is removed, the asset is deleted within the WASP Asset register; therefore no retrospective record exists to capture the number of disposed poles.

- Asset failures are not currently recorded in the WASP asset register. It was not possible to provide an estimate of any of the failure for the asset types in Table 2.2.1.

2.1.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

While nothing has come to the auditor's attention that causes it to believe that the non-financial information in Table 2.2.1 and 2.2.2 in all material respects, is not presented fairly in accordance with the Reset RIN requirements and ActewAGL's Basis of Preparation, there may be small data inaccuracies from some of the estimation procedures used. Given the systems and information that is available to ActewAGL, the estimation method is reasonable in the absence of actual data. Asset failure data are not included because ActewAGL does not record asset failure in their time-based WASP asset register.

2.2 Augex project data

2.2.1 Reported Data

The Reset RIN Template 2.3 - Table 2.3.1 reports ActewAGL's augex asset data for subtransmission substations, switching stations and zone substations. Descriptions of ActewAGL's projects are provided in this Table. Data provided in this Table is listed as actual.

The Reset RIN Template 2.3 - Table 2.3.2 reports ActewAGL's augex asset data for subtransmission lines. Descriptions of ActewAGL's projects are provided in this Table. Data provided in this Table is listed as actual.

The Reset RIN Template 2.3 - Table 2.3.3.1 reports ActewAGL's augex asset data for HV/LV feeders and distribution substations. The unit of measurement is the number of units added. Data reported in this Table are all estimates. Data provided in this Table is listed as actual.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.2.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

Table 2.3.1 Augex asset data – Sub transmission substations, switching stations and zone substations

- The non-financial data used to populate Table 2.3.1 has been extracted from each of documented substation project briefs. Ratings, quantities and descriptions of each of the zone substations have been correctly entered. 2 projects have been included and this aligns with published information regarding substation augmentation.

Table 2.3.2 Augex asset data – Sub-transmission lines

- The non-financial data used to populate Table 2.3.2 has been extracted from a project brief. Ratings, quantities and descriptions of the line have been correctly entered. One project have been included and this aligns with published information regarding transmission line augmentation.

Table 2.3.3.1 Augex asset data – HV/LV feeders and distribution substations – Descriptor Metrics

- The non-financial data used to populate Table 2.3.3.1 has been extracted from project briefs. Quantities and lengths of the lines have been correctly entered. Information has been obtained from the WASP system using a time-based asset search.

2.2.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

While nothing has come to the auditor's attention that causes it to believe that the non-financial information in Table 2.3.1, 2.3.2 and 2.3.3.1, in all material respects, is not presented fairly in accordance with the Reset RIN requirements and ActewAGL's Basis of Preparation, there may be small data inaccuracies from some of the estimation procedures used. Given the systems and information that is available to ActewAGL, the estimation method is reasonable in the absence of actual data.

2.3 Augex model

2.3.1 Reported Data

The Reset RIN Template 2.4 – Table 2.4.1 reports ActewAGL's augex model inputs and asset status for subtransmission lines. Properties of the subtransmission line including voltage, type of area supplied, originating and terminating substation, route line length, weather corrected 50% PoE maximum demand and line rating are provided in this Table. Data in this Table is a mix of estimates and actuals.

The Reset RIN Template 2.4 – Table 2.4.2 reports ActewAGL's augex model inputs and asset status for high voltage feeders. Properties of the high voltage feeder including voltage, type of area supplied, originating substation, route line length, weather corrected 50% PoE maximum demand and line rating are provided in this Table. Data in this Table is a mix of estimates and actuals.

The Reset RIN Template 2.4 – Table 2.4.3 reports ActewAGL's augex model inputs and asset status for subtransmission substations, subtransmission switching stations and zone substations. Properties including type of area supplied, substation voltage, number of transformers, weather corrected 50% PoE maximum demand and substation ratings are provided in this Table. Data in this Table is a mix of estimates and actuals.

The Reset RIN Template 2.4 – Table 2.4.4 reports ActewAGL's augex model inputs and asset status for distribution substations. Properties of the distribution substation including description of substation category, cyclic ratings of distribution substation and aggregate normal cyclic ratings are provided in this Table. All data provided in this Table is estimated. Data in this Table is a mix of estimates and actuals.

The Reset RIN Template 2.4 – Table 2.4.5 reports ActewAGL's augex model inputs for network segment data. Properties for each network segment including network segment ID, capacity factor, mean value of utilisation threshold and standard deviation of the utilisation threshold is provided in this Table. Data in this Table is a mix of estimates and actuals.

The Reset RIN Template 2.4 – Table 2.4.6 reports ActewAGL's capex and net capacity added by each segment group. Non-financial information presented in this Table is measured in Mega Volt-Ampere (MVA). Data is listed as estimated.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.3.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

Table 2.4.1 Augex model inputs– asset status – sub transmission lines

- Information pertaining to the primary type of area supplied, line voltage, substations and line rating are provided in ActewAGL's *Electrical Data Manual*. Route line length has been obtained from the GIS system.

- Raw maximum demand data has been obtained for each sub-transmission line through the TrendSCADA software application. ActewAGL have summated the maximum current for each transformer at the substation, to obtain the maximum current for the sub-transmission line. These maximum demands are not weather corrected at 50% PoE as required by the Reset RIN. There are instances where the maximum demand listed in Table 2.4.1 does not occur during the 2012/13 regulatory year as required.

Table 2.4.2 Augex model inputs– asset status – HV feeders

- ActewAGL currently have 242 high voltage feeders in service, where data for these feeders sourced from ActewAGL's *Electrical Data Manual*. Upon reconciling with the *Electrical Data Manual*, it was noted there are instances where the feeder has a route line length of 0 km. ActewAGL have advised where the route line length is zero, the data may not have been entered into the GIS, or the feeder is run in parallel with another feeder. This is an accepted practice for GIS representation.

- Raw maximum demand has been obtained for each zone substation feeder from the TrendSCADA software applications. Only the daily maximum demand was provided from the underlying evidence. The maximum demands populated in Table 2.4.2 are not weather corrected to 50% PoE as required by the Reset RIN.

- As ActewAGL do not monitor power factor and MW maximum demand at every zone substation, an estimated power factor of 0.9 was used to determine the maximum MW demand (weather corrected at 50% PoE).

Table 2.4.3 Augex model inputs– asset status – sub transmission substations, sub-transmission switching stations, and zone substations

- ActewAGL currently have twelve zone substations and two switching stations in service. Data pertaining to the substation voltages, number of transformers at each substation, and substation ratings is documented in ActewAGL's *Electrical Data Manual*. The RIN Table has been populated from the *Electrical Data Manual* without error.

- Weather corrected maximum demand at 50% PoE has been sourced for each substation from ActewAGL's *Peak Demand Forecast 2013*. ActewAGL calculates the 50% PoE maximum demand for both winter and summer at the zone substation level through the following steps:

  o Determine potential explanatory variables to be analysed including the time trend and temperature variables.

  o Collect historical data including peak demand data from internal databases and historical temperature variables from the Bureau of Meteorology.

  o Adjust the model for load transfers/switching. Abnormal historical maximum demands caused by temporary switching are eliminated and permanent load transfers factored into the model.

  o Select and develop the model as outlined in *Peak Demand Forecast 2013*.

  o Obtain the 50% PoE weather condition data by analysing temperature data since 1990, and pick out the 50th percentile to allow the model to produce the 1 in 2 year weather conditions.

  o Model validation/derivation of initial forecast and scrutinise the statistical model diagnostics and conduct goodness of fit analysis.

  o Develop the final forecast (factoring in possible future block loads), produce final graphs, forecast numbers and document the model used.

- ActewAGL are only able to calculate the weather corrected maximum demand at 50% PoE in MVA. For the maximum demand in MW, ActewAGL have assumed a power factor of 0.9.

- ActewAGL have calculated the maximum demand for all zone substations during both the winter and summer peaks using the above method. For the RIN Table, the highest maximum demand from the summer and winter model was selected.

Table 2.4.4 Augex model inputs– asset status – distribution substations

- Distribution substations have been grouped according to their rating and type of substation (chamber, kiosk, pole, padmount, stockade or two-pole). Based on the number of distribution substations, ActewAGL have assumed a normal distribution of the aggregate normal cyclic rating, hence most distribution substations were estimated to be utilised between 40-60% of their rating. Using the standard deviation, the number of distribution substations utilised in the 0-20% and 80-100% range was estimated. There were several instances where the distribution substations were utilised above 200% based on anecdotal evidence. ActewAGL do not have measuring instruments to capture this information at a distribution level therefore statistical analysis was required as their best estimates.

Table 2.4.5 Augex model inputs– network segment data (Historical)

- Mean value and standard deviation of the utilisation threshold are not recorded by ActewAGL. There are no systems in place to generate data which may assist with estimating this information. ActewAGL have relied on the internal opinion of network engineers to populate the mean and standard deviation of the utilisation threshold for each network segment.

- ActewAGL does not have sufficient data and lacks some clarity over definitional issues (e.g. over what time period we should be considering demand growth when considering the "oversizing factor"). ActewAGL have offered estimated data on the basis that typically 1MW of capacity is added per MW of demand growth. The capacity demand of the network is generally in dynamic equilibrium over time.

Table 2.4.6 - Capex and net capacity added by segment group

ActewAGL's Oracle system was queried to report the total list of augmentation projects over the period required by the RIN. Each augmentation project was assigned a segment group in accordance with the column "AER DNSP segment group". Similarly, each project was assigned an MVA rating, depending on if extra capacity was added. The MVA rating is based upon the project description, and if unavailable, a typical rating for similar projects was assigned. Given this is the only method to assign each project with an MVA rating, there may be some inaccuracies due to the estimation procedure.

Projects which were due to complete in the 2012-13 financial year are included in the net capacity calculation. ActewAGL have assumed Type 2 and Type 3 net capacity to be equal to the Type 1 net capacity in the majority of cases.

2.3.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

While nothing has come to the auditor's attention that causes it to believe that the non-financial information in Table 2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5 and 2.4.6, in all material respects, is not presented fairly in accordance with the Reset RIN requirements and ActewAGL's Basis of Preparation, there may be small data inaccuracies from some of the estimation procedures used. Given the systems and information that is available to ActewAGL, the estimation method is reasonable in the absence of actual data.

2.4   Connections

2.4.1   Reported Data

The Reset RIN Template 2.5 – Table 2.5.1 reports ActewAGL's volumes and expenditure for residential, commercial, industrial, subdivision and embedded generation connections. The unit of measurement is in number, count or kilometres. Data presented in this Table are listed as estimates.

The Reset RIN Template 2.5 – Table 2.5.2 reports ActewAGL's subcategories of volumes and expenditure for residential, commercial, industrial, subdivision and embedded generation connections. The unit of measurement is in number or count of connections. Data presented in this Table are listed as estimates.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.4.2   Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

ActewAGL's interpretation of a "simple" and "complex" connections do not align with the Reset RIN, and instead have populated Table 2.5 based on their internal definitions:

- Simple connection – with a maximum demand of less than 100-amps per phase and where the aerial service is no more than 22m in length for an overhead connection or the underground cable does not exceed 8m in length from the property boundary line most convenient to the electricity network.

- Major connection – the demand is greater than 5MVA, the site includes embedded generation of greater than 30kW or the site situation is complex or sensitive.

ActewAGL have used several systems to populate Table 2.5 including:

- FARMER – Project register database capable of tracking the number of connections, payments, field staff bookings and duration of project for customer connections. All projects in FARMER are considered to be "simple connections"

- Oracle – Project register database which lists the expenditure for each project per financial year.

Table 2.5.1 – Descriptor metrics

- From FARMER, the percentage split between residential and commercial/industrial projects has been calculated based on the nature of each project. Using this percentage, residential and commercial/industrial subcategories volumes were determined for FARMER only.

- Oracle does not clearly distinguish whether a project is overhead or underground and HV, LV or distribution substation. In order to determine these properties, the expenditure for each project was evaluated in terms of HV, LV, overhead and underground expenditure. For example, where HV expenditure was greater than LV and distribution substation expenditure, the project was classified as HV and vice versa. The same metric was used for overhead and underground project classification. Upon inspection of this method to classify projects, there were several instances which required manual entering of information, due to expenditure anomalies in Oracle.

- Connection subcategories for each project were also not provided by Oracle, hence were required to be manually entered by ActewAGL based on their Oracle project type. Upon inspection, ActewAGL's internal classifications are well aligned with all subcategories with the exception of embedded generation which was required to be manually entered by searching for individual projects within Oracle. Relocations, replacements and small residential PV systems were not included in Table 2.5.1 as they are not considered a new connection.

- The distribution substation capacity in MVA per project was manually entered against each Oracle project where applicable. This was completed by cross-checking the Oracle projects with the distribution substation information within WASP or RIVA. Where information is unknown, ActewAGL have assumed typical distribution substation sizes for particular loads. As this information is not captured by ActewAGL

on a per project basis, their estimation procedure is considered reasonable; however the data may contain inaccuracies.

▪ Net circuit added for HV and LV has been calculated by dividing the total HV and LV expenditure for each subcategory by the unit rate for common HV and LV feeders. Given that the GIS does not contain this information in the required subcategories, this estimation method is the best assumption available.

▪ FARMER is capable of reporting the volume of GSL breaches and customer complaints and the mean days to connect residential customers with LV single phase connections. ActewAGL is required to commence and complete connection work for simple connections between 20 to 45 business days, depending on the number of connections requested. Complex connections do not have a set connection timeframe and are instead negotiated between the customer and ActewAGL. GSL breaches were not captured until 2012/13, due to an internal audit conducted which identified that this information is missing.

▪ Complaints were not able to be disaggregated into connection service related complaints, hence all complaints are included. Given the small number of complaints, the inaccuracy is considered immaterial.

▪ As both FARMER and Oracle do not entirely capture all the information required for the RIN, ActewAGL have relied on a combination of both systems to populate Table 2.5.1.

Table 2.5.2 – Cost metrics by connection classification

▪ ActewAGL's definitions of "simple" and "complex" connections do not match the RIN definition; hence ActewAGL has used their own internal interpretations in order to populate Table 2.5.2. A combination of FARMER and Oracle has been used to populate Table 2.5.2, based on the manually entered subcategories discussed for Table 2.5.1.

2.4.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

▪ While nothing has come to the auditor's attention that causes it to believe that the non-financial information in Table 2.5.1 and Table 2.5.2, in all material respects, is not presented fairly in accordance with the Reset RIN requirements and ActewAGL's Basis of Preparation, there may be small data inaccuracies from some of the estimation procedures used. Given the systems and information that is available to ActewAGL, the estimation method is reasonable in the absence of actual data.

2.5   Non-network expenditure

2.5.1   Reported Data

The Reset RIN Template 2.6 – Table 2.6.2 reports ActewAGL's descriptor metric volumes of employee numbers, user numbers and number of devices for IT and communications. The unit of measurement is the number or count.

The Reset RIN Template 2.6 – Table 2.6.3 reports ActewAGL's motor vehicle descriptor metrics including kilometres travelled, number of vehicles purchased, number of vehicles leased and number of vehicles in fleet. The unit of measurement is the count of vehicles. Data provided in this Table are actuals.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.5.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

Table 2.6.2 Annual descriptor metrics – IT & communications expenditure

- ActewAGL offered estimated employee, user and devices numbers for years 2008 to 2013. The numbers correspond approximately with published employee numbers.

Table 2.6.3 Annual descriptor metrics – Motor vehicles

- From 2010 onwards, ActewAGL were able to access motor vehicle data through the Toyota Fleet Management (TFM). Prior to 2010, a system called Rodium was used to handle all fleet related information. As Rodium is no longer in existence, ActewAGL were unable to generate data for the 2008/09 regulatory year. Heavy Commercial Vehicles (HCV) are leased through the SGFleet system which does not provide ActewAGL with any access to the information required for the RIN. With only two HCVs as part of ActewAGL's fleet, information was easily obtained without the aid of SGFleet.

- Fields including average kilometres travelled required manually entering of data into ActewAGL's systems. Given the number of vehicles in ActewAGL's fleet, there are many instances where distance travelled is not entered correctly, as values are abnormally high. For these cases, ActewAGL were required to "cleanse" the data and estimate the kilometres travelled based on previous distances travelled. It is likely the average kilometres travelled is overstated due to the required estimation procedure.

- All the information has been collated into a table which clearly identifies the average kilometres travelled, percentage of vehicles leased and the amount of each vehicle type operating in the fleet. Evidence shows that vehicles have been purchased in the financial year 2012/13; the percentage spilt of vehicles on operating lease and financial lease has been accurately identified in the RIN table. The data presented in the RIN table is mostly accurate; however, due to manual manipulation some of the figures have small inconsistencies.

2.5.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

- Nothing has come to the Auditor's attention that causes it to believe that the non-financial information presented in Table 2.6.2 and 2.6.3, in all material respects, is not presented in accordance with the requirements of the Reset RIN and ActewAGL's Basis of Preparation. Where there are obvious errors within the underlying data, ActewAGL have made appropriate assumptions in order rectify the errors.

2.6 Vegetation management

2.6.1 Reported Data

The Reset RIN Template 2.7 – Table 2.7.1 reports ActewAGL's vegetation descriptor metrics including route line length, number of maintenance spans, length of maintenance spans, length of vegetation corridors, trees per maintenance span and frequency of cutting cycles. The unit of measurements are in kilometres, count or years. All data provided in this Table are estimates.

The Reset RIN Template 2.7 – Table 2.7.3 reports ActewAGL's vegetation descriptor metrics for unplanned vegetation events. The unit of measurements is in count. All data provided in this Table are estimates.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.6.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

Table 2.7.1 – Descriptor metrics by zone

- ActewAGL have provided two vegetation management zones; Zone 1 to capture all urban vegetation management spans and Zone 2 to report all rural vegetation management spans. These two zones are not contiguous areas as required by the Reset RIN. However given the size of ActewAGL's network, identifying only two zones is reasonable.

- ActewAGL's GIS system holds all feeder information including line lengths, voltages, conductor types and network configurations. From the GIS, data is archived monthly to enable a snapshot of the network to be extracted at a particular point in time. In order to compute the total route length for each year, the following steps were taken:

  1. Source data from the March yearly archive;

  2. Split the line assets into underground and overhead excluding service mains and streetlights. Only include assets owned by ActewAGL (exclude TransGrid, Actew and other owners);

  3. "Clean" data by applying an artificial fuzzy tolerance in a program called ArcINFO. This process will rebuild lines where there are parallel lines next to each other. For example, cleaning a coverage with a fuzzy tolerance of 2m, will take two parallel lines 1m apart and draw a single line instead. The new line will often use vertices from both lines.

  4. Summate lengths for underground route length and overhead route length.

  The auditor was provided with the documented process to calculate the route line length using GIS data. It was confirmed that only the point to point distance between spans was used for the calculation and that multiple circuits only count as one span. The methodology described above ensures that multiple cables or conductors which are running parallel to each other only count as one point to point distance.

  ActewAGL advised that up to 25 working day delays in updating the GIS system with new assets is possible.

- Based on the method to capture route line length within the GIS, ActewAGL have computed the route line length for all urban and rural spans. ActewAGL have estimated the percentage of spans and route line length for each zone that require vegetation management (80% for urban and 60% for rural). This percentage is based on internal expert advice. Given the lack of systems to record this type of information, the percentage used appears quite high which may lead to an overstatement of numbers for this Table.

- The number of maintenance spans for the two zones were estimated based on the total number of poles minus one. This method is in accordance to the Reset RIN.

- Average number of trees per maintenance span has been extrapolated by dividing the total number of trees by the number of maintenance spans. The total number of trees has been captured by the number of Notification to Clear Trees Away from ActewAGL's power lines notices stored by ActewAGL. These notifications are stored in a Microsoft Excel file.

- Frequency of cutting cycle is dependent on whether the span is classified as urban or rural. As defined by ActewAGL's Vegetation Management Policy and Strategy document, vegetation must be cleared to maintain a 3 year clearance. Where this is not possible, ActewAGL must clear the vegetation as often as necessary to maintain the required clearances. For the Reset RIN template, ActewAGL have estimated the cutting cycle for all rural vegetation maintenance spans is one year which aligns with their annual aerial helicopter inspection cycle for rural spans. Similarly, all urban vegetation management spans require a three year cutting cycle, which is consistent with the ground visual inspection cycle for all urban spans. ActewAGL also conduct a two yearly aerial helicopter inspection on all urban high voltage overhead lines.

Table 2.7.3 – Descriptor metrics across all zones – unplanned vegetation events

- ActewAGL record fire incidence reports through their "Guardian" system. Guardian is ActewAGL's system capable of recording all safety incidents and is used for quality monitoring. Guardian has only been in place since 2012. Prior to this system, the method of recording incidents required ActewAGL to fill in an incident notification form, and manually enter the form details into a Microsoft Excel spreadsheet.

2.6.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

- With the exception of the incongruous vegetation management zones, nothing has come to the auditor's attention that causes it to believe that the information presented in Table 2.7.1 and Table 2.7.3, in all material respects, is not presented fairly in accordance to the requirements of the Reset RIN and ActewAGL's Basis of Preparation.

- Many systems and procedures in place at ActewAGL cannot capture the information into the Reset RIN requirements. Therefore, various estimates and assumptions have been made by ActewAGL which have been based upon the information their systems are able to provide, in order to populate this RIN Table. In the absence of material data, these estimates are the best available information which aligns as closely to the RIN Table as possible notwithstanding the data quality limitations.

2.7   Maintenance

2.7.1   Reported Data

The Reset RIN Template 2.8 – Table 2.8.1 reports ActewAGL's descriptor metrics for routine and non-routine maintenance. The unit of measurement is in number or count. Data provided in this Table is a mix of estimates and actuals.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.7.2   Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

Table 2.8.1 – Descriptor metrics for routine and non-routine maintenance

- Asset quantities at year end for the relevant assets in Table 2.8.1 have been extracted from ActewAGL's WASP Asset database. Inspection and maintenance cycles for ActewAGL assets including circuit breakers, instrument transformers, busbars, station batteries, isolators and earth switches are

described in their internal document Zone Substation Inspection and Maintenance Strategy. The WASP extracts were also used to estimate the average age of assets by using the asset's year of installation and disposal date (if applicable).

- From ActewAGL's WASP extracts, the asset quantities of zone substation equipment at year end in Table 2.8.1 for each regulatory year were accurately reconciled. As the WASP extracts only provide the asset's calendar year of manufacture, ActewAGL have assumed the calendar year is the same as the financial year. In the absence of the financial year for each asset, this assumption is considered reasonable.

- Average age calculations for distribution substation equipment and poles are based on the installation year for all assets which are in commission within the WASP system. Asset replacements and failures are not captured within the WASP system. When an asset is retired, the record within WASP would consequently be removed from the system. These removed assets were not captured within the average age calculation. Due to the exclusion of replaced and failed assets, there may be small differences to the asset average age presented.

- Due to incompleteness of data, there are three sites which have not been included in the protection assets quantities at year end: Angle crossing (17 relays), Civic zone substation (93 relays) and East Lake (62 relays).

- ActewAGL's internal document Zone Substation Inspection and Maintenance Strategy outlines the maintenance and inspection cycles for all their zone substation assets. The maintenance cycle is dependent on the voltage, manufacturer and model of equipment. For example a Hitachi SF6 gas circuit breaker at 132kV will have a different maintenance cycle to an ASEA oil circuit breaker at 132kV. More frequent inspections are performed on all zone substations and protection relays. Weekly substation protection inspections are performed to collect, record and reset any protection scheme relay flags. Monthly zone substation inspections are carried out to check for any damage or abnormal condition of the infrastructure. This document clearly describes the required inspection and maintenance requirements for the various types of equipment owned by ActewAGL.

- For protection assets and secondary systems, no routine maintenance was performed during the years 2011/12 and 2012/13 due to resourcing issues and competing demands from the capital program, hence zero was entered for these two regulatory years.

- In order to estimate the asset's average age for zone substation equipment, ActewAGL have manually estimated and entered the asset's disposal date where it is unknown. Disposal dates are estimated based on known projects to replace the asset, and any comments/notes under the relevant WASP record. There are a small number of instances from the WASP extracts where conflicting data is present. For example, the status column of the asset is listed as "disposed", yet the condition column reads as "serviceable". The number of instances from the WASP extracts where this conflict is present is considered to have a negligible effect on the final values.

- SCADA assets do not require periodic maintenance or condition monitoring hence 0 has been entered for their maintenance and inspection cycle. The SCADA assets are continuously monitored by the SCADA Master which is supervised on a 24/7 basis.

2.7.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

While nothing has come to the Auditor's attention that causes it to believe that the information presented in Table 2.8.1, in all material respects, is not presented in accordance with the Reset RIN requirements, there are data quality issues which are a result of the type of information generated by ActewAGL's systems.

The requested underlying raw data forming the basis for the report data in Table 2.8.1 could not be obtained for interrogation from ActewAGL. During the interviews with ActewAGL resources, it was apparent that the RIN information provided was the best known estimate based on existing knowledge within the business.

2.8 Labour

2.8.1 Reported Data

The Reset RIN Template 2.11 – Table 2.11.1 reports ActewAGL's cost metrics per annum for internal corporate overheads, internal network overheads and total direct network labour costs. The units of measurement are count and hours.

The Reset RIN Template 2.11 – Table 2.11.2 reports ActewAGL's extra descriptor metrics for current year for internal corporate overheads, internal network overheads and total direct network labour costs. The unit of measurement is in hours.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.8.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

2.8.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

While nothing has come to the Auditor's attention that causes it to believe that the information presented in Table 2.11.1 and 2.11.2, in all material respects, is not presented in accordance with the Reset RIN requirements, there are data quality issues which are a result of the type of information generated by ActewAGL's systems.

The requested underlying raw data forming the basis for the report data in Table 2.11.1 and 2.11.2 could not be obtained for interrogation from ActewAGL. During the interviews with ActewAGL resources, it was apparent that the RIN information provided was the best known estimate based on existing knowledge within the business.

2.9 Public lighting

2.9.1 Reported Data

The Reset RIN Template 4.1 – Table 4.1.1 reports ActewAGL's current population of lights. The unit of measurement is the number or count of lights. Data presented in this Table is listed as actual.

The Reset RIN Template 4.1 – Table 4.1.2 reports ActewAGL's annual quantity of light installations, replacement, maintenance and quality of supply. The unit of measurement is the number or count. Data presented in this Table is listed as actual.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.9.2   Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- ActewAGL do not own any public lighting assets in the ACT, therefore this Table is populated with a zero quantity.

2.9.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

- Nothing has come to the Auditor's attention that causes it to believe that the information presented in Table 4.1.1 and 4.1.2, in all material respects, is not presented fairly in accordance with the requirements of the Reset RIN and ActewAGL's Basis of Preparation.

2.10   Metering

2.10.1   Reported Data

The Reset RIN Template 4.2 – Table 4.2.1 reports ActewAGL's meter population including the number of Type 4, Type 5 and Type 6 meters. The unit of measurement is the count or number of.

The Reset RIN Template 4.2 – Table 4.2.2 reports ActewAGL's meter services including the number purchases, testing, investigations, readings, installations, replacement, maintenance and reconfigurations. The unit of measurement is the count or number of.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.10.2   Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- Meter volumes and population information has been extracted from ActewAGL's Meter Asset Management database (MAM). From this database, properties such as meter installation dates, and meter types can be filtered.

Table 4.2.1 – Metering descriptor metric

- Volumes for meter reads, tests, installs taken from volumes derived from rolling forward the population based on replacements and new connections, and tracking the population of different types (5, 6 and 7, noting a shift from disc meters to electronic).   .

Table 4.2.2 – Cost metrics

- Meter readings and investigation counts are stored within Microsoft Excel spreadsheets. Scheduled meter readings occur approximately every three months. Meter models selected by ActewAGL do not require maintenance. Meter replacements occur upon failure of a meter test. A meter test may be customer or meter reader initiated. ActewAGL does not conduct remote meter reading.

2.10.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

While nothing has come to the Auditor's attention that causes it to believe that the information presented in Table 4.2.1 and 4.2.2, in all material respects, is not presented in accordance with the Reset RIN requirements, there are data quality issues which are a result of the type of information generated by ActewAGL's systems.

The requested underlying raw data forming the basis for the report data in Table 4.2.1 and 4.2.2 could not be obtained for interrogation from ActewAGL. During the interviews with ActewAGL resources, it was apparent that the RIN information provided was the best known estimate based on existing knowledge within the business. of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

2.11 Ancillary – Fee based services

2.11.1 Reported Data

The Reset RIN Template 4.3 – Table 4.3.1 reports ActewAGL's volumes of common and miscellaneous fee based services. The unit of measurement is the count or number.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.11.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- Fee-based services are published on ActewAGL's website under "Electricity Network Schedule of Charges". These charges are typically different for each financial year, with the rates increasing per year. The service subcategory descriptions published within Table 4.3.1 match the services published on the ActewAGL website.

- ActewAGL have calculated the volume for each fee-based service by dividing the total cost for each service by the charge for each service.

2.11.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

Nothing has come to the Auditor's attention that causes it to believe that the information presented in Table 4.3.1, in all material respects, is not presented fairly in accordance with the requirements of the Reset RIN and ActewAGL's Basis of Preparation.

The requested underlying raw data forming the basis for the report data in Table 4.3.1 could not be obtained for interrogation from ActewAGL. During the interviews with ActewAGL resources, it was apparent that the RIN information provided was the best known estimate based on existing knowledge within the business.

2.12 Ancillary services – Quoted services

2.12.1 Reported Data

The Reset RIN Template 4.4 – Table 4.4.1 reports ActewAGL's volumes of quoted services. The unit of measurement is the count or number.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.12.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information.

2.12.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

Nothing has come to the Auditor's attention that causes it to believe that the information presented in Table 4.4.1, in all material respects, is not presented fairly in accordance with the requirements of the Reset RIN and ActewAGL's Basis of Preparation.

The requested underlying raw data forming the basis for the report data in Table 4.4.1 could not be obtained for interrogation from ActewAGL. During the interviews with ActewAGL resources, it was apparent that the RIN information provided was the best known estimate based on existing knowledge within the business.

2.13 Asset age profile

2.13.1 Reported Data

The Reset RIN Template 5.2 – Table 5.2.1 reports ActewAGL's total quantity of installed assets by year of commission and economic life of these assets. Unit of measurement is the count of number of for the quantity and years for the economic life. Information presented in this Table is estimated.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.13.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- Data used to populate Table 5.2.1 has been extracted from ActewAGL's WASP Asset register by performing time-based queries. The WASP system is capable of reporting properties of ActewAGL's assets including year of manufacture, operating voltage and asset type.

- Only in the previous 5 years, the WASP system has been recording an asset's installation date. Prior to this period, the WASP system only recorded the asset's calendar year of installation. For these assets,

ActewAGL have assumed the regulatory year is the same as the first half of the calendar year. For example, an asset manufactured in 2005, corresponds to a regulatory year of 2004/05, with the assumption that it was installed in the first half of calendar year 2005. For the majority of assets, with no installation date, there is no accurate information which can reconcile which regulatory year it was installed in.

▪ There are many instances in the WASP Asset register where fields including year of manufacture and operating voltage are blank. The blank entries are attributed to but not limited to:

   o An undocumented process to enter asset information into WASP.

   o No single assets register prior to commissioning of WASP in 1996. For assets installed prior to this year, stored asset data was fragmented across the business.

▪ In the absence of asset data from WASP, ActewAGL have included these assets based on their estimation methodology explained in the Basis of Preparation.

▪ Upon reconciling the RIN Template, there were some assets which contained material differences with the quantity of assets reported per regulatory year compared to the evidence checked which may be attributed to the estimation procedure.

▪ From the Basis of Preparation, ActewAGL assumed a typical rate of installation for poles without a year of manufacture. Using the typical rate of installation, ActewAGL have added the poles without a year of manufacture to the regulatory years where the rate is applicable. This estimation method may well have overstated the number of pole installations, however this method enables ActewAGL to account for all poles in their WASP Asset register. There were immaterial differences between the total number of poles reported in the RIN Template and the evidence presented.

▪ ActewAGL used three different methods in order to determine the economic life of their assets. The selected method was dependent on the availability and reliability of the asset data. In order of accuracy, the three methods used were:

   1. Data Analysis (Full Life Table) – calculates the survival distribution and expected lifetimes based on empirical distribution. Input information was sourced from ActewAGL's RIVA system.

   2. Data Analysis (Maximum Likelihood Backward Calculation) – assumes a normal distribution for asset life, and works backwards to calculate the maximum likelihood mean and standard deviation. These parameters characterise the distribution and allow for the calculation of survival probabilities and expected lifetimes.

   3. Expert opinion - Experts in the asset are consulted. Based on these consultations, assumptions are made regarding the failure distribution, mean lifetime and standard deviation of the asset. This would allow for the calculation of survival probabilities and expected lifetimes.

▪ Due to the unavailability of data for ActewAGL's assets, method 3 was predominately used to estimate the mean life and standard deviation of the asset's economic life. Where information was possible, method 1 or 2 was used. ActewAGL do not keep information of retired or removed assets within the WASP system.

2.13.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

▪ While nothing has come to the Auditor's attention that causes it to believe that the data reported in Table 5.2.1, in all material respects, is not presented fairly in accordance with the Reset RIN and

ActewAGL's Basis of Preparation, there are gaps within the evidence provided to Jacobs SKM which have led to data quality inaccuracies. Extensive manual manipulation of data has been required to populate the information to the format of the AER's RIN Table which may have led to some of the data inaccuracies. In the absence of material data within the evidence, the estimations and assumptions ActewAGL have made are reasonable given the quality of information available.

2.14 Maximum demand at network level

2.14.1 Reported Data

The Reset RIN Template 5.3 – Table 5.3.1 reports ActewAGL's raw and weather corrected maximum demand at the transmission connection point. The unit of measurement is Mega Watt (MW). Data in this Table is listed as actuals.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.14.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- Raw and weather corrected coincident maximum demand at the transmission connection point has been obtained from the TransGrid metering systems. There are no obvious errors or anomalies presented in Table 5.3.1.

2.14.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

- Nothing has come to the Auditor's attention that causes it to believe that the information presented in Table 5.3.1 in all material respects, is not presented fairly in accordance to the Reset RIN requirements and ActewAGL's Basis of Preparation.

2.15 Maximum demand and utilisation at spatial level

2.15.1 Reported Data

The Reset RIN Template 5.4 – Table 5.4.2 reports ActewAGL's non-coincident and coincident maximum demands for all zone substations. The unit of measurement is in Mega Volt-Ampere (MVA) and Mega Watt (MW). Data presented in this Table are listed as estimates.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.15.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- ActewAGL operates a high availability SCADA/DMS System connected to zone substation RTUs capable of collecting and storing analogue measurements. The maximum Demand MVA is derived from the RMS voltage and current measurements. From TrendSCADA, the data is extracted to a Microsoft Excel spreadsheet for further analysis. TrendSCADA reports the current at each zone substation in approximately 1 hour intervals. However, data is not always captured in 1 hour intervals and can vary from 20 minutes to 2 hours before again recording demand data. MVA has been calculated by multiplying the nominal voltage and current at each zone substation.

- Historical demand data from TrendSCADA was unavailable for years prior to 2012 therefore retrospective maximum demands have been sourced from zone development reports for each financial year. The zone development reports summarises information from the Electrical Data Manual, TrendSCADA and the Outage Database, and includes information such as:

    o A review of ratings and demand at the zone substation

    o A review of ratings and demand for each feeder

    o A review of feeder reliability

    o An analysis of the impact of PV on demand.

- TrendSCADA does not record MW or power factor information therefore a conservative power factor has been used by ActewAGL to estimate the maximum demand in MW. The power factor ranges from 0.92 to 0.98 depending on the zone substation. In the absence of a real-time monitored power factor, this is considered a reasonable estimate.

- Non-coincident and coincident maximum demands are both identical in Table 5.4.2. ActewAGL advised that "At the zone substation network level, maximum demand is measured as a single point, therefore there is no difference between "coincident" and "non-coincident" maximum demand."

- There were a small number of instances where the peak demand did not occur during winter or summer. For these cases, the row indicating "winter/summer peak" was left blank, as there was no option to select spring or autumn. Given the Reset RIN instructions, this assumption is considered reasonable.

- Upon inspection of TrendSCADA data, the interval at which the RTU records demand varies to a small degree. The nominal time interval to record demand is at 1 hour intervals. Table 5.4.2 requires the half hour time period which the maximum demand occurred. Due to the 1 hour intervals, the half hour maximum demand may not be captured. In the absence of half hourly maximum demands, the values provided by ActewAGL are the best available and are considered reasonable.

2.15.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

- While nothing has come to the auditor's attention that causes it to believe that the information presented in Table 5.4.2, in all material respects, is not presented fairly in accordance to the Reset RIN requirements and ActewAGL's Basis of Preparation, there may be data inaccuracies within the information presented. However, given the systems which ActewAGL have used to generate this information, the best available data has been presented in order to align with the Reset RIN requirements as closely as possible. Notwithstanding ActewAGL's system limitations, the information provided for Table 5.4.2 is still presented fairly.

2.16 Telephone answering data

2.16.1 Reported Data

The Reset RIN Template 6.1 – Table 6.1.1 reports ActewAGL's telephone answering data including total number of calls, calls to automated services, calls abandoned by customers and calls answered within 30 seconds. The unit of measurement is the count or number of calls. Data presented in this Table are all actuals.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.16.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- Three different systems have been used by ActewAGL's call centre between years 2008 to 2013:

    o 01/07/08 – 30/11/09: Call Scan

    o 01/12/09 – 15/06/12: CSPulse

    o 15/06/12 – 30/06/13: CISCO VOIP historical reporting.

- Reporting from the Call Scan system was inclusive of both water and electricity calls. As there was no procedure to separate the water and electricity calls, ActewAGL have calculated an average percentage split of electricity related versus other call types based on yearly data between years 2010 to 2013. This percentage was applied to the daily Call Scan data between 01/07/08 to 30/11/09 in order to estimate the breakdown between electricity and water related calls. CSPulse and CISCO VOIP are systems which are capable of identifying electricity related calls.

- There are 21 instances where no call centre data was available which has been suggested to be due to the unavailability of the call centre system. It is not known what caused this unavailability although it has been suggested that the call centre system may have malfunctioned for these particular days.

2.16.3 Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

- Nothing has come to the Auditor's attention that causes it to believe that the data reported in Table 6.1 is not, in all material respects, presented fairly in accordance with the requirements of the Reset RIN and ActewAGL's Basis of Preparation. Where estimates have been made, the best available information and appropriate assumptions were used for these estimates. In the absence of material data between the dates 01/07/08 to 30/11/09, Jacobs SKM is satisfied with the underlying assumptions made for the estimated data.

2.17 Reliability and customer service performance

2.17.1 Reported Data

The Reset RIN Template 6.2 – Table 6.2.1 reports ActewAGL's unplanned System Average Interruption Duration Index (SAIDI), both with and without excluded events. The unit of measurement is minutes/customer. All data presented in this Table are actuals.

The Reset RIN Template 6.2 – Table 6.2.2 reports ActewAGL's unplanned System Average Interruption Frequency Index (SAIFI), both with and without excluded events. The unit of measurement is the number of interruptions/customer. All data presented in this Table are actuals.

The Reset RIN Template 6.2 – Table 6.2.3 reports ActewAGL's unplanned Momentary Average Interruption Frequency Index (MAIFI), both with and without excluded events. The unit of measurement is the number of interruptions/customer. All data presented in this Table are actuals.

The Reset RIN Template 6.2 – Table 6.2.4 reports ActewAGL's average customer numbers connected to their network. The unit of measurement is the number of customers. All data presented in this Table are actuals.

The Reset RIN Template 6.2 – Table 6.2.5 reports ActewAGL's customer service with respect to the number of calls received and answered within 30 seconds. The unit of measurement is the count of calls. Data presented in this Table are actuals.

The Reset RIN Template 6.2 – Table 6.2.6 reports ActewAGL's estimated SAIDI accuracy. Unit of measurement for this Table is a percentage (%). Data presented in this Table is listed as actual.

The Reset RIN Template 6.2 – Table 6.2.7 reports ActewAGL's estimated SAIFI accuracy. Unit of measurement for this Table is a percentage (%). Data presented in this Table is listed as actual.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.17.2 Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- ActewAGL utilise the GE ENMAC SCADA/DMS system to record all outages. This outage data is stored in the APPLY Microsoft Access Data and reporting with regard to customer outages is queried from this database. The Premise Data Repository (PDR) stores the number of customers connected to each distribution substation. The PDR data is sourced from Gentrack and is updated on a weekly basis.

- Staged restorations are recorded in SCADA/FMS and the average outage duration calculated by the Network Controller.

- ActewAGL have advised single premise fault data has been excluded from the SAIDI and SAIFI calculations, due to the lack of automation of fault data and data entry errors.

- The majority of feeders in ActewAGL's network are classified as "urban", with no "CBD" or "long rural feeders. The following feeders are considered as "short rural":

  - Cotter 11kV

  - Cotter 22kV

  - Fairley

  - Matthews

  - Reid

  - Tidinbilla 22kV

- Major event days (MED) have been identified to have occurred on the following days from the outage data provided:

  o 15/09/2008

  o 29/03/2009

  o 25/08/2009

  o 8/01/2013

  o 26/01/2013

- Where the Table requires the SAIDI, SAIFI or MAIFI of excluded events, it has been accurately calculated for regulatory years 2008/09, 2009/10 and 2012/13 only, from the dates of the identified MEDs.

- When compared with the Annual RIN for 2011/12 and 2012/13, there are minor differences with the SAIDI and SAIFI figures.

Table 6.2.1 - Unplanned minutes off supply (SAIDI) - Actual, target and proposed reliability

For the SAIDI calculation, outages with less than one minute duration were ignored. The following formula was used to calculate the SAIDI values:

$$SAIDI = \frac{\sum Outages\ (minutes) * customers\ effected}{\sum Total\ number\ of\ distribution\ customers},$$

Table 6.2.2 - Unplanned interruptions to supply (SAIFI) - Actual, target and proposed reliability

For the SAIFI calculation, outages with less than one minute duration were ignored. The following formula was used to calculate the SAIFI values:

$$SAIFI = \frac{total\ number\ of\ customer\ interruptions}{total\ number\ of\ customers\ served}$$

Table 6.2.3 - Unplanned momentary interruptions to supply (MAIFI) - Actual, target and proposed reliability

As per the requirements of the Reset RIN, ActewAGL have included all unplanned outages which are less than one minute in their MAIFI calculation. The following formula was used to calculate MAIFI values:

$$MAIFI = \frac{Number\ of\ customers\ affected}{Total\ number\ of\ customers}$$

Where MAIFI for urban and short rural feeders were required, ActewAGL have correctly filtered the outage data according to the feeder classification. However, the total customer numbers used for the MAIFI calculation did not reconcile with those in Table 6.2.4.

Table 6.2.4 - Customer numbers

Customer numbers are prepared by ActewAGL's Network Operations, Call Centre and Finance teams. The following process outlines how ActewAGL maintains their customer numbers:

1. Run customer numbers report from the REG database on the first working day of each month.

2. Copy and paste relevant fields from the REG report into file ConnectionPointStatsV1.xlsx for previous month.

3. Copy formulas across in ConnectionPointStatsV1.

4.   Compare and verify all numbers with Network Operations and Finance.

Table 6.2.5 - Customer service

CSPulse and CISCO VOIP are systems which are capable of identifying electricity related calls. However, these systems are unable to report on the number of calls abandoned within 30 seconds. Instead, the number of calls abandoned before and after the recorded message is reported through these systems. ActewAGL considered assuming all calls abandoned before the recorded message is within 30 seconds, however, have been advised by the AER to exclude all calls before the end of a record message, as the human operator did not have a valid chance to answer the call.

Table 6.2.6 - Estimated data percentage accuracy – SAIDI and Table 6.2.7 - Estimated data percentage accuracy - SAIFI

The method ActewAGL employs to calculate SAIDI and SAIFI is detailed in Section 2.17.2. This system is not fully automated and does require a small degree of manual entry. However, given the quality of outage data provided from this system, Jacobs SKM is satisfied that 95% accuracy is an acceptable representation of the system.

2.17.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

▪   Nothing has come to the Auditor's attention that causes it to believe that the information presented in this Table is not, in all material respects, presented fairly in accordance with the requirements of the Reset RIN and ActewAGL's Basis of Preparation. Where estimates have been made, the best available information and appropriate assumptions have been used for these estimates.

2.18   Sustained interruptions to supply

2.18.1   Reported Data

The Reset RIN Template 6.3 – Table 6.3.1 reports ActewAGL's sustained interruptions to supply. Information provided in this Table includes the date of interruption, time of interruption, feeder classification, asset ID, reason for interruption, number of customers affected, duration of interruption, effect on unplanned SAIDI, effect on unplanned SAIFI and whether the interruption occurred during a MED. All data provided is listed as actual.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.18.2   Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

▪   Data pertaining to Table 6.3 has been sourced from the outage data in the APPLY Microsoft Access database. ActewAGL's outage data provides accurate detail on the cause of the outage. Using a macro, Table 6.3 has been populated by matching the cause of the outage data from APPLY with the reason for interruption provided by the AER in the RIN table.

▪   All outages sighted in Table 6.3 have a duration greater than 0.5 seconds as required by the Reset RIN definition.

2.18.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

- Nothing has come to the Auditor's attention that causes it to believe, that the information presented in Table 6.3.1, in all material respects, is not presented fairly with the requirements of the Reset RIN and ActewAGL's Basis of Preparation.

2.19   Historical MEDs

2.19.1   Reported Data

The Reset RIN Template 6.4 – Table 6.4.1 reports ActewAGL's daily network SAIDI after removing excluded events. The unit of measurement is in minutes/customer. Data in this Table is reported as actual.

The explanation, instruction and definition of the terms used in this Table is provided in the Principles and Requirements and Definitions issued with the Reset RIN by the AER.

2.19.2   Systems, procedures and estimation assessment

Jacobs SKM's assessments is based upon a review of the systems, procedures, and estimation methodology (if applicable) that ActewAGL followed to record, store, extract and process the reported information. As part of the review, Jacobs SKM analysed the reported and underlying data, and interviewed staff responsible for preparing this information. Jacobs SKM notes the following:

- ActewAGL utilise the GE ENMAC SCADA/DMS system to record all outages. This outage data is stored in the APPLY Microsoft Access Data and reporting with regard to customer outages is queried from this database. The Premise Data Repository (PDR) stores the number of customers connected to each distribution substation. The PDR data is sourced from Gentrack and is updated on a weekly basis.

- SAIDI is calculated daily from outages within APPLY through a macro. Data for 394 days was unavailable; it is not known what caused the unavailability of the outage recording system for these instances. Consequently, where data was unavailable, ActewAGL have not entered any estimated daily SAIDI value.

2.19.3   Audit opinion

The summary of Jacobs SKM's opinion on the accuracy and reliability of the information reported in these Reset RIN Tables is:

- Nothing has come to the Auditor's attention that causes it to believe that the data presented in Table 6.4.1, in all material respects, is not presented fairly in accordance with the requirements of the Reset RIN and ActewAGL's Basis of Preparation. However, there are data quality issues which have resulted in the unavailability of data for 394 out of 1825 days.

3. Compliance with AER audit requirements

Jacobs SKM performed an audit of ActewAGL's 2013 Regulatory Information Notice (RIN) statements for to the Australian Energy Regulator (AER) in line with the 7 March 2014 notice and consequent amendments. Jacobs SKM audited the information reported in the following regulatory templates with the Notice, the instructions in the Microsoft Excel Workbooks, the Principles and Requirements in Appendix E of the Notice and the service classifications set out in the framework and approach paper.

1) Actual and Estimated Non-financial Information in worksheets titled:-

- Template 2.2: Repex;
- Template 2.3: Augex;
- Template 2.4: Augex model;
- Template 2.5: Connections;
- Template 2.6: Non-network;
- Template 2.7: Vegetation management;
- Template 2.8: Maintenance;
- Template 2.11: Labour;
- Template 4.1: Public lighting;
- Template 4.2: Metering;
- Template 4.3: Fee-based services;
- Template 4.4: Quoted services;
- Template 5.2: Asset age profile;
- Template 5.3: MD – Network level;
- Template 5.4: MD & utilisation - Spatial;
- Template 6:1: Telephone answering;
- Template 6:2: Reliability and Customer service;
- Template 6:3: Sustained interruptions;
- Template 6:4: Historical MEDs;

2) The Basis of Preparation prepared by ActewAGL Distribution.

Jacobs SKM has conducted this audit review using resources which:

a) are not a registered company auditor or a member of the Institute of Chartered Accountants Australia (CA or FCA) or of CPA Australia (CPA or FCPA) and who does not hold a Certificate of Public Practice;

b) are an assurance practitioner as defined in ASAE 3000 Assurance engagements other than audits or reviews of historical financial information; and

c) are independent from ActewAGL Distribution and all of its Related Bodies Corporate – that is, not a principal, member, shareholder, officer, or employee of ActewAGL Distribution or its related entities;

d) are appointed for the purposes of expressing an opinion or conclusion on the audit requirements outlined in detail in paragraph 3 'Audit and Review Requirements' included in Appendix D of the notice;

e) has experience in conducting financial, performance, operation or quality assurance audits and conducting data sampling in the electricity industry;

f) possesses relevant knowledge and experience in the electricity industry, engineering, IT systems, asset management or customer service as relevant to the audit or review;

g) understands the procedures and methodologies underlying the data and the AER's relevant definitions for all information; and

h) if necessary, are available to discuss issues relating to the audits with ActewAGL Distribution and the AER, including where an Audit Report is critical of, or highlights deficiencies in, the audited Financial Information and/or Non-financial Information.

Jacobs SKM has undertaken the audit review of ActewAGL's non-financial data:

- to comply with the ASAE 3000 Assurance engagements other than audits or reviews of historical information; and

- to conclude whether or not anything has come to the Auditor's attention that causes it to believe that the historical Non-financial Information is not, in all material respects, presented fairly in accordance with the requirements of this Notice and the ActewAGL Basis of Preparation document.

Jacobs SKM has undertaken the audit review in line with the AER assurance requirements. The AER require negative assurance in relation to all actual and estimated non-financial data provided in the RIN templates.

In addition, the back cast period of up to five years requires negative assurance over that period.

Jacobs SKM performed the following activities in accordance with the standards and guidelines referenced above, and in particular can attest that we:

- Have experience in conducting performance and operational audits and data sampling in the electricity industry;

- Have relevant knowledge and experience of the electricity distribution network business, and experience with utility operations, regulatory reporting, and Demand Side Management.

- Understand the procedures and methodologies underlying the data and the AER's relevant definitions for the information.

- Have relevant professional qualifications and significant audit experience.

- Have complied with the fundamental ethical principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

- Have planned the audit such that the work would be completed in an efficient manner with appropriate consideration given to the nature of the area of activity to be examined, the extent to which information technology is used and the documentation available. An engagement plan describing the expected scope of the audit setting out the requirements for interviews and data availability was developed and implemented. In the development of this plan, Jacobs SKM assessed areas considered to potentially contain significant risk, the extent of available evidence, the nature of the control procedures, and the effectiveness of control procedures.

- Gave due consideration in planning and implementing the audit procedures to the materiality of the control procedures and devoted appropriate attention to important areas of the engagement.

- Reviewed procedures and conducted interviews with relevant ActewAGL staff to develop a sufficient understanding of the activities and circumstances involved in the engagement.

- Have performed tests to obtain sufficient evidence to evaluate the effectiveness of control procedures. Professional judgement has been exercised in assessing what constitutes sufficient evidence. Jacobs SKM has also sought corroborating data from other systems and processes such as SCADA, control logs and field reports. Where Jacobs SKM has become aware of a matter which leads to doubts that the evidence obtained in sufficient, Jacobs SKM has pursued the matter and sought further evidence.

- Have conducted, where appropriate, sampling to provide a reasonable basis to draw conclusions about the population from which the sample is selected. The audit sample has been designed to reduce sampling risk to an acceptable level and with consideration to the purpose of the audit and characteristics of the population from which the sample is drawn. Professional judgement has been exercised to sample items such that a representative sample is selected. Due consideration has been given to the materiality to overall results and the nature of the processes used to gather the underlying data. In the case of deviations and misstatements identified, Jacobs SKM has sought to investigate and evaluate the cause and possible effect. The sample cases used in undertaking the audit and findings are discussed in the schedule of audit findings.

- Have formed the opinions presented in this report based on the audit evidence obtained during the audit.

Phillip Grieshaber

Lead Auditor

26 May 2014

JACOBS SKM

Appendix A. Reset RIN Audit Interview Schedule

The following interviews were carried out by the auditor at ActewAGL Distribution offices as indicated below and by phone as required.

No.	Date	Participant	Role	Topic(s)	Location
1	14/04/14	Fraser Argue and Stanley Piyatilake	Network Performance Engineer	2.7, 5.2	Greenway
2	14/04/14	Ross Goggin and Firoz Gotla	Section Manager (zone substations)	2.3.1, 2.4.3, 2.8,	Greenway
3	15/04/14	Rowan McMurray	Metering and Service Manager	4.2	Greenway
4	15/04/14	Alison Davis	Call Centre Manager	6.1, 6.2.5	Greenway
5	15/04/14	Tim Anderson	Asset Strategy Manager	5.3, 5.4	Greenway
6	15/04/14	Leylann Hinch	Control Room Manager	6.2, 6.3, 6.4	Greenway
7	19/05/14	Erin Webb	Fleet Manager	2.6.3	Greeenway
8	19/05/14	Nick Lee	Network Performance Engineer	2.2, 2.7	Greenway
9	19/05/14	James Cole	SCADA and Communications Manager	2.8	Greenway
10	19/05/14	Santanu Chaudhuri	Network Performance Manager	2.2	Greenway
11	19/05/14	Upul Walisundara	Network Augmentation Manager	2.3.2	Greenway
12	20/05/14	Chris Walker	Finance Manager	2.11, 4.3, 4.4	Greenway

Appendix B. Reset RIN Audit Document List

The following documents were provided on request from ActewAGL Distribution staff during the interview process.

#	Date	Document	From	RIN Ref
1	15/04/14	2008_2009 callscan data	Alison Davis	6.1
2	15/04/14	AER Response - ActewAGL Distribution - RIN Query Call Data 2008-2009	Alison Davis	6.1
3	15/04/14	Call Data FY2012_2013	Alison Davis	6.1
4	15/04/14	AAD Electrical Data Manual (Document Number EN 4.04 P10)	Ross Goggin	2.4, 2.8
5	16/04/14	ActewAGL Demand Forecast 2013	Mike Schulzer	2.4.3
6	16/04/14	RIN Data – Original FDR classification	Leylann Hinch	6.3, 6.4
7	16/04/14	ICRC_Report-7-of-2013-August-2013	ICRC website	6.2
8	16/04/14	Outage data	Leylann Hinch	6.2, 6.3
9	16/04/14	ActewAGL Annual RIN 2012-13	ActewAGL	6.2
10	16/04/14	MAIFI 2009-2013	Leylann Hinch	6.2
11	24/04/14	Zone Substation Inspections & Maintenance Strategy - NTS 7.11P02W01	Ross Goggin	2.8
12	24/04/14	sqlZS_CircuitBreakers	Ross Goggin	2.8
13	24/04/14	sqlZS_CurrentTransformers	Ross Goggin	2.8
14	05/05/14	Age profile for 22kV Concrete poles	Fraser Argue	5.2
15	05/05/14	Age profile for Distribution Transformers	Fraser Argue	5.2
16	05/05/14	Age profile for HV 22kV Stobie poles	Fraser Argue	5.2
17	05/05/14	Age profile for HV 22kV Wood poles 28 Mar 14	Fraser Argue	5.2

#	Date	Document	From	RIN Ref
18	05/05/14	Age profile All LV and 11kV poles	Fraser Argue	5.2
19	12/05/14	dbo_Distribution Transformers_RIN_20140429	Stanley Piyatilake	5.2
20	20/05/14	Erin - Fuel Trans report - 09-10,10-11,11-12,12-13,13-14-Netw and Non netw - manipulated data	Erin Webb	2.6.3
21	20/05/14	Erin - Fuel Transaction report - 09-10,10-11,11-12,12-13,13-14-Networks - Non-networks Raw data	Erin Webb	2.6.3
22	20/05/14	2.345 capex BoP and working BMK5.2	Ben Kearney	2.5
23	20/05/14	Project briefs for Belconnen Zone Augmentation, Molonglo Zone, Eastlake Zone substation	Ross Goggin	2.3.1
24	20/05/14	Zone Loads 2008-2012	Tim Anderson	5.3, 5.4
25	20/05/14	Zone Loads 2011-2013	Tim Anderson	5.3, 5.4
26	21/05/14	Tx info analysis from 5.2_revised May1	Stanley Piyatilake	2.8.1
27	21/05/14	Pole info analysis from 5.2_actual May1	Stanley Piyatilake	2.8.1
28	21/05/14	Zone Development Report City East	Ross Goggin	5.4
29	21/05/14	Zone Development Report Belconnen	Ross Goggin	5.4
30	21/05/14	Zone Development Report Fyshwick	Ross Goggin	5.4
31	21/05/14	Maximum demand for various sub-transmission lines	Ben Catania	2.4.1
32	21/05/14	Maximum demand for various HV feeders	Ben Catania	2.4.2
33	22/05/2014	Project Business Case for OPGW on 132kV network and Second Supply Stage 2	Upul Walisundara	2.3.2
34	22/05/2014	Development of the Southern Supply to the ACT	Upul Walisundara	2.3.2

Appendix C. Glossary

Acronym	Meaning
AAD	ActewAGL Distribution
AER	Australian Energy Regulator
BOM	Bureau of Meteorology
CBD	Central business district
DNSP	Distribution Network Service Provider
DMS	Distribution Management System
ESO	Emergency Services Officer
GIS	Geographical information system
GSL	Guaranteed Service Level
HV	High voltage
LV	Low voltage
MAIFI	Momentary Average Interruption Frequency Index
MED	Major Event Day
MS	Microsoft
MVA	Mega Volt Ampere
MW	Mega Watt
NEL	National Electricity Law
NMI	National Metering Identifier
PDR	Premise Data Repository
PoE	Probability of Exceedance
RIN	Regulatory Information Notice
RIVA	Asset Management Software platform
RMR	Risk Management Report
RMS	Root Mean Square
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCADA	Supervisory Control and Data Acquisition
STPIS	Service Target Performance Incentive Scheme (AER)
TOU	Time of use