Basis of Preparation for Category Analysis RIN

Sheet: 2.1 | Actual | FINANCIAL

SOURCE: (include name of report, how extracted)	Summary from all other TABS within the category analysis workbook
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: 2013/14

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Data has been extracted from the relevant templates through links this is direct expenditure. Corporate overheads have been added as per the table to balance to the annual RIN's which have been submitted. Table 2.1.1 adjustments (balancing Items) includes CAPEX quoted services. Table 2.1.2 (balancing items) includes quoted & fee based services which were standard control in the current regulatory period as the removal of double counting in the maintenance & non network sheet. Also the balancing item has been used for netting miscellaneous revenue for the recovery of costs. There were no dual function assets in the current regulatory period.

OTHER COMMENTS

Common cube used for all financial data in the RIN

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.2 | Actual | FINANCIAL

SOURCE: (include name of report, how extracted)

Working - Capital Data Table 2008-09 2019-20FINAL.XLS spread sheet, extracted via TM1. All projects classified as ENAR (electricity network asset replacements) extracted, excluding meters (reported in a separate RIN sheet)

REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost

Base date for Real $: 2013/14

Can information requested be provided from Actual information? (Y/N)

Y

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Cleansing undertaken: Quality assurance, crosscheck to audited regulated accounts.
Oracle replacement capital expenditure history - ENAR (electricity networks asset replacement) capital projects extracted from Oracle data cube, and allocated to RIN categories. In some instances there was a 1:1 mapping (e.g. pole reinforcement to staking a wood pole). Some Oracle projects were allocated based on the project description to RIN asset classes. Some have been allocated / pro-rated to RIN asset classes on the basis of non-financial information in the RIN template.

Where financial (expenditure) and non-financial (volumes) figures don't match (e.g. expenditure in years with no volumes shown, or vice versa), average unit rates have been used to estimate corresponding expenditures / expenditures.

OTHER COMMENTS

Demonstrate how info provided is consistent with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted).

Common cube used for all financial data in the RIN.

ASSET GROUP: SCADA, NETWORK CONTROL AND PROTECTION SYSTEMS BY: *Other - Assets category* - Reporting on Protection and secondary systems)

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.2.1 / 2 | Estimated | NF

SOURCE(S): (incl name of report, how extracted)

WASP works management system
ORACLE financial management system

REPORT / EXTRACT DATE: 25 September 2014

Can information requested be provided from Actual information? (Y/N)

N

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Why is it not possible to use actual information ?
Data including full asset records and asset disposal dates are not captured in corporate systems under normal business processes.

What is the basis of estimate ?
Data extracted from WASP Extract (Test Environment). Asset replacements have been confirmed during various monthly inspections and safety audits. Asset disposal dates have been extracted from WASP general notes and estimated where data is not available.

Reasons why this is best estimate ?
The estimate use's information from corporate systems and where information is not stored, as a normal practice best estimates have been applied.

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Table 2.2.1 (Line 94 & 110) and Table 2.2.2 (Line 29 & 30)

Extract from Oracle used to identify all Capex projects of various types above specified thresholds. Project documentation, cost estimates and event advices (where applicable) used to determine asset additions, asset failures etc. Oracle Projects Inquiry used to get Capex total expenditure for FY13-14 from same report, excluding those reported as material. Project end-date interpreted as last year of expenditure shown within Oracle.

Zone substations property related projects such as fence replacement, security upgrade and emergency exit lights installations were considered under "Other" category due to the differences in assets functions in these category.

Number for "Total MVA replaced" and "Total MVA disposed of" collected and reported from WASP Extract.

NOTE on "Other" Category: Contains data on emergency exit signage, fence replacement and security upgrades.

TABLE 2.2.2
Replaced 66kV power transformer reported under CA 2.2.2 was failed and hence replaced under reactive works hence not considered under augex.
If there is any load growth or increased demand requirements then this kind of work normally carried out by appropriate project planning and considered under augmentation such as East Lake ZS commissioning.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.2 | Estimated | NF

SOURCE: (include name of report, how extracted)	Various - extracts from ArcFM (GIS), WASP, Apply (Outage) databases
REPORT / EXTRACT DATE:	16 October 2014
Can information requested be provided from Actual information? (Y/N)	**N**

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Actual information was not stored in a database.

Basis of Estimate - WASP data plus Estimated correction. This is the best estimate because it uses as much corporate data as possible.

Data is a mix of actual and estimated.

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

2.2.1 & 2.2.2

All poles data are actuals from WASP.

Other Assets:

Failure data are from the Apply database.

Replacement data:

Transformers-from WASP

Fuses & switchgear - assumed all failed were replaced

Overhead conductors - assumed 1m per failure replaced. LV conductors exclude services lines (2.2.2).

Underground cables - assumed LV-10m per failure and HV 20m per failure.

Pole top structures - all failures+planned cross arm replacements

OTHER COMMENTS

2.2.1

There have been 428 LV pole replacements and 211 service failures in the year. Assuming 20m per service, the total service line length replaced is 20x(428+211)=12780m. It is assumed that one service line (old PVC services) is replaced per LV pole replaced.

Note: All overhead conductors, underground cables and service lines replacement quantities in 2.2.1 are in metres.

ActewAGL has no feeders defined as CBD or Long Rural.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

BoP for Category Analysis RIN

Sheet: 2.2.1 | Actual | NF

SOURCE(S): (incl name of report, how extracted)	Asset replacement numbers determined from RTIs and project documentation. Manually extracted.
REPORT / EXTRACT DATE:	23 October 2014
Can information requested be provided from Actual information? (Y/N)	**Y**

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

TABLE 2.2.1

Protection and secondary systems category (Protection Relays). RTIs contain the scope of work for the planned replacement of protection relays. The number of protection relays replaced were determined from projects competed in 2014-15

Actual replacement number for Field Devices, Local Network Wiring Assets, Communications Network Assets, Communications Linear Assets determined from project documentation. The asset replaced in 2014-15 are yet to be entered into the new Acrfm asset management system."

OTHER COMMENTS

Note on SCADA, NETWORK CONTROL AND PROTECTION SYSTEMS "Other" Subcategory - Includes *Protection and secondary systems.*

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.3 | Actual | FINANCIAL

SOURCE: (include name of report, how extracted)	Data cube from Oracle showing annual expenditure for each capital project
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: 2013/14

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Oracle capital projects - list of all augmentation projects over the period covered by RIN

Tables 2.3.1-2:

For each sub transmission and zone substation / line project listed in the Oracle extract…

1. Tested total cost to determine if it was a material project.

Material: Extracted the project details (driver, type, # and rating of assets installed) from project documentation (see metadata below)

Breakdown of expenditure by asset category determined from project capitalisation as recorded against that project number in the fixed asset register. Where project has not been capitalised, cost of major components extracted from project cost estimate. Labour / materials / contract / other split of costs for each project taken from Capex cube. Labour % applied to total real cost to determine installation labour component. Other asset categories pro-rated to remaining (non-labour) amount of total real project cost.

Related party contracts extracted from Actew contracts / payments system, where supplier = "Jemena". Allocated to projects by project number. Profit margin 5% taken from contract, except Civic ZS project where actual margin calculated.

Details of current substation rating and other technical details taken from Data Manual. "Before" figures determined by subtracting added assets from current ratings, or historic versions of the Data Manual.

Non-material: Year band (historic, next regulatory period) determined based on latest year showing expenditure in Oracle. Project deemed to be completed in that year.

Total project cost taken from Oracle capital projects cube.

MVA of capacity addition also recorded (used in Sheet 2.4 to calculate $/MVA)

Total cost of non-material projects for current and next regulatory periods calculated by summating all projects in that period.

Table 2.3.3:

Volumes for each asset category determined from age profile data, less replacements.

Summated project costs reported against asset type categorisation and major project thresholds where applicable (>=$0.5M). Expenditure summated for each category nominated by AER.

Where cost allocation could not be made directly from Oracle project information, costs across multiple asset categories are allocated on the basis of unit rates and reported volumes.

Table 2.3.4:

Total project costs for each year and asset category taken from Oracle capital projects data cube, split according to asset categorisation for each project.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.3.3.1 | Actual | NF

SOURCE: (include name of report, how extracted)	Oracle R11
REPORT / EXTRACT DATE:	30 September 2014
Can information requested be provided from Actual information? (Y/N)	**Y**

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

2.3.3.1 Quantity information comes directly from the store and includes:
a. 415v Cable Lengths issued for any given period (LV Augmentation) e.g. LV connections between distribution substations
b. 11kV Cable Lengths issued for any given period (HV Augmentation) e.g. HV connections from Zone Substations to distribution substation or between distribution substations
c. Pad mount (ground mounted), pole and transformer (indoor) substations for any given period (Distribution Substation Augmentations)
Assumption: It is assumed that the inventory information includes both Repex and augex, but the Repex is inconsequential i.e. < 10%

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.3.1 | Estimated | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	WASP works management system ORACLE financial management system
REPORT / EXTRACT DATE:	25 September 2014
Can information requested be provided from Actual information? (Y/N)	**Y and N**

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Why is it not possible to use actual information ?
Data including full maintenance history, asset installation and asset disposal dates are not captured in corporate systems under normal business processes.

What is the basis of estimate ?
Audits were carried out to ensure all assets were installed and commissioned. Operational and maintenance requirements were ensured as per the one Substation Inspection & Maintenance Strategy Procedure NTS7.11.P02.W01 for maintenance history. Asset disposal dates have been extracted from WASP general notes and estimated where data is not available.

Reasons why this is best estimate ?
The estimate use's information from corporate systems and where information is not stored as normal practice best estimates have been applied.

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Table 2.3.1

FY13-14 PoW reports used as the basis for this information. Project contract documentations and estimates used to determine equipment ratings and confirmed during various site audits/inspections. Considered reliable and accurate, used as technical and operational "source of truth" for operational assets, hence any errors identified and corrected in normal course of operations.

Power transformer continuous rating (55 MVA) considered as substation's normal cyclic rating.

All other substation equipment's such as auxiliary & earthing transformers, 11kV CBs, earth trucks, isolators considered under Switchgear and hence reported accordingly.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.5 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	1) Oracle capital projects - list of all augmentation projects over the period covered by RIN - Data cube from Oracle showing annual expenditure for each capital project 2) Oracle Fixed Asset Register - list of capitalisations for historic projects, providing breakdown by asset type - Data extract of all assets capitalised into the FAR since 2008/09, from Oracle assets

REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost

Base date for Real $: 2013/14

Can information requested be provided from Actual information? (Y/N)	**Y**

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

ActewAGL accounts and operational processes do not disaggregate connections into "simple / complex" or other categorisations as defined by AER. Counts of connections and the ability to link volumes to costs for specific connection types is also limited. That is, the breakdown of data as required / defined by AER is not available within any ActewAGL systems

Projects have been categorised according to the Oracle project type, and the nature of the connection inferred from project capitalisation records (i.e. whether LV, Substation and HV assets were included in the project). For simple connections, an allocation between residential and commercial has been based on the overall ratio of residential: commercial NMIs on the Actew network (9.7% commercial).

Costs and details sufficient to enable accurate allocation are not captured by current operational processes. Volume of connections too large for detailed breakdown for each year to be practical (and records for earlier years are no longer available).

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Total cost of customer connections is taken from Oracle accounts (actual data). Projects that did not include a new connection (relocation or replacement of existing services etc.) have been excluded - these are reported as Quoted services in the RIN. Small residential PV systems are also not reported in the figures here - as these are not a new connection (there are some 11,500 rooftop systems installed over the RIN reporting period).

Each project has been categorised as to the type of customer (residential, C/I, subdivision, embedded generator) according to Oracle project categories and inspection of project title. Projects further categorised according to project type (simple / complex, HV LV etc.) according to the split of capitalised assets in the fixed asset register, and OH/UG connections according to whether OH or UG capitalised amount is greater.

ActewAGL accounts and operational processes do not disaggregate connections into "simple / complex" or other categorisations as defined by AER. Counts of connections and the ability to link volumes to costs for specific connection types is also limited. That is, the breakdown of data as required / defined by AER is not available within any ActewAGL systems

Projects have been categorised according to the Oracle project type, and the nature of the connection inferred from project capitalisation records (i.e. whether LV, Substation and HV assets were included in the project). For simple connections, an allocation between residential and commercial has been based on the overall ratio of residential: commercial NMIs on the Actew network (9.7% commercial).

Costs and details sufficient to enable accurate allocation are not captured by current operational processes. Volume of connections too large for detailed breakdown for each year to be practical (and records for earlier years are no longer available).

The expenditure on different asset types has been determined from the fixed asset register, assuming the expenditure on each asset type (substation, HV and LV) is the same for each year on the project (i.e. the capitalisation data does not show whether there was expenditure on HV in year 1 and subs in year 2 of the project - we have assumed the same proportional expenditure on each asset type for each year of the project).

The totals reported in the RIN are calculated by summating total expenditure by year, asset type or connection type filtered according to the criteria contained in the RIN table and definitions. HV and LV circuit km added have been estimated based on typical per unit rates, using ActewAGL unit rates for HV and LV feeders (audited by SKM).

Connection volumes for basic (simple) connections have been extracted from the Farmer system used by ActewAGL for works management of connections. 9.3% of basic connections assumed to be Commercial/Industrial (based on average NMI count between CI and Residential tariffs), and 8.9% of residential developments are "urban infill" (in existing residential areas), with the remainder being new subdivisions. For complex connections, each project has a unique project number, and volumes are taken from a count of projects within the appropriate categories

volumes are taken from a count of projects within the appropriate categories.

Categorisation of connections is done using the presence of HV and Substation components of project expenditure to determine what type of connection has been made. A materiality threshold of 5% of total project value is applied to ensure spurious expenditures do not result in incorrect categorisation. Where project expenditure is above this 5% materiality threshold in either HV and Substation components, a flag is set which is then used to categorise the expenditure into the appropriate AER category.

OTHER COMMENTS

1) Technical and asset management staff added additional details to each project, including asset categories, MVA added, location (urban, rural). Driver (customer or NSP initiated) determined from Oracle project category.

2) Actew asset categories were mapped to the AER RIN asset categories. A "pivot table" report was used to list AER asset expenditure for each project number. Linked to Capex cube by project number.
Only projects currently capitalised are included in the FAR. For future projects the typical capitalisation split for that type of project (Oracle project classification) has been used to forecast expenditure splits between asset categories.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN — Sheet: 2.5.2 — Actual — NF

SOURCE: (include name of report, how extracted)	FARMER on ANetworkdbP Data extract of all connections managed through Farmer system
REPORT / EXTRACT DATE:	09 September 2014
Can information requested be provided from Actual information? (Y/N)	Y

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Simple Connections: Houses that install PVs do not receive a new connection to facilitate that work. The existing connection provides and receives energy.

Connections are made at the existing supply connection points and substations and therefore the extension of the network for both LV and HV was not required.

For embedded generation added:
ActewAGL Distribution estimated 20MVA for the FRV solar farm in the Reset RIN (Category Analysis section 2013/14). The solar farm did not begin operating until September 2014.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN — Sheet: 2.5.1 — Estimated — NF

SOURCE(S): (incl name of report / person supplying)	ArcFM report listing aggregate lengths of all HV and LV lines commissioned in FY 13/14
REPORT / EXTRACT DATE:	30 September 2014
Can information requested be provided from Actual information? (Y/N)	N

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Cumulated net km's added for augmented HV & LV lines is actual data extracted from ActewAGL's GIS system. This system doesn't break the data down into the categories of residential, commercial/industrial and greenfield. The breakdown was estimated on the previous years' proportion between the three categories.

METHODOLOGY (Data assumption, calculation, adjustment, cleansing and justification)

Data provided for all net km's added for augmented HV & LV lines for all categories

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.5.1 | Actual | NF

SOURCE(S): (incl name of report / person supplying)	WASP report provided by AS&P listing all distribution substations commissioned in FY 13/14
REPORT / EXTRACT DATE:	22 September 2014
Can information requested be provided from Actual information? (Y/N)	Y

METHODOLOGY (Data assumption, calculation, adjustment, cleansing and justification)

Data provided for all distribution substations installed for all categories:

Project construction drawings viewed to determine rating (MVA) of substation and to determine the project category (residential, commercial/industrial and greenfield)

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.5.1 | Actual | NF

SOURCE(S): (incl name of report / person supplying)	Report provided listing all subdivision estates commissioned in FY 13/14
REPORT / EXTRACT DATE:	22 September 2014
Can information requested be provided from Actual information? (Y/N)	Y

METHODOLOGY (Data assumption, calculation, adjustment, cleansing and justification)

Data provided for all subdivisions installed in FY 13/14; underground and overhead volumes:
All subdivisions were underground, so summation of report listed in underground connections field

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN — Sheet: 2.5.2 — Actual — NF

SOURCE(S): (incl name of report / person supplying) Report provided listing all subdivision estimates commissioned in FY 13/14

REPORT / EXTRACT DATE: 22 September 2014

Can information requested be provided from Actual information? (Y/N) Y

METHODOLOGY (Data assumption, calculation, adjustment, cleansing and justification)

Data provided for breakdown of subdivisions installed in FY 13/14 (complex LV, complex HV with no upstream asset works, complex HV with upstream asset works)

Report included project descriptions, WASP interrogated to determine project numbers and project construction drawings viewed to determine which of the above categories the project was

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN — Sheet: 2.5.1 — Actual — NF

REPORT / EXTRACT DATE: 30 September 2014

Can information requested be provided from Actual information? (Y/N) Y

METHODOLOGY (Data assumption, calculation, adjustment, cleansing and justification)

Data provided for all volume of commercial and industrial underground and overhead connections commissioned in FY 13/14

A project tracking spread sheet is kept that lists all projects of category minor and above, including a project classification descriptor.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.5.2 | Actual | NF

REPORT / EXTRACT DATE: 30 September 2014

Can information requested be provided from Actual information? (Y/N) Y

METHODOLOGY (Data assumption, calculation, adjustment, cleansing and justification)

Data provided for breakdown of commercial/industrial connections installed in FY 13/14 (simple LV, and the complex HV categories)

A project tracking spread sheet is kept that lists all projects of category minor and above, including a project classification descriptor. The projects were sorted by classification to determine the breakdowns

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.5.1 | Actual | NF

SOURCE: (include name of report, how extracted)
FARMER on ANetworkdbP
Data extract of all connections managed through Farmer system

REPORT / EXTRACT DATE: 22 September 2014

Can information requested be provided from Actual information? (Y/N) Y

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Data provided for residential underground and overhead connections:
Farmer (connections management system) extract of basic (simple LV) connection volumes.
Excludes "solar PV" connections

Data provided for breakdown of residential connections (simple LV and HV):
Farmer (connections management system) extract of basic (simple LV) connection volumes.
Where multiple connections occurred at the same address, this was assumed to be a block of units, and hence a complex LV connection; all other connections reported as simple LV connection. No residential complex HV connections provided in FY 13/14
Excludes "solar PV" connections

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

BoP for Category Analysis RIN

Sheet: 2.5.1 | Actual | NF

SOURCE(S): (incl name of report, how extracted) ANetworksdbP

REPORT / EXTRACT DATE: 13 October 2014

Can information requested be provided from Actual information? (Y/N) **Y** Calculated to fit parameters of Report

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

SQL from ANetworksdbP.

Row 23 -*Mean days to connect residential customer with LV single phase connection (0's)* - This is calculated based on days between the receipt of a request to connect a greenfield site, to the day the meter was installed. This does not distinguish whether connected single or three phase.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.5.1 | Actual | NF

SOURCE(S): (incl name of report / person supplying) Satisfy 2000 (complaints management system)
SQL Reporting tool

REPORT / EXTRACT DATE: 10 October 2013

Can information requested be provided from Actual information? (Y/N) **Y**

METHODOLOGY (Data assumption, calculation, adjustment, cleansing and justification)

Row D224 - D226
Complaints are entered into satisfy including any rebates paid under the Consumer Protection Code. This information is reported in the SQL reporting tool overnight. At months end I generate the report through SQL which automatically provides all the rebate details that were entered into Satisfy.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.6.1 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)

TM1 Data base tool linked to Oracle

REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost

Base date for Real $: NA

Can information requested be provided from Actual information? (Y/N)

Y

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

2.6.1 NON-NETWORK EXPENDITURE

Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations. Projects are categorised by project types. All relevant project types (IT Systems, Motor Vehicles, Buildings & other non network assets) are reported for opex & capex. The breakdown of vehicles types are based on the allocation of total finance & operating leases (2013/14) for operating expenditure & for capital expenditure total finance lease expenditure for 2013/14 was used.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.6.2 | Estimated | NF

SOURCE(S): (incl name of report, how extracted)

Human Resources Dept (Employee numbers)
ServiceNow (BSD internal asset management system)

REPORT / EXTRACT DATE: 30 September 2014

Can information requested be provided from Actual information? (Y/N)

N

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

2.6.2 ANNUAL DESCRIPTOR METRICS - IT & COMMUNICATIONS EXPENDITURE

* Employee Numbers for 2013/14 are from HR.
* Number of Users is from our Active Directory system as at the end of the financial year.
* We have used leasing schedules to determine what devices were charged to Networks during that year. It does not include devices that were end of lease that may still be in use, though unfortunately it is the best we can do. I have assumed 0.72 devices per employee (as I assume that not all field staff has a computer in their name). The ratio figure of 0.72 is a forecasted figure, based on an average of headcount and devices over the previous 3 years of data.
* Number of Devices are for Leased computers only.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.6.3 | Actual | NF

SOURCE(S): (incl name of report, how extracted)	Data was obtained from PREVIOUS FINANCIAL YEAR FUEL DATA produced by our leasing company Toyota Financial Services.
REPORT / EXTRACT DATE:	05 September 2014
Can information requested be provided from Actual information? (Y/N)	**Y**

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

2.6.3 ANNUAL DESCRIPTOR METRICS - MOTOR VEHICLES - The fuel data was cleansed and adjusted to remove any incorrect or missing Odometer readings. This was necessary to be able to determine the kms travelled for each vehicle for each financial year.

Data was analysed and calculated based on actual figures provided. YWE701(HCV) and YWE798 (HCV) are leased through SG Fleet and previous data for all years was not available so they are not included in this tally and were not included in the last tally. Using the fuel data for the full financial year 13/14 the car (passenger) figure has dropped by 2 from the original estimate of 15- . The HCV and Trucks remain the same. LCV is 9 - It was estimated we might bring another LCV online however we didn't. Total Light commercial vehicles for the financial year period was 143. We have gone through a large restructure within the networks department which has seen 6 vehicles returned. The transfer of total network vehicles over to finance lease did not proceed through so we still remain with partial leased and owned vehicles.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.7 | Estimated | NF

SOURCE(S): (incl name of report, how extracted) GIS data

REPORT / EXTRACT DATE: 26 September 2014

Can information requested be provided from Actual information? (Y/N) N

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Why is it not possible to use actual information? Not captured in corporate system

What is the basis of estimate? From previous experience of persons reporting, based on combination of data from Rural and Urban areas. Study of a sample of 200 ActewAGL's 'Notification to clear trees' under Utilities Act section 125 - Network protection notice.

Reasons why this is best estimate? The estimate use's information from corporate systems and where information is not stored as normal practice best estimates have been applied.

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Table 2.7.1

1. Zone 1 = Urban
2. Zone 2 = Rural

Note: Urban and Rural zones are not geographically separate. They are based on the vegetation management policy and methodology.

3. Number of maintenance spans Urban = (Number of first notices issued for encroachment clearing) + (Number of second notices issued for encroachment clearing) + (Contractor cut encroachments) + (All high voltage line encroachments in the Urban zone identified by aerial inspection and notices issued)
4. Number of maintenance spans Rural = The number of vegetation encroachments cleared in the Rural zone before Bushfire Mitigation (BFM) season (identified by aerial inspection)
5. Average number of trees per maintenance span, Urban = (Total number of trees encroaching)/(Number of maintenance spans) - in a sample of 200 notices
6. Average number of trees per maintenance span, Rural = Total number of tree encroachments cleared in the Rural zone. It is assumed that one tree per maintenance span

NOTE: There is no 'average frequency of cutting cycle' to report. There are different inspection cycles in the two zones. They are as follows. Cutting follows inspection. Exception in the Urban is that the tree owner is notified to cut. ActewAGL cuts only if the owner does not clear encroaching vegetation after notification.

a. Rural – yearly
b. Urban
   i. 3 yearly ground inspection
   ii. 2 yearly HV line aerial inspection

Table 2.7.3

Actual fire incidents as per Guardian Incident reports and as confirmed by Safety Section.

OTHER COMMENTS

Assumptions made that 90% of vegetation clearing work is Urban and 10% is Rural.
Inspection was split between rural and urban at 13% and 87%.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.7 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	TM1 Data base tool linked to Oracle
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: 2013/14

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Oracle Financial General Ledger & Oracle Project accounting

Table 2.7.2

1. Total cost is actual - the split between Urban and Rural is estimated.
2. Vegetation corridor is assumed to be only for transmission lines. All ActewAGL transmission lines run in the Rural zone.
3. Tree trimming is planned work. In the Urban zone it is expenditure for planned urban tree clearing plus planned government tree clearing. In the Rural zone it is expenditure for planned rural tree clearing. Basis - the proportion of the total expenditure to that for tree trimming has remained the same. And the split between Urban and Rural has been the same as in 2013/14.
4. Estimated cost of inspection = (Planned work tree inspection) - (Total cost of tree trimming)
5. Inspection Urban = 87% Estimated cost of inspection
6. Inspection Rural = 13% Estimated cost of inspection.
7. Hazard tree cutting Urban= 90% of 7516029-FR&E Overhead Trees
8. Hazard tree cutting Rural = 10% of 7516029-FR&E Overhead Trees
9. Audit is 80% of the Vegetation Accreditation/Authorisation and Auditing Supervisor's cost which is assumed to be $100,000. Contractor liaison is 10% of this cost. Both 50% Urban and 50% Rural.

OTHER COMMENTS

Comments, data issues etc.:

Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.8 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted): TM1 Data base tool linked to Oracle

REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost

Base date for Real $: NA

Can information requested be provided from Actual information? (Y/N): **Y**

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Table 2.8.2

No Adjustments

Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations. Projects are categorised by project types. All maintenance activities are categorised into AER categories that best fit the description.

OTHER COMMENTS

Comments, data issues etc.: Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations.

Table2.8.2:

Note on Zero expenditure on *Overhead Asset inspection* : AAD have identified that all costs were rolled into the pole inspection category. ActewAGL historic costing never separated overhead inspection from pole inspection. An estimate of this expenditure has now been entered into 2.8. The breakdown has been provided by Network Performance Engineer using best judgement.

Note on Zero expenditure for *Transformers - distribution, Transformers - HV and Zone substation - other equipment in "Zone substation equipment maintenance* ": All costs has been rolled into *Transformers Zone substation.*

Note on Network underground cable maintenance: by voltage - 33kV and above - $0, because there were no maintenance performed.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.8 | Estimated | FINANCIAL

SOURCE(S): (incl name of report, how extracted): WASP works management system
ORACLE financial management system

REPORT / EXTRACT DATE:: 25 September 2014

Can information requested be provided from Actual information? (Y/N): **Y and N**

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Why is it not possible to use actual information ?

Data including full maintenance history, asset installation and asset disposal dates are not captured in corporate systems under normal business processes.

What is the basis of estimate ?
Audits were carried out to ensure all assets were installed and commissioned. Operational and maintenance requirements were ensured as per the one Substation Inspection & Maintenance Strategy Procedure NTS7.11.P02.W01 for maintenance history. Asset disposal dates have been extracted from WASP general notes and estimated where data is not available.

Reasons why this is best estimate ?
The estimate use's information from corporate systems and where information is not stored as normal practice best estimates have been applied.

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Table 2.8.1

FY13-14 PoW reports, Electrical Data Manual and WASP Extract were used as the basis for this information. Project contract documentations & estimates (for East Lake Zone S/S), Electrical Data Manual and WASP Asset Database used to determine equipment ratings and confirmed during various site audits/inspections. Considered reliable and accurate, used as technical and operational "source of truth" for operational assets, hence any errors identified and corrected in normal course of operations.

Zone substations auxiliary transformers reported under "Transformers - distribution" and neutral earthing transformers reported under "Zone Substation-other equipment".

Information submitted in this table (2.8.1) includes the number of assets inspected (such as zone transformers, auxiliary transformers and neutral earthing transformers) during the year 13-14 as per definition. Monthly inspection carried out (by network services field staff) on all the zone substation assets (including property) and information is being recorded for zone substation asset conditions and hence no planned maintenance activities carried out apart from condition monitoring through oil sampling analysis as per power transformer - annually and auxiliary & earthing transformers - biannually.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

BoP for Category Analysis RIN

Sheet: 2.8.1 | Actual | NF

SOURCE(S): (incl name of report, how extracted)
WASP
Cityworks

REPORT / EXTRACT DATE: 13 October 2014

Can information requested be provided from Actual information? (Y/N) Y

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Table 2.8.1 - Sub transmission asset maintenance - for DNSPs with dual function assets
Asset quantity at year end (Poles only) - 1470
Asset Quantity inspected/Maintained (Towers only) - 201
Maintenance cycle (years) - 3 years or unplanned

Information bases on Last inspection date. Maintenance cycle is based on corporate strategy.
Age is based on calculations done for 5.2 Augex data (Age profile)

Only Poles and Towers has been included.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

BoP for Category Analysis RIN

Sheet: 2.8.1 | Actual | NF

SOURCE(S): (incl name of report, how extracted)	Capitalised Projects
REPORT / EXTRACT DATE:	13 October 2014
Can information requested be provided from Actual information? (Y/N)	**Y**

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Service line replacements are completed through asset replacement projects.

OTHER COMMENTS

Service lines inspections: There is no dedicated service inspection program, they are “inspected” in that they are visually looked at as part of a pole inspection. If inspection identifies that a pole must be replaced, then the service line is also replaced at the same time. The inspection data is not split by domestic or commercial.
Numbers supplied are Total customer numbers from Economic Benchmarking 2013/14 - Sheet 3.4 Operational data- supplied by Network Operations & Call Centre.
Service line inspection cycle: Pole inspections occur every 4.5 years in urban areas and every 3 years in rural.
Maintenance cycle: It is run to fail, however we proactively replace the services when the pole requires replacement.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.8.1 | Actual | NF

SOURCE(S): (incl name of report, how extracted)	ActewAGL Distribution have a raft of inspection procedures that originate from a master procedure " **Planned Condition Monitoring Asset Inspections**"	
	ASSET QUANTITY AT YEAR END: Number of poles, Number of installed transformers, Number of switches	Cumulative sum for each asset category from Table 5.2 in this RIN. Number of poles inspected/maintained are an average because of the different rating (HV & LV) rating of the poles
	ASSET QUANTITY AT YEAR END: Number of Distribution Substation Properties Maintained -	WASP, Total number of distribution substations in service
	ASSET QUANTITY AT YEAR END: Overhead Asset Inspection (route km)-	Economic Bench mark RIN report Table 3.7.3 which was based on the data from GIS (Gary Smith)
	ASSET QUANTITY AT YEAR END: Network Underground Cable Maintenance - by Voltage/by Location - Length	Economic Bench mark RIN report Table 3.5.1.2 which was based on the data from GIS (Gary Smith)

ASSET QUANTITY INSPECTED/MAINTAINED: Distribution substation transformers	= Number of transformers in distribution substations inspected from Works Enablement records (Mei Li) and WASP + Number of transformers replaced or repaired unplanned (from Table 2.2.1) = 684+19 = 703
ASSET QUANTITY INSPECTED/MAINTAINED: Distribution substation switchgear	= Number of relays maintained+Number of circuit breakers repaired/replaced unplanned = 169+45=214
ASSET QUANTITY INSPECTED/MAINTAINED: Distribution substation - other equipment - earth mat	Number of substations earth tested
ASSET QUANTITY INSPECTED/MAINTAINED: Distribution Substation - Property	Number of kiosk, pad mount and chamber substations inspected + Number of kiosk, pad mount and chamber substations that were cleaned . Data obtained from Works Enablement (Mei Li) and Table 2.2.1 of this RIN which was based on reactive maintenance data from Apply (Outage) database. (843+14).
AVERAGE AGE OF ASSET GROUP	Asset Age Profile data on Table 5.2 of this RIN.
Distribution Substation and Property Maintenance - Asset quantity at year end	Asset Age Profile data on 5.2 Reset RIN 2014 (this report) - No cleansing
Distribution Substation and Property Maintenance - Asset quantity inspected/maintained	Planned (Work packed) maintenance -Work Pack and Work Task data in WASP. Extracted using WASP extract. Reactive maintenance - Outage (Apply) database - Filtered to extract only the data pertaining to relevant Distribution Substation assets and pertaining to the time period.
Distribution Substation and Property Maintenance - Average age of asset group	Asset Age Profile data on 5.2 Reset RIN 2014 (this report). No cleansing. Weighted average calculated.
Network Underground Cable Maintenance - by Voltage/by Location - Average Age of Asset Group	Asset Age Profile data on 5.2 Reset RIN 2014 (this report) - No cleansing. Weighted average calculated.
POLE TOP, OVERHEAD LINE & SERVICE LINE MAINTENANCE and POLE INSPECTION AND MAINTENANCE - Asset quantity Inspected/Maintained	Poles database - Extracted by the Asset Information Branch for the required period.
POLE TOP, OVERHEAD LINE & SERVICE LINE MAINTENANCE and POLE INSPECTION AND MAINTENANCE - Average Age of Asset Group	Asset Age Profile data on 5.2 Reset RIN 2014 (this report) - No cleansing. Weighted average calculated.
Overhead Asset Inspection - Average Age of Asset Group	Asset Age Profile data on 5.2 Reset RIN 2014 (this report) - No cleansing. Weighted average calculated.

SOURCE(S): (incl name of report, how extracted)

ASSET QUANTITY INSPECTED/MAINTAINED: Pole tops and overhead lines	All Rural and Urban HV aerially inspected. From Archive Folder for aerial inspections.
ASSET QUANTITY INSPECTED/MAINTAINED: Pole inspection and treatment	3yearly ground Rural pole inspection + 4.5yearly Urban pole inspection data from Poles database
ASSET QUANTITY INSPECTED/MAINTAINED: Overhead asset inspection	Line patrolled - All Rural and Urban HV lines inspected. From GIS.
ASSET QUANTITY INSPECTED/MAINTAINED: Network Underground Cable Maintenance - by Voltage/by Location	Length of cable replaced from Table 2.2.1 this RIN (1.7km)+ Cable testing of Gallery feeder (3km)

REPORT / EXTRACT DATE:	13 October 2014
Can information requested be provided from Actual information? (Y/N)	Y

Other information

Average age of substations is assumed to be the average age of the transformers.

BoP for Category Analysis RIN — Sheet: 2.8.1 — Actual — NF

SOURCE(S): (incl name of report, how extracted)	RTI Database, Protection ASP ENMAC DMS system
REPORT / EXTRACT DATE:	20 October 2014
Can information requested be provided from Actual information? (Y/N)	Y

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Protection Systems Maintenance : RTI database and spreadsheet of works actually undertaken from works enablement, maintenance / inspection cycle from the Protection ASP
SCADA System Maintenance : Asset Quantities from ENMAC DMS system. Note maintenance / inspections on SCADA equipment is provided on a reactive basis, not as part of a schedule.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN — Sheet: 2.8 — Street lights

OTHER COMMENTS

ActewAGL Distribution does not own the street lighting assets located in the ACT.

The ACT government department TAMS (Territory and Municipal Services) is responsible for co-ordinating ownership, purchasing and work order allocation for street lights. TAMS allocates work orders to ActewAGL Distribution to replace damaged street light columns and to provide maintenance for those assets. There are approximately 76,000 street lighting assets owned by TAMs.
The AER should obtain information about street lighting from TAMs.

A further complication is that there are about 2500-3000 street lighting columns owned by the NCA (National Capital Authority).
The AER should obtain information about street lighting from the NCA.

Basis of Preparation for Category Analysis RIN

Sheet: 2.9 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	**Oracle Financial General Ledger & Oracle Project accounting** - Oracle Browser Report called Project & WASP Cost Distributions
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: NA

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

No adjustments

Advice from the control room manager that there was one major event days during this period. A browser report was run from Oracle on overhead & underground reactive maintenance work for the month the event occurred. The methodology in regards to the dollar value entered in the template takes the average maintenance for the previous seven days to the event less the four following days including the event day. This approach is taken as work orders are not created for major event days but are costed to a standing work order.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.10 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	**TABLE 2.10.1 - NETWORK OVERHEADS EXPENDITURE** - TM1 Data base tool linked to oracle general ledger - No adjustments
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Corporate overheads
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y** 2.10.2 is Estimated data

Base date for Real $: 2013/14

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

TABLE 2.10.1 -
Activity data comes from Oracle GL ATB is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations. Activities relevant to overheads are entered excluding maintenance. The current activity structure is mapped to the AER structure. For TABLE 2.10.2 Activity data comes from Oracle GL ATB is uploaded into TM1 & these figures are then adjusted for changes in the costing methodology during the regulatory period which has to be back out as well as any depreciation in the corporate charges. Corporate overheads are then separated into the following categories by the activity split of Standard Control operating/capital expenditure, Unregulated & Alternate control services.

TABLE 2.10.2 - CORPORATE OVERHEADS EXPENDITURE - (ESTIMATED) TM1 Data base tool linked to oracle general ledger - Adjustments for costing methodology & depreciation comes from corporate fixed price service charge allocation model.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.11.1 &2 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	**Labour costing** - Aurion (uploaded through interfaces with TM1) **FTE's** - Aurion (uploaded through interfaces with TM1) **Productive work hours** - WASP timesheeting interfacing with Oracle and TM1
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	None - Direct costs only
LABOUR / MATERIALS / TOTAL?	Labour only
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: NA

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Information breakdown as required in table 2.11.1 (Network Overheads & Direct Labour)

Labour ($) - The numbers were sourced from the current payroll system) and reconciled back to Salary and Wages including Applied Payroll Costs in the General Ledger as per RIN guidelines. Where variances arose between the numbers in the bud_salary cube and the General Ledger, the variance was appropriately apportioned (using weighting) over each of the categories to ensure that the numbers matched back to what was in the General Ledger. For 2013/14 where actual data is not available for the full year we have used the budgeted data. To ensure that the above is representative only of salary and wages for Standard Control, an adjustment was made to the direct labour categories to take into account Non-Standard Control services i.e. metering. The total salary and wage costs for non-standard control services were appropriately apportioned (weighted) over the respective Direct categories and subtracted.

FTE's - The information above has been taken from the bud_salary cube for 2013/14. To ensure that the above is representative only of FTE's for Standard Control, an adjustment was made to the direct FTE categories to take into account Non-Standard Control services i.e. metering. The total FTE's for non-standard control services were appropriately apportioned (weighted) over the respective Direct categories and subtracted. The total for contractors was taken from the General ledger. A weighting was applied to determine the split between direct skilled and direct unskilled.

Information breakdown as required in table 2.11.1 (Corporate Overheads), is not available in consolidated system source. As such the following methodology was followed:

1. A listing of all Corporate Services Actual Payroll / FTE data for the 13/14 YTD was pulled from TM1.
2. Each FTE was classified according to the categories defined in the RIN. This was determined by referring to; Organisation Charts, Role Titles, and Outlook Property Cards.

(Steps 1 & 2 allowed a view of the number of FTE's by category, as well as a proportionate breakdown of payroll costs by category).

3. To determine Electricity Networks share of the Corporate ASL's the percentage applied was taken from the relevant years CAM workbook ('FPSC Models').

(Steps 3, 4, & 5 completed the Corporate ASL's part of table 2.11.1)

2.11.2 - Productive work hours - The information above has been primarily sourced from the labour productivity cube (which is sourced direct from timesheets entered into Oracle) and the bud_salary cube. Normal labour hours have been adjusted for all types of leave occurrences. The training data for direct workers and overhead interns, junior staff etc. has been sourced from timesheets, for the remainder of the overhead categories an assumption was made that on average staff would undertake 3 training days per year.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 2.12 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	Oracle Financial General Ledger & Oracle Project accounting - TM1 Data base tool linked to oracle - No adjustments
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: 2013/14

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Data from each financial template are broken up by the categories of labour, materials, contract payments & other costs. For each templates projects are broken down into these categories using the financial statements from oracle & TM1 and copied into the input sheet. Related Party Transactions come from Oracle expenditure inquiry on the partners of the business (Actew Corporation & Jemena) by project these are entered in the template for the relevant year along side an assumed margin of 10%.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 4.1

OTHER COMMENTS

ActewAGL Distribution does not own the street lighting assets located in the ACT.

The ACT government department TAMS (Territory and Municipal Services) is responsible for co-ordinating ownership, purchasing and work order allocation for street lights. TAMS allocates work orders to ActewAGL Distribution to replace damaged street light columns and to provide maintenance for those assets. There are approximately 76,000 street lighting assets owned by TAMs.
The AER should obtain information about street lighting from TAMs.

A further complication is that there are about 2500-3000 street lighting columns owned by the NCA (National Capital Authority).
The AER should obtain information about street lighting from the NCA.

Basis of Preparation for Category Analysis RIN

Sheet: 4.2 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	Oracle Financial General Ledger & Oracle Project accounting - TM1 Data base tool linked to Oracle
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: 2013/14

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations. Projects are categorised by project types. All metering related types are picked up and entered into the template. All commercial projects have been entered as type 5 & domestic as type 6 where data for type 5 is unknown invoices from contractors are used to complete.

Contractor invoices are collected in a spreadsheet on a weekly basis. No adjustments were made.

Meter population used to forecast replacement requirements and read / maintenance / other opex task volumes. No adjustments were made.

OTHER COMMENTS

Comments, data issues etc.: Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations. No adjustments made.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 4.2 | Actual | NF

SOURCE(S): (incl name of report, how extracted)	ANetworksdbP
SOURCE(S): (incl name of report, how extracted)	**Type 5 Schedule Meter Reads** - Contractor invoices
REPORT / EXTRACT DATE:	19 September 2014
Can information requested be provided from Actual information? (Y/N)	**Y**

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

SQL from ANetworksdbP. Extraction based on Event dates to EOFY, then averaged for the current FY from last FY. Reports all meters that are on an Active or Deenergised site. All metering related types are picked up and entered into the template, based on meter types, entered as type 5 & as type 6, splits based on CT or DC.

Table 4.2.2 - workings are based on how we process the metering, i.e. although we install type 5 capable meters, we read majority as type 6, and costings are allocated based on this split for meter installs, replacement, and reading. Meter testing however is only type 6 presently.

OTHER COMMENTS

Comments, data issues etc.: "Zero" value against expenditure for "Other metering" Type 5. Miscellaneous expenses not covered in other sub-categories.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 4.3 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	**Oracle Financial General Ledger & Oracle Project accounting** - TM1 Data base tool linked to Oracle. **Volumes for fee based services** - Gentrack & Oracle Receivables
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: 2013/14

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations. Projects are categorised by project types. All fee based services are categorised into an activity 50201. Non financial data (volumes) comes from Gentrack & Oracle receivables. Volumes are calculated by dividing total revenue by price.

OTHER COMMENTS

Comments, data issues etc: Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations. No adjustments has been made.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 4.4 | Actual | FINANCIAL

SOURCE(S): (incl name of report, how extracted)	**Oracle Financial General Ledger & Oracle Project accounting** - TM1 Data base tool linked to oracle **Volumes for quoted based services** - Oracle Receivables & Oracle projects.
REPORT / EXTRACT DATE:	30 September 2014
FINANCIAL /NON-FINANCIAL: (F/NF)	F
FINANCIAL DATA - Real or Nominal $:	Nominal
OVERHEADS:	Directly attributable
LABOUR / MATERIALS / TOTAL?	Total cost
Can information requested be provided from Actual information? (Y/N)	**Y**

Base date for Real $: NA

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Project data from Oracle is uploaded into TM1 by expense type. Corporate overheads are excluded from the calculations. Projects are categorised by project types. All quoted based services are categorised into an activity 50200. Non financial data (volumes) comes from Oracle receivables & Oracle Projects by the number of work orders.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 5.2 | Estimated | NF

SOURCE(S): (incl name of report, how extracted)	**WASP asset extract** - WASP Extract, query of all assets for each Asset type selected. Dump of all assets with install dates copied into excel for analysis. WASP and GIS asset reports showing quantities and install dates. Used for age profile (population by year) columns in the RIN. **Suburb build dates** - ACTPLA (ACT planning and land). Maps showing construction dates for various suburbs in Canberra
REPORT / EXTRACT DATE:	30 September 2014
Can information requested be provided from Actual information? (Y/N)	**N**

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Why is it not possible to use actual information ? Some equipment does not have installation date allocated in GIS or WASP

What is the basis of estimate ? Assumptions:

1. Poles with Date Installed are assumed to be the actual pole age
2. Poles without Date Installed are all assumed to be estimated.
3. For estimate:

Poles: a. If Pole has Date installed, used Date installed (Actual)
b. Else if Pole has Year Installed, used Year installed (Estimate)
c. Else if Pole has Manufacturer Year, used manufacturer year (Estimate)
d. For asset types with known install dates for certain types (e.g. certain pole species or staking methods which were only in use for a few years) unknown dates for this type were allocated across the known date window.
e. Else if Pole has Suburb Age, and Suburb age is higher than the pole type start age, or Suburb age is missing, then use pole type start age. (Estimate)
f. Else use Suburb Age (taken from ACTPLA data). (Estimate)
Note: Approximately 500 to 600 poles will be missing from the age profile due pole replacement which has already occurred in 2013/14.

Other asset types:
a. Age profile for assets with known installation dates was analysed
b. Assets with unknown date were allocated to years on a pro-rata basis for other assets of the same type with known dates.

Reasons why this is best estimate ? Best available information used, based on operational experience that assets are generally installed soon after manufacture / purchase (low stores inventory), and that suburbs in Canberra were generally electrified at the same time and hence age of surrounding assets is a good indicator of an assets age.

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

POLES (All)
OVERHEAD CONDUCTORS (All)
UNDERGROUND CABLES (All)
SERVICE LINES (All)
TRANSFORMERS (Line 64, 67, 68, 74, 75, 80, 81)
SWITCHGEAR (Lines 93, 94, 96, 97)

Data was analysed in separate excel sheets for each asset class. Process was essentially same for each asset class. Steps were:
1. Copied data into excel from WASP / GIS as appropriate for that asset class.
2. Assets with known install date (actuals) analysed and transferred to RIN Actual sheet.
2b. Assets with missing dates were assigned a date according to the date estimating approach outlined above, and transferred to RIN Estimate sheet.
3. For both actuals and estimates, asset characteristics (e.g. voltage, type, material, rating, etc.) used to map each asset to the appropriate AER RIN asset category.

4. Cross-tab style report used to list quantities of assets in service by category (rows) and year (columns)
5. Asset quantities copied into appropriate RIN sheet (actual or estimate).

Notes:
Non-regulated (private) poles or streetlighting poles are not owned by ActewAGL, thus we do not report on them.

OTHER COMMENTS

Analysis in excel to group assets into AER categories, and show number installed each year.
Separate WASP extracts for each asset class - transformers, poles, switchgear.

Analysis in excel to group assets into AER categories, and show number installed each year. GIS data reasonably accurate and reliable

Based on government planning and land release data etc. Considered to be reasonably reliable

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 5.2 | Actual | NF

SOURCE(S): (incl name of report, how extracted)	**SCADA & NETWORK CONTROL MAINTENANCE & PROTECTION SYSTEMS MAINTENANCE** - Extracted from Relay Test Instruction (RTI) database system, ArcFM GIS,RIVA and spreadsheets provided by Works Enablement
REPORT / EXTRACT DATE:	22 September 2014
Can information requested be provided from Actual information? (Y/N)	Y

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Line 116 - 122: "SCADA, NETWORK CONTROL AND PROTECTION SYSTEMS BY: FUNCTION"

SCADA Field Devices (RTUs) and Local Network Wiring assets (Ethernet switches and cabling) are computer based infrastructure that has a limited life due to the electronic nature of the equipment, superseding of technical standards leading to technical obsolescence and lack of vendor support as the components age. Average replacement age of 15 years is prudent and is commonly used by the industry.

Communication Assets include routers and switches deployed in the wide area network. Theses devices typically have a maximum of 10 years of support from the product vendors. product support is critical to maintaining the cyber security of the network. Communication devices also have ever increasing demands to provide higher bandwidth to support new services to substations and the wider electrical network. Average replacement age of 10 years has been selected for these reasons.

Master Station assets include the computer server hardware, operating systems and SCADA application software. Typically a hardware and operating system refresh will be performed every 5 years with a full upgrade or replacement of the application software every 10 years. This is required to maintain the cyber security and technical currency of the master station systems with field devices and other business systems.

SCADA radio system assets are subject to technical obsolescence and lack of vendor support as the components age. Cyber Security is also a concern for older systems that do not have encryption or other cyber security features. Radio systems are also subject to harsh environmental conditions, mounted on poles, and failures are higher than other secondary systems assets. Spare parts are not available as vendor support is withdrawn for older systems. Average replacement age is 10 years.

Modern numerical protection relays are electronic devices and subject to increasing calibration drift and mal-operation as they age. Due to the critical nature of protection it is considered important to renew relays as mal-operation or other issues are discovered in the population of particular relay models. Average replacement age has been estimated at 15 years.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 5.2.1 | Estimated | NF

SOURCE(S): (incl name of report, how extracted)

WASP works management system

REPORT / EXTRACT DATE:

25 September 2014

Can information requested be provided from Actual information? (Y/N)

N

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Why is it not possible to use actual information ?

Data including full maintenance history, asset installation and asset disposal dates are not captured in corporate systems under normal business processes.

What is the basis of estimate ?

Audits were carried out to ensure all assets were installed and commissioned. Operational and maintenance requirements were ensured as per the one Substation Inspection & Maintenance Strategy Procedure NTS7.11.P02.W01 for maintenance history. Asset disposal dates have been extracted from WASP general notes and estimated where data is not available.

Reasons why this is best estimate ?

The estimate use's information from corporate systems and where information is not stored as normal practice best estimates have been applied.

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Table 5.2.1
TRANSFORMERS (Line 80, 86, 88, 92)
SWITCHGEAR (Line 94, 95, 100, 103, 104, 105)
OTHER - Other substations and equipment (Line 124)

WASP Asset Database and Electrical Data Manual used as the basis for this information. Project contract documentations & estimates (for East Lake Zone S/S), Electrical Data Manual and WASP Asset Database used to determine equipment ratings and confirmed during various site audits/inspections. Considered reliable and accurate, used as technical and operational "source of truth" for operational assets, hence any errors identified and corrected in normal course of operations.
Auxiliary Transformers (qty. 24) reported under Ground Outdoor/Indoor Chamber Mounted; < 22 kV ; > 60 kVA and < = 600 kVA ; Multiple Phase
Zone Neutral Earthing Transformers (qty. 28) reported under Other as this field was not editable.
East Lake Zone S/S Single Line Diagram (SLD) drawing used to get the number of circuit breakers and isolators and earth switch installed at East Lake Zone S/S.

NOTE on "Other" Category: Contains data on emergency exit signage, fence replacement and security upgrades.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 5.3 | Actual | NF

SOURCE(S): (incl name of report, how extracted)

Network Peak Demand Report

REPORT / EXTRACT DATE:

26 Sept 2014

Can information requested be provided from Actual information? (Y/N)

Y

OTHER COMMENTS

Embedded Generation (blacked out) - ActewAGL Distribution does not collect this data.
Weather correcting adjustments were calculated using the forecast models on the basis of the difference between the actual weather conditions and the forecast weather conditions in the model predictor variables
http://www.aer.gov.au/sites/default/files/ActewAGL%20-%20C1%20Peak%20demand%20forecast%20-%202014.pdf

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 5.4 | Estimated | NF

SOURCE(S): (incl name of report, how extracted)

WASP works management system
ORACLE financial management system

REPORT / EXTRACT DATE:

26 September 2014

Can information requested be provided from Actual information? (Y/N)

N

IF "NO" - WHAT IS THE BASIS OF THE ESTIMATE? (Include Approach, Assumptions and reason why this is the Best Estimate)

Why is it not possible to use actual information?
Power factor is not measured at all substations, therefore assumptions for the power factor have been made at those substations.

What is the basis of estimate?
Substation ratings are taken from the ActewAGL Electrical Data Manual and load data is taken from TrendSCADA (SCADA data database)

Reasons why this is best estimate?
Power Factor is not measured at most locations, therefore it needs to be estimated.

Power Factor is estimated from power factors at similar locations, then estimated Power Factor (0.9) was used to convert between MW and MVA
This estimate used is the best estimate based on system sources available and the calculation made with the engineers considered judgement and extensive knowledge of the subject. With the upgrade of system upgrades/data sources in progress within ActewAGL, future information will not be estimated.

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

The substation ratings where obtained from the electrical data manual. All ratings are continuous ratings as ActewAGL does not apply cyclic ratings to zone substations. Ratings are given as N-1 redundancy ratings where the substation is operated under an N-1 arrangement and N redundancy where the substation has no redundancy at the substation. Substations with N redundancy are Angle Crossing and East Lake.

The substation rating is given as the summer or winter rating which is dependant on when the coincident or non-coincident maximum demand occurred (i.e. summer or winter). For example if the coincident MD occurred in winter, all zone substation coincident ratings are given as winter ratings. If the non-coincident substation MD occurred in summer, the non-coincident substation rating is given as the summer rating.

Past load data was extracted from TrendSCADA using 5min data. Where power factor is not measured it's assumed 0.9 to calculate real power.

The raw data was examined filtering out not normal data such as data recorded during testing giving false loading trends.

Individual feeder outages that may transfer load to another substation are considered immaterial. Only large load transfers would impact materially. The only outage identified to trigger material load transfers is from Fyshwick zone substation to Gilmore and Telopea Park zone substation during the period 15/2/14 to 17/3/14. As the non-coincident maximum demand at Gilmore and Telopea Park occurred outside this period, this switching event did not affect the non-coincident maximum demand.

The embedded generation and weather corrected factors were provided by Tim Anderson and applied to the loading results.

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)

Basis of Preparation for Category Analysis RIN

Sheet: 6.3 | Actual | NF

SOURCE(S): (incl name of report, how extracted)	Electricity Outage Reporting Database extract manipulated in spreadsheet to produce outage cause reports (Actual) Single Premise Outage Report extract manipulated in spreadsheet to produce outage cause reports (Actual) Premise Deposit Registry extract manipulated in spreadsheet to produce reports (Actual)
REPORT / EXTRACT DATE:	02 September 2014
Can information requested be provided from Actual information? (Y/N)	**Y**

METHODOLOGY (Data assumption, adjustment, cleansing and justification)

Reliability calculations are as defined by the AER Definitions

Consistency with requirements: Provides best estimate of required data broken down into categories requested. Other definitions & instructions have been noted & followed (unless noted)