Attachment 01.11

Establishing the Opening RAB as at 1 July 2014

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1. Overview

The opening regulatory asset base (RAB) as at 1 July 2014 is an important input to the roll-forward model (RFM) that is used to calculate the opening RAB as at 1 July 2019. This attachment explains how we determined that value and the remaining and standard asset lives that apply to it.

Opening RAB

The Utilities Commission (UC) determined an opening RAB as at 1 July 2014 of $928.34 million (Real 2013-14), including both standard control services (SCS) and alternative control services (ACS) metering assets. This was based on a Sinclair Knight Merz (SKM, now Jacobs Group Pty Ltd) valuation as at 1 July 2013 of $856.18 million (Real 2012-13) and forecast net capital expenditure for 2013-14.[1]

We have updated this opening value to correct for errors in the SKM valuation (which overstated the value by $68.22 million (Real 2012-13). These updates reduced the opening RAB by $67.69 million (Real 2013-14) to a revised opening value as at 1 July 2014 of $860.65 million (Real 2013-14), including both SCS and ACS metering assets.

Asset classes

We also revised the asset classes used to roll-forward the RAB to better reflect how we manage these assets, and differences in expected economic lives. Specifically, we expanded the 14 asset classes used by the UC into 20 asset classes, including by:

- separating distribution switchgear from 'transmission terminal station' and 'distribution main' asset classes into a single new asset class ('distribution switchgear')
- separating low voltage services from the 'distribution main' asset class into its own new asset class ('LV services')
- consolidating the 'transmission terminal station' and 'zone substation' asset classes into a single asset class ('substations') along with some other assets (noted below) and separating out relevant assets to the new 'protection', 'SCADA' and 'communications' asset classes
- separating out relevant assets from the 'distribution mains' asset class into the new 'substation' and the existing 'transmission lines' asset classes, and renaming the residual 'distribution lines'

[1] For the purposes of this attachment, values as at 30 June of a calendar year are assumed to be equivalent to values as at 1 July of that same calendar year. For instance, SKM's valuation stated as at 1 July 2013 was used by the UC as at 30 June 2013 in its RFM. We use the two terms interchangeably.

- separating the 'secondary systems – control, communications & protection' asset class into assets that fall into the new 'substations', 'protection', 'SCADA' and 'communications' asset classes
- splitting the 'metering' asset class in to six asset classes more suited to modelling ACS metering ('mechanical meters', 'electronic meters', 'metering communications', 'metering dedicated CTs and VTs',' metering non-network other', and 'metering non-network IT and communications').

We mapped the existing assets to these new asset categories using the detailed SKM workbook that the UC used to establish the opening RAB. For all asset classes except for those relating to metering, the descriptions in that workbook were sufficiently detailed so that we did not need approximations. However, we were only able to assign metering costs in to the 'mechanical meters' and 'electronic meters' asset classes, which is similar to what we did when establishing the opening tax asset base.

We have provided this workbook, adjusted to reflect our proposed asset classes and reformatted, at Attachment 12.13 – which we refer to as the 'opening RAB model'.[2]

[2] This model provides the opening RAB as at 1 July 2013, which is based on the updated SKM valuation modelled remapped to our proposed asset classes and reformated.

2. Establishing the opening RAB

To establish the opening RAB as at 1 July 2014 we:

A. started with the roll-forward model (RFM) used in the UC's 2014 network price determination to establish the opening RAB as at 1 July 2014 and replaced the SKM valuation (as at 1 July 2013) that underpinned it with a corrected valuation;

B. allocated individual assets from those used by the UC – and reflected in the SKM valuation – to the new RAB asset classes;

C. used the UC's RFM to re-calculate new opening RAB values by category for 2013-14; and

D. applied the Australian Energy Regulator's (AER's) RFM framework to roll-forward the RAB from 2013-14 to create opening balances by asset class for 2014-15.

Each step is explained further below.

2.1 Step 1: Correcting for the SKM valuation

The 2014 network price determination relied on a September 2013 valuation undertaken by SKM. Subsequently, we learned that the SKM valuation was overstated by $68.22 million (Real 2012-13) because it:

- was based on an overstated line length value by inadvertently including the length of our unregulated network; and
- contained two minor linking / referencing errors that affected the total value for the 'Distribution Mains' asset category used by SKM, affecting the values for the 'LV Services' and 'Distribution Lines' asset classes that we propose.

SKM updated its valuation report and the model that it used, provided at Attachment 1.15 and Attachment 12.22 – and we have relied on these in updating the UC's RFM.[3]

Although the National Electricity (NT) Rules (NT NER) have not yet been updated to reflect these corrections, the Minister instructed us to use the corrected value for the benefit of NT consumers – which we agree with.

[3] When reviewing the updated SKM model, we found that there were two further minor – and mostly offsetting errors. The first was to include $3,915 (Real 2012-13) worth of unassigned metered assets that should not have been included. The second was to miss $4,384.28 (Real 2012-13) worth of cable tunnel assets in the total. Correcting for these – as we have done –increases the updated SKM valuation by $469.28 (Real 2012-13).

2.2 Step 2: Allocating individual assets from UC asset classes to our proposed asset classes

The original and updated SKM models presented the valuation in 10 RAB asset classes and was based on the DORC valuations undertaken of individual assets and network requirements. After review, we considered that the 10 asset classes did not align with how we actually manage our assets, and combine assets that have different expected economic lives.

Therefore, we redesigned our asset classes to better reflect how we actually manage our assets. For instance,

- **We combined zone and transmission substations because we manage them as single assets:** Due to the nature of our network we treat terminal substations and zone assets as effectively the same type of asset, and apply the same asset management strategies.
- **We split distribution mains into components to reflect the different asset management strategies and data management that applies to them:**
  - Distribution switchgear are managed in our systems as discrete assets (similar to distribution substations) with all activities, costs and condition information captured at an individual asset level. Splitting these components will allow systems to eventually improve forecasting of remaining asset life and risk at a discrete level, and include consideration of geographical risks such as public exposure.
  - Distribution lines and services are linear assets and are typically managed through the geographical information system. This requires different processes for how assets are created, asset data maintained to reflect maintenance and replacement activities. Typically, asset condition and forecasting of replacement activity is assessed at a portfolio level based on age, construction and failure information similar to the AER's repex model, except where specific type issues are identified.
  - LV services are managed in a similar way, with the additional complexity associated with the direct relationship with the customers connected via services.
  - Switchgear and substations/lines also have different asset lives and have different drivers for replacement, particularly as switchgear is an asset type which has a more direct impact on the safety of personnel due to the direct interaction i.e. physical operation. Changes to workplace health and safety legislation previously, and being considered now, have a direct impact on how the age and type of switchgear may also impact on replacement decisions.
- **We split out secondary systems - control, communications, and protection assets to reflect the different asset criticality that applies to each:** Each of these asset classes is managed differently based on its criticality. Different economic lives are being driven by the rapid change in technology for these assets.

Once determined, we re-mapped the individual assets reflected in the SKM model to our proposed asset classes. This had no effect on the total valuation.

We explain the steps taken below.

2.2.1 Approach to map new asset classes

The original and updated SKM models split individual assets across several sheets, and includes information reported in source systems (such as year of installation, quantity, and location). Each asset was mapped to only one of the asset classes used in the UC's 2014 Network Price Determination.

To remap the SKM valuation to our proposed asset classes, we reviewed each asset in each sheet and assigned it to one of our proposed RAB asset classes. To ensure transparency in our mapping, we started with the asset data in the original SKM valuation *before* the valuation corrections were made. As noted below, once mapped we then applied the corrections to the 'distribution lines' and 'LV services' asset classes.

To apply the mapping to the asset data, we followed a systematic process as outlined below:

A. **Extract data:** Extract the applicable data such as asset number, descriptions, Depreciated Optimised Replacement Cost (DORC) and regulated asset flags from the original SKM model (Attachment 12.24) and store as values within a new opening RAB model (Attachment 12.13) – which was done for two reasons:

   – file size and calculation speed would become an issue if we tried to use the updated SKM model for multiple purposes; and
   – during the initial allocation, blocks of individual asset data could be grouped into worksheets focused on the new RAB asset categories.

   Redundant rows and columns were omitted if not used in the re-mapping exercise.

B. **Initial allocation:** Conduct an initial allocation by allocating each line item, within each source worksheet, with a new RAB asset class based on business rules aligned to the new RAB asset class definitions. In some cases, mapping tables were used to automate the process and ensure consistency across assets (e.g. the worksheet titled "Maximo_AMP_RAB").

   The only assumptions required to reallocate assets was the interpretation of the new asset class definitions and how they relate to the available data fields in the SKM model. We used the following primary data fields contained in the SKM model to undertake the mapping exercise:

   - description;
   - asset description;
   - classification description;
   - classification path;

- regulated / non-regulated; and
- Maximo level 4 description.

Table 2.1 below shows our proposed RAB asset class definitions. Table 2.2 summarises how the mapping changed from the original asset classes to the new asset classes, noting that most assets, previously classified as one original asset category, are now broken into multiple new RAB asset categories.

C. **Mapping peer review and signoff:** Conduct a subject matter expert peer review of the initial allocation and update the allocation of line items where adjustment was required. As an example, refer to columns BC to BF on the "Substations" worksheet.

We then had each subject matter expert sign off that each line item had been addressed and correctly allocated to the new RAB asset classes based on the definitions of each asset class.

D. **Aggregate assets by proposed asset classes:** Aggregate the data on individual worksheets into consolidated SCS and ACS outputs containing information such as the source worksheet, the initial allocation, the reviewer allocation, the DORC and the SKM model source. For instance, see the worksheets "SCS" and "ACS" for calculation examples.

E. **Output review:** Conduct a final review to ensure that the reallocated data presented in summary tables appeared accurate and that no automated error checks had been triggered, ensuring that all assets had been reallocated and the outputs tied back to the original source document (SKM model).

Table 2.1: Proposed RAB asset classes and associated definitions

Proposed RAB asset class	Associated definition
SCS	
Substations	Assets contained within zone, terminal or switching substation facilities. These are facilities which are typically defined by the presence of HV switchgear and power transformers. In Maximo these assets would be defined by the ZSS service. Assets also include capacitor banks, instrument transformers, auxiliary supplies, battery systems, cables and conductors, buildings, climate control, and fire systems etc.
Distribution Lines	Lines or cables emanating from a substation at distribution voltage level (11kV or 22kV), as well as LV lines and cables. Includes poles and pole tops, voltage regulators, cable tunnels and LV pillars. Excludes distribution substations, distribution switchgear and LV services.
Transmission Lines	Lines or cables emanating from a substation at transmission (132kV) or subtransmission (66kV) voltage levels. Includes poles, towers and pole tops.

Proposed RAB asset class	Associated definition
LV Services	LV service is the final cable or conductor dedicated to connecting a customer into the LV network. This is usually a cable from a pillar to the customer's metering box, or a conductor from a nearby pole to a connection box mounted on the customer's roof. This includes the connection hardware such as clamps and overhead service protection devices (fuses and circuit breakers).
Distribution Substations	Distribution facilities which transform voltage from HV distribution levels (22kV or 11kV) to LV. This includes other associated assets such as LV switchgear, earthing, equipment enclosures, footings, locks, signage etc. Where the facility is indoors, this category includes costs associated with maintaining the room's fixtures and fittings, including cable tunnels. HV switchgear is excluded - this is covered in the distribution switchgear category.
Distribution Switchgear	Assets which perform switching at distribution voltage levels (22kV or 11kV). This includes switching facilities such as switching stations, RMUs, modular switchgear, air-break switches, gas-break switches, reclosers, fuse savers, EDOs and links.
Protection	This category includes protection relays and protection panels (including auxiliary relays, test blocks and panel wiring) in substation facilities. Recloser protection components are excluded - these are considered part of the recloser device.
SCADA	This category includes RTUs and RTU panels in substation facilities, as well as the Energy Management System (EMS) hardware and software in the control centres. Distribution SCADA components are excluded - these are considered part of the distribution device.
Communications	This category includes communications (comms) equipment in substation facilities and comms facilities, including antennas, radios, multiplexors, battery systems, comms cable and pilot wires. Distribution comms components are excluded as these are considered part of the distribution device.
Land and Easements	Land includes expenditure related to real chattels (such as interests in land such as a lease) but excludes expenditure related personal chattels (e.g. furniture) that should be reported under non-network other expenditure. An electricity easement is the right held by Power and Water to control the use of land near above-ground and underground power lines and substations.

Proposed RAB asset class	Associated definition
Property	Expenditure directly attributable to non-network buildings and property assets including: the replacement, installation, operation and maintenance of non-network buildings, fittings and fixtures.
IT and Communications	All non-network expenditure directly attributable to IT and communications assets including replacement, installation, operation, maintenance, licensing, and leasing costs but excluding all costs associated with SCADA and network control expenditure that exist beyond gateway devices (routers, bridges) at corporate offices.
Motor Vehicles	Expenditure directly attributable to motor vehicles including: purchase, replacement, operation and maintenance of motor vehicles assets registered for use on public roads, excluding mobile plant and equipment.
Plants and Equipment	Expenditure directly attributable to the replacement, installation, maintenance and operation of non-network assets, excluding motor vehicle assets, building and property assets and IT and communications assets.
ACS metering	
Mechanical Meters	Mechanical meters used for the provision of regulated metering services.
Electronic Meters	Electronic meters used for the provision of regulated metering services.
Metering Communications	Communications equipment to remotely access regulated meters, including: modems, antennas and sim cards.
Metering Dedicated CTs and VTs	Current transformers and voltage transformers that are solely associated with the provision of metering services.
Metering Non-Network Other	Expenditure associated with the provision of metering services that does not fall into another category.
Metering Non- Network IT and Communications	IT and communications equipment associated with the provision of metering services, excluding assets classified as “Metering Communications”.

Table 2.2: High level impact of remapping from original asset classes to new asset classes

Original RAB asset class – UC final decision (excluding asset classes that did not have a positive value as at 30 June 2013)	Impacted proposed RAB asset classes
Transmission Terminal Station	Substations, Distribution switchgear, Protection, SCADA, Communications
Zone Substation	Substations, Protection, SCADA
Secondary Systems - Control, Communications and Protection	Substations, Protection, SCADA, Communications
Transmission Lines	Transmission lines
Non-network - IT and Communications Capex	Substations, IT and Communications, Plant and equipment
Non-network - Plant and Equipment	Distribution lines, Distribution substations, Property, Motor vehicles, Plant and equipment
Metering	Mechanical meters, Electronic meters
Distribution Substations	Distribution substations
Distribution Mains	Substations, Distribution lines, Transmission lines, LV services, Distribution substations, Distribution switchgear
Land and Easements	Land and easements

2.3 Step 3: Calculating new RAB values by category for 2013-14

We added two summary worksheets to the RAB mapping workbook to aggregate the asset level data from multiple worksheets into a central location. These were used to determine the inputs to the updated UC RFM used in the 2014 Network Price Determination, at Attachment 12.14.

The SCS and ACS metering worksheets contain the source worksheet, the initial allocation, the reviewer allocation, the DORC and the SKM model source. The blocks are presented down the rows of the worksheet to allow for simple "SUMIF" functions to calculate the value applicable for each RAB asset class:

- The "SCS" worksheet contains blocks of data linked from each worksheet containing SCS related RAB asset classes.
- The "ACS" worksheet contains blocks of data linked from each worksheet containing ACS Metering related RAB asset classes.

Allowance was made in columns J and K in "SCS" for assets that were reallocated between SCS and ACS between the initial allocation and the final allocation. We then applied the $68.22 million (Real 2013-14) valuation errors to the 'distribution lines' and 'LV services' asset classes, which we determined

by comparing the asset values in the original and updated SKM valuation models.

The outputs are shown in Table 2.3 and Table 2.4, which are sourced from the 'Summary_RAB' sheet. The first table shows the RAB values and standard and remaining asset lives used in the updated UC RFM, as well as the $68.22 million (Real 2012-13) in adjustments made to correct the errors within the SKM model – and steps from the original 2013 SKM valuation to the updated 2017 SKM valuation.

The second table provides more detail on the values associated with the allocation of RAB asset classes.

Table 2.3: Optimised depreciated replacement cost by proposed asset class

A$k as at 1 July 2013	Original 2013 valuation	Adjustment	Updated 2017 valuation
Substations	247,158.4	-	247,158.4
Distribution Lines	279,837.4	-68,250.3	211,587.1
Transmission Lines	167,025.9	-	167,025.9
LV Services	165.3	25.6	190.9
Distribution Substations	80,297.3	-	80,297.3
Distribution Switchgear	14,454.7	-	14,454.7
Protection	8,390.3	-	8,390.3
SCADA	2,126.1	-	2,126.1
Communications	7,235.7	-	7,235.7
Land and Easements	33,025.0	-	33,025.0
Property	903.1	-	903.1
IT and Communications	703.8	-	703.8
Motor Vehicles	43.7	-	43.7
Plant and Equipment	7,205.4	-	7,205.4
Mechanical Meters	4,080.2	-	4,080.2
Electronic Meters	3,530.5	-	3,530.5
Metering Communications	-	-	-
Metering Dedicated CTs and VTs	-	-	-
Metering Non-Network Other	-	-	-
Metering Non-Network IT and Communications	-	-	-

A$k as at 1 July 2013	Original 2013 valuation	Adjustment	Updated 2017 valuation
Total RAB Asset class	**856,182.8**	**-68,224.7**	**787,958.1**[(a)]

(a) As noted at footnote 3 above, the total here is slightly higher than that shown in the updated SKM valuation report and model at Attachment 1.15 and Attachment 12.22.

Table 2.4: Mapping of SKM asset categories to our proposed asset classes

A$k as at 30 June 2013	System Capex – Network									Non System Capex											Total
SKM Worksheet	Substations	Distribution Lines	Transmission Lines	LV Services	Distribution Substations	Distribution Switchgear	Protection	SCADA	Communications	Land and Easements	Property	IT and Communications	Motor Vehicles	Plant and Equipment	Mechanical Meters	Electronic Meters	Metering Communications	Metering Dedicated CTs and VTs	Metering Non-Network Other	Metering Non-Network IT & Communications	
Zone Substation details	54,643.8	-	-	-	257.4	956.2	-	229.3	1,556.2	-	-	-	-	-	-	-	-	-	-	-	**57,642.9**
Zone Substation Switchyard Infrastructure & Protection Asset details	6,855.9	-	-	-	-	-	5,422.0	-	-	-	-	-	-	-	-	-	-	-	-	-	**12,277.9**
Zone Substation Establishment details	22,269.5	-	-	-	-	-	-	22.7	-	-	-	-	-	-	-	-	-	-	-	-	**22,292.2**
Terminal Station details	16,389.5	-	-	-	-	439.8	-	45.9	310.5	-	-	-	-	-	-	-	-	-	-	-	**17,185.7**
Terminal Substation Switchyard Infrastructure & Protection Asset details	6,690.1	-	-	-	-	-	2,810.3	-	-	-	-	-	-	-	-	-	-	-	-	-	**9,500.5**
Terminal Substation Establishment details	5,099.6	-	-	-	-	-	-	26.9	19.8	-	-	-	-	-	-	-	-	-	-	-	**5,146.2**
Transmission Overhead Lines details	-	-	109,085.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**109,085.9**
Transmission Underground Lines details	-	-	26,743.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**26,743.5**
Distribution Transformers details	-	-	-	-	77,650.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**77,650.6**
Distribution Overhead Lines details	-	164,228.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**164,228.9**
Distribution Underground Lines details	-	91,961.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**91,961.7**
Cable Tunnel details	-	8,101.6	4,106.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**12,207.8**
Distribution Equipment details	4,413.5	3,048.3	-	-	-	10,068.1	-	-	-	-	-	-	-	-	-	224.0	-	-	-	-	**17,754.0**
Communications and SCADA	-	-	-	-	-	-	-	81.4	1,314.2	-	-	-	-	-	-	-	-	-	-	-	**1,395.6**
Services	-	-	-	165.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**165.3**
Metering details	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,079.1	3,306.5	-	-	-	-	**7,385.6**
Strategic Spares details	7,222.2	608.6	-	-	237.2	64.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**8,132.7**
Land Valuation details	-	-	-	-	-	-	-	-	-	33,025.0	-	-	-	-	-	-	-	-	-	-	**33,025.0**
Non Network – IT and Communications	441.0	-	-	-	-	-	-	-	-	-	-	335.8	-	2,189.8	-	-	-	-	-	-	**2,966.5**
Non Network - Plant and Equipment	-	129.4	-	-	92.6	-	-	-	-	-	19.8	-	-	2,282.7	-	-	-	-	-	-	**2,524.4**
Work in Progress	123,133.3	11,759.0	27,090.2	-	2,059.5	2,925.8	158.0	1,719.9	4,035.0	-	883.4	368.0	43.7	2,732.9	1.1	-	-	-	-	-	**176,909.9**
Total RAB Asset Class	**247,158.4**	**279,837.4**	**167,025.9**	**165.3**	**80,297.3**	**14,454.7**	**8,390.3**	**2,126.1**	**7,235.7**	**33,025.0**	**903.1**	**703.8**	**43.7**	**7,205.4**	**4,080.2**	**3,530.5**	**-**	**-**	**-**	**-**	**856,182.8**

2.4 Step 4: Create opening balances by asset class for 2014-15

The first three steps produced opening asset values and standard / remaining asset lives – by proposed asset class – as at 30 June 2013. Our fourth step was to roll-forward these asset values by one year to 30 June 2014 using the UC's RFM (Attachments 12.14 and 12.23). We then used the outputs from this updated UC RFM as inputs to our proposed RFM covering the 2014-19 regulatory period (Attachment 12.11).

This involved:

- taking a copy of the UC's RFM – Attachment 12.23 – and updating the opening asset values (by UC asset class) as at 30 June 2013 to reflect those in the updated SKM valuation – we used this to estimate the depreciation for 2013-14 that the UC would have determined *as if* it had of used the updated SKM valuation;
- taking *another* copy of the UC's RFM – Attachment 12.14 – and:
  - updating the asset classes to match those proposed;
  - linking in the asset values and standard / remaining asset lives by our proposed asset classes as at 30 June 2013 (from the RAB model); and
  - remapping the forecast gross capex, asset disposals and customer contributions for the 2013-14 year to the proposed asset classes – which we did using a weighted average in the 'Summary_UC_Expenditure' sheet of the opening RAB model (Attachment 12.12) and then input to the updated UC RFM (Attachment 12.14).[4]

No other changes were made to the model.

After making these updates, the two updated versions of the UC RFM for the previous regulatory period produced the standard / remaining asset lives as at 30 June 2014 by our proposed asset classes (Attachment 12.14) and the total depreciation for 2013-14 (Attachment 12.23). These outputs were

[4] To align with the asset categories used in the SKM model, we needed to aggregate some of the forecast gross capex for 2013-14 in the UC RFM used in the 2014 network price determination. Specifically, we:

- combined the 'Non-Network – Other Capex' and 'Land and easement' asset classes in to the SKM 'Land' asset category, assuming that the former primarily included non-network land and easement assets, and
- combined the 'Other' and 'Non-Network – Plant and Equipment' asset classes in to the 'Non-network – Plant and Equipment' SKM asset category, this time assuming that the former primarily contained network related plant and equipment assets similar to those contained in the latter.

incorporated into our proposed RFM for the 2014-19 regulatory period, at Attachment 12.11.

Importantly, the updated SKM valuation as at 30 June 2013, the two versions of the updated UC RFM for the 30 June 2013 to 30 June 2014 period and our proposed RFM for the 2014–19 regulatory period include assets for *both* SCS and ACS metering. We use the outputs of our proposed RFM to populate both the SCS and ACS metering PTRMs for the 2019–24 regulatory period, ensuring that no assets are missed or double counted.

3. Establishing the remaining and standard lives

As noted above, we also used the updated SKM model to calculate the remaining and standard lives for each of our proposed asset classes. To ensure consistency, this relied upon the same data and assumptions used in determining the opening asset value by proposed asset class.

Table 3.1 shows the standard and remaining asset lives as at 30 June 2013, as reflected in the 'Summary_Lives' sheet of the updated SKM model. Our approach is discussed in the next section.

Table 3.1: Remaining and standard lives by new asset class as at 30 June 2013

RAB asset class	Remaining asset lives (years)	Standard asset lives (years)
Substations	14.3	41.2
Distribution Lines	32.3	56.0
Transmission Lines	31.2	56.6
LV Services	32.3	56.0
Distribution Substations	22.4	45.0
Distribution Switchgear	30.9	54.7
Protection	15.0	41.4
SCADA	1.4	14.0
Communications	1.8	14.7
Land and Easements	n/a	n/a
Property	10.4	14.3
IT and Communications	7.4	11.8
Motor Vehicles	10.4	14.3
Plants and Equipment	9.5	13.6
Mechanical Meters	7.1	22.1
Electronic Meters	7.1	15.0
Metering Communications	-	15.0
Metering Dedicated CTs and VTs	-	15.0
Metering Non-Network Other	-	15.0
Metering Non-Network IT and Communications	-	10.0

3.1 Overall approach

To calculate the standard and remaining asset lives as at 30 June 2013 for our proposed asset classes, we:

- started with the lives included in the updated SKM model for each of the UC asset classes, with the remaining lives calculated as the difference between the standard life and the asset age for each class – these are reflected in Table 3.2 below (for those asset classes with a positive opening value); and
- mapped these lives to our proposed asset classes using the RAB value weights implicit in the mapping of RAB from the UC asset classes to our proposed asset classes shown in Table 3.3 based on the original SKM valuation.[5]

To undertake this mapping, we relied on the aggregate instead of applying an alternative bottom up methodology to ensure all adjustments relating to asset lives made to the SKM model (Attachment 12.22) were captured.

Table 3.2: Asset lives used in the updated SKM model as at 30 June 2013

UC asset class (excluding asset classes that did not have a positive value as at 30 June 2013)	Standard life (years)	Asset age (years)	Remaining life (years)
Transmission Terminal Station	42.45	24.47	17.97
Zone Substation	41.74	27.84	13.90
Secondary Systems - Control, Communications and Protection	13.36	28.95	1.00
Transmission Lines	56.56	25.35	31.21
Non-network - IT and Communications Capex	11.84	4.48	7.36
Non-network - Plant and Equipment	14.33	3.91	10.42
Metering	22.14	15.04	7.10
Distribution Substations	45.00	22.57	22.43
Distribution Mains	55.99	23.66	32.33

[5] Although we could have used the RAB mapping based on the updated SKM valuation, for consistency we used those based on the original SKM valuation (Attachment 12.24). Using the updated SKM valuation would have a very small effect on the standard and remaining lives and – importantly – not affected our RAB over the 2014-19 regulatory control period, as it was rolled forward using forecast depreciation as per the UC's 2014 determination.

UC asset class (excluding asset classes that did not have a positive value as at 30 June 2013)	Standard life (years)	Asset age (years)	Remaining life (years)
Land and Easements	n/a	n/a	n/a

(a) The asset lives are expressed at an aggregated level for each asset classes and are calculated using lives reflected in the updated SKM valuation model (at Attachment 12.22).

Table 3.3: Calculation of asset lives by proposed asset class as at 30 June 2013 (asset lives are shaded green)

A$k as at 30 June 2013	System Capex – Network									Non System Capex												Total	Updated SKM model asset lives (as per Table 3.2)		
Old RAB asset class	Substations	Distribution Lines	Transmission Lines	LV Services	Distribution Substations	Distribution Switchgear	Protection	SCADA	Communications	Land and Easements	Property	IT and Communications	Motor Vehicles	Plants and Equipment	Mechanical Meters	Electronic Meters	Metering Communications	Metering Dedicated CTs and VTs	Metering Non-Network Other	Metering Non-Network IT and Communications		Weighted Average Life (years)	Weighted Average Age (years)	Weighted Average Remaining Years (years)
Transmission Terminal Station	28,711.3	-	-	-	-	1,396.0	2,810.3	26.9	330.3	-	-	-	-	-	-	-	-	-	-	-	**33,274.7**	**42.45**	**24.47**	**17.97**
Zone Substation	206,736.7	-	-	-	-	-	5,422.0	22.7	-	-	-	-	-	-	-	-	-	-	-	-	**212,181.4**	**41.74**	**27.84**	**13.90**
Secondary Systems - Control, Communications and Protection	6,855.9	-	-	-	-	-	158.0	2,076.5	6,905.4	-	-	-	-	-	-	-	-	-	-	-	**15,995.8**	**13.36**	**28.95**	**1.00**
Transmission Lines	-	-	162,919.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**162,919.7**	**56.56**	**25.35**	**31.21**
Non-network - IT and Communications Capex	441.0	-	-	-	-	-	-	-	-	-	-	703.8	-	2,189.8	-	-	-	-	-	-	**3,334.5**	**11.84**	**4.48**	**7.36**
Non-network - Plant and Equipment	-	129.4	-	-	92.6	-	-	-	-	-	903.1	-	43.7	5,015.6	-	-	-	-	-	-	**6,184.4**	**14.33**	**3.91**	**10.42**
Metering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,080.2	3,530.5	-	-	-	-	**7,610.8**	**22.14**	**15.04**	**7.10**
Distribution Substations	-	-	-	-	79,967.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**79,967.5**	**45.00**	**22.57**	**22.43**
Distribution Mains	4,413.5	279,708.0	4,106.2	165.3	237.2	13,058.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**301,689.0**	**55.99**	**23.66**	**32.33**
Land and Easements	-	-	-	-	-	-	-	-	-	33,025.0	-	-	-	-	-	-	-	-	-	-	**33,025.0**	**-**	**-**	**-**
Total	**247,158.4**	**279,837.4**	**167,025.9**	**165.3**	**80,297.3**	**14,454.7**	**8,390.3**	**2,126.1**	**7,235.7**	**33,025.0**	**903.1**	**703.8**	**43.7**	**7,205.4**	**4,080.2**	**3,530.5**	**-**	**-**	**-**	**-**	**856,182.8**			
Standard asset lives (years)	**41.24**	**55.97**	**56.55**	**55.99**	**45.00**	**54.68**	**41.44**	**14.03**	**14.68**	**n/a**	**14.33**	**11.84**	**14.33**	**13.57**	**22.14**	**15.00**	**15.00**	**15.00**	**15.00**	**10.00**	**<= Asset lives by proposed asset class calculated as a value weighted average of the updated SKM asset lives. Standard lives for all metering, except for mechanical meters, adjusted as per discussion below.**			
Remaining asset lives (years)	**14.33**	**32.32**	**31.24**	**32.33**	**22.44**	**30.94**	**15.02**	**1.35**	**1.77**	**n/a**	**10.42**	**7.36**	**10.42**	**9.49**	**7.10**	**7.10**	**0.00**	**0.00**	**0.00**	**0.00**				

3.2 Establishing the remaining lives

The opening remaining asset lives used for the current period RFM for SCS RAB asset classes as at 30 June 2013 are calculated on row 81 of the 'Summary_Lives' sheet.

For each new RAB asset class, the value attributable to the original asset class is multiplied by the remaining life of that original asset class before being divided by the total for the new asset class.

Using our proposed 'Substations' asset class as a worked example:

- the optimised depreciated replacement cost of 247,158.4 in cell E78 is split into UC asset classes in cells E68 to E77;
- these values are then multiplied by the remaining lives determined by the UC – based on SKM's original valuation – as shown in AD68 to AD77, which are calculated based on the asset life less the asset age; and
- the SUMPRODUCT of the asset values and the asset lives are then divided by the *Substation* category total of 247,158.4 to derive a remaining life of 14.33 in cell E81.

3.3 ACS metering remaining lives

For ACS metering, only two of our proposed RAB asset classes have remaining lives greater than zero. This is because the SKM model only contains one metering related asset category which maps to our proposed electronic and mechanical meter asset classes.

The new ACS metering RAB asset classes relating to CTs and VTs, non-network, IT and communications have no opening balance and therefore no remaining asset lives.

3.4 Establishing the standard lives

The opening standard asset lives for SCS RAB asset classes as at 30 June 2013 are calculated on row 80 of the 'Summary_Lives' sheet.

For each new RAB asset class, the value attributable to the original asset class is multiplied by the standard life of that original asset class before being divided by the total for the new asset class.

Using our proposed 'Substations' asset class again as a worked example:

- the optimised depreciated replacement cost of 247,158.4 in cell E78 is split into aggregated original asset classes in cells E68 to E77 (as above);
- these values are then multiplied by the standard lives presented in AB68 to AB77; and
- the SUMPRODUCT of the asset values and the asset lives are then divided by the Substation category total of 247,158.4 to derive a standard life of 41.24 in cell E80.

3.5 ACS metering standard lives

For ACS metering, an alternative approach was used to derive standard lives for our proposed asset classes given many of these classes do not have an opening RAB value – and so a weighted average would not work.

As such, the weighted average RAB approach was used only for the 'mechanical meters' asset class. For all other ACS metering asset classes we adopted assumed standard asset lives based on past AER decisions, information from Power and Water's current metering supplier and information from potential future suppliers.

Table 3.4 sets out our proposed standard lives for our proposed ACS metering asset classes, and the rationale for these.

Table 3.4: Standard asset lives as at 30 June 2013 for ACS metering asset classes

Proposed RAB asset classes	Rationale	Standard life (years)
Mechanical Meters	SKM model metering standard life – RAB allocation method.	22.14
Electronic Meters	Aligns with past AER decisions, information from Power and Water's current supplier and information from potential future suppliers.	15.00
Metering Communications	Based on Secure inboard modems, and on the practical experience of the Intercell company with respect to their modems.	15.00
Metering Dedicated CTs and VTs	Aligns with past AER decisions, information from Power and Water's current supplier and information from potential future suppliers.	15.00
Metering Non-network Other	Based on the combination of property, fleet, equipment and other standard lives.	15.00
Metering Non-network IT and Communications	Power and Water uses a public communications carrier for its 'comms network'. The standard life represents the average life of 3G or 4G network equivalents.	10.00