AusNet Services response to AER Issues paper: AER review of repex modelling assumptions

Question 1: Do you consider that setting defined maximum and minimum expected asset replacement lives would improve the forecasting accuracy of the repex model?

No. Unrealistically high or low expected asset replacement lives are generally caused by data discrepancies or misapplication of data and should be treated on a case-by-case basis to identify the peculiarities driving these high or low expected asset replacement lives.

Setting bounds on expected asset replacement lives could mask underlying data issues.

Question 2: What do you consider would be the preferred approach to setting maximum and minimum expected asset replacement lives, including supporting engineering and statistical evidence?

AusNet Services do not support the setting of defined maximum and minimum expected asset replacement lives within the model.

Question 3: Is the current approach of addressing these concerns on a case-by-case basis sufficient, as we have done for previous decisions? If not, why not?

AusNet Services believe the current approach of dealing with concerns on a case-by-case basis is sufficient at this time.

Question 4: Do you consider that there are any other elements we need to consider should we limit expected asset replacement lives?

AusNet Services has not identified any other issues at this time.

Question 5: Do you consider that there is a better approach to selecting the calibration period?

AusNet Services support the approach of using historical replacement practices to estimate future replacement volumes.

Questions 6: Are there any issues with the current approach to select the calibration period?

AusNet Services believe there is an opportunity for improvement in the first stage of calibration in the current approach.

In the first stage calibration, the mean asset replacement life is adjusted until the forecast volume of replaced assets in the first year of the forecast period equals the average annual replacement volume over the calibration period.

This approach assumes that over the calibration period there has been no increasing or decreasing trend in the number of assets replaced per year.

A set of fictitious replacement volumes has been created in Table 1 to illustrate the issue. In this data set, there is an increase in replacement volumes of approximately 20 units per year, year on year.

Table 1: Example Replacement Volumes

Year 1	Year 2	Year 3	Year 4	Year 5	Average
105	115	140	155	185	140

The current approach calibrates the model to the average over the calibration period, so in this example, 140 units.

AusNet Services propose that a better approach would be to also consider the slope over the calibration period.

In this example, with an average of 140 units and a slope of 20, AusNet Services propose that a better target volume for the first stage of calibration would be 140 + 2 x 20 = 180.

Similarly, if there were a declining trend in historical replacement volumes over time, the target volume for the first stage of calibration would be less than the average over the calibration period.

Question 7: What other issues or factors should we take into account when determining the calibration period?

AusNet Services has not identified any other issues at this time.

Question 8: Is our current approach to forecasting repex for wooden poles clear and appropriate based on the information available? If not, why not?

AusNet Services believe the current approach of estimating a blended unit is reasonable, given the information available in the Category Analysis Regulatory Information Notices (RIN), supplemented by other information provided by distribution businesses.

However, AusNet Services believe there is a distinct opportunity for improvement in the data collected on pole replacement and staking rates.

The assumption of like-for-like replacement is not a particularly valid assumption for poles.

AusNet Services' current practices in managing wood poles mean that the response to a wood pole which is identified as being unserviceable depends on the location and function of the pole and may be one of:

- Stake the pole to extend its service life
- Replace the pole with another wood pole
- Replace the pole with a concrete pole

This requires a blended unit rate taking into consideration not just staked and unstaked wood poles, but concrete pole replacements as well.

Currently, AusNet Services concrete pole population is in sufficiently good condition that very few concrete poles are found to need replacement, thus the majority of the concrete pole replacements reported in the Category Analysis RIN can be assumed to be concrete poles which were installed in place of wood poles. However, going forward, as the concrete pole population deteriorates this assumption will become less valid, compromising the validity of the calculation of the blended unit rate.

To address these issues, a review of information requested in the Category Analysis RIN for poles needs to be considered.

Question 9: What are your views on the appropriate estimation method for wooden pole staking or replacement volumes when the required data is not available?

AusNet Services believe the current approach is appropriate given the information available. However, it would be preferable that better data was collected in the Category Analysis RIN.

In particular, the number of previously staked poles which have reached the end of their life and are replaced by a new pole is a notable absence from the Category Analysis RIN.

Question 10: Are there any other approaches that could be applied to reasonably forecast repex for wooden pole asset categories?

AusNet Services believe that a review of the data requested in the Category Analysis RIN would be appropriate to facilitate better modelling of wood poles.

Question 11: Do you consider the assumption and rationale underpinning the exclusion of unique assets is clear and appropriate based on the information available?

AusNet Service believe that the exclusion of assets due to size of the population of asset warrants further clarification (refer Section 3.2 subsection 'Sample size' of *Electricity network service providers Replacement expenditure model handbook*, November 2013).

Question 12: Are there other any approaches that could be applied to reasonably model excluded asset categories, while incorporating a level of benchmarking?

AusNet Services has not identified any other approaches at this time.

Question 13: What other repex model issues outside the scope of this review should the AER consider in future repex model reviews or forums?

Poles

As noted in our response to Questions 8, 9 and 10, the information requested in the current Category Analysis RIN does not align well with asset management practices with regards to poles.

In particular, in 2.2 Repex:

- Staking of a wood pole is not separated out into individual voltage levels
- The number of staked poles which have been replaced with a new pole is not captured
- It is not possible to determine of the poles replaced how many were like-for-like replacements, and how many were a wood pole replaced by a concrete pole, for example.

AusNet Services believe that a review of the data requested in the Category Analysis RIN with regards to Poles would be appropriate to facilitate better modelling of these assets.

Underground cable

Currently the reporting of underground cable replacement expenditure in the Category Analysis RIN does not acknowledge that underground cable replacement expenditure is a mixture of the replacement of lengths of cables (measured in km of cable replaced) and the replacement of cable joints and cable terminations (measured in units replaced) as only one number is reported for asset replacement volumes.

A recent review of how AusNet Services have been reporting asset replacements and reviewing the range of historical unit costs reported across the NEM in this category, AusNet Services suspect that there may be little consistency between what is being reported.

For example, the historical unit rate for the replacement of 22kV underground cables ranges from $38k to $1.2 million per km.

AusNet Services believe that a review of the data requested in the Category Analysis RIN with regards to Underground Cables would be appropriate to facilitate better modelling and benchmarking of these assets.

Transformers

Currently reporting of 'ground outdoor/indoor chamber mounted' transformer replacement expenditure and volumes in the Category Analysis RIN does not distinguish between the following asset types:

- Transformers located in distribution substations
- Transformers located in zone substations

Combining these into the same category results in a population which is not homogenous, as transformers located in zone substations are at least an order of magnitude more expensive than those located in distribution substations.

There is also a lack of clarity around how major refurbishments to extend the life of a transformer are captured in the RIN.

There is an inconsistency in the voltage level classification for 'Ground Outdoor/Indoor Chamber Mounted' transformers when compared to all other asset categories.

For these transformers, the voltages are split as:

- **<** 22kV
- **>=** 22kV and <= 33kV

All other asset categories, the voltages are split as:

- **<=** 22kV
- **>** 22kV and <= 33kV

Whilst this is not a problem in itself, we are not sure if this is a deliberate or unintentional difference and may need to lead to inconsistency in reporting across businesses if this difference is not identified and a business reports transformer volumes using the voltage classification of the other asset classes.

Switchgear

Currently reporting of switchgear replacement expenditure and volumes in the Category Analysis RIN does not distinguish between the following asset types:

- Pole-mounted switchgear
- Switchgear located in ground mounted distribution substations (kiosks, pad-mounted substations)
- Individual pieces of switchgear located in zone substations
- Indoor metal-clad switchboards located in zone substations

Each of these has distinctly different characteristics, some of which are high volume, low cost assets and others which are low volume, high cost assets. The replacement costs range from the order of tens of thousands to millions of dollars. Combined, they are not a homogeneous population.

This is particularly problematic at 22kV, where there is a mixture of all of these switchgear types.

AusNet Services believe that a review of the data requested in the Category Analysis RIN with regards to switchgear would be appropriate to facilitate better modelling of these assets.

Age Profile

Currently the age profile captured in the Category Analysis RIN spans 107 years (in the 2018 RIN from 2018 back to 1912), however the age profile in the repex model only spans 91 years (2018 back to 1928).

AusNet Services believe the span of the age profile in the RIN and the repex model should align.