Return on Assets for electricity network businesses Explanatory note

This note explains the approach that we have used to calculate Return on Assets ratios for electricity network businesses, as well as factors that should be taken into consideration when interpreting these ratios.

Return on Assets

Return on Assets (RoA) is calculated using the following formulae:

Return on Assets = EBIT/RAB

Where:

- EBIT is earnings before interest and tax (ie. revenue less expenditure and depreciation)
- RAB is the closing regulatory asset base.

RoA has been calculated using actual data for each electricity distribution and transmission network business over a four year period (2014, 2015, 2016 and 2017) using data from the:

- annual reporting RINs (distribution) or annual regulatory accounts (transmission);
- economic benchmarking RINs; and
- asset base roll forward model (RFM).

Our draft position paper noted that RoA can be compared to the allowed pre-tax real weighted average cost of capital (WACC).[1] The pre-tax real WACC applying to each of the relevant regulatory years is shown for each distribution and transmission business for comparative purposes. The pre-tax real WACC is an estimate of efficient financing costs for a benchmark efficient entity providing regulated network services. This reflects the allowed rate of return determined by us and is not the actual rate of return on capital of a service provider. Our estimate is the weighted average of the efficient cost of debt and expected return on equity which is expressed as a pre-tax nominal WACC as follows.

$$Pre-tax\ WACC = E(k^e)\frac{1}{(1-T_e)(1-\gamma)}(1-G) + E\left(k^d\right)G$$

Where:

- $E(k^e)$ is the expected return on equity
- $E(k^d)$ is the expected return on debt
- G is the proportion of debt in total financing, otherwise referred to as the gearing ratio
- T_e is the effective tax rate
- γ is the value of imputation credits (gamma).

[1] AER, *Profitability measures for electricity and gas network businesses*, April 2018, pp-17-19.

To convert this to a real equivalent pre-tax WACC the formulae has to be adjusted using the Fisher equation for expected inflation.

The pre-tax real WACCs have been sourced from the post-tax revenue model (PTRM) applying for the relevant regulatory years for each network service provider. We note that the pre-tax real WACCs shown in any one regulatory year would include rates of return we determined from different time periods. For example, the regulatory year 2013-14 is included in our determinations made in 2009 and 2010 for the NSW and Victorian distribution businesses, respectively. Further, these determinations being in different years are affected by changes in market based parameters such as the risk free rate. We also note that compared to more recent years, the higher allowed rates of return in the 2013-14 and 2015-16 regulatory years were largely driven by: (a) higher risk free rates in 2009 and 2010 (when the 2013-14 and some 2014-15 returns were determined); and (b) higher equity risk premiums and the cost of debt compared to the new determinations made after 2009 and 2010 for subsequent regulatory years in 2014-15 and 2015-16.

Approach to the calculation of RoA

The following sets out the approach we have taken to calculate RoA and the data sources.

Revenue and expenditure

- Revenues and expenditures are sourced from the income worksheet of the annual reporting RINs (distribution) and the disaggregated income statement of the annual regulatory accounts (transmission) and relate to the core regulated service (that is, either standard control services or prescribed transmission services). To obtain earnings before interest and tax, expenditures (including depreciation) are subtracted from revenues.
    - Revenue excludes capital contributions and interest income.
        - Capital contributions are not included in the RAB and are therefore are not used in the calculation of returns in the regulatory framework.
        - Interest income is excluded as it is not part of the regulatory framework.
    - Expenditure excludes finance charges and impairment losses.
        - Finance charges largely comprise interest payments on debt and therefore excluded as the RoA calculation is based on earnings before interest and tax.
        - Impairment losses are excluded as they are not permitted by the regulatory framework.
    - Given some inconsistencies identified in the depreciation reported in annual reporting, straight-line depreciation from the RFM was used in the calculation of the ratios.

RAB and straight-line depreciation

- The closing RAB is on an as-incurred basis for both distribution and transmission service providers.
- The closing RAB and straight-line depreciation are sourced from final decision RFMs, where a model exists for the relevant regulatory years. If a final decision RFM did not cover all years, then a business' regulatory proposal RFM has been used for relevant years.

- In cases where a final decision RFM or a regulatory proposal RFM did not cover all relevant years, the RAB and straight-line depreciation values from the economic benchmarking RIN were used. Note: we intend to update our calculations when either a regulatory proposal RFM or final decision RFM subsequently becomes available.

Incentive scheme payment/penalties

- Incentive scheme payments/penalties have been sourced from the revenue sheet of the economic benchmarking RIN (table 3.1.3).

- The RoA measure has been calculated both with and without incentive amounts so that the impact of incentives on actual returns can be observed.

General

- All inputs for the calculation of RoA values are in nominal dollar values.

Notes on interpreting the Return on Assets ratios

General factors

There are a number of factors that can result in year on year variances to the ratios. These factors need to be taken into consideration when interpreting the RoA ratios and include:

- Revenue smoothing – allowed revenues for a network business are calculated using the various building block costs and result in an annual revenue requirement for the business. These revenues are then smoothed over the regulatory period to avoid significant changes in year on year revenues. Businesses target the smoothed revenues for recovery. The impact of smoothing is that the profile of revenues over the regulatory period is different to that which would have resulted from the raw (unsmoothed) building blocks.
- Unders and overs arrangements – under the revenue cap control mechanism, which applies to all electricity network service providers, the business targets its revenue allowance through its tariffs and forecast demand and consumption. However, due to a number of factors such as weather, economic activity, demand and consumption may be different to forecast. As a result, the revenues recovered by the network service provider in any particular year may be higher or lower than the target revenue cap. This difference is adjusted for through the revenue cap unders and overs arrangements. For example, if a network over-recovers revenue in one year, the targeted revenue in a subsequent year is reduced by the extent of over-recovery in a previous year, adjusted for the time value of money (being the financial impact of the time between over-recovery and reduction). The reverse applies to any under-recovery of revenue. Over time, this means that the electricity network service providers can never recover more or less revenue than allowed by the AER in net present value terms.

NSW/ACT transitional decisions and remittal processes

The RoA analysis for 2014-15 to 2016-17 for the NSW/ACT distributors should be interpreted with caution. This is because the reported revenues for those years have not been adjusted for the following:

1. The transitional decisions for 2014-15 set a higher revenue target for that year compared with the 2015 final decisions. As a result, the revenues recovered in 2014-15 were higher than what they should have been. This over-recovery was to be returned to customers in subsequent years (2015-16 and 2016-17) by way of lower revenue allowances in those years.

2. The 2015 final decisions were appealed and subsequently set aside. In 2016-17, an undertaking was in place pending resolution of the appeal process for each business, resulting in the revenue target for that year being higher than allowed in the 2015 final decision. Pending finalisation of the remittal decisions, it is expected that over-recovery of revenues arising from the undertaking process would result in some revenue being returned to customers in the following regulatory control period of 1 July 2019 to 30 June 2024.