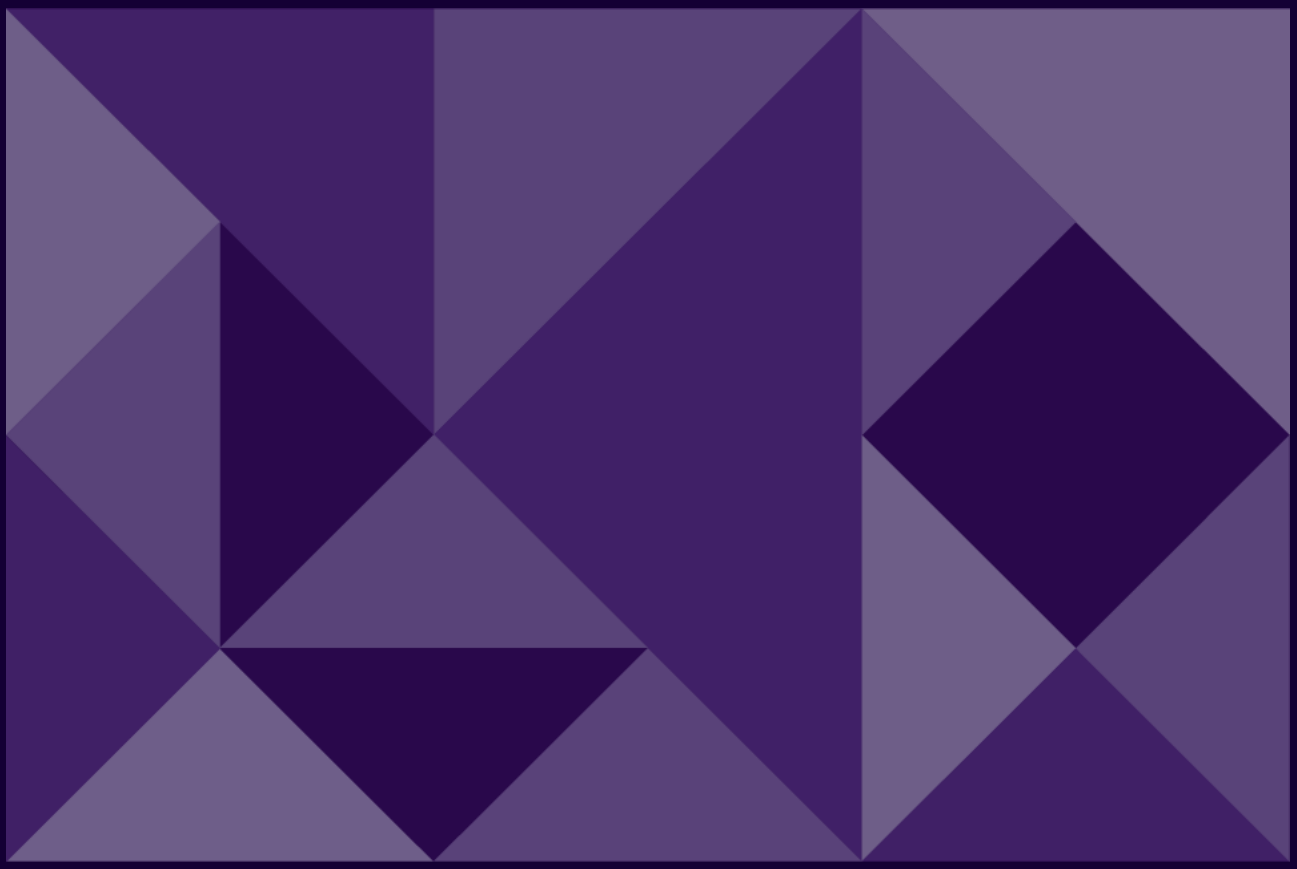
ACIL ALLEN

29 November 2021

Report to TransGrid

TransGrid TUOS

as a proportion of residential and small business electricity bills



About ACIL Allen

ACIL Allen is a leading independent economics, policy and strategy advisory firm, dedicated to helping clients solve complex issues.

Our purpose is to help clients make informed decisions about complex economic and public policy issues.

Our vision is to be Australia's most trusted economics, policy and strategy advisory firm. We are committed and passionate about providing rigorous independent advice that contributes to a better world.

Contents

Figures

1 Introduction

TransGrid is preparing its submission to the Australian Energy Regulator (AER) for the 2023-28 Revenue Determination and would like to understand the share of residential and small business electricity bills in New South Wales and the Australian Capital Territory (ACT) that are represented by TransGrid's Transmission Use of System (TUOS) charges. ACIL Allen has been engaged by TransGrid to assist on this matter.

1.1 Scope of work

ACIL Allen is required to estimate the proportion of electricity bills for households and small businesses in New South Wales and the ACT that is attributed to TransGrid's TUOS for 2020-21 and 2021-22. ACIL Allen is not required to project the proportion of TUOS for electricity bills beyond 2021-22. Hence, if the results of this analysis are to be used when assessing the future percentage of TUOS in an electricity bill, then any changes in future mixes of the electricity bill components ought to be considered.

2 Approach

New South Wales

As part of the annual process to determine Default Market Offers (DMO), the AER publishes a breakdown of the DMO price into the core components for a typical electricity bill for residents and small businesses in New South Wales, south-east Queensland, and South Australia. The core components are:

— wholesale
— environmental
— network
— residual (which can be thought of as retail costs and margin).

We have used the DMO as the starting point for this analysis. The DMO includes TUOS charges, Distribution Use of System (DUOS) charges and jurisdictional scheme costs (which are the costs associated with state government policies that are collected via network charges, and in the case of New South Wales is the Clime Change Fund (CCF)), and metering into the single network component (Network Use of System or NUOS). Hence, for this analysis, we need to split out the network component into its subcomponents.

Each year, each distribution network service provider (DNSP) submits to the AER an annual pricing proposal. In these pricing proposals, there is a split between TUOS, DUOS and other network charges (metering and jurisdictional scheme costs). In response to the pricing proposal, the AER

releases its Statement of Reasons, summarising the AER's approval of the pricing proposal, and includes the AER's estimated network cost movements attributable to the various components of network tariffs and metering charges for residential and small business customers respectively.

The AER uses consumption profiles from the most recent economic benchmarking regulatory information notice (RIN) data of the corresponding DNSP when estimating the network cost changes in the Statement of Reasons. Using this information, we can then ascertain the proportion of network costs which is attributed to TUOS.

Ideally, the consumption profiles adopted by the AER in its DMO determination and Statement of Reasons would be the same. However, this is not always the case. For the purposes of this analysis, if the consumption volumes are different (between the DMO and Statement of Reasons), ACIL Allen has adopted the volumes from the Statement of Reasons, and adjusted the variable non-network cost components of the DMO price by the ratio of the Statement of Reasons consumption to the DMO consumption levels.

The non-network components of the DMO are wholesale and environmental costs, and residual costs. We have chosen to adjust the non-network components of the DMO because the wholesale and environmental costs are charged on a c/kWh basis and therefore are not related to daily or demand-based charges, and hence make for a more straight forward transformation.

Residual costs are a mix of fixed and variable costs. However, the AER provides a single dollar value for a typical customer, and not a split into the fixed and variable portions. Only the variable component of the residual cost ought to be scaled to the ratio of Statement of Reasons to DMO consumption levels. And the fixed component of the residual cost should remain unchanged.

We have split the residual costs into their fixed and variable components by using the split information contained in the 2020-21 and 2021-22 regulatory determinations made by the Queensland Competition Authority (QCA), as shown below. Although the QCA data relates to Queensland, it is the most recent estimate of the split of residual costs by several years. In effect, we are assuming the split is no different in New South Wales.

Table 2.1 Residual retail costs for typical residual and small business customers

		2020-21	2021-22
Residential	Fixed ($/customer)	$137	$124
	Variable (c/kWh)	2.13	1.28
Small business	Fixed ($/customer)	$194	$173
	Variable (c/kWh)	2.49	3.40

Source: ACIL Allen analysis of QCA reports

Using the above information and steps, we can then ascertain the proportion of network costs which is attributed to TUOS.

We have undertaken the analysis for 2020-21 and 2021-22 (covering both DMO periods) for the three electricity distribution networks in New South Wales:

— Ausgrid

— Endeavour Energy

— Essential Energy.

Australian Capital Territory

Similarly, in the ACT the Independent Competition and Regulatory Commission (ICRC) determines prices for the supply of electricity by ActewAGL to customers on its regulated retail tariffs.

The ICRC publishes a breakdown of the regulated price into the cost components for residents and small businesses in the ACT as shown in Table 2.2. The cost components are reported by the ICRC at a more detailed level than the DMO components, and we have mapped them to the DMO core cost components for reference. Unlike the DMO which reports the DMO core costs on a dollar basis for a typical residential and small business consumer, the ICRC costs are presented on a $/MWh basis, and are the same for residential and small business customers. Given this is the case, we can simply multiply the ICRC non-network costs by the consumption volumes assumed by the AER in its Statement of Reasons for the Evoenergy pricing proposal.

Table 2.2 Electricity cost components reported by the ICRC, and a mapping to the DMO core cost components

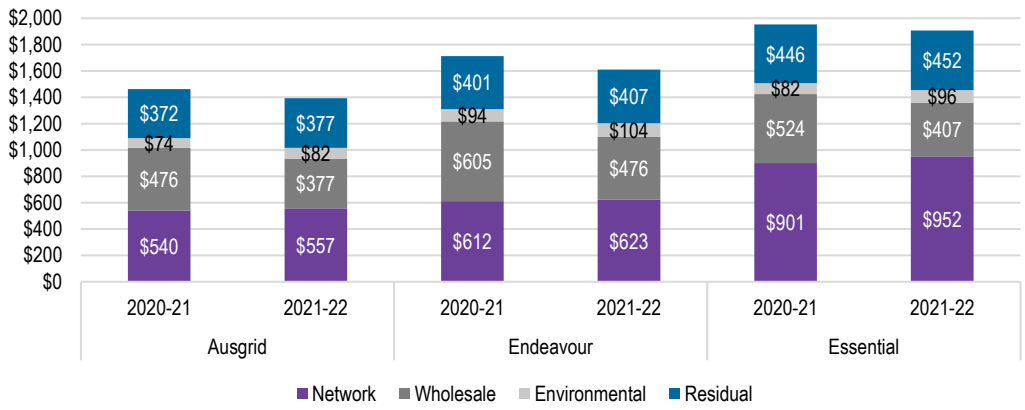
Cost component	Mapping to equivalent DMO core component
Wholesale energy purchase cost	Wholesale
National green scheme costs	Environmental
Energy losses	Wholesale
Volatility allowance	Wholesale
NEM fees	Wholesale
Network costs (excluding ACT Government scheme costs)	Network
ACT Government schemes	Network
Retail operating costs	Residual
Energy efficiency scheme costs	Environmental
AEMC Power of Choice costs	Residual
Smart meter costs	Residual
Retail margin	Residual

Source: ACIL Allen analysis of ICRC reports

3 Analysis

Figure 3.1 summarises the DMO bill components for the three DNSPs in New South Wales for 2020-21 and 2021-22. Network costs represent 40 per cent of the total bill for households, and 38 per cent for small businesses.

Figure 3.1 Default Market Offer cost ($, nominal per year) for typical household / small business



Source: ACIL Allen analysis of AER DMO reports

The consumption volumes adopted by the AER in the DMO remain the same for both determinations, and are shown in Table 3.1.

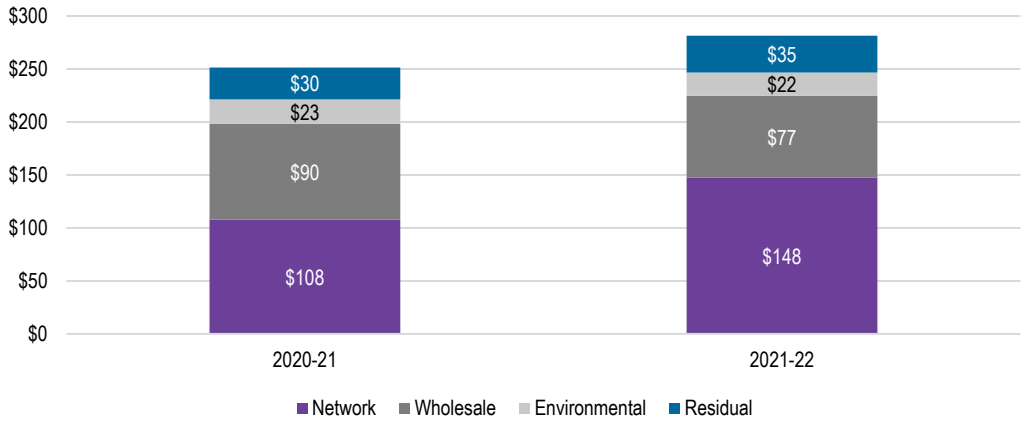
Table 3.1 Consumption volumes (MWh) of a typical customer adopted by the AER for the 2020-21 and 2021-22 DMO

	Residential	Small business
Ausgrid	3.9	20
Endeavour Energy	4.9	20
Essential Energy	4.8	20

Source: ACIL Allen analysis of AER DMO reports

Figure 3.2 summarises the ICRC regulated cost components for Evoenergy in the ACT for 2020-21 and 2021-22. Network costs represent 43 per cent of the total bill in 2020-21, increasing to 52 per cent in 2021-22 due to an increase in ACT Government scheme costs.

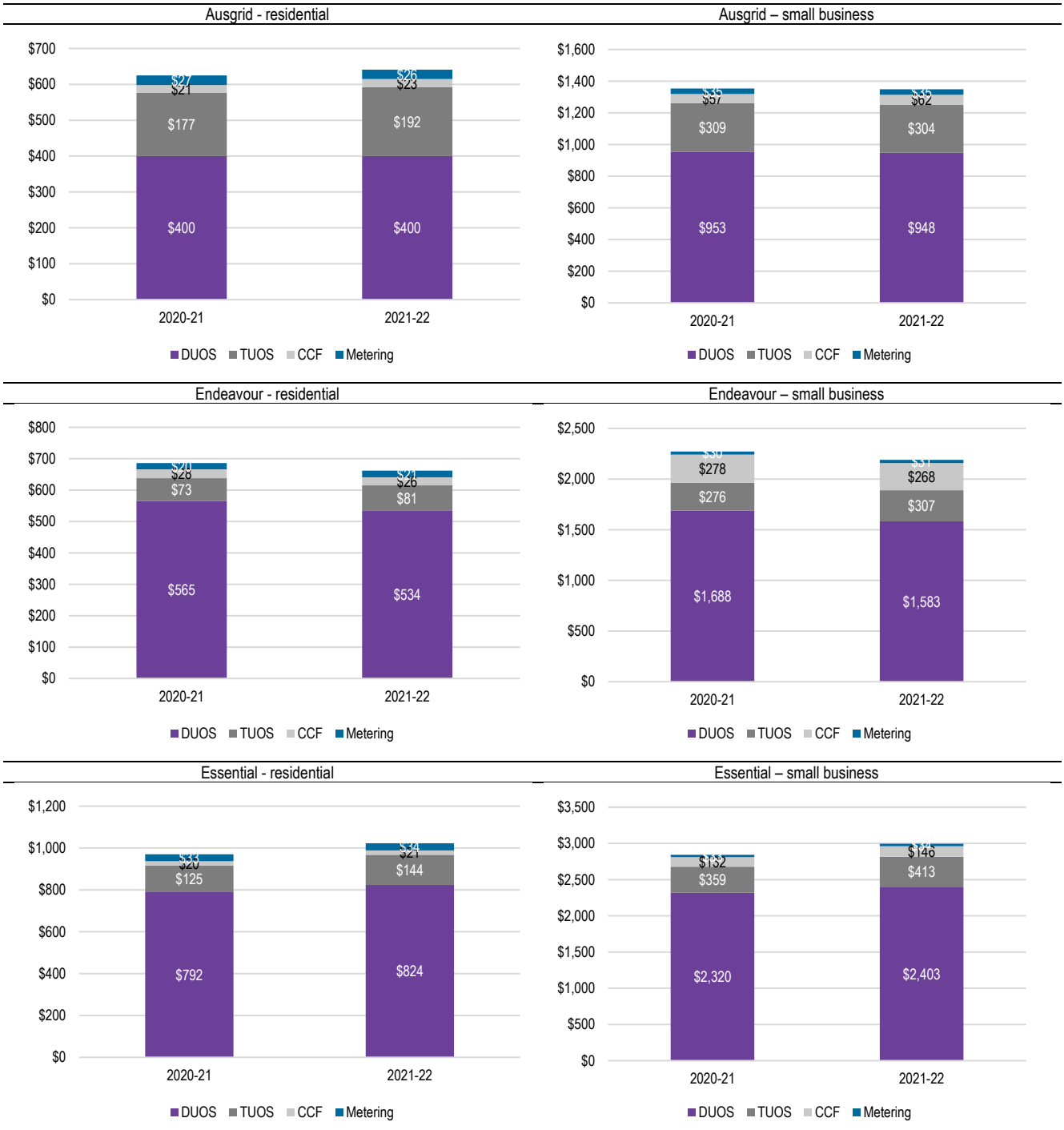
Figure 3.2 Regulated costs ($/MWh, nominal) for households and small businesses in the ACT



Source: ACIL Allen analysis of ICRC reports

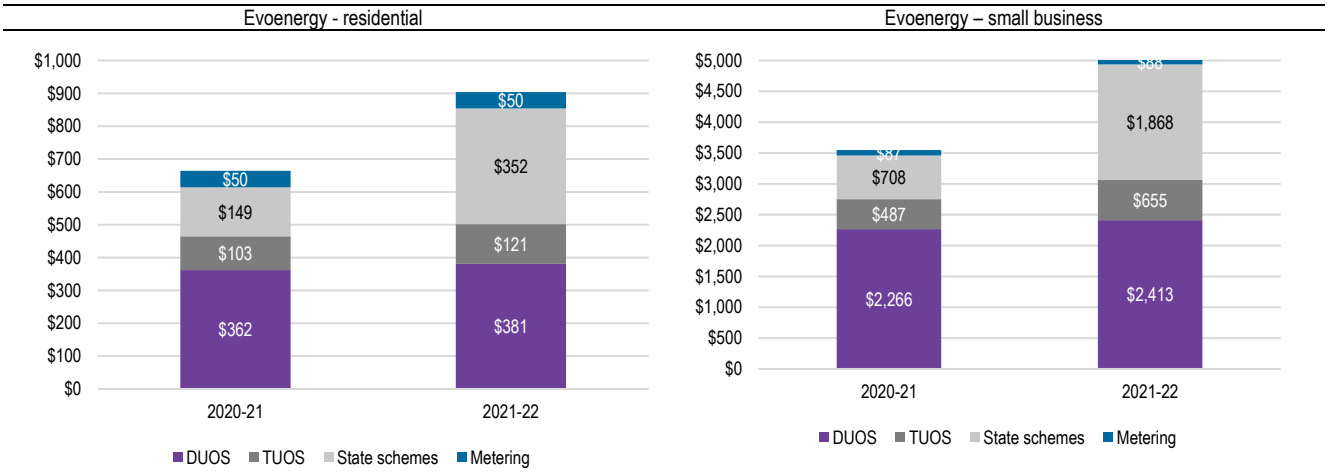
Figure 3.3 and Figure 3.4 summarise the subcomponents of the network component of household and small business electricity bills in New South Wales and the ACT respectively for 2020-21 and 2021-22, taken from the relevant Statement of Reasons. TUOS represents between 10 and 30 per cent of the network component of a bill.

Figure 3.3 Statement of Reasons network component costs ($, nominal per year) for typical household / small business – New South Wales



Source: ACIL Allen analysis of AER Statement of Reasons reports

Figure 3.4 Statement of Reasons network component costs ($, nominal per year) for typical household / small business - ACT



Source: ACIL Allen analysis of AER Statement of Reasons reports

The consumption volumes adopted by the AER in the Statement of Reasons are shown in Table 3.2.

Table 3.2 Consumption volumes (MWh) of a typical customer adopted by the AER for the 2020-21 and 2021-22 DNSP Statements of Reasons

	Residential	Small business
Ausgrid	5.472	10.616
Endeavour Energy	6.096	22.95
Essential Energy	6.014	17.266
Evoenergy	6.37	26.695

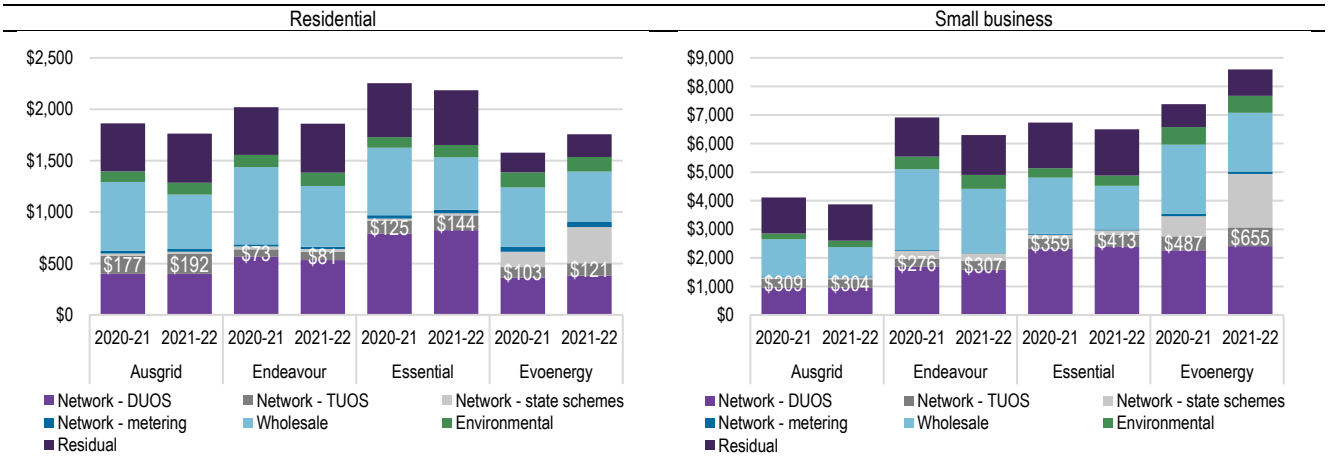
Source: ACIL Allen analysis of AER Statement of Reasons reports

For the New South Wales DNSPs, we have taken the ratio of the Statement of Reasons volume to the DMO volume, to scale the variable non-network cost components from the DMO and added these, together with the estimated fixed residual component, to the corresponding network components from the Statement of Reasons to arrive at the total electricity bill breakdown, as shown in Figure 3.5.

For the ACT, we have multiplied the Statement of Reasons volume by the non-network cost components from the ICRC and added these to the corresponding network components from the Statement of Reasons to arrive at the total electricity bill breakdown, as shown in Figure 3.5.

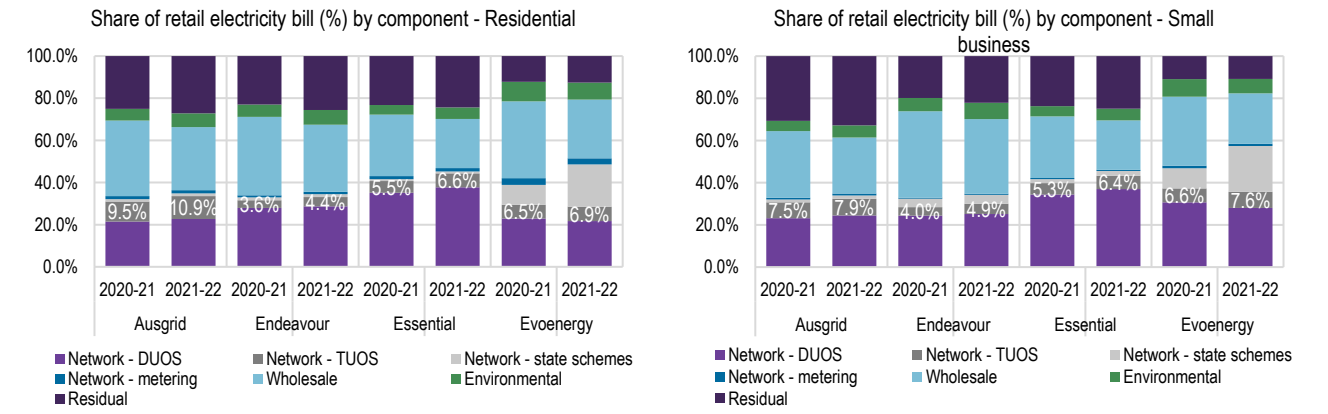
The TUOS component represents between four and 11 per cent of a typical bill. Aside from Ausgrid bills tending to have a TUOS component that represents a higher percentage of the total bill when compared with the other two DNSPs, there is no discernible pattern in TUOS in terms of customer type.

Figure 3.5 Retail electricity bill ($, nominal) by component for a typical customer



Source: ACIL Allen analysis of AER data

Figure 3.6 Share of retail electricity bill (%) by component



Source: ACIL Allen analysis of AER and ICRC data

TransGrid requested ACIL Allen to aggregate the costs at a slightly high level, and this is shown in Table 3.3.

Table 3.3 Share of retail electricity bill (%) by component by DNSP

		Ausgrid		Endeavour		Essential		Evoenergy	
		2020-21	2021-22	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
Residential	Generation	35.8%	30.0%	37.2%	31.8%	29.1%	23.3%	36.5%	27.9%
	Transmission	9.5%	10.9%	3.6%	4.4%	5.5%	6.6%	6.5%	6.9%
	Distribution	21.5%	22.7%	28.0%	28.7%	35.1%	37.7%	22.9%	21.7%
	Retail and other	26.5%	28.6%	24.0%	26.7%	24.7%	25.9%	15.3%	15.4%
	Environmental policies	6.7%	7.8%	7.2%	8.4%	5.4%	6.5%	18.7%	28.1%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Small business	Generation	31.5%	26.5%	41.0%	35.4%	29.2%	23.5%	32.7%	23.9%
	Transmission	7.5%	7.9%	4.0%	4.9%	5.3%	6.4%	6.6%	7.6%
	Distribution	23.2%	24.5%	24.4%	25.1%	34.4%	37.0%	30.7%	28.1%
	Retail and other	31.5%	33.7%	20.2%	22.6%	24.2%	25.4%	12.1%	11.8%
	Environmental policies	6.3%	7.4%	10.4%	12.0%	6.8%	7.8%	17.9%	28.6%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: ACIL Allen analysis of AER and ICRC data

TransGrid also requested ACIL Allen to report the aggregate component shares of retail electricity bills across the four DNSPs. We have done this by finding the weighted average of the shares in Table 3.3 using customer numbers as the weighting (as shown in Table 3.4)

Table 3.4 Customer numbers by DNSP – 2019-20

	Ausgrid	Endeavour	Essential	Evoenergy
Residential	1,578,910	951,507	768,115	188,006
Small business	170,958	81,180	93,143	17,603

Source: ACIL Allen analysis of AER Annual retail market report – 2019-20, and DNSP RINs

Across the four DNSPs, the transmission component represents eight and seven per cent of the total bill for residential and small business customers respectively.

Table 3.5 Share of retail electricity bill (%) by component across New South Wales

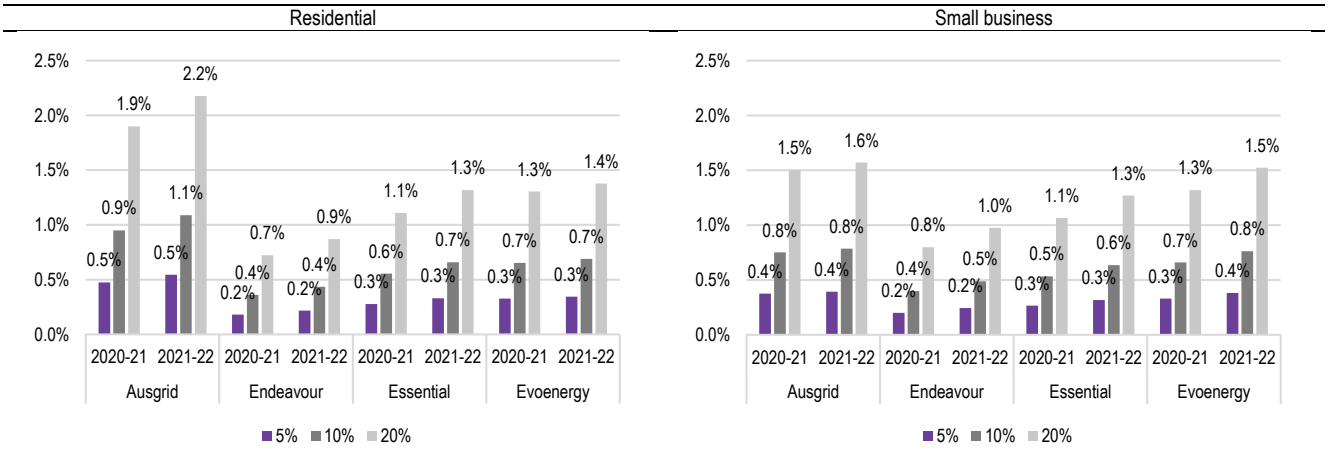
	Residential	Small business
Generation	29%	28%
Transmission	8%	7%
Distribution	28%	28%
Retail and other	27%	28%
Environmental policies	9%	10%
Total	100%	100%

Note: Numbers will not necessarily sum to 100 per cent due to rounding.
Source: ACIL Allen analysis

Sensitivity analysis

We then undertook a simple sensitivity analysis, in which we increased the TUOS component of the derived electricity bill by five, 10 and 20 per cent. Figure 3.7 shows that with a 20 per cent increase in TUOS, if the other components were to remain unchanged, electricity bills would increase by between 0.7 and 2.2 per cent.

Figure 3.7 Percentage change (%) in retail electricity bill (%) given percentage change in TUOS component



Source: ACIL Allen analysis of AER data

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