



HOUSEHOLDS IN THE DARK II:

Mapping electricity disconnections in South Australia,
Victoria, New South Wales and South East Queensland

AUGUST 2019



St Vincent de Paul Society
good works

Households in the Dark II: Mapping electricity disconnections in South Australia, Victoria, New South Wales and South East Queensland.

Sophie Labaste, Alviss Consulting

Melbourne, August 2019

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The views expressed in this document do not necessarily reflect the views of Energy Consumers Australia.

Key findings of this report along with interactive maps can be found on: www.alvissconsulting.com/disconnection-findings.

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We note that while we have discussed findings with AGL and welcomed their feedback, AGL has not influenced the research questions or had any editorial input into this report.

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EXECUTIVE SUMMARY

The focus of the research presented in this report has been to geospatially analyse where electricity disconnections occur as well as explore when and why they occur based on the socio-economic indicators that characterise these areas. It is, however, also important to consider what electricity disconnections for non-payment actually mean in a broader context.

Electricity is an essential service and disconnection from supply is regarded as last resort by policy makers, regulator, retailers and, in all likelihood, households themselves. Disconnection is the ultimate manifestation of a household's inability to afford electricity supply and while there are numerous factors that can contribute to electricity becoming unaffordable, key factors include:

- Low and/or unpredictable income (including income support)
- The cost of electricity (including the adequacy of alleviating measures such as concessions)
- Consumption levels
 - High consumption needs (due to household size, life cycle stages, illness etc.)
 - Inefficient consumption (due to low quality housing stock, appliances etc.)

For many households facing disconnections, more than one of these factors may have contributed to their plight. Furthermore, households without a financial safety-net may quite easily find themselves in a situation where the electricity bill cannot be paid due to small unforeseen events. Ongoing financial insecurity has been described as a central to the experience of poverty in Australia:

*"...[T]he best definition of poverty was its persistent insecurity...Pushed into poverty by accumulating misfortune, they did not have the resources to protect themselves from its consequences."*¹

This project has analysed and mapped approximately 395,000 electricity disconnections for non-payment raised by AGL in South Australia, Victoria, New South Wales and South East Queensland² between 1 July 2015 and 30 June 2018.

As the purpose of this project has been to explore when, where and why households are disconnected from electricity, rather than a single retailer's disconnection practices, the data set has been normalised based on AGL's market share. This study therefore shows when, where and why households are disconnected if all retailers disconnect at similar rates to AGL. Furthermore, in analysing the postcodes with the highest disconnection numbers, we have normalised the data based on the postcodes' number of occupied private dwellings.

WHEN

In terms of when disconnections occur, the months of February and May have the highest number of disconnections raised while July and December have the fewest. The numbers for May and July could be attributed to end of financial year activities by the retailer. This could explain why there is such an important surge of disconnections in May and so few in July (it should also be noted that the month of June also has significant number of disconnections). The analysis has also explored the relationship between price changes and disconnections. It is, however, difficult to ascertain any clear links between changes to electricity prices and disconnection numbers. There appear to be some increases to disconnection numbers post

¹ Peel, M. (2003) *The Lowest Rung: Voices of Australian Poverty*, Cambridge, U.K.: Cambridge University Press, p. 8

² Since there is no retail competition in northern Queensland (i.e., in the Ergon network), AGL does not have customers outside South East Queensland. Therefore, this analysis only looks at postcodes located in South East Queensland.

price increases in some jurisdictions (e.g. South Australia), while there are no links in other jurisdictions.

WHERE

While electricity disconnections occur in most postcodes, there are significant differences in the frequencies of disconnections between postcodes. Furthermore, there are significant inter-state differences in terms of the geographical locations and socio-economic characteristics of postcodes that have high disconnection numbers.

We find that, when looking at raw *counts* of raised disconnections, Victorian and New South Wales postcodes with high disconnection numbers are predominantly located in regional areas, whereas in South Australia, it is mostly middle suburbs. In South East Queensland, postcodes with high numbers of raised disconnections are largely located in fast-growing outer suburbs (FGOS).³

When disconnections are normalised for population⁴, there is a shift towards rural postcodes having a disproportionately higher number of disconnections compared to other geographical areas, especially in South Australia, Victoria and New South Wales.

South Australia

In terms of completed disconnections, rural postcodes in South Australia have the highest proportion. From the 'top' 30 postcodes, 20 are located in rural areas, five are regional, and one is an outer suburb. Postcode 5731 (north-eastern part of South Australia, which includes the towns of Leigh Creek and Lyndhurst), has the highest proportion of completed disconnections per households (dwellings) between July 2015 and June 2018. It is estimated that the equivalent of more than 12% of dwellings were disconnected from their electricity supply, on average, each year.

Victoria

Postcodes with the highest proportion of completed disconnections are mainly in rural areas. Postcode 3887 (Nowa Nowa and its surroundings) is the postcode with the highest proportion of completed disconnections: it is estimated that the equivalent of approximately 30% of households (dwellings) were disconnected each year, on average between July 2015 and June 2018. There are also a number of Victorian postcodes located in regional areas, FGOS, middle suburbs and outer suburbs with high levels of disconnections.

New South Wales

From the 'top' 30 postcodes in New South Wales with the highest proportion of completed disconnections per occupied private dwellings: 25 are in rural areas, four are regional postcodes and one is a FGOS. These postcodes are predominantly in the western part of the state and as such, in more remote areas.

South East Queensland

The 'top' 30 postcodes with the highest proportion of completed disconnections per households (dwellings) are predominantly FGOS. The remainder is comprised of inner city (20%), middle and outer suburbs (17%), regional (7%) and rural (3%) postcodes. The proportion of completed disconnections per dwellings in Logan Central (postcode 4114) is significantly higher than in the rest of the 'top' 30 postcodes. It is estimated that the equivalent of 9.33% of dwellings were disconnected on average, each year. Logan Central also had the highest proportion of

³ Only postcodes located in the Energex distribution network were included in this analysis, which only services the south-eastern part of the Queensland, and thus would explain why there is an important proportion of FGOS postcodes with high disconnection numbers.

⁴ The calculation for normalising the data to account for population was done by calculating the three-year average of completed and raised disconnections in each postcode and dividing it based on the number of occupied private dwellings in that postcode (as recorded in the ABS Census).

raised disconnections across South East Queensland. The disconnection rates for the rest of the postcodes average between 3% and 6%.

WHY

Postcodes in South Australia that are at the greater risk of being disconnected are predominantly located in rural areas and are either (i) more elderly and low-income communities or (ii) communities with high disconnection numbers that are not typically associated with a high level of disadvantage.

In Victoria, the largest group at risk are those with high disadvantage (with low income, high unemployment, housing affordability issues, often one parent families), predominantly located in regional areas but in middle suburbs, outer suburbs and rural areas as well. The other key groups identified that are also at risk in Victoria, include (i) communities with an elderly population and low incomes in rural and regional areas, (ii) postcodes with high levels of housing affordability issues in rural areas and FGOS, and (iii) FGOS and middle suburbs with high proportions of one parent families.

Postcodes in New South Wales that are at the greatest risk of being disconnected are less diverse than in Victoria. They are predominantly postcodes with high disadvantage (that is, characterised by (i) low income, (ii) high unemployment, (iii) some degree of housing affordability issues, and (iv) some high proportions of one parent families) located in rural and regional areas.

Postcodes in South East Queensland that are at the greatest risk of being disconnected are largely inner-city postcodes facing housing affordability issues. Other key groups also include FGOS postcodes characterised by either entrenched disadvantage or a high proportion of one parent families.

REPEAT DISCONNECTIONS

This analysis has also examined postcodes where a high number of households (based on customer account numbers and National Meter Identifier) have been disconnected multiple times over the three-year period. Victorian and New South Wales postcodes dominate this list. In Victoria, there appears to be a strong link between the roll out of smart meters (which enable disconnections to be done remotely) and increases in disconnection completion rates, and thus, also an increase in households being disconnected multiple times over a three-year period.

The postcodes with the highest number of repeat disconnections is not a homogeneous group. Broadly speaking, they can be separated into two categories:

- 1. Postcodes characterised by low median weekly household income, high unemployment, or otherwise ranking quite low on other key socio-economic indicators**, which have been attributed a low score of '1' or '2' from the ABS' 2016 Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-Economic Disadvantage (IRSD)⁵ – for example, Corio (postcode 3214) or Mount Druitt (postcode 2770); or
- 2. Postcodes that are on par with the national averages in terms of household income, unemployment or other socio-economic indicators and have SEIFA IRSD scores of '5' or '6'**. The explanations for the high numbers of repeat disconnections in these postcodes thus results from a combination of factors beyond socio-economic disadvantage alone – factors that are explored in further detail below. These include postcodes such as Werribee (postcode 3030) or Dubbo (postcode 2830).

⁵ For more information on the 2016 SEIFA, see: <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2016~Main%20Features~What%20is%20SEIFA%3f~8>. For information on the IRSD index and methodology behind the decile attributed to each postcodes, see: <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2016~Main%20Features~IRSD~19>

CHANGES OVER TIME

As this is our second study into mapping disconnections, we have compared the findings of this study to our previous research which was based on 2012-2015 data. When looking at the number of completed disconnections per postcode⁶, there are some significant similarities and a few notable changes between the analyses (2012-2015 and 2015-2018) in terms of where disconnections occur:

- 1. In South Australia, the number of metropolitan areas with high disconnection numbers has decreased significantly from the previous analysis.** Disconnections are still predominantly occurring in rural postcodes, although some of the rural postcodes that were in the first analysis have been replaced by other rural postcodes in this analysis.
- 2. In Victoria, inner city and northern suburbs postcodes are no longer areas with the highest disconnection numbers.** Western suburbs and outer south-eastern suburbs, however, do remain areas that have a very high number of disconnections. There is also been a clear shift from suburbs to regional areas for the postcodes that have the highest proportion of completed disconnections.
- 3. In New South Wales, disconnections are still predominantly occurring in rural areas.** In contrast to the previous analysis, there are no inner-city or suburban postcodes in the 'top' disconnection areas for New South Wales between 2015-2018.
- 4. For South East Queensland, there has been an increase in the number of high disconnection postcodes that are located in metropolitan areas.**

Several of the recommendations listed below are similar to the recommendations we made in the initial Households in the Dark report (May 2016). While regulators have reviewed and amended frameworks and guidelines for industry to better assist customers with payment difficulties, it remains to be seen whether these initiatives will have a significant impact on reducing energy related hardship and disconnections for non-payment.⁷ Nonetheless, regulators, and energy retailers by extension, have implemented new measures to minimise disconnections. State and Federal policy makers, on the other hand, have not yet taken a holistic approach to these issues.

The St Vincent de Paul Society assist people unable to pay their energy bills on a daily basis and the number of people struggling to pay, as well as the amounts owed, have increased rather than decreased over the last few years.

Our recommendations are thus primarily directed at energy policies at both Commonwealth and state level, as well as social policy measures that address the underlying poverty that is a major cause of energy related hardship and disconnections.

⁶ In this instance, disconnections have not been normalised for population.

⁷ The AER, for example, issued a new Customer Hardship Policy Guideline in April 2019 and completed a guideline for Sustainable Payment Plans in July 2016 while the ESC (Victoria) amended the Energy retail Code in relation to the payment difficulty framework in January 2019.

RECOMMENDATIONS

1. Recommendations directed at the Commonwealth Government

1.1. National review of energy concession arrangements

The COAG Energy Council should initiate a review of energy concession arrangements in the NEM to assess whether energy consumers in need of concessions have access to adequate concession arrangements. This review should encompass: (1) the identification of households in need of assistance, (2) access and eligibility, (3) level of assistance provided, (4) impact of assistance provided, (5) opportunities to introduce complimentary measures (e.g. energy efficiency and Distributed Energy Resources (DER)) and (6) methods to deliver targeted financial assistance to non-concession recipients (if found to be in need under point 1), through tax and transfer mechanisms (e.g. family tax benefits).

1.2 Income security

Energy policy and regulatory measures alone cannot prevent households from being disconnected. Increased social security payments are necessary to help households out of poverty. This report (based on July 2015 – June 2018 data), and our previous report (based on July 2012 – June 2015 data) found that a large proportion of the postcodes with high disconnection numbers are areas with high unemployment, low weekly incomes as well as a high proportion of sole parents. We urge the Federal Government to increase income support payments for Newstart recipients.

1.3 Targeted complimentary measures for remote communities

Disconnections normalised for population show that remote communities have a high proportion of households that are struggling with their energy bills. As the cost of electricity (price per kWh and daily supply charges) can be higher in remote areas (e.g. NSW's Essential Network), energy consumption can be greater due to a warmer climate, income levels are often lower, and cost of other essentials (e.g. petrol) can be high by comparison, remote inland communities are particularly at risk of energy poverty. Furthermore, some of these areas have sizable aboriginal communities which have additional complexities, needs and disadvantage. The Government should implement a Distributed Energy Resources (DER) scheme that targets remote communities facing high levels of energy affordability issues.

2. Recommendations directed at state governments

2.1 Review of emergency relief schemes

The governments in South Australia, Victoria, NSW and Queensland should review their emergency assistance programs designed to support households in acute need of financial assistance to pay for energy bills. These reviews should assess whether the South Australian Emergency Electricity Payment Scheme (EEPS), Victorian Utility Relief Grant scheme (URGs), NSW's Energy Accounts Payment Assistance (EAPA) scheme and Queensland's Home Energy Emergency Assistance Scheme (HEEAS) reach their target groups, to whom and where assistance is provided, the ease of access and approval process, as well as the adequacy of the assistance provided.

2.2 Targeting of disadvantaged areas when rolling-out Distributed Energy Resources (DER) and other schemes aimed at reducing consumption of traditional electricity generation

State governments continue to initiate and support schemes that increase the uptake of solar, batteries and other energy management technologies. As these schemes typically reduce the electricity bills of participants (and often require a cross-subsidy from other consumers), they should also be regarded as an opportunity to assist consumers in the states' more disadvantaged areas.

2.3 State operated energy savings programs

The governments in South Australia, Victoria, NSW and Queensland should target their energy efficiency programs to areas that need assistance with energy bills. These programs should in part focus on postcodes with larger households (i.e. high consumption families) and high disconnection numbers.

2.4 Energy efficiency standards

State governments should develop and require minimum energy efficiency standards for all public and private rental properties.

2.5 State government funded and/or delivered education programs

The governments in South Australia, Victoria, NSW and Queensland should ensure that education programs adequately inform households about concession arrangements, access to energy retailer hardship programs, relief schemes and other relevant support measures.

Furthermore, as automated and remote disconnection processes clearly impact on disconnection completion rates and the frequency with which households experience multiple disconnections, this is particularly important in areas with a high proportion of smart meters.

3. Recommendations directed at energy industry and local governments

3.1 Address findings through the Energy Charter

The Energy Charter is a whole-of-industry initiative focused on embedding customer-centric culture and conduct in the energy sector. Industry should note issues and findings raised in this report and consider options for how the Charter can assist households with payment difficulties and reduce the level of disconnections for non-payment occurring.

3.2 Develop local outreach programs

The analysis shows that several postcodes that are high disconnection areas in this report (based on July 2015 – June 2018 data) also were high disconnection areas in our previous report (based on July 2012 – June 2015 data). In these areas, local governments should initiate outreach programs that effectively reach and assist households in their constituencies. These programs can be developed in collaboration with key stakeholders (e.g. energy retailers, Ombudsmen Schemes and consumer/welfare organisations) to ensure that households are aware of available support as well as being able to access additional assistance measures based on local needs and issues.

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1. INTRODUCTION AND METHODOLOGY

The impacts of being disconnected from an essential service can cause significant social harm. A 2015 report by RMIT University's School of Global, Urban and Social Studies on the impact of energy disconnections in Victoria found that:

“Disconnections caused significant distress for most participants. Participants experienced feelings of shame, humiliation, fear and anxiety, and the disconnection events compounded existing mental health issues and had a serious impact on participants’ wellbeing.”⁸

Energy disconnections can also have important financial repercussions on customers, either directly, by having to pay for disconnection and reconnection fees, or more indirectly, with the added costs that result from the loss of electricity needed for day-to-day necessities:

“Disconnections resulted in various extra costs for participants that made it harder for them to get out of debt and avoid future payment defaults and disconnections. Some of these extra costs are very direct – for example, disconnection and reconnection fees. Other, less obvious costs include: replacement of spoiled food when there is no electricity to power fridges and freezers; purchase of takeaway meals, often for the whole family [...]; purchasing candles, blankets and other goods to manage in the absence of heating, lighting, etc.”⁹

Additionally, it has been noted that those who are the most at risk of being disconnected from their electricity supply are often family households with children as well as low-income households.¹⁰ This has been echoed in research conducted by the Public Interest Advocacy Centre (PIAC) in 2018 who found that individuals who get disconnected are likely to come from demographic groups that are more socio-economically disadvantaged.¹¹ Whilst we would expect to see a higher number of disconnections in more disadvantaged postcodes, energy disconnections and hardship are not necessarily limited to those areas. As was pointed out in our previous analysis, various cost pressures and bill priority issues can also influence where disconnections occur.¹²

Despite the fact that electricity disconnections for non-payment should only occur as a measure of ‘last resort’¹³, disconnection numbers are still on the rise. The latest report from the Australian Energy Regulator (AER) – the responsible regulator in New South Wales, South Australia, Queensland, ACT and Tasmania – estimates that more than 70,000 residential customers had their electricity supply disconnected between 2017 and 2018 in those five jurisdictions, an 11% increase from the previous period.¹⁴ Similarly for Victoria, the Essential Services Commission (ESC)¹⁵ estimates that, between 2017 and 2018, 33,824 residential customers were disconnected from their electricity supply as a result of non-payment, an 18% increase

⁸ Stempel, A., Nicholls, L. and Strengers, Y., *Disconnections Case Studies: Understanding the Householder Experience*, Center for Urban Research (RMIT), August 2015, p. 6.

⁹ *Ibid.*

¹⁰ See: New South Wales Council of Social Service (NCOSS), *Turning off the Lights: The Cost of Living in NSW*, June 2017. See also: St Vincent de Paul Society & Alvis Consulting, *Households in the Dark: Mapping Electricity Disconnections in South Australia, Victoria, New South Wales and South East Queensland*, May 2016.

¹¹ Public Interest Advocacy Center (PIAC), *Close to the Edge - a Qualitative and Quantitative Study*, November 2018.

¹² St Vincent de Paul Society & Alvis Consulting, *Households in the Dark: Mapping Electricity Disconnections in South Australia, Victoria, New South Wales and South East Queensland*, May 2016.

¹³ See for Victoria: Essential Services Commission (ESC), *Energy Retail Code (version 12)*, July 2019, p. 82. See for New South Wales, Queensland and South Australia: Government of South Australia, *National Energy Retail Law (South Australia) Act 2011*, September 2018, p. 56.

¹⁴ Australian Energy Regulator (AER), *Annual Report on Compliance and Performance of the Retail Energy Market 2017-2018*, December 2018.

¹⁵ The Essential Services Commission (ESC) is the responsible regulator in Victoria.

from the previous period.¹⁶

The National Energy Customer Framework (NECF) sets out the guidelines for retailers operating New South Wales, South Australia and Queensland, whereas in Victoria it is under the Victorian Energy Retail Code (ERC). Both contain provisions on reducing hardship and minimising the number of energy disconnections that result from non-payment. More specifically, the National Energy Retail Rules (under the NECF) and the ERC stipulate that:

- Disconnections cannot occur during a ‘protected period’, which includes Fridays, any day before a public holiday, and days between 20 December and 31 December.
- Retailers must follow specific timeframes for when customers should be issued reminder notices and subsequent disconnection warning notices. The NECF and the ERC also specify the content that notices need to include.
- Retailers must use their best endeavours to contact the customers prior to the disconnection.

Understanding the ‘who’, ‘why’, ‘when’ and ‘where’ disconnections occur is key towards obtaining a clearer picture of energy affordability issues in Australia. As the AER points out:

“The rate of disconnections can also be an indicator of how affordable energy is to customers given that non-payment, and subsequent disconnection for non-payment, is the outcome of being unable to make payments towards supply costs.”¹⁷

1.1 Price changes, bill increases and recent developments

Electricity prices have increased significantly in recent years. According to the Australian Competition and Consumer Commission’s (ACCC) pricing inquiry, there has been a 56% price increase in real terms from 2007/08 to 2017/18 for residential consumers.¹⁸ The St Vincent de Paul Society’s Tariff-Tracker project has analysed electricity bills as annual bills for household consuming 6,000 kWh/annum from 2009 to 2018 and found that bills had risen by \$1,640 (or 112%) in South Australia, \$1,330 (or 104%) in Victoria, \$1,110 (or 79%) in NSW, \$965 (or 79%) in Queensland during this period.¹⁹

The disconnection data used for the analysis presented in this report is from July 2015 to June 2018 and we note that both the AER and the ESC have developed and/or updated policies and guidelines relating to customer hardship programs and associated payment plans during this period.

For New South Wales, Queensland and South Australia, the AER developed the Guidance on AER Approval of Customer Hardship Policies back in May 2011, which sought to “provide guidance to retailers on the kind of information to include in their customer policies, or to submit as supplementary information to the AER, when seeking approval of their customer hardship policies (or any variation(s) to their policy).”²⁰ This guideline was, however, replaced with the new Customer Hardship Policy Guideline that came into effect on 1 April 2019.²¹ These new guidelines help strengthen customer hardship policies and also provide statements that are in

¹⁶ Essential Services Commission (ESC), *Victorian Energy Market Report 2017-2018*, February 2019.

¹⁷ Australian Energy Regulator (AER), *Annual Report on Compliance and Performance of the Retail Energy Market 2017-2018*, December 2018, p. 64-65.

¹⁸ Australian Competition and Consumer Commission (ACCC), *Restoring Electricity Affordability and Australia’s Competitive Advantage: Retail Electricity Pricing Inquiry - Final Report*, June 2018.

¹⁹ These are nominal bill increases based on regulated/standing offers. St Vincent de Paul Society and Alvis Consulting, *The NEM – No “guarantee” for consumers, Observations from the Vinnies’ Tariff-Tracking Project*, October 2018.

²⁰ Australian Energy Regulator (AER), *Guidance on AER approval of customer hardship policies (revoked)*, May 2011.

²¹ Australian Energy Regulator (AER), *Customer Hardship Policy Guideline*, March 2019.

'Easy English' for ease of understanding. Since this analysis covers disconnections that occurred between July 2015 and June 2018, these guidelines were not in place during this period. It will, however, be interesting to see if these new guidelines can have an impact on the number of disconnections in New South Wales, Queensland and South Australia post April 2019.

Furthermore, the AER developed the Sustainable Payment Plans Framework in July 2016, which sets out to support energy retailers in developing payment plans that are affordable and sustainable for customers who are experiencing difficulties in paying their energy bills.²² Currently, 18 energy retailers have signed on to this voluntary framework.²³

In March 2017, the AER also reviewed its 2012 guidelines²⁴ on the minimum debt amount for which electricity and gas customers can be disconnected. This amount, however, was kept at \$300 (inclusive of GST) for both electricity and gas.²⁵

In Victoria, the ESC has developed the Payment Difficulty Framework, which came into effect in January 2019.²⁶ The framework seeks to support residential electricity and gas customers who are facing difficulties in paying their energy bills, namely through: (i) preventing customers from getting into debt in the first place, (ii) simplifying how customers pay for their energy and repay their debts, and (iii) ensuring that disconnections only occur as a 'measure of last resort'. This new framework came into place after the time period analysed in this report, and its impact on reducing the number of disconnections in Victoria is yet to be assessed.

1.2 Methodology

This project was conducted as a follow-up analysis on our previous research report from 2016, *Households in the dark: mapping electricity disconnections in South Australia, Victoria, New South Wales and South East Queensland*.²⁷

Similarly to the previous report, disconnection data was obtained from AGL, a major retailer in these jurisdictions. The dataset contained 395,003 disconnections that had been raised in New South Wales, Victoria, South Australia and South East Queensland²⁸ (SEQ) due to non-payment between 1 July 2015 and 30 June 2018.

As this project does not aim to analyse AGL's disconnections per se, the data has been normalised for AGL's market share in each network area to ensure that it is a representative sample.

AGL is the incumbent retailer in some network areas, which is particularly important since incumbents tend to have more customers in general in these areas as well as more customers on standing offers in comparison to other retailers. The dataset that was obtained did not distinguish customers based on which type of offer they are on and we therefore do not know whether there is a higher proportion of standing offer or market offer customers that get disconnected (relative to the number of customers on each contract type).

²² Australian Energy Regulator (AER), *Sustainable Payment Plans: a good practice framework for assessing customers' capacity to pay*, July 2016.

²³ Australian Energy Regulator (AER), "1st Energy adopts the AER's Sustainable Payment Plans Framework", 19 September 2018.

²⁴ Australian Energy Regulator (AER), "Minimum Disconnection Amount – July 2012", July 2012.

²⁵ Australian Energy Regulator (AER), 'Minimum Disconnection Amount – March 2017'. March 2017.

²⁶ Essential Services Commission (ESC), "Energy Retail Code review 2016 (customers facing payment difficulties)", October 2017.

²⁷ St Vincent de Paul Society & Alvis Consulting, *Households in the Dark: Mapping Electricity Disconnections in South Australia, Victoria, New South Wales and South East Queensland*, May 2016.

²⁸ Since there is no retail competition in northern Queensland (i.e., in the Ergon network), AGL does not have customers outside South East Queensland.

The dataset has been normalised based on AGL’s market share. AGL’s market share was calculated using the residential customer numbers in each network area²⁹, as outlined in Table 1 below.

For these disconnection rates to be true, every retailer would need to disconnect as often or as seldom has AGL has done. We stress that this methodology would be inappropriate if the aim of this project was to solely report on the number of disconnections. Regulators, however, can more accurately report on disconnection numbers, and they do. **The aim of this project, on the other hand, is to understand the ‘who’, ‘why’, ‘where’ and ‘when’ customers get disconnected.**

TABLE 1 | Residential customers by network area³⁰

Network	Number of residential customers (2017-2018)
Ausgrid	1,545,428
Endeavour	899,491
Essential	748,446
Energex	1,344,480
SAPN	790,133
Ausnet	647,296
Citipower	281,168
Jemena	302,576
Powercor	700,796
United Energy	612,343
Total	7,872,157

In some sections of this report, the data has also been normalised for population, to estimate the proportion of households that have been disconnected in each postcode.³¹ For example, 100 disconnections in a densely populated postcode such as central Sydney would not have the same proportional impact as 100 disconnections in a rural postcode. This calculation was obtained by dividing the number of disconnections by the number of occupied private dwellings in that postcode, as stated in the ABS Census (2016) data. That percentage thus provides a proportion of households in a particular postcode that were impacted by disconnections.

1.3 About the data

When a retailer decides to disconnect a customer for non-payment, a service order is raised with the relevant network business. The network will, in return for an agreed service fee, carry out the disconnection on behalf of the retailer. This means that not all disconnections that are ‘raised’ are, in fact, completed. Understanding how many disconnections have been completed is important to give an understanding of where and when customers are actually experiencing disconnections.

²⁹ AGL provided their customer numbers for each network area in confidence.

³⁰ These numbers are based on the distribution business’ Regulatory Information Notices (RIN) to the AER in 2017/18. The figures are included in the ‘Economic Benchmarking RIN – Templates’ workbooks.

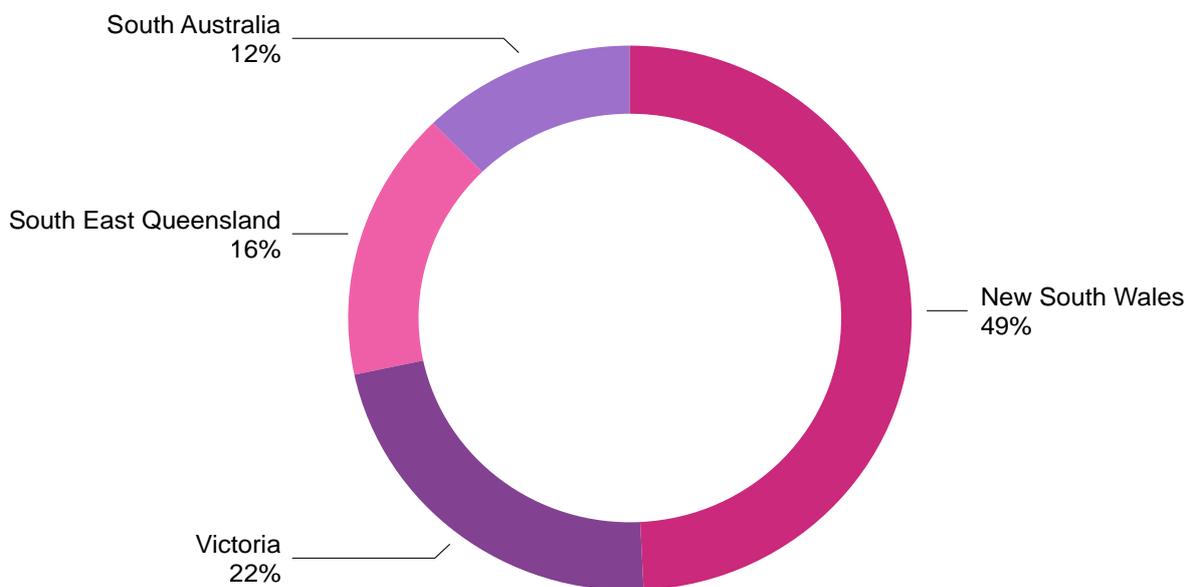
³¹ Section 3 of this report has been normalised for population as well some parts of section 4 (sections 4.2 and 4.3).

A raised disconnection refers to when a retailer raises a service order with the relevant network business. A raised disconnection may be rejected, cancelled or completed.

A completed disconnection refers to when the request has been acted upon and the household has been cut off from supply.

In the dataset received from AGL, 37% of disconnections raised were completed, which is close to 145,000 disconnection being completed over the three-year period. More than 20% were not completed and 33% were cancelled by the retailer.³² Figure 1 below provides a breakdown of the service order status of the disconnections in the dataset.

FIGURE 1 | Service order status of disconnections in dataset 2015-2018



From the 395,003 raised disconnections in the dataset, 194,431 or 49% were located in New South Wales. Victoria had the second highest number of raised disconnections, 88,635 (22%), followed by South East Queensland with 63,286 (16%) and South Australia with 48,651 (12%).

Completion rates – that is, the number of disconnections raised that are completed – also vary between the jurisdictions, as illustrated in Figure 2 below. In Victoria, 43.8% of all disconnection raised were completed. The rates of completion are much lower in the other states: 36.7% in New South Wales, 30.3% in South East Queensland and 30.2% in South Australia.

³² 'Not completed' refers to when the distribution request was sent to the relevant network, but the disconnection has not been conducted (i.e., failed attempt).

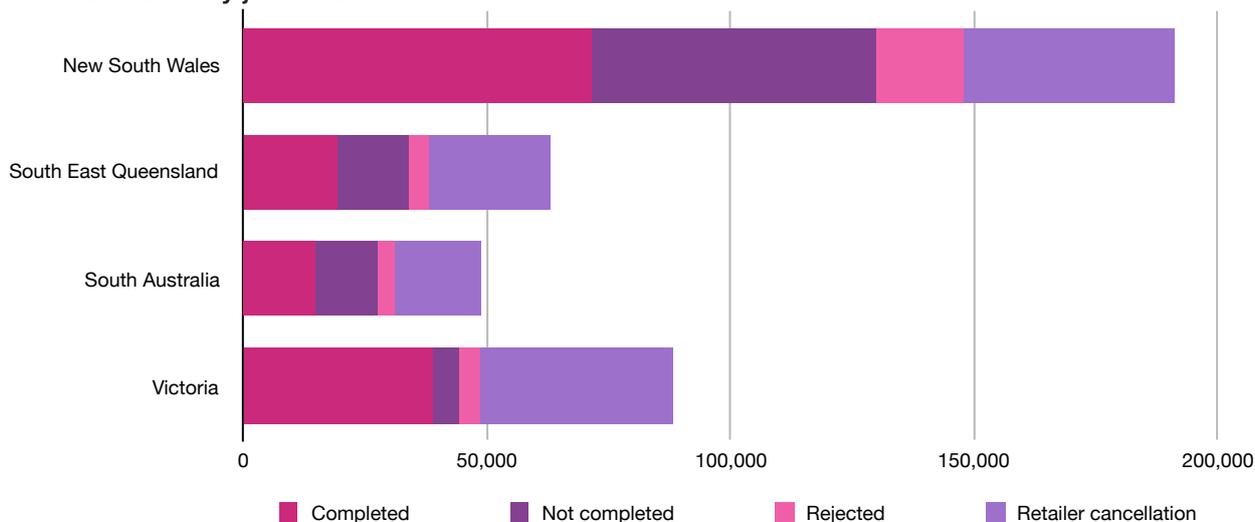
'Retailer cancellation' refers to when the disconnection request was cancelled by the retailer most likely if the payment issue has been resolved (either through full payment or the establishment of a payment plan).

'Rejected' refers to when the disconnection request was not accepted by the relevant network (for e.g. invalid address or customers cannot be disconnected for medical reasons, etc.)

'Partially completed' refers to when the disconnection request was completed, however a meter read was not completed.

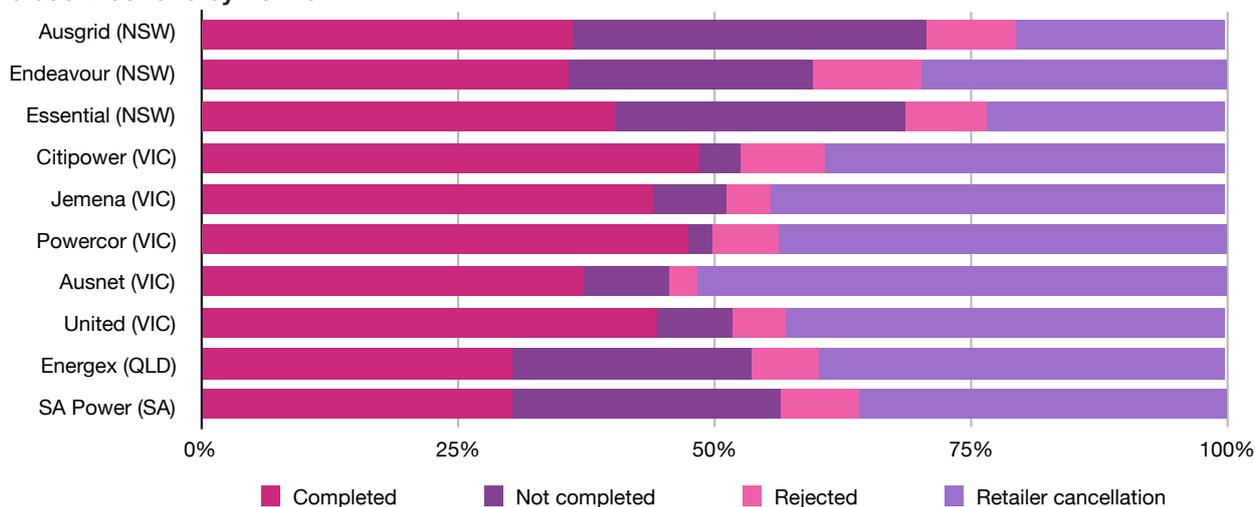
'Completed' refers to when the disconnection request has been completed and a meter read was completed.

FIGURE 2 | Number of ‘completed’, ‘not completed’, ‘rejected’ and ‘retailer cancellation’ disconnections by jurisdiction



There are also significant differences between networks, which is highlighted in Figure 3 below. In Victoria, the proportion of disconnections that were not completed is significantly lower than in other networks, with only 4-8% of raised disconnections not being completed. This may be attributed to the fact that Victoria has had a state-wide rollout of smart meters. Smart meters enable disconnections to be processed quickly and remotely (no house visit required). Additionally, these differences in completion rates may also result from large networks having a customer base that is geographically spread out and potentially in more remote locations. Lastly, there may also be differences in the network’s operational practices, which could further explain such differences.

FIGURE 3 | Proportion of ‘completed’, ‘not completed’, ‘rejected’ and ‘retailer cancellation’ disconnections by network



It is, however, important to consider both the number of disconnections raised as well as completion rates when analysing disconnection data, as disconnections raised provide a more complete picture of where customers are experiencing energy-related financial hardship.

The number of raised disconnections shows more accurately where and when customers are experiencing this financial hardship, since a low number of completed disconnections could result either from the network failing to carry out the service order or the meter requiring a site visit to complete the disconnection. Hence, while a raised disconnection may be cancelled by the retailer, rejected, or failed to be completed by the network, it does not entail that the

financial stress for customers in these situations is lower than if the disconnection was, in fact, completed.

Conversely, completion rates are also vital in providing an understanding of where and when customers are actually experiencing disconnections. Higher completion rates over time can also be interpreted as an increase in disconnections, either because (1) households are experiencing financial hardship or (2) retailers are more readily disconnecting households for non-payment.

1.4 Report structure

The report is structured in five parts, looking at:

1. **When** do disconnections occur (Section 2)
2. **Where** do disconnections happen, **who** is impacted and **why**? (Section 3)
3. **Socio-economic indicators** behind high disconnections (Section 4)
4. **Changes over time** (Section 5)
5. Comparing findings to other research and data sources (Section 6)

Section 2 specifically looks at ‘when’ disconnections occur, exploring whether there is a particular time of year during which there is an increase in the frequency of disconnections. In order to do so, this analysis has looked at potential trends in disconnections following:

- Summer periods in areas where cooling needs are high or winter periods in areas where heating needs are high – see **Section 2.1**;
- Significant bill increases (typically driven by regulatory price-resets) – see **Section 2.2**;
- Weather-related events resulting in heating degree days (HDDs) or cooling degree days (CDDs) – see **Section 2.3**.

This section also sought to look for any significant increases or decreases in disconnections that may have occurred. Whilst our assumption is that it would be difficult to interpret changes to disconnection numbers as signs of broader socio-economic changes (e.g. employment opportunities or neighbourhood gentrification) over a three-year period, this section analyses whether there were any significant year-to-year changes in the various postcodes.

In this section, the data has not been normalised for AGL’s market share.

Section 3 examines ‘where’ disconnections occur by counting and geospatially locating postcodes where customers have been disconnected the most. It also looks at the ‘who’ and ‘why’ behind disconnections, using key indicators derived from the ABS Census (2016) data as well the ABS’ Socio-Economic Indexes for Areas (SEIFA). More specifically it seeks to identify whether there are any particular ‘hot spots’ where disconnections are occurring, or if there are any significant differences between rural, regional and metropolitan postcodes, by looking at the following:

- Postcodes with the highest number (count) of raised disconnections in each state – see **section 3.1**;
- Postcodes with the highest proportion of raised and completed disconnections in each state, relative to the number of occupied private dwellings – see **section 3.2**;
- Repeat disconnections, that is, households that have been disconnected more than once from the grid over the three-year period – see **section 3.3**.

In this section, the data has been normalised for AGL’s market share (sections 3.1 and section 3.3) and normalised for population (for section 3.2).

Section 4 analyses key socio-economic indicators from the ABS Census (2016), such as age, family composition, tenure type, household income and geographical location, in order to examine any commonalities and differences between postcodes and across states. This section also presents the five groups that are the most at risk of being disconnected.

In this section, the data has been normalised for AGL's market share and for population.

Section 5 compares the top disconnection postcodes identified in this analysis with the ones from the previous Household in the Dark report, in order to examine if there have been any significant changes in postcodes with high disconnection numbers.

In this section the data has been normalised for AGL's market share and for population.

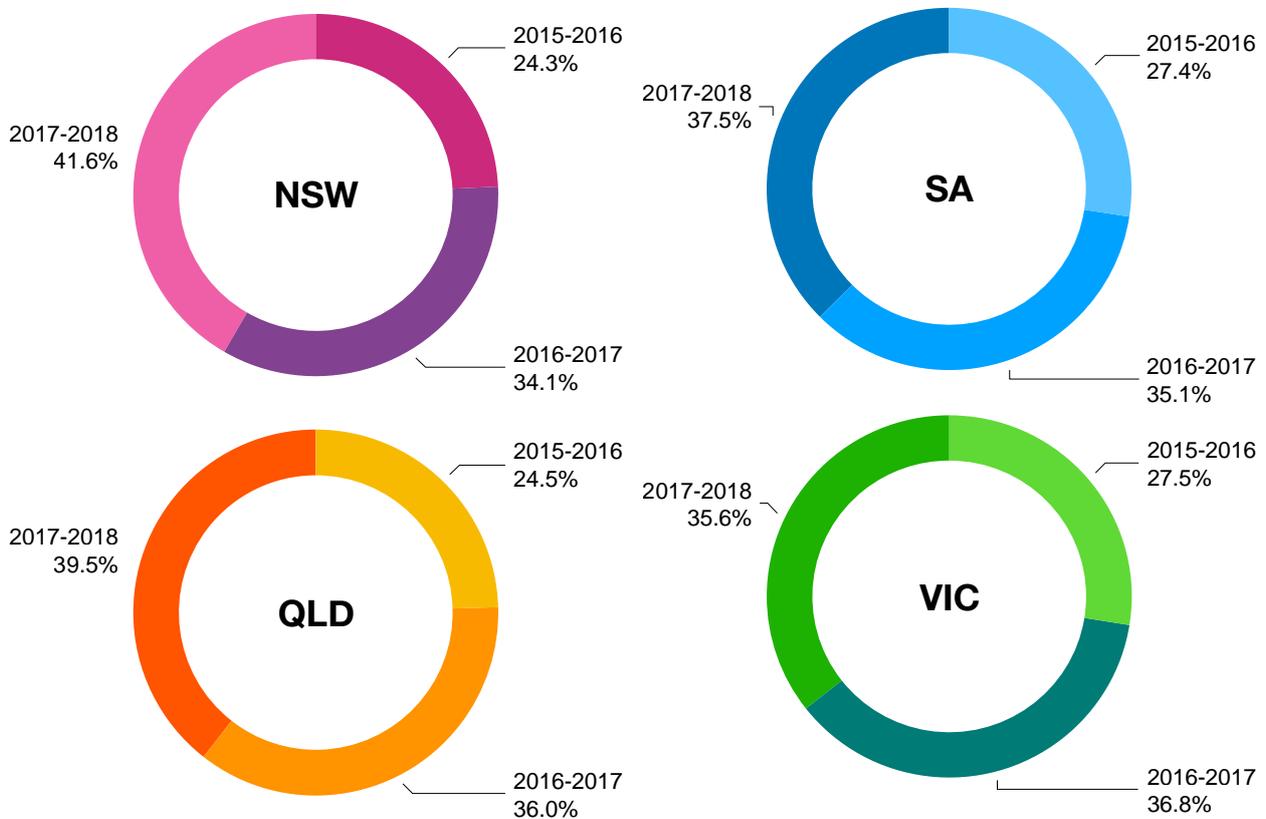
Section 6 compares the findings from this analysis with other recent reports and data obtained from key groups, such as Energy and Water Ombudsman Victoria and the Jesuit Social Services.

2. WHEN

This part of the analysis looks at ‘when’ disconnections occur, based on the dataset obtained from AGL (i.e., not normalised for market share). It looks at which period of the year has had the highest number of disconnections and examines any potential links between electricity disconnections and price changes as well as any weather-driven consumption that might have resulted in a bill increase.

Figure 4 below shows the proportion of disconnections raised each year by state. In New South Wales, South Australia and South East Queensland, there has been an increase in the number of raised disconnections over the three-year period. In New South Wales, for example, 41.6% of the disconnections occurred solely in 2017/18, versus less than a quarter in 2015/16. In Victoria, on the other hand, the number of disconnections raised between 2016/17 and 2017/18 slightly decreased.

FIGURE 4 | Proportion of disconnections raised in dataset by year

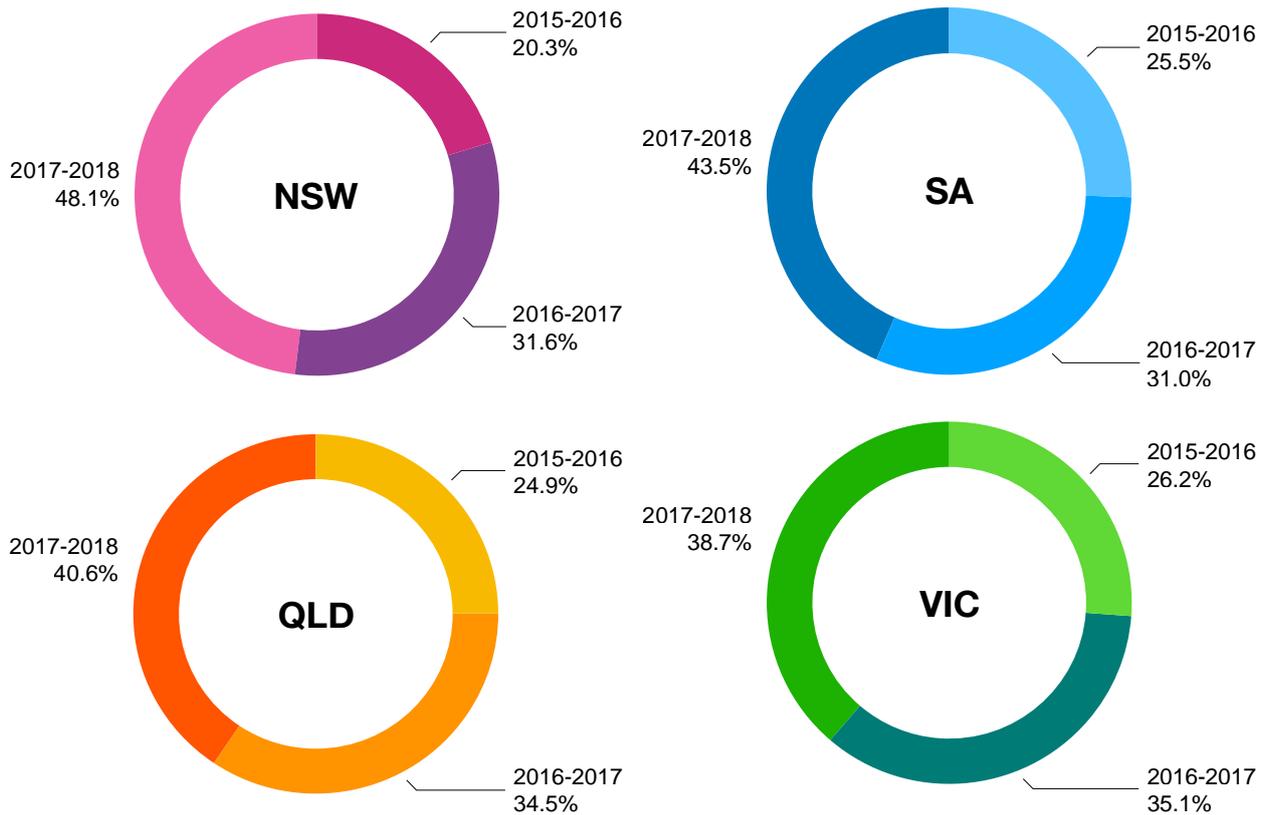


In terms of disconnections that were completed, all four states have had notable increases. Figure 5 below illustrates the proportion of disconnections completed each year. This is in line with the latest findings from the AER’s annual report on the state of the retail energy market³³, which reported an overall increase in the number of residential disconnections across New South Wales, Queensland and South Australia, in comparison to previous years. Similarly, for Victoria, the latest ESC report³⁴ noted an increase in the number of disconnections for 2017/18, which correlates to the increases observed. For all states, 2017/18 was the year with the highest proportion of completed disconnections.

³³ Australian Energy Regulator (AER), *Annual Report on Compliance and Performance of the Retail Energy Market 2017-2018*, December 2018.

³⁴ Essential Services Commission (ESC), *Victorian Energy Market Report 2017-2018*, February 2019.

FIGURE 5 | Proportion of completed disconnections in dataset by year

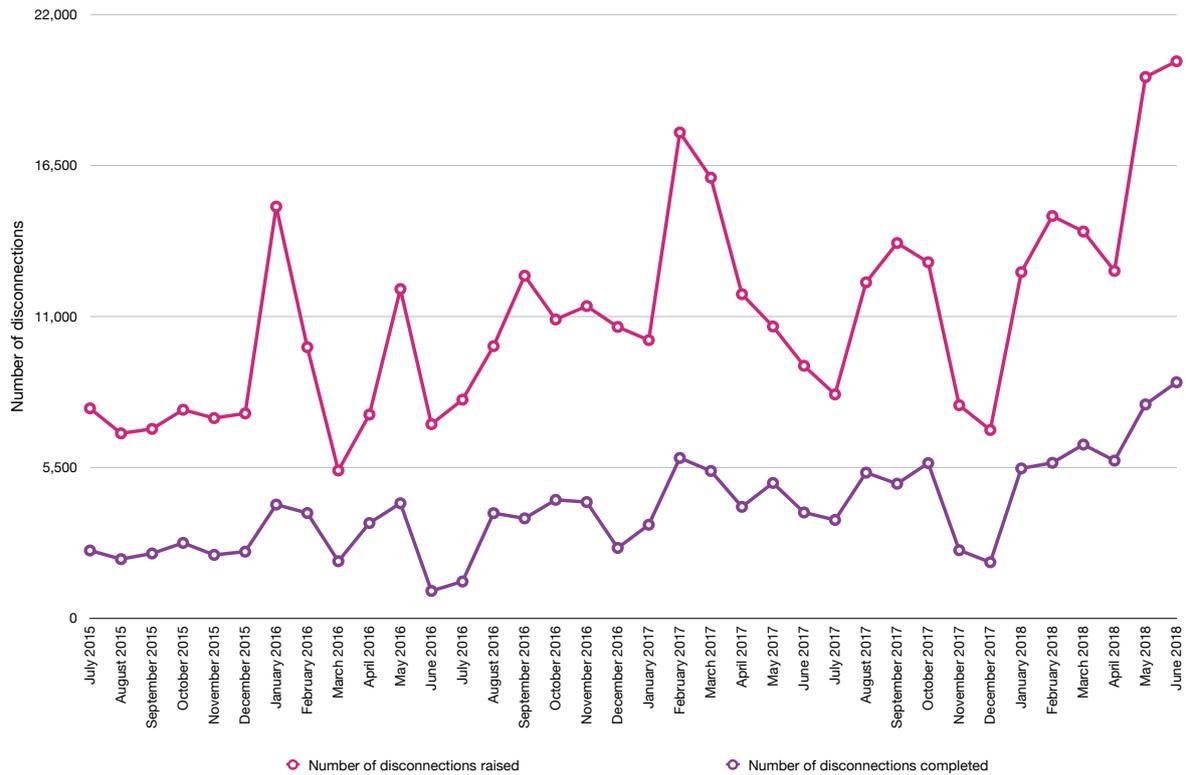


2.1 Time of year

Figure 6 below shows the number of raised and completed disconnections by month from July 2015 to June 2018. The months of February and May have the highest number of disconnections raised while July and December have the fewest. Out of a total of 395,003 disconnections raised, February and May have the highest number, estimated at around 42,000 in total for each month. The numbers for May and July could be attributed to end of financial year activities by the retailer. This could explain why there is such an important surge of disconnections in May and so few in July (it should also be noted that the month of June also has significant number of disconnections, more than 35,000).

Between seasons, there are slightly more disconnections raised in autumn (27.8%) and summer (26.6%) than in spring (23.0%) and winter (22.6%).

FIGURE 6 | Number of raised and completed disconnections in dataset by month and year



For completed disconnections, the trends are similar to raised disconnections, where May and February are once again the months with the highest numbers and July and December have the lowest. Figure 7 below shows the number of completed disconnections by month each year. In terms of seasonality, 30.5% of completed disconnections occurred in autumn, 24.5% in summer, 22.7% in spring and 22.3% in winter.

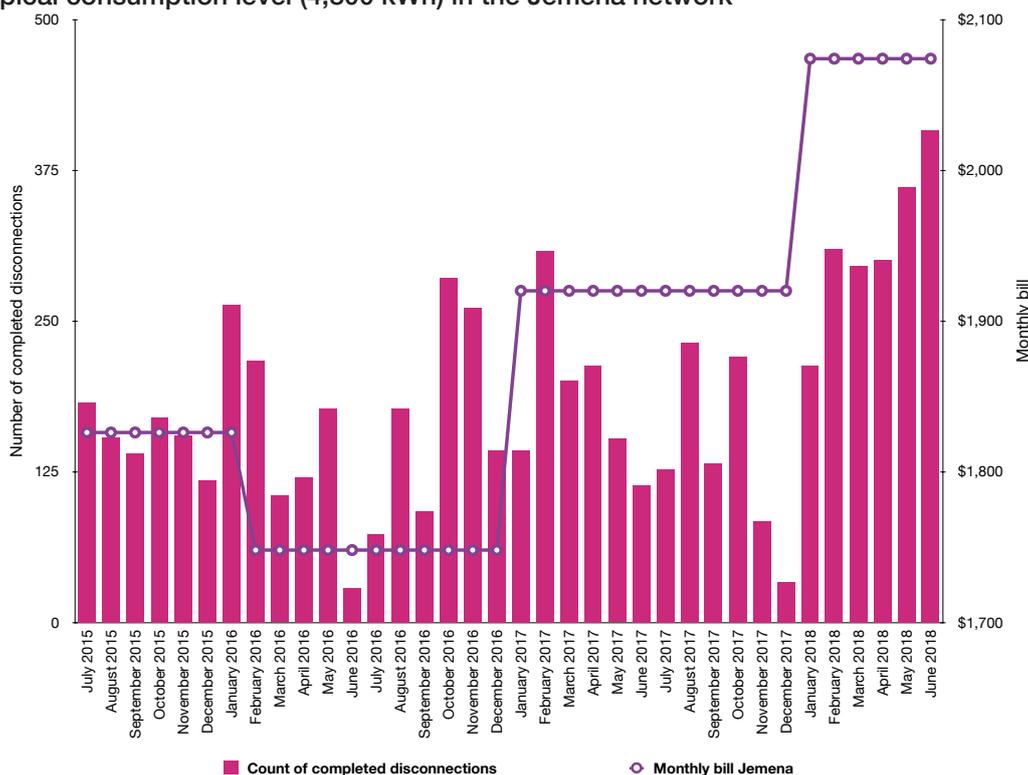
FIGURE 7 | Number of completed disconnections in dataset by month



2.2 Price changes and disconnections

Whilst one of our initial assumptions was that there would be a link between higher numbers of disconnections for non-payment and price increases, in reality, the link is not evident. Figure 8 below shows the number of completed disconnections in the Jemena distribution network (based on the dataset) and the quarterly electricity bill for dual fuel households with a typical household consumption level of 4,800 kWh in that network. As Figure 8 shows, there is no clear relationship between increases or decreases in electricity bills and the number of disconnections

FIGURE 8 | Completed disconnections and quarterly standing offer bills for dual fuel households with a typical consumption level (4,800 kWh) in the Jemena network



In Victoria, the main price re-set occurs in January every year while it occurs in July in other states.³⁵ In order to assess whether price changes have had an impact on completed disconnections numbers, it is important to take into account the time span between new prices taking effect and households being disconnected for non-payment of bills based on these new prices. In reality, there would have to be three to four months between the two events. As such, the key months to examine are March/April for Victoria and September/October for the other states.

For the other Victorian distribution networks – Ausnet, Citipower, Powercor and United – no clear link can be identified between the regulatory price resets that occur in January each year and the number of disconnections occurring three to four months later.

³⁵ Major price re-sets occur when new regulated network tariffs take effect and the retailers amend their offers to reflect changes to the underlying network tariff.

FIGURE 9 | Number of completed disconnections by month in Ausnet distribution network

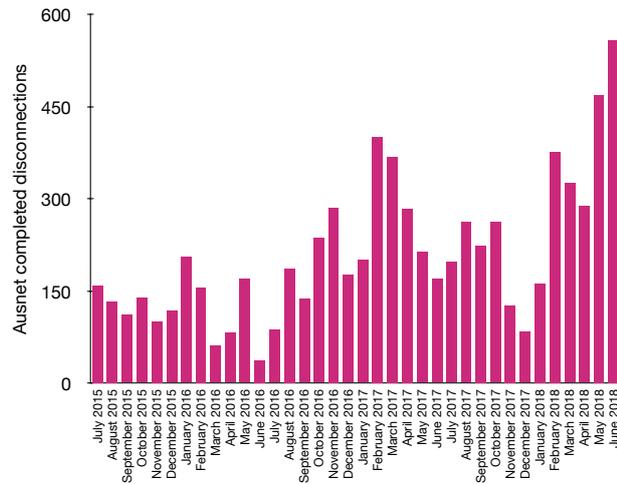


FIGURE 10 | Number of completed disconnections by month in Citipower distribution network

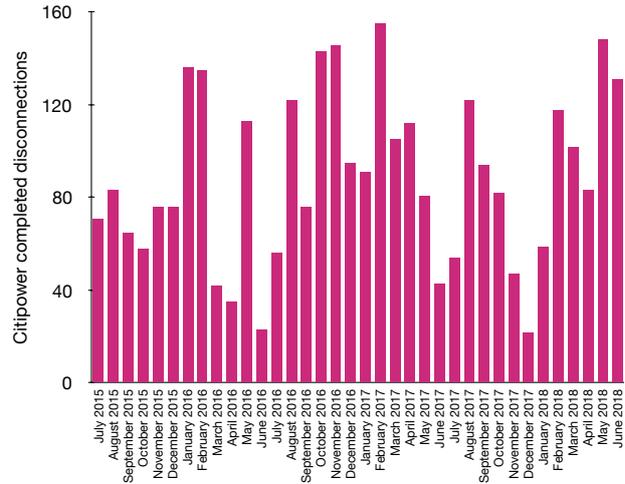


FIGURE 11 | Number of completed disconnections by month in Powercor distribution network

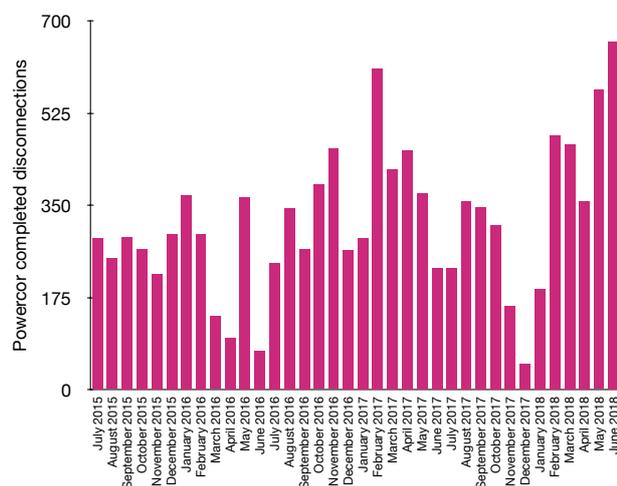
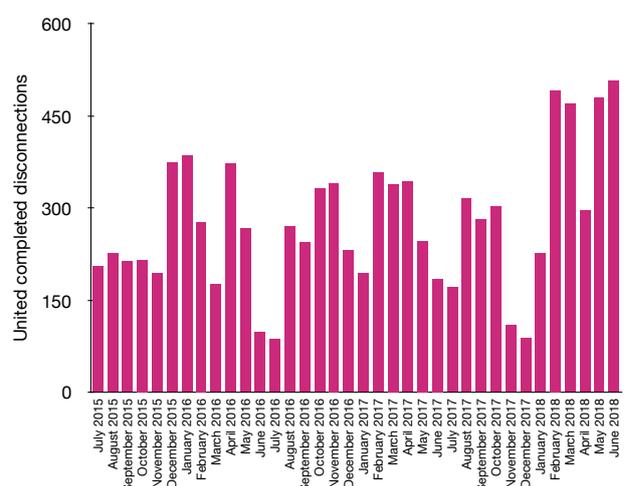


FIGURE 12 | Number of completed disconnections by month in United distribution network



Figures 13 to 15 below show the number of completed disconnections, by month, in New South Wales' distribution networks (Ausgrid, Endeavour and Essential). There are slight increases in the number of disconnections following price changes in July 2016 (when prices increased by around 8%) and July 2017 (when prices increased by 15 to 20%). Furthermore, there is a slight decrease in the number of disconnections post July 2015, when prices decreased by 9 to 13%.³⁶

³⁶ The price changes are based on the St Vincent de Paul Society's NSW Tariff-Tracking reports post July 2015, 2016 and 2017. Available at www.vinnies.org.au/energy.

FIGURE 13 | Number of completed disconnections by month in Ausgrid distribution network

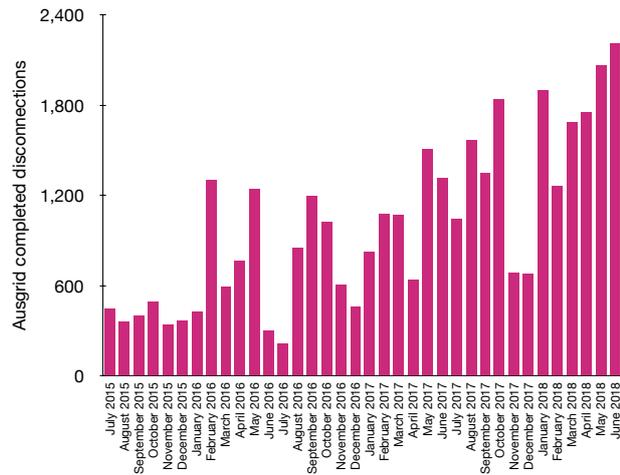


FIGURE 14 | Number of completed disconnections by month in Endeavour distribution network

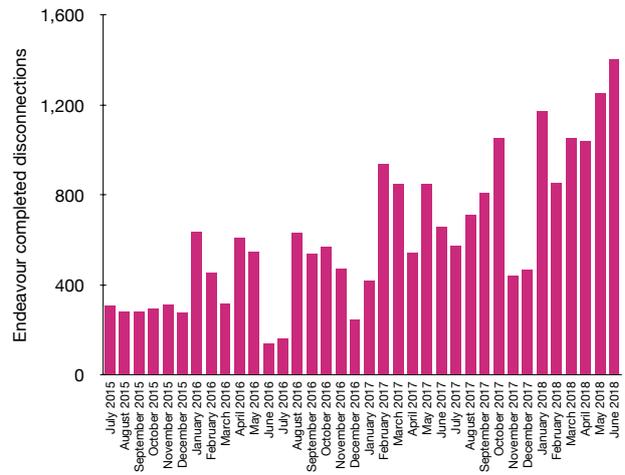


FIGURE 15 | Number of completed disconnections by month in Essential distribution network

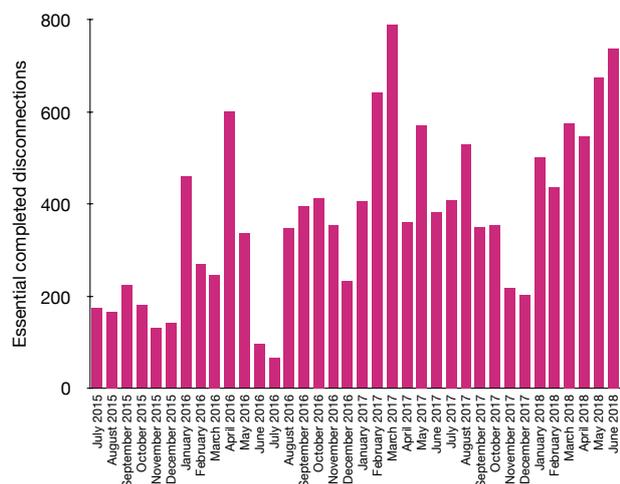


Figure 16 below looks at completed disconnections in South Australia. There were sharp increases in disconnections in October 2015, despite prices decreasing by 13% in July 2015. There was also a significant increase in disconnections in November 2016, potentially impacted by the 13% price increases that took place in July 2016. There is also a slight increase in disconnections in October 2017 after prices increased by 16 to 19% in July 2017.³⁷ Figure 17 looks at completed disconnections in South East Queensland’s Energex distribution network. Disconnection numbers increased sharply in September 2017 (after a price increase of 4%) while the changes to disconnection numbers post the July 2015 and 2016 price re-sets were minimal despite prices decreasing by 13% in 2015 and increasing by 5% in 2016.³⁸

³⁷ The price changes are based on the St Vincent de Paul Society’s South Australian Tariff-Tracking reports post July 2015, 2016 and 2017. Available at www.vinnies.org.au/energy.

³⁸ The price changes are based on the St Vincent de Paul Society’s Queensland Tariff-Tracking reports post July 2015, 2016 and 2017. Available at www.vinnies.org.au/energy.

FIGURE 16 | Number of completed disconnections by month in SAPN distribution network

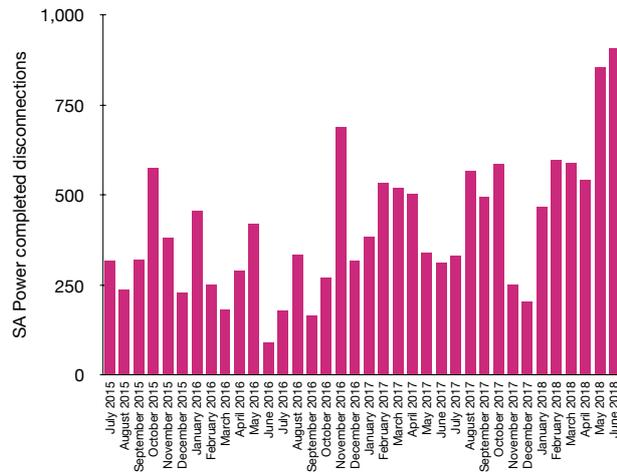
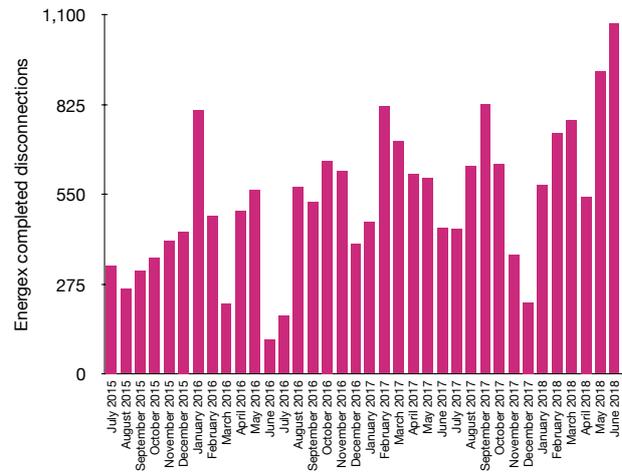


FIGURE 17 | Number of completed disconnections by month in Energex distribution network



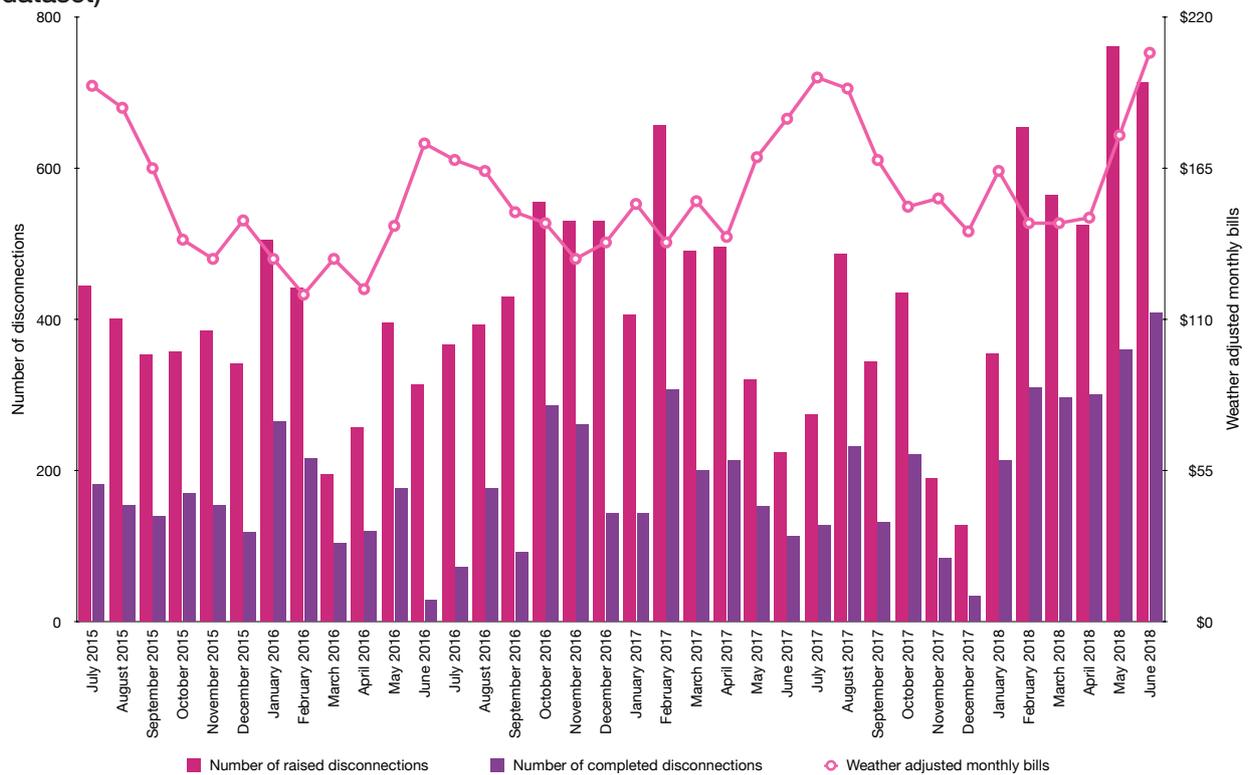
Based on the above analysis, it is difficult to ascertain any clear links between changes to electricity prices and disconnection numbers. There appear to be some increases to disconnection numbers post price increases in some jurisdictions (e.g. South Australia), while there are no links in other jurisdictions.

2.3 Weather-driven consumption and disconnections

Since there are a number of factors that can impact when disconnections occur, establishing a link between a weather-driven increase in consumption and an increase in disconnections was also not evident.

As very hot summer days or very cold winter days can increase bills and potentially have an impact on disconnection numbers, especially for customers who might already be facing energy affordability issues, monthly bills were adjusted to take account for heating degree days (HDD) or cooling degree days (CDD), as defined by the Bureau of Meteorology (BOM). Figure 18 below shows these weather-adjusted monthly bills in the Jemena distribution network and the number of completed and raised disconnections on a monthly basis. As can be seen from Figure 18, no link can be drawn between changes in weather-driven consumption and disconnection numbers.

FIGURE 18 | Weather adjusted bills for a household with a typical annual dual fuel consumption (4,800 kWh) in the Jemena distribution and disconnections raised and completed (based on dataset)³⁹



Thus, in terms of ‘when’ disconnections occur, February and May do have the highest numbers of disconnections, but it does not necessarily mean that these are the times when households are faced with the biggest difficulties in paying their electricity bills. As seen in sections 2.2 and 2.3, the link between price changes, weather-driven consumption and disconnections is not evident. Whilst higher bills (resulting from price increases or weather-driven consumption) may lead to an increased number of households who are unable to pay their bills, there are a multitude of other factors that could also impact when a household gets disconnected, such as billing cycles or differing practices between retailers and/or network businesses.

³⁹ In order to calculate HDD and CDD, maximum and minimum temperatures were collected in each capital city’s main airport, made available by the Bureau of Meteorology (available at www.bom.gov.au). HDD equals $18 - (\text{maximum daily temperature} - \text{minimum daily temperature}) \div 2$ and CDD equals $((\text{maximum daily temperature} - \text{minimum daily temperature}) \div 2) - 18$ [positive values only].

3. WHERE, WHO AND WHY?

This section examines where disconnections occur, by geospatially representing:

- The total number of disconnections raised between July 2015 and June 2018 (as a raw count) in postcodes across South Australia, Victoria, New South Wales and South East Queensland. See Section 3.1. **In this section, the data has been normalised for AGL's market share.**
- The number of disconnections proportional to population (both raised and completed, calculated as a yearly average) in postcodes across South Australia, Victoria, New South Wales and South East Queensland. See Section 3.2. **In this section, the data has been normalised for AGL's market share and for population.**
- The number of households (dwellings) and customers that were disconnected multiple times between July 2015 and June 2018 in postcodes across South Australia, Victoria, New South Wales and South East Queensland. See Section 3.3. **In this section, the data has been normalised for AGL's market share.**

In this analysis, postcodes were classified based on their geographical location according to the six following categories: (1) inner city, (2) middle suburbs, (3) outer suburbs, (4) fast-growing outer suburbs (FGOS), (5) regional centres, and (6) rural areas.

For the 'inner city', 'middle suburb' and 'outer suburb' classifications, postcodes were attributed their respective geographical location based on their distance from the General Post Office (GPO). For instance, inner city Melbourne was defined to include any postcodes within a 10-kilometre radius of the city's GPO. The same radius was used for postcodes in central Sydney. For Adelaide, that distance was set to five kilometres.

In Melbourne and Sydney, middle suburbs were defined to be located between a 10-kilometer and 20-kilometer radius from the GPO and between 20 to 30 kilometres for outer suburbs. Certain postcodes were, however, manually adjusted to more accurately reflect the classification they belonged to.

Regional centres were defined as non-capital cities with a population of more than 25,000 in New South Wales, Victoria and South East Queensland and 10,000 in South Australia.

Fast-growing outer suburbs (FGOS) were defined per .id Consulting's 2018 report⁴⁰ on the state of outer suburbs across Australia. FGOS are principally characterised as outer suburbs with high population growth rates. The Local Government Areas (LGAs) located in South Australia, Victoria, New South Wales and South East Queensland that were classified as FGOS in .id Consulting's analysis are listed in Table 2 below. As the report states:

"Almost 1 in 5 Australians now call the FGOS home. These suburbs are growing by around 3.0% per year, well above the Australian rate (1.7%), which is already considered very high in developed countries."⁴¹

⁴⁰ See: .id Consulting, *State of Australia's Fast Growing Outer Suburbs: the economic & demographic transition of the Fast Growing Outer Suburbs*, February 2018.

⁴¹ *Ibid*, p. 1.

TABLE 2 | Local government areas (LGAs) defined as fast-growing outer suburbs (FGOS) in New South Wales, Victoria, South East Queensland and South Australia.

New South Wales LGAs	Victorian LGAs	South East Queensland LGAs	South Australian LGAs
Blacktown (C)	Cardinia (S)	Ipswich (C)	Mount Barker (DC)
Camden (A)	Casey (C)	Logan (C)	Playford (C)
Campbelltown (C)	Hume (C)	Moreton Bay (R)	
Liverpool (C)	Melton (C)	Redland (C)	
Penrith (C)	Mitchell (S)		
The Hills Shire (A)	Whittlesea (C)		
Wollondilly (A)	Wyndham (C)		

It should be noted that throughout this analysis, postcodes with less than 75 occupied private dwellings⁴² were removed for privacy reasons. Military bases were also removed.

We find that, when looking at raw counts of raised disconnections, Victorian and New South Wales postcodes with high disconnection numbers are predominantly located in regional areas, whereas in South Australia, it is mostly middle suburbs. In South East Queensland, postcodes with high numbers of raised disconnections are largely located in FGOS.⁴³

For the number of disconnections proportional to population, we find that postcodes with the highest numbers are found in similar geographical classifications for both raised and completed disconnections. In South Australia, Victoria and New South Wales, rural postcodes are the most at risk of being disconnected. For South East Queensland, however, postcodes with the highest proportion of disconnections (both raised and completed) are still largely located in FGOS.⁴⁴

In terms of repeat disconnections, we find that postcodes in Victoria and New South Wales have some of the highest numbers of households (dwellings) and customers being disconnected multiple times over the three-year period.

⁴² Based on the ABS Census (2016) data.

⁴³ Only postcodes located in the Energex distribution network were included in this analysis, which only services the south-eastern part of the Queensland, and thus would explain why there is an important proportion of FGOS postcodes with high disconnection numbers.

⁴⁴ *Ibid.*

3.1 Postcodes with the highest number of raised disconnections (count)

This section presents the 30 postcodes in each state that have the highest number of raised disconnections. These numbers are a raw count of disconnections raised between 1 July 2015 and 30 June 2018 that have been normalised for AGL's market share.

Analysing a count of disconnections provides an entirely different of snapshot of where disconnections occur, in comparison to when these numbers are presented as a percentage that has been normalised for population. Using a count allows us to identify where an important number of disconnections occur (including in metropolitan and regional areas), which may not be as evident when these numbers are normalised for population. Urban areas and regional centres are typically more heterogeneous than metropolitan postcodes, and pockets of disadvantage can be widespread even if they do not appear as high once numbers have been normalised for population.

Looking at the 'top' postcodes with the highest number (count) of disconnections raised in each state, we find that:

1. For South Australia, postcodes with the highest number of disconnections raised are largely located in middle and outer suburbs. See **section 3.1.1**.
2. In Victoria, regional postcodes predominantly have the highest number of disconnections raised. The remainder, however, is located in fast-growing outer suburbs (FGOS), middle suburbs and outer suburbs. There are no inner-city postcodes within the 'top' disconnection postcodes. See **section 3.1.2**.
3. New South Wales postcodes with the highest number of disconnections raised are largely located in regional areas, closely followed by rural areas and FGOS. There are also a few postcodes located in metropolitan areas. See **section 3.1.3**.
4. In South East Queensland, postcodes with the highest number of raised disconnections are mostly FGOS. There are a few regional and middle suburb postcodes as well. See **section 3.1.4**.

3.1.1 South Australia

In South Australia, around a quarter of the postcodes with the highest number (count) of raised disconnections are middle suburbs. The remainder is divided between outer suburbs (23%), regional areas (20%), FGOS (13%), rural areas (10%) and inner city (6%). Map 1 below shows where these 'top' 30 postcodes are located.

The outer suburb of Salisbury (postcode 5108) has South Australia's highest number of raised disconnections, estimated at close to 4,000.⁴⁵ It is closely followed by the FGOS around Elizabeth (Elizabeth – postcode 5112 and Elizabeth North – postcode 5113) as well as One Tree Hill (postcode 5114), which all have more than 3,000 disconnections raised during the three-year period.

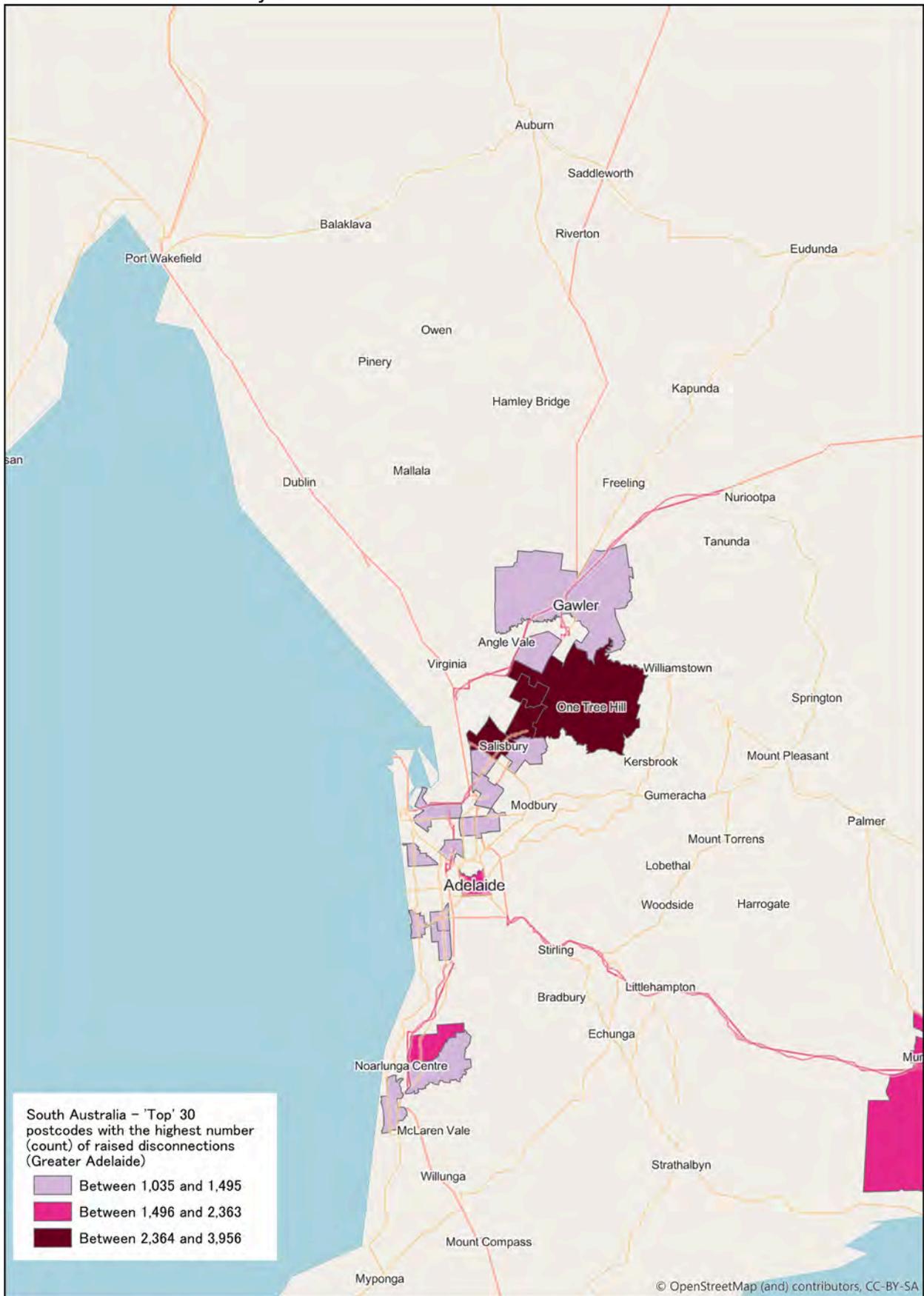
Whilst there are a lot of middle suburb postcodes within the 'top' 30, these disconnection numbers are significantly lower than the ones for the FGOS. These middle suburbs include Clearview (postcode 5085), Parke Holme (postcode 5043), Findon (postcode 5023) and Glenelg (postcode 5045), amongst other. These can be seen in more detail in Map 2 below.

⁴⁵ Note that these numbers **include** repeat raised disconnections.

MAP 1 | 'Top' 30 South Australian postcodes with the highest number (count) of raised disconnections between July 2015 and June 2018.



MAP 2 | 'Top' 30 South Australian postcodes with the highest number (count) of raised disconnections between July 2015 and June 2018



3.1.2 Victoria

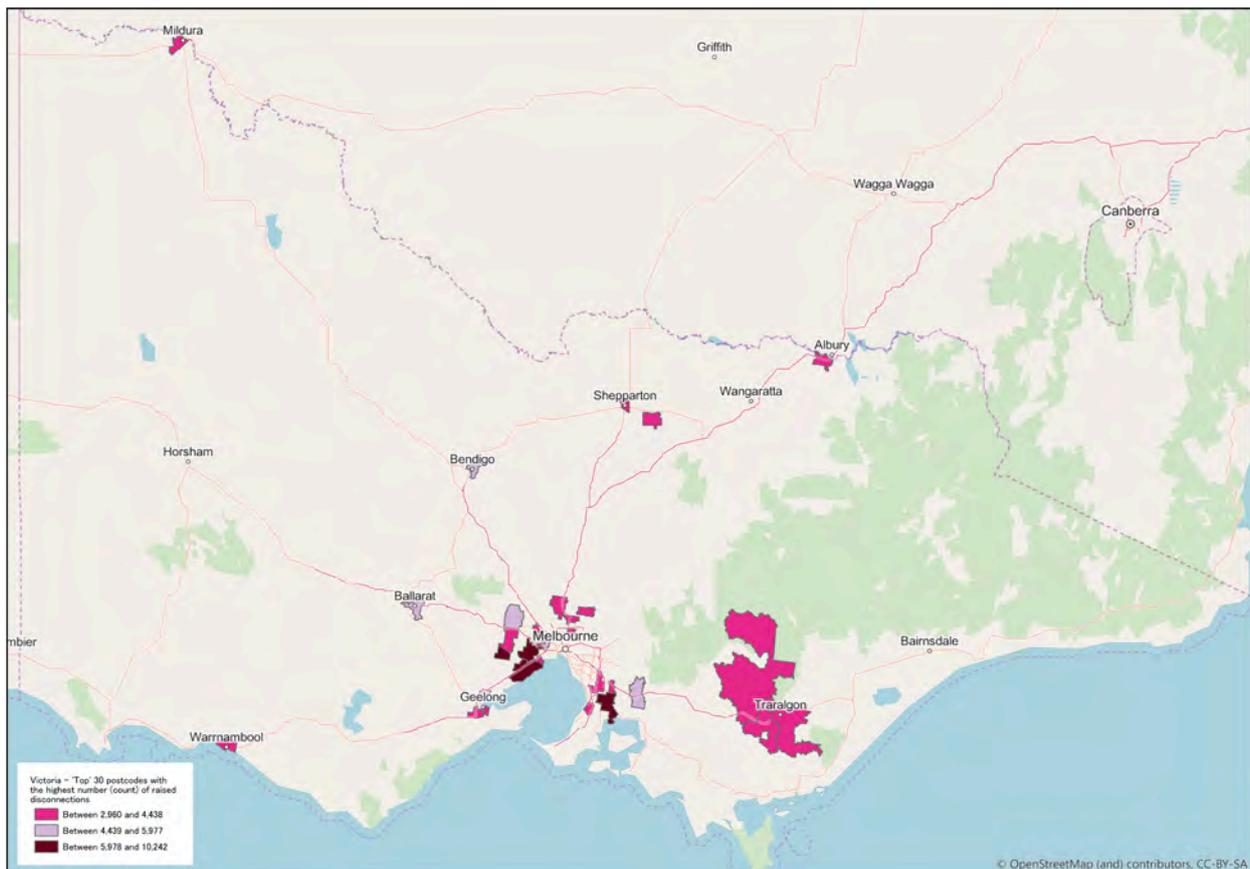
In Victoria, postcodes with the highest number (count) of raised disconnections are largely located in regional areas (40%). These are highlighted in Map 3 below. The remainder of the 'top' 30 disconnection postcodes, however, are in FGOS (30%), outer suburbs (23%) and middle suburbs (7%).

FGOS like Werribee (postcode 3030) and Hoppers Crossing (postcode 3029) have the highest number of raised disconnections between July 2015 and June 2018 in Victoria. It is estimated that there were more than 10,000 disconnections⁴⁶ raised in Werribee and more than 8,000 in Hoppers Crossing. Cranbourne (postcode 3977) had more than 7,500 disconnections raised during the three-year period.

St Albans in Melbourne's outer west suburbs (postcode 3021) also had more than 7,500 disconnections raised. Other suburbs with high disconnection numbers include Caroline Springs (postcode 3023), with almost 6,000 disconnections and Sunshine (postcode 3020), with more than 5,000.

Whilst there are more regional areas within the 'top' 30 disconnection postcodes, the number of raised disconnections is generally lower than for FGOS or suburban areas. Ballarat (postcode 3350) and Corio (postcode 3214) do have high numbers, with close to 6,000 disconnections raised during the three-year period. Other regional postcodes include Bendigo (postcode 3550), Shepparton-Mooroopna (postcode 3630) and Wodonga (postcode 3690).

MAP 3 | 'Top' 30 Victorian postcodes with the highest number (count) of raised disconnections between July 2015 and June 2018.



⁴⁶ Note that these numbers **include** repeat raised disconnections.

3.1.3 New South Wales

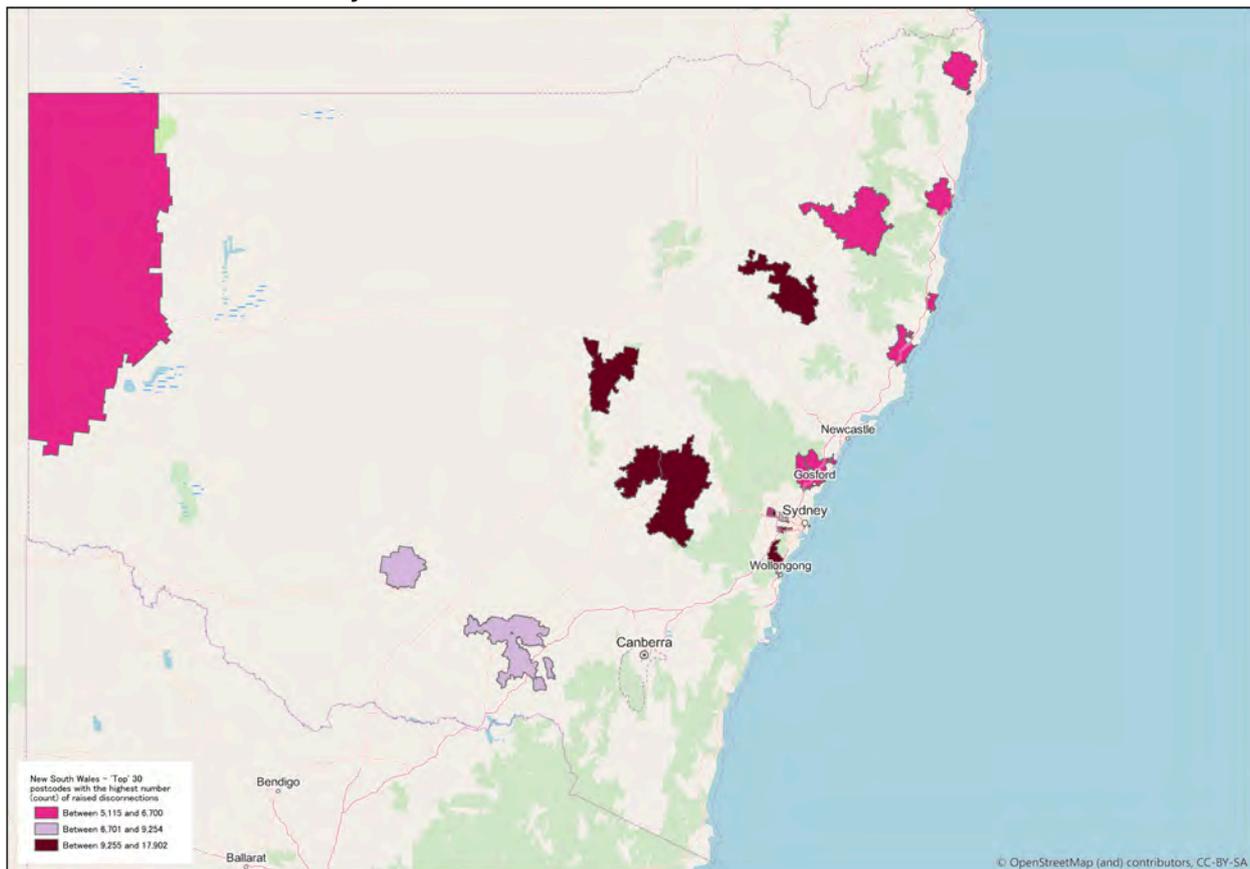
Map 4 below shows the ‘top’ 30 postcodes with the highest number (count) of disconnections raised in New South Wales. These are predominantly located in regional areas, closely followed by rural areas and FGOS.

Bathurst (postcode 2795), Orange (postcode 2800) and Dubbo (postcode 2830) are regional areas in New South Wales that have the state’s highest number of raised disconnections: more than 12,000⁴⁷ over the three-year period. More specifically, the number of raised disconnections in Orange is significantly higher than all other postcodes, estimated at almost 18,000.

FGOS, like the ones in Mount Druitt (postcode 2770), around Liverpool (postcode 2170) and Campbelltown (postcode 2560) also have some of the highest numbers of raised disconnections in New South Wales between July 2015 and June 2018.

Whilst there are some high disconnection numbers in more inner city and suburban postcodes – like in central Sydney (postcode 2000) or Sydney’s suburbs (such as postcode 2145, west of Paramatta or Bondi, postcode 2026) – these numbers are significantly lower than for disconnections that occurred in regional areas or FGOS.

MAP 4 | ‘Top’ 30 New South Wales postcodes with the highest number (count) of raised disconnections between July 2015 and June 2018.



⁴⁷ Note that these numbers **include** repeat raised disconnections.

3.1.4 South East Queensland

In South East Queensland, half of the 'top' 30 postcodes with the highest number (count) of raised disconnections are located in FGOS, as can be seen in Map 5 below. The remainder are in regional areas (17%), middle and outer suburbs (16%), inner city (6%) and rural postcodes (6%). Only postcodes located in the Energex distribution network were included in this analysis, which only serves the south-eastern part of Queensland, and thus would explain why there is such a small proportion of rural postcodes with high disconnection numbers.

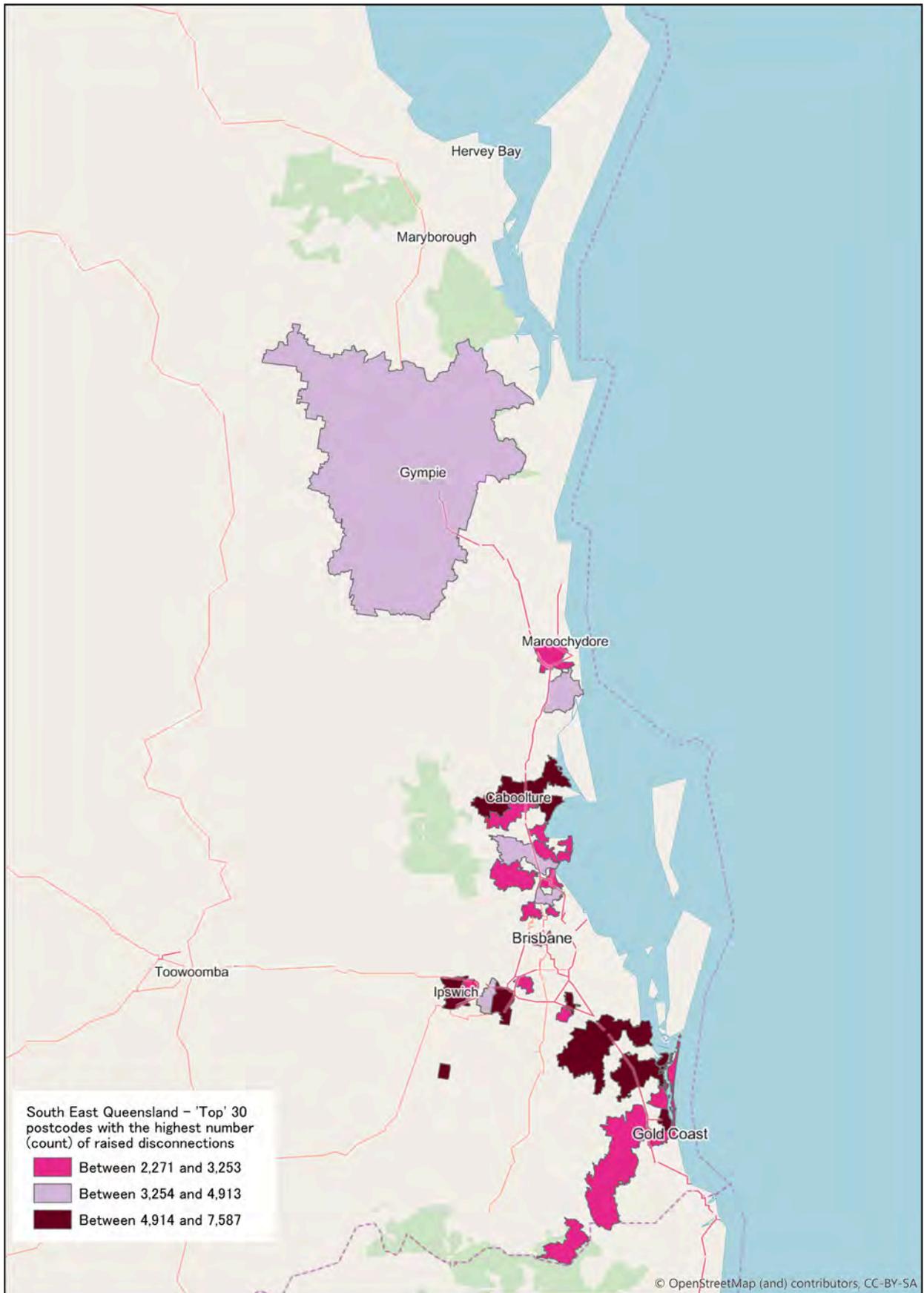
Three FGOS have a disproportionately higher number of raised disconnections than the rest of the 'top' 30 postcodes. These are Caboolture (postcode 4510), Ipswich (postcode 4305) and Logan Central (postcode 4114). All three are estimated to have had more than 7,000 disconnections⁴⁸ raised between July 2015 and June 2018. Other FGOS with high disconnection numbers include Beenleigh (postcode 4207), Springfield (postcode 4300), Kallangur (postcode 4503) and Redbank (postcode 4301), amongst others. These range between 4,000 and 6,000 disconnections raised.

Two regional postcodes also have a disproportionately high number of raised disconnections: Coomera (postcode 4209) with more than 6,000 disconnections and Southport (postcode 4215), with around 5,800.

There are a few metropolitan and rural postcodes within the 'top' 30 disconnection postcodes, however the number of raised disconnections is significantly lower than for FGOS and regional areas. These include, for instance, rural postcodes such as Gympie (postcode 4570) and metropolitan areas like Aspley (postcode 4034).

⁴⁸ Note that these numbers **include** repeat raised disconnections.

MAP 5 | 'Top' 30 South East Queensland postcodes with the highest number (count) of raised disconnections between July 2015 and June 2018.



3.2 Postcodes with the highest proportion of disconnections as a proportion of occupied private dwellings

Section 3.1 above looked at the postcodes with the highest number of raised disconnections between 1 July 2015 and 30 June 2018 – that is, a count of all disconnections raised per postcode during the three-year period, normalised for AGL's market share.

This section, however, looks at raised and completed disconnections **relative to the number of occupied private dwellings⁴⁹ in each postcode**, in order to get a clearer understanding of what these numbers mean when they are normalised for population. High disconnections numbers may be the result of a high proportion of customers being disconnected, but they are also a function of the number of occupied dwellings within that postcode.

When disconnections are normalised for population⁵⁰, there is a shift towards rural postcodes having a disproportionately higher number of disconnections compared to other geographical areas, especially in South Australia, Victoria and New South Wales.

The distinction between raised and completed disconnections is important as raised disconnections indicate affordability issues, while completed disconnections show areas impacted by high disconnection numbers. For example: in Victoria, Woodstock (postcode 3751) is among the state's 'top' 30 postcodes, characterised by having the highest proportion of raised disconnections relative to population during the three-year period. It is estimated that disconnections were raised in the equivalent of 30% of all occupied private dwellings, on average, each year. However, when looking at completed disconnections, the equivalent of approximately 4% of occupied private dwellings were disconnected, on average, each year and Woodstock is no longer in the state's 'top' 30 disconnection postcodes when looking at completed disconnections. Similarly, Edmondson Park in New South Wales (postcode 2174) is estimated to have had disconnections raised in the equivalent of 38% of households, each year, on average, some of the highest figures in the state. When looking at disconnections completed however, Edmondson Park is no longer in the 'top' disconnection postcodes.

The following sections rely on ABS Census (2016) data as well as data derived from the ABS' 2016 Socio-Economic Indexes for Areas (SEIFA). Within SEIFA, the Index of Relative Socio-Economic Disadvantage (IRSD) provides a state-by-state ranking of relative socio-economic disadvantage, by decile.⁵¹ This was used as a reference point to understand some of the general social and economic background of postcodes with high disconnection numbers. The IRSD ranks postcodes from greater relative disadvantage (attributed a score of '1') to less relative disadvantage (attributed a score of '10').

⁴⁹ For simplicity, this report may use the term 'relative to population' instead of 'relative to the number of occupied private dwellings.'

⁵⁰ The calculation for normalising the data to account for population was done by calculating the three-year average of completed and raised disconnections in each postcode and dividing it based on the number of occupied private dwellings in that postcode (as recorded in the ABS Census).

⁵¹ For more information on the 2016 SEIFA, see: <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2016~Main%20Features~What%20is%20SEIFA%3f-8>. For information on the IRSD index and methodology behind the decile attributed to each postcodes, see: <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2016~Main%20Features~IRSD~19>.

3.2.1 South Australia

3.2.1.1 Raised disconnections

In South Australia, the postcodes with the highest proportion of raised disconnections – when normalised for population – are predominantly located in rural areas. From these ‘top’ 30 disconnection postcodes, 24 are rural and the other six are divided between regional and fast-growing outer suburbs (FGOS). Map 6 below illustrates the proportion of raised disconnections relative to population across South Australia and Map 7 for Greater Adelaide.

Table 3 below provides a summary of the ‘top’ 30 postcodes with the highest proportion of disconnections and some key socio-economic indicators derived from the ABS Census (2016) data.

The majority of these postcodes have a median weekly household income that is below the South Australian average of \$1,206 per week. There are, however, some notable exceptions.

Postcode 5960 (Ceduna and its surroundings) has the highest proportion of raised disconnections per occupied private dwellings in South Australia between July 2015 and June 2018. The number of disconnections raised is equivalent to 27% of dwellings receiving disconnection notices on average each year. Whilst median household income, median mortgage repayments and other key indicators from the ABS Census do not clearly indicate why this postcode has such a significant number of disconnections, it should be noted that 27.30%⁵² of this postcode’s population identify as Aboriginal and/or Torres Strait Islanders. Furthermore, for this segment of the population, median household income was of \$943 per week⁵³, far below the state average of \$1,206. Additionally, Ceduna and its surroundings have been part of the Federal Government’s trials of the Cashless Debit Card (CDC) since March 2016. Under this initiative, 80% of an individual’s income received from welfare payments is placed on a separate bank account, with restrictions on what goods and services it may be used for.⁵⁴ The remaining 20% is transferred to the individual’s nominated bank account. This mandatory income management has been controversial with concerns being raised around its overall benefits and the impacts it may have on those who have been selected to participate.⁵⁵

In a report published by the Australian Unemployed Workers' Union earlier this year, a few interviewees in Ceduna raised the issue of being unable to pay bills with the CDC.⁵⁶ This has also been echoed in other reports about the CDC in Ceduna: “[...] *there has been problems with people being unable to pay their bills at their local post office with their Welfare Card [...] This meant that people were presented with the impossible challenge of trying to pay their bills with 20 per cent cash allowance*”.⁵⁷ If so, this could have exacerbated the number of disconnections

⁵² The 2016 Census states that there are 998 Aboriginal and/or Torres Strait Islander persons residing in postcode 5960, out of total 3,656. For more information, see ABS’ 2016 ‘Community Profile’ for postcode 5960: https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/communityprofile/POA5690.

⁵³ See ABS ‘Community profile’ for postcode 5960: https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/communityprofile/POA5690.

⁵⁴ For more information on the cashless debit card and how it works, see: Australian Government, Department of Social Services, “Cashless Debit Card”, July 2019. Accessible at: <https://www.dss.gov.au/families-and-children/programmes-services/welfare-conditionality/cashless-debit-card-overview>.

⁵⁵ See for example: Knaus, C., “Cashless welfare card’s effectiveness unclear, auditor general says”, *The Guardian*, July 17, 2018. Accessible at: <https://www.theguardian.com/australia-news/2018/jul/17/cashless-welfare-cards-effectiveness-unclear-auditor-general-says>; St Vincent de Paul Society, “What’s wrong with the cashless debit card?”, February 2019. Accessible at: https://www.vinnies.org.au/page/Publications/National/Factsheets_and_policy_briefings/What_s_wrong_with_the_cashless_welfare_card/.

⁵⁶ Australian Unemployed Workers' Union (AUWU), *Report into South Australian Regional Road Trip: August 2018*, January 2019.

⁵⁷ Bielefeld, S. (2018) Indigenous Peoples, Neoliberalism and the State: A Retreat from Rights to Responsibilisation' Via the Cashless Welfare Card. *The Neoliberal State, Recognition and Indigenous rights*, Australian National University Press, p. 150.

in postcode 5960 between July 2015 and June 2018.

Postcode 5731, in the north-eastern part of the state which includes the towns of Leigh Creek and Lyndhurst, also has a high median weekly household income, low unemployment rate and low median weekly rent in comparison to the state averages. This postcode, however, also has a very transient population, with less than 40% of residents living at the same address five years ago. Additionally, the ABS Census (2016) shows that close to 20% of the population works in the oil and gas extraction industry as well as 6% in “other mining support services”.⁵⁸ Aboriginal and/or Torres Strait Islander people also make up 8.4% of the postcode’s population. This could explain why, in postcode 5731, median household income is relatively high and other socio-economic indicators are not entirely on par with the other ‘top’ postcodes, yet the proportion of raised disconnections per occupied private dwellings remains high. Lastly, one of the biggest coal mines in the area, Leigh Creek, closed in late 2015, which may be a contributing factor to high disconnection numbers.⁵⁹

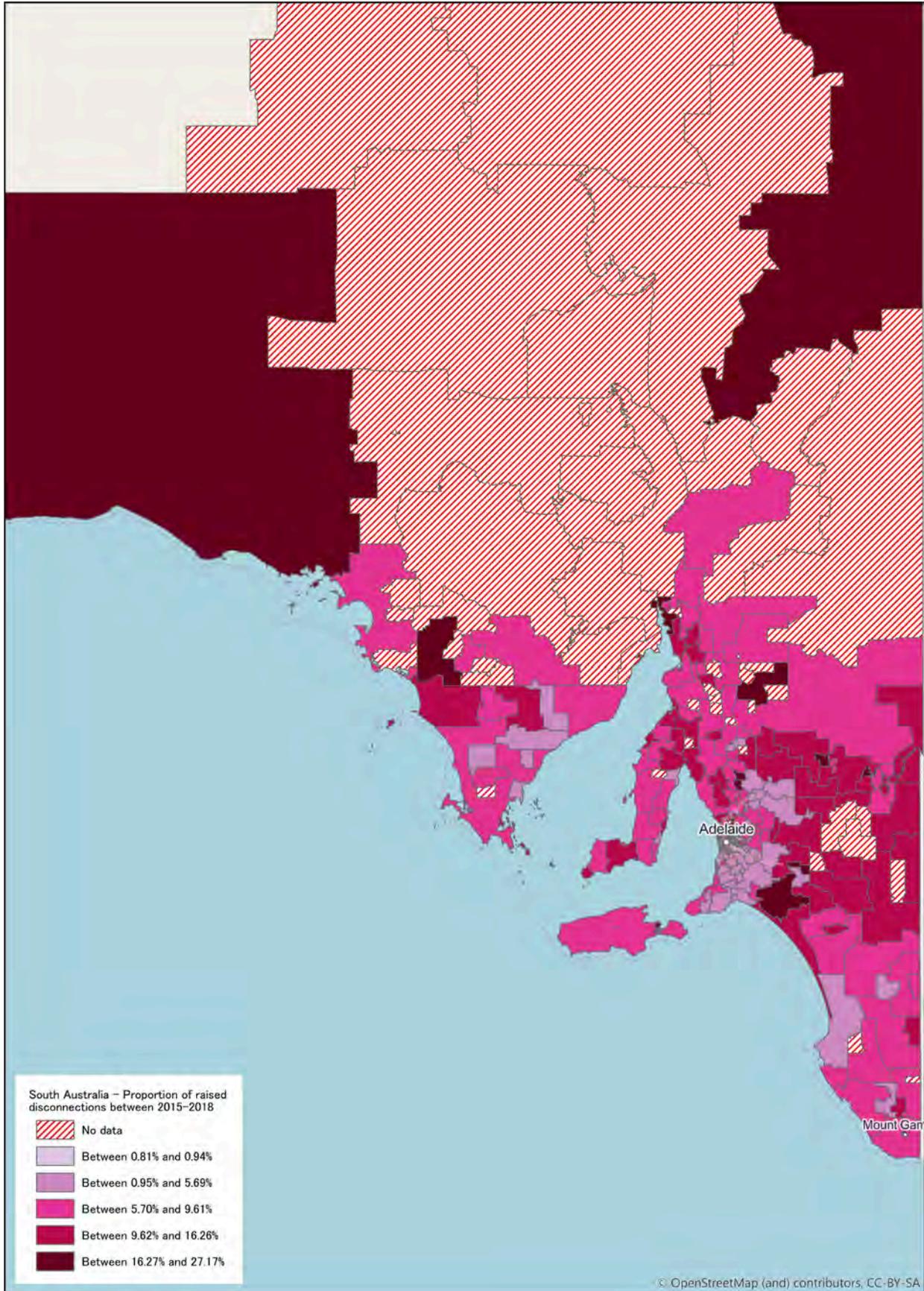
⁵⁸ See ABS ‘Community profile’ for postcode 5731: https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/POA5731.

⁵⁹ Reid, K., “Leigh Creek: Remediating an SA coal mine and repurposing its service town”, *ABC News*, July 2017. Accessible at: <https://www.abc.net.au/news/2017-07-04/leigh-creek-recovers-after-mine-closure/8676580>.

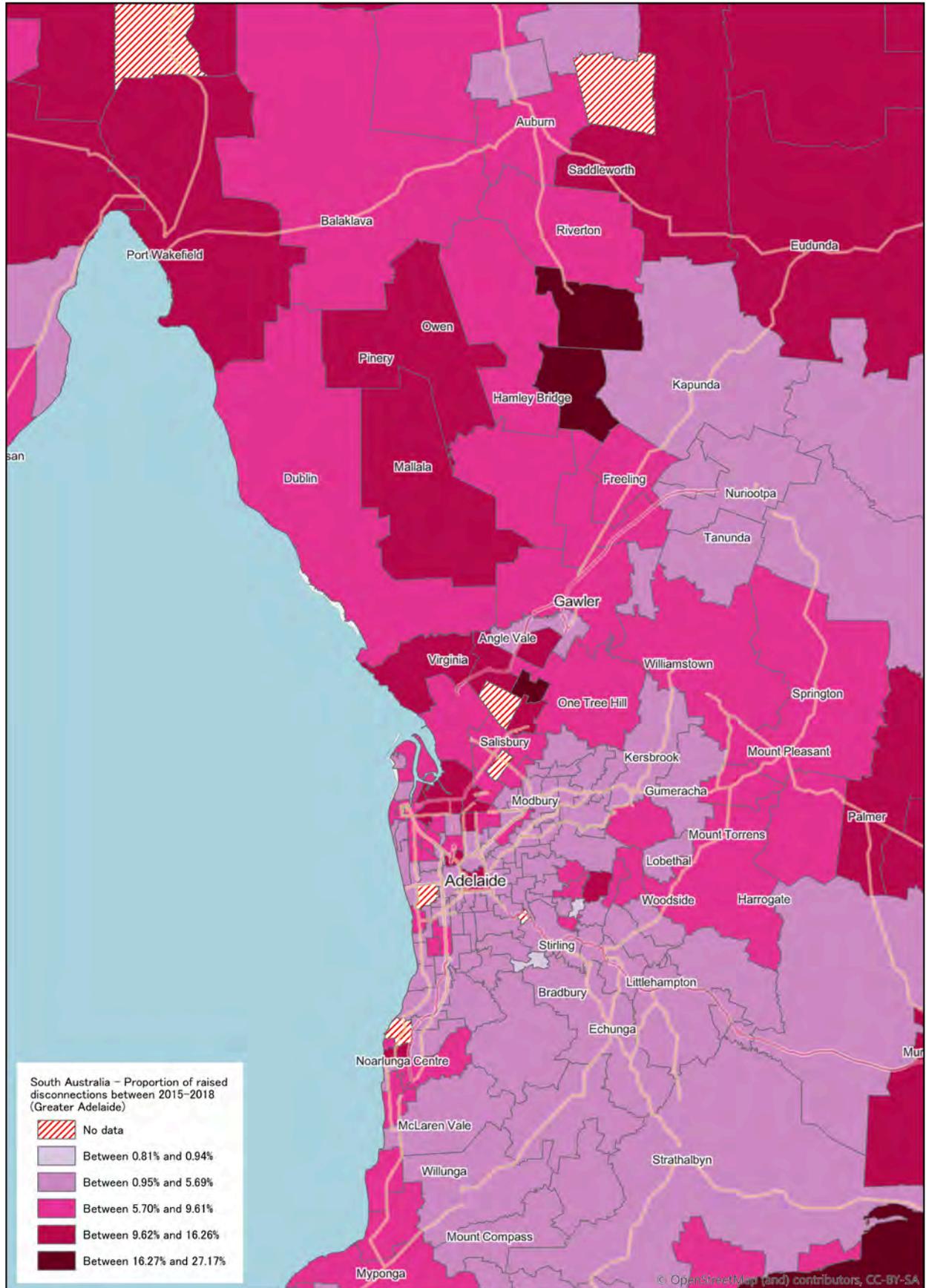
TABLE 3 | 'Top' 30 disconnection postcodes in South Australia and key socio-economic indicators derived from the ABS Census (2016) data

	Postcode	Place	Local Government Area (LGA)	Locality	Proportion of raised disconnections	Key indicators from the 2016 Census												
						SEIFA IRDS decile ranking (NSW)	Median age	Median household income (\$/week)	Proportion of families with an income of less than \$650 per week	Unemployment rate	Proportion of one parent families in occupied private dwellings	Median mortgage repayment (\$/month)	Proportion of occupied private dwellings owned with a mortgage	Median weekly rent	Proportion of occupied private dwellings rented	Proportion of persons who speak another language at home	Proportion of persons who lived at the same address five years ago	
#1	5690	Ceduna	Ceduna (DC)	Rural	27.17%	2	38	\$1,239	22.03%	4.3%	18.51%	\$1,281	23.14%	\$160	40.76%	11.60%	50.57%	
#2	5654	Minnipa	Wudinna (DC)	Rural	25.02%	6	47	\$880	39.08%	3.4%	5.17%	\$607	21.05%	\$87	26.32%	0.00%	67.22%	
#3	5419	Ulooloo	Goyder (DC)	Rural	24.67%	6	48	\$933	32.89%	4.7%	4.55%	\$497	21.51%	\$100	22.58%	0.00%	62.78%	
#4	5410	Stockport	Clare and Gilbert Valleys (DC)	Rural	23.72%	4	45	\$1,050	26.85%	8.8%	16.00%	\$1,300	42.11%	\$190	13.16%	0.95%	63.09%	
#5	5731	Lyndhurst	Unincorporated SA	Rural	22.35%	3	39	\$1,428	16.22%	4.1%	21.13%	\$0	3.03%	\$48	85.86%	4.41%	38.28%	
#6	5411	Tarlee	Clare and Gilbert Valleys (DC)	Rural	21.8%	3	41	\$1,125	34.62%	9.8%	14.46%	\$975	43.12%	\$245	11.93%	0.00%	56.79%	
#7	5259	Wellington	Murray Bridge (RC)	Regional	20.22%	3	47	\$1,012	27.83%	5.0%	11.93%	\$1,083	28.28%	\$100	26.22%	9.55%	56.40%	
#8	5331	Kingston on Murray	Loxton Waikerie (DC)	Rural	19.64%	3	48	\$1,028	23.15%	9.0%	13.79%	\$1,083	40.50%	\$155	12.40%	4.73%	66.25%	
#9	5113	Elizabeth North	Playford (C)	FGOS	18.81%	1	33	\$764	39.07%	21.7%	36.07%	\$1,000	29.62%	\$220	47.82%	11.52%	47.03%	
#10	5346	Cobdogla	Berri and Baramera (DC)	Rural	18.73%	3	45	\$1,257	18.03%	7.2%	13.64%	\$833	30.00%	\$180	24.29%	6.58%	60.00%	
#11	5321	Cadell	Mid Murray (DC)	Rural	18.62%	2	46	\$809	30.50%	5.2%	16.13%	\$709	33.77%	\$140	14.94%	0.00%	40.88%	
#12	5700	Port Augusta	Port Augusta (C)	Regional	18.52%	1	41	\$1,051	29.50%	10.4%	22.75%	\$1,170	26.20%	\$177	40.03%	5.16%	55.05%	
#13	5221	American River	Kangaroo Island (DC)	Rural	18.29%	2	57	\$762	41.58%	4.5%	18.18%	\$867	20.54%	\$180	17.86%	1.39%	53.47%	
#14	5552	Port Arthur	Copper Coast (DC)	Rural	16.26%	3	42	\$1,057	29.57%	3.4%	10.68%	\$672	26.72%	\$120	17.56%	1.05%	72.70%	
#15	5550	Port Wakefield	Wakefield (DC)	Rural	15.52%	1	40	\$987	28.31%	8.8%	17.92%	\$867	28.13%	\$200	35.65%	11.57%	52.29%	
#16	5357	Blanchetown	Mid Murray (DC)	Rural	15.14%	1	52	\$759	38.04%	4.4%	14.68%	\$867	27.17%	\$115	21.74%	2.86%	54.18%	
#17	5301	Geranium	The Coorong (DC)	Rural	15.08%	5	47	\$988	26.02%	3.6%	11.38%	\$542	22.64%	\$55	20.75%	1.22%	62.89%	
#18	5112	Elizabeth	Playford (C)	FGOS	14.35%	1	38	\$836	35.95%	15.8%	28.37%	\$1,170	31.43%	\$200	42.52%	15.83%	52.34%	
#19	5495	Mambray Creek	Mount Remarkable (DC)	Rural	14.29%	2	56	\$783	37.50%	7.5%	8.24%	\$1,062	27.52%	\$150	18.60%	3.19%	62.35%	
#20	5608	Whyalla Norrie	Whyalla (C)	Regional	14.27%	1	39	\$809	38.03%	15.7%	27.24%	\$1,083	30.25%	\$165	44.48%	5.69%	57.44%	
#21	5462	Blyth	Wakefield (DC)	Rural	14.25%	5	35	\$1,152	18.63%	5.0%	14.71%	\$1,083	42.93%	\$190	16.30%	0.77%	52.90%	
#22	5121	Penfield Gardens	Playford (C)	FGOS	14.17%	4	44	\$1,088	26.80%	5.9%	11.63%	\$1,473	36.87%	\$298	13.54%	19.43%	54.51%	
#23	5577	Warooka	Yorke Peninsula (DC)	Rural	14.09%	4	52	\$779	41.12%	5.3%	8.97%	\$800	28.51%	\$100	14.03%	1.14%	72.73%	
#24	5483	Melrose	Mount Remarkable (DC)	Rural	13.98%	7	47	\$1,059	25.89%	2.3%	7.87%	\$1,029	23.26%	\$175	16.28%	2.31%	67.72%	
#25	5560	Bute	Barunga West (DC)	Rural	13.89%	2	45	\$806	31.71%	7.3%	19.17%	\$867	27.68%	\$150	15.25%	1.06%	63.48%	
#26	5311	Paruna	Loxton Waikerie (DC)	Rural	13.84%	5	45	\$1,125	25.56%	3.6%	6.67%	\$563	24.32%	\$100	25.00%	2.63%	69.14%	
#27	5262	Frances	Naracoorte and Lucindale (DC)	Rural	13.49%	8	43	\$1,221	17.86%	1.2%	12.73%	\$867	34.81%	\$100	23.42%	0.00%	65.05%	
#28	5374	Eudunda	Goyder (DC)	Rural	13.03%	2	47	\$908	32.47%	8.1%	11.66%	\$990	30.63%	\$180	17.26%	2.70%	65.07%	
#29	5381	Robertstown	Goyder (DC)	Rural	12.85%	3	52	\$764	32.37%	5.0%	11.58%	\$450	24.84%	\$109	13.07%	1.82%	73.44%	
#30	5556	Walleroo	Copper Coast (DC)	Rural	12.63%	1	53	\$812	33.38%	10.7%	15.72%	\$1,196	22.79%	\$230	33.18%	2.72%	51.28%	
South Australia state average						40		\$1,206	23.80%	7.5%	16.50%	\$1,491	35.30%	\$260	28.50%	17.40%	N/A	

MAP 6 | Proportion (%) of raised disconnections in South Australia between July 2015 and June 2018



MAP 7 | Proportion (%) of raised disconnections in Adelaide between July 2015 and June 2018



3.2.1.2 Completed disconnections

In terms of completed disconnections, rural postcodes in South Australia have the highest proportion. From the 'top' 30 postcodes, 20 are located in rural areas, five are regional, and one is an outer suburb. Map 8 and Map 9 illustrate postcodes in South Australia based on the proportion of completed disconnections.

Postcode 5731 (north-eastern part of South Australia, which includes the towns of Leigh Creek and Lyndhurst), discussed in the prior section, has the highest proportion of completed disconnections per occupied private dwellings between July 2015 and June 2018. It is estimated that the equivalent of more than 12% of dwellings were disconnected from their electricity supply, on average, each year.

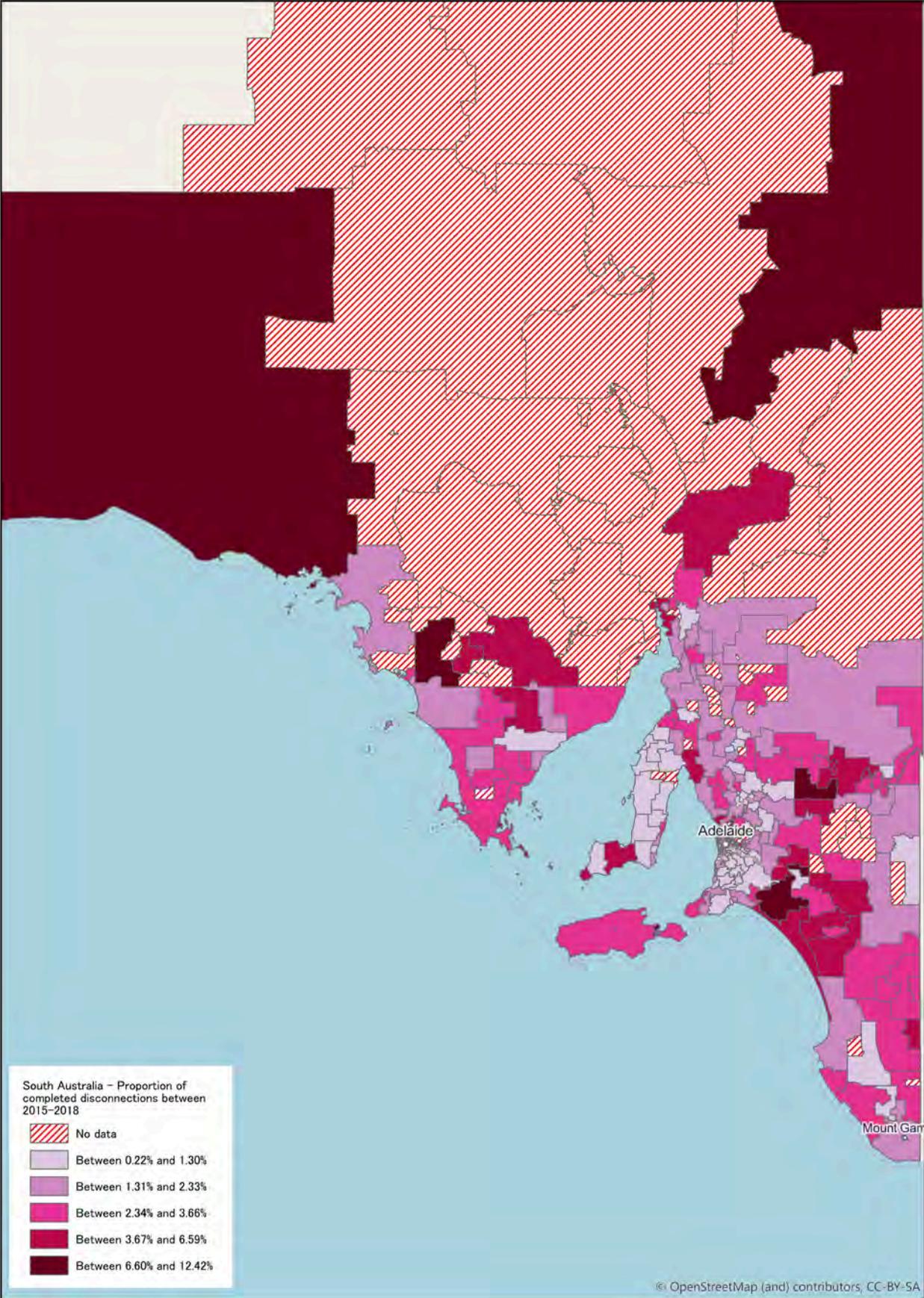
Table 4 below lists the 'top' 30 disconnection postcodes in South Australia, for both raised and completed disconnections. Unsurprisingly, the postcodes with the highest proportion of completed disconnections are often the ones where the proportion of raised disconnections was also high. Minnipa (postcode 5654), American River (postcode 5221) and Ceduna (postcode 5960), for instance, have some of the highest proportion of completed disconnections per occupied dwellings across South Australia.

From the 'top' 30 disconnection postcodes with the highest proportion of completed disconnections, 16 of those also had the highest proportion of raised disconnections. Some of the new postcodes that solely have a high proportion of completed disconnections include Darke Peak (postcode 5642), Whyalla Jenkins (postcode 5609) and Tintinara (postcode 5266), amongst others. These 'new' postcodes, however, tend to have a lower proportion of completed disconnections compared to the ones that already had a high proportion of raised disconnections.

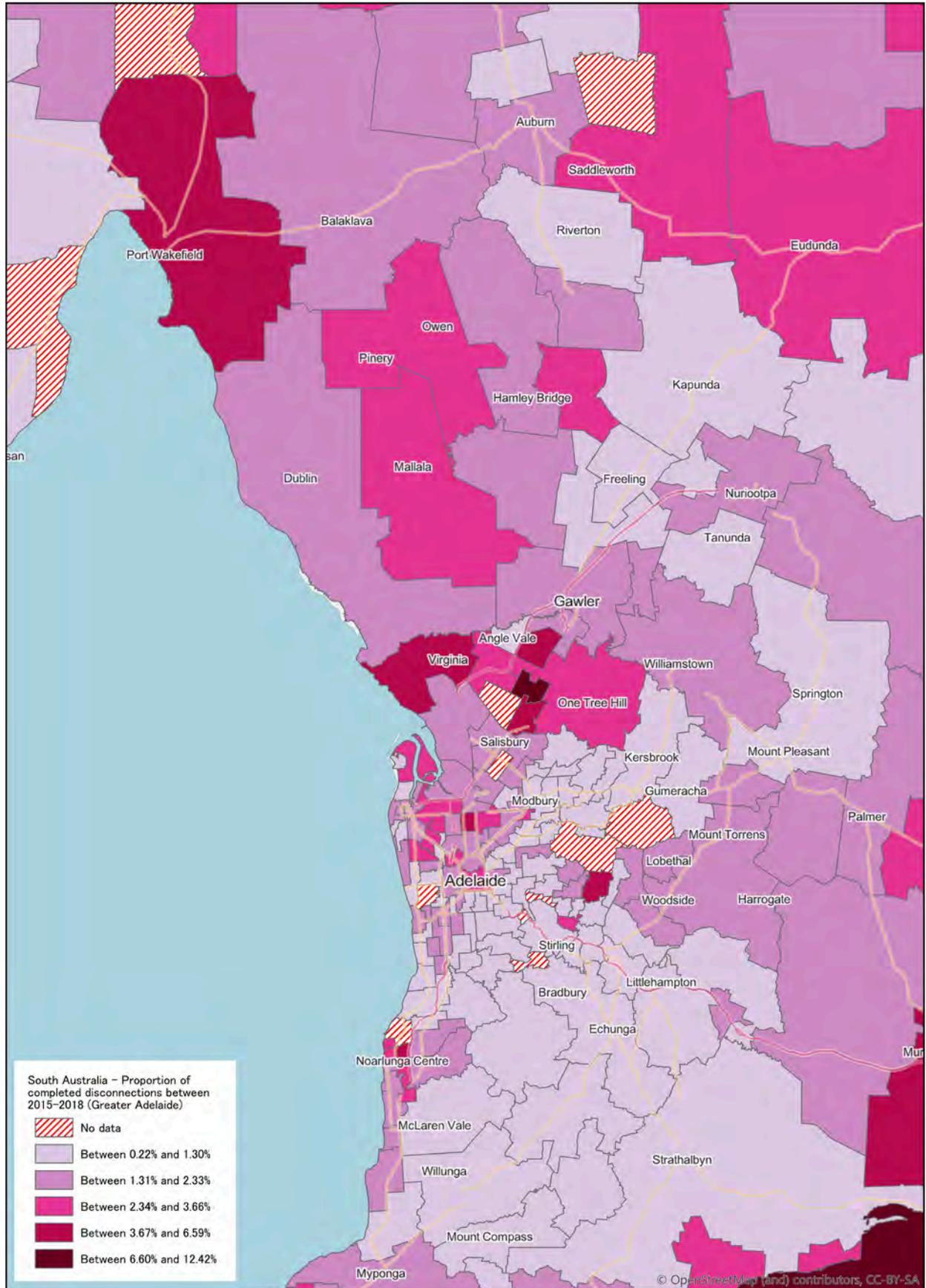
TABLE 4 | South Australian postcodes that are in the 'top' 30 disconnection postcodes for both raised and completed disconnections

Postcode	Place	LGA	In the top '30' raised?	Proportion of raised disconnections	In the top '30' completed?	Proportion of completed disconnections
5112	Elizabeth	Playford (C)	✓	14.35%	✓	5.49%
5113	Elizabeth North	Playford (C)	✓	18.81%	✓	7.25%
5115	Kudla	Playford (C)			✓	4.20%
5120	Virginia	Playford (C)			✓	4.84%
5121	Penfield Gardens	Playford (C)	✓	14.17%		
5164	Christie Downs	Onkaparinga (C)			✓	4.28%
5221	American River	Kangaroo Island (DC)	✓	18.29%	✓	8.78%
5253	Swanport	Murray Bridge (RC)			✓	4.36%
5259	Wellington	Murray Bridge (RC)	✓	20.22%	✓	8.01%
5262	Frances	Naracoorte and Lucindale (DC)	✓	13.49%	✓	4.15%
5264	Meningie	The Coorong (DC)			✓	4.61%
5265	Coonalpyn	The Coorong (DC)			✓	3.93%
5266	Tintinara	The Coorong (DC)			✓	5.77%
5301	Geranium	The Coorong (DC)	✓	15.08%	✓	5.03%
5311	Paruna	Loxton Waikerie (DC)	✓	13.84%		
5321	Cadell	Mid Murray (DC)	✓	18.62%		
5322	Sunlands	Loxton Waikerie (DC)			✓	4.48%
5330	Waikerie	Loxton Waikerie (DC)			✓	3.95%
5331	Kingston on Murray	Loxton Waikerie (DC)	✓	19.64%	✓	4.06%
5346	Cobdogla	Berri and Barmera (DC)	✓	18.73%		
5354	Swan Reach	Mid Murray (DC)			✓	4.20%
5357	Blanchetown	Mid Murray (DC)	✓	15.14%	✓	7.13%
5374	Eudunda	Goyder (DC)	✓	13.03%		
5381	Robertstown	Goyder (DC)	✓	12.85%		
5410	Stockport	Clare and Gilbert Valleys (DC)	✓	23.72%		
5411	Tarlee	Clare and Gilbert Valleys (DC)	✓	21.80%		
5419	Ulooloo	Goyder (DC)	✓	24.67%		
5434	Hawker	Flinders Ranges (DC)			✓	4.82%
5462	Blyth	Wakefield (DC)	✓	14.25%		
5483	Melrose	Mount Remarkable (DC)	✓	13.98%		
5495	Mambray Creek	Mount Remarkable (DC)	✓	14.29%		
5550	Port Wakefield	Wakefield (DC)	✓	15.52%	✓	4.57%
5552	Port Arthur	Copper Coast (DC)	✓	16.26%		
5556	Walleroo	Copper Coast (DC)	✓	12.63%		
5560	Bute	Barunga West (DC)	✓	13.89%		
5577	Warooka	Yorke Peninsula (DC)	✓	14.09%	✓	4.08%
5608	Whyalla Norrie	Whyalla (C)	✓	14.27%	✓	4.89%
5609	Whyalla Jenkins	Whyalla (C)			✓	5.13%
5641	Kimba	Kimba (C)			✓	4.11%
5642	Darke Peak	Cleve (DC)			✓	6.30%
5652	Wudinna	Wudinna (DC)			✓	3.96%
5654	Minnipa	Wudinna (DC)	✓	25.02%	✓	10.35%
5690	Ceduna	Ceduna (DC)	✓	27.17%	✓	8.72%
5700	Port Augusta	Port Augusta (C)	✓	18.52%	✓	6.59%
5731	Lyndhurst	Unincorporated SA	✓	22.35%	✓	12.42%

MAP 8 | Proportion (%) of completed disconnections in South Australia between July 2015 and June 2018



MAP 9 | Proportion (%) of completed disconnections in Adelaide between July 2015 and June 2018



3.2.2 Victoria

3.2.2.1 Raised disconnections

For raised disconnections in Victoria that have been normalised for population⁶⁰, more than half of the 'top' 30 postcodes are in rural areas, as can be seen in Map 10 below. The rest is largely regional, fast-growing outer suburbs, with a small number of outer and middle suburb postcodes.

Postcode 3887 (Nowa Nowa and its surroundings) in East Gippsland has the highest proportion of raised disconnections per occupied private dwellings. The number of disconnections raised is equivalent to close to 60% of dwellings receiving disconnection notices on average each year, which is significantly higher than in the rest of the Victorian postcodes.⁶¹ This postcode also has the lowest socio-economic disadvantage ranking in the state of Victoria.⁶² Out of the 30 postcodes with the highest proportion of raised disconnections, 23 are on the lower end of the state's relative socio-economic disadvantage ranking.⁶³ Table 5 below provides a summary of the 'top' 30 postcodes with the highest proportion of raised disconnections in Victoria and some key socio-economic indicators derived from the ABS Census (2016) data.

Some postcodes with the highest proportion of raised disconnections have median household incomes that are significantly higher than the Victorian average of \$1,419 per week. Portsea (postcode 3944), Barrabool (west of Geelong, postcode 3221), Main Ridge (postcode 3928) and Williams Landing (postcode 3027) all have median weekly household incomes that range between \$1,724 and \$2,200. The SEIFA IRSD ranking for these postcodes is also high, with scores of either 9 or 10. However, for Barrabool and Main Ridge, for instance, there is a high proportion of occupied private dwellings owned with a mortgage coupled with high mortgage monthly repayments. This indicates that housing affordability may be a contributing factor to these high disconnection rates.

Similarly, for Williams Landing, housing affordability may also be the main driver behind these disconnections: almost 60% of all occupied private dwellings are owned with a mortgage and the median mortgage repayment is of \$2,167, well above the average for Victoria. In addition, less than a quarter of people resided in this postcode five years before the Census was conducted. This therefore indicates that this fast-growing outer suburb has a lot of newly built homes.

In Portsea, however, the proportion of occupied private dwellings that are owned with a mortgage or rented are significantly low, representing only 17.84% and 5.95% of all occupied private dwellings, respectively. This indicates that a large proportion of households are owned outright. Furthermore, with a median age of 67, it can be assumed that a high number of raised disconnections may be explained by a segment of elderly individuals who are "*asset-rich but income-poor*"⁶⁴ within that postcode.

⁶⁰ The normalisation for population is based on the number of occupied private dwellings as recorded in the 2016 Census data.

⁶¹ Note that this percentage **includes** repeat raised disconnections.

⁶² According to the Australian Bureau of Statistics' (ABS) 2016 Socio-Economic Indexes for Areas (SEIFA). The Index of Relative Socio-Economic Disadvantage (IRSD) provides a state-by-state ranking by deciles of socio-economic disadvantage, ranking from greater relative disadvantage (score of '1') to less relative disadvantage (score of '10'). For more information, see: <https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>.

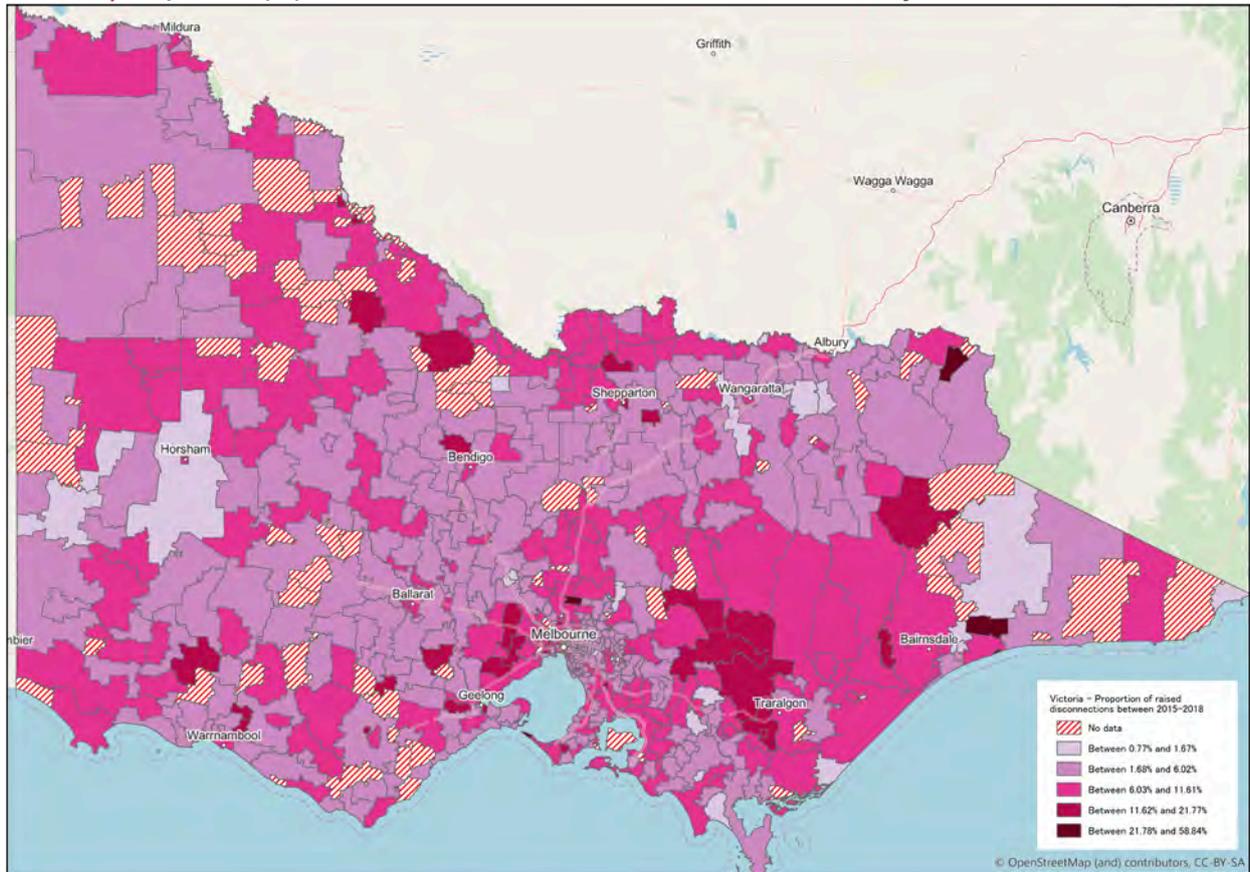
⁶³ The ABS' IRSD places 10 of the highest postcodes in the lowest decile (with a score of '1'), 6 with in the second lowest decile (score of '2'), and 5 with a score of '3'. Overall, 23 out of the 30 'top' postcodes, are ranked in the lowest half for Victoria (i.e., with a score of five or less).

⁶⁴ The ABS estimated that one third of older Australians in low income households were "asset-rich but income poor". See: Australian Bureau of Statistics (ABS), "Many older Australian households asset rich, income poor", March 2016. Accessible at: [https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/6523.0~2013-14~Media%20Release~Many%20older%20Australian%20households%20asset%20rich,%20income%20poor%20\(Media%20Release\)~40](https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/6523.0~2013-14~Media%20Release~Many%20older%20Australian%20households%20asset%20rich,%20income%20poor%20(Media%20Release)~40).

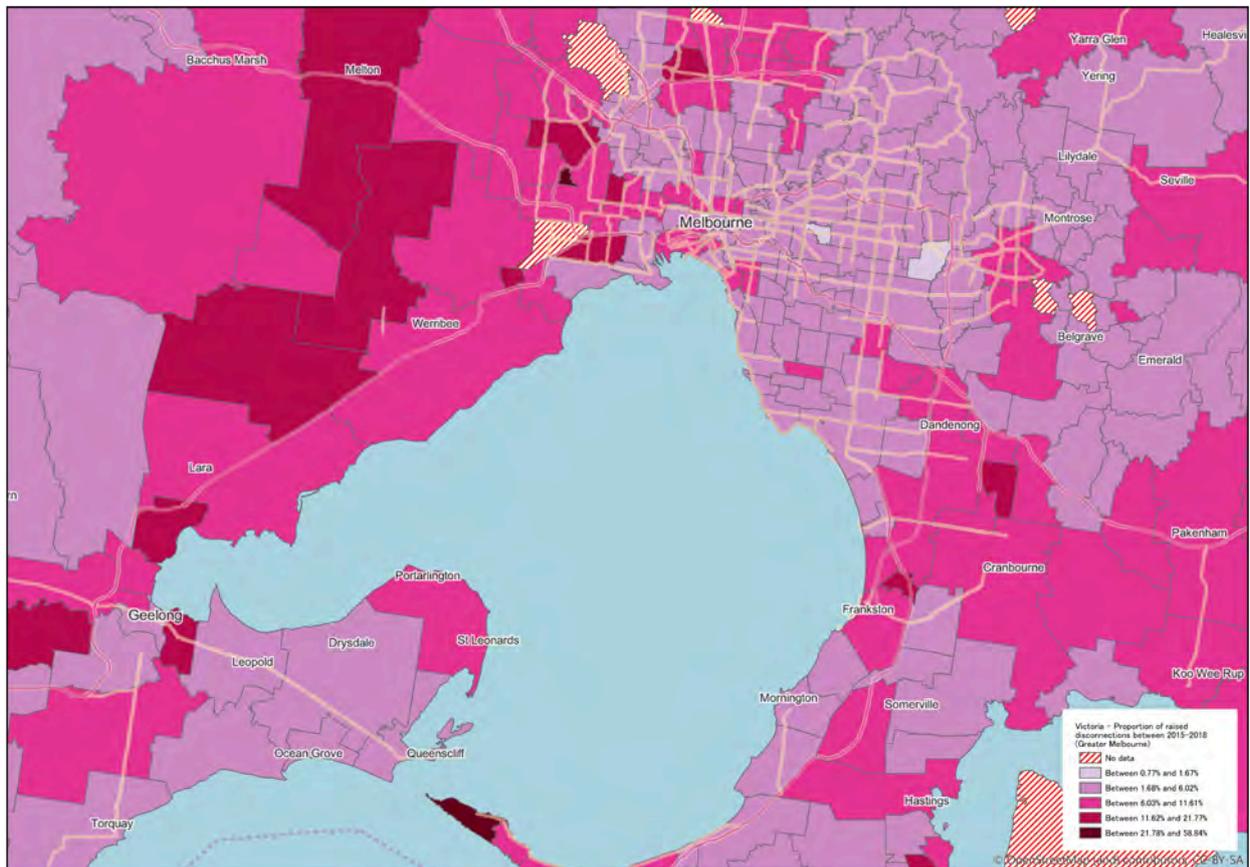
TABLE 5 | 'Top' 30 disconnection postcodes in Victoria and key socio-economic indicators derived from the ABS Census (2016) data

	Postcode	Place	Local Government Area (LGA)		Proportion of raised disconnections	Key indicators from the 2016 Census												
			Local Government Area (LGA)	Locality		SEIFA IRDS decile ranking (VIC)	Median age	Median household income (\$/week)	Proportion of families with an income of less than \$650 per week	Unemployment rate	Proportion of one parent families in occupied private dwellings	Median mortgage repayment (\$/month)	Proportion of occupied private dwellings owned with a mortgage	Median weekly rent	Proportion of occupied private dwellings rented	Proportion of persons who speak another language at home	Proportion of persons who lived at the same address five years ago	
#1	3887	Nowa Nowa	East Gippsland (S)	Rural	58.84%	1	49	\$762	39.37%	11.6%	20.25%	\$979	29.08%	\$130	29.79%	1.75%	71.64%	
#2	3751	Woodstock	Whittlesea (C)	FGOS	30.73%	3	50	\$1,392	9.86%	5.2%	5.80%	\$2,080	23.33%	\$277	18.89%	21.30%	67.87%	
#3	3705	Cudgewa	Towong (S)	Rural	29.42%	5	48	\$1,174	24.18%	2.3%	8.70%	\$1,000	37.23%	\$14	17.02%	3.83%	68.20%	
#4	3022	Ardeer	Brimbank (C)	Middle Suburbs	27.05%	1	35	\$1,156	27.03%	12.5%	22.51%	\$1,517	30.08%	\$295	31.10%	53.95%	47.79%	
#5	3944	Portsea	Mornington Peninsula (S)	Rural	25.28%	10	67	\$1,863	15.48%	4.3%	6.25%	\$2,000	17.84%	\$519	5.95%	2.75%	55.69%	
#6	3214	Corio	Greater Geelong (C)	Regional	21.77%	1	36	\$828	35.94%	14.1%	33.07%	\$1,127	25.31%	\$230	42.63%	19.01%	51.58%	
#7	3221	Barrabool	Surf Coast (S)	Rural	21.26%	10	42	\$2,133	7.69%	2.1%	10.95%	\$1,975	46.52%	\$300	6.96%	2.54%	61.15%	
#8	3842	Churchill	Latrobe (C) (Vic.)	Regional	20.32%	1	37	\$964	29.95%	12.6%	23.03%	\$975	30.73%	\$200	30.55%	6.90%	50.74%	
#9	3840	Morwell	Latrobe (C) (Vic.)	Regional	19.41%	1	43	\$906	34.22%	12.6%	22.58%	\$1,066	29.19%	\$180	29.42%	8.98%	55.52%	
#10	3322	Cressy	Colac-Otway (S)	Rural	18.76%	4	50	\$774	38.46%	5.1%	20.41%	\$647	26.32%	\$170	7.89%	2.29%	69.14%	
#11	3575	Pyramid Hill	Loddon (S)	Rural	18.16%	2	47	\$926	34.42%	4.3%	18.45%	\$737	20.70%	\$113	22.29%	10.11%	55.86%	
#12	3200	Frankston North	Frankston (C)	Outer Suburbs	17.99%	1	39	\$888	33.09%	13.2%	36.46%	\$1,205	25.43%	\$265	43.89%	11.51%	48.61%	
#13	3833	Noojee	Baw Baw (S)	Rural	17.99%	3	54	\$807	33.04%	9.7%	8.96%	\$950	30.08%	\$150	8.94%	7.82%	65.47%	
#14	3864	Fernbank	East Gippsland (S)	Rural	17.99%	4	43	\$1,174	32.43%	3.5%	13.11%	\$1,300	37.80%	\$70	12.20%	0.00%	52.07%	
#15	3278	Purnim	Moyne (S)	Rural	17.46%	7	39	\$1,261	14.29%	3.3%	7.69%	\$1,517	42.86%	\$165	18.10%	0.00%	56.55%	
#16	3540	Quambatook	Gannawarra (S)	Rural	16.70%	1	55	\$720	46.85%	9.7%	15.07%	\$585	18.03%	\$71	12.30%	2.41%	69.07%	
#17	3928	Main Ridge	Mornington Peninsula (S)	Rural	16.47%	10	52	\$1,724	20.31%	0.0%	5.22%	\$2,800	30.46%	\$152	15.23%	2.64%	61.30%	
#18	3779	Marysville	Murrindindi (S)	Rural	16.27%	6	58	\$922	33.99%	4.2%	13.33%	\$1,127	27.06%	\$267	20.00%	6.09%	52.03%	
#19	3027	Williams Landing	Wyndham (C)	FGOS	16.00%	9	31	\$2,220	7.73%	8.6%	10.24%	\$2,167	58.13%	\$390	31.57%	60.59%	23.92%	
#20	3338	Brookfield	Melton (C)	FGOS	15.67%	2	33	\$1,337	19.55%	9.1%	20.83%	\$1,517	45.65%	\$286	28.15%	21.54%	40.24%	
#21	3021	St Albans	Brimbank (C)	Outer Suburbs	14.97%	1	35	\$1,050	27.81%	13.0%	24.16%	\$1,408	28.06%	\$288	30.04%	66.85%	55.81%	
#22	3355	Wendouree	Ballarat (C)	Regional	14.80%	1	42	\$887	32.97%	9.6%	24.48%	\$1,144	23.46%	\$220	37.33%	5.62%	50.79%	
#23	3337	Melton	Melton (C)	FGOS	14.79%	2	33	\$1,296	19.23%	8.5%	22.70%	\$1,465	46.15%	\$275	25.95%	18.77%	50.40%	
#24	3279	Ballageich	Moyne (S)	Rural	14.55%	6	37	\$1,375	12.00%	2.1%	4.55%	\$1,416	28.57%	\$90	23.81%	2.07%	61.72%	
#25	3588	Woorinen South	Swan Hill (RC)	Rural	13.89%	2	42	\$1,066	22.81%	4.7%	11.71%	\$867	40.15%	\$210	9.09%	4.21%	68.82%	
#26	3254	Cororooke	Colac-Otway (S)	Rural	13.20%	2	35	\$1,235	17.53%	2.0%	20.00%	\$1,105	48.15%	\$210	15.74%	0.97%	57.42%	
#27	3024	Mount Cottrell	Wyndham (C)	FGOS	13.16%	4	31	\$1,505	13.40%	8.5%	19.48%	\$1,600	54.26%	\$301	27.39%	29.20%	42.67%	
#28	3595	Nyah West	Swan Hill (RC)	Rural	13.02%	1	49	\$761	39.27%	11.8%	18.06%	\$650	35.62%	\$160	17.81%	4.83%	51.13%	
#29	3630	Shepparton-Mooroopna	Greater Shepparton (C)	Regional	12.93%	1	37	\$1,068	26.75%	8.1%	21.16%	\$1,300	28.57%	\$230	36.30%	20.64%	48.21%	
#30	3047	Broadmeadows	Hume (C)	Outer Suburbs	12.77%	1	31	\$922	32.47%	16.0%	25.32%	\$1,321	26.31%	\$291	40.49%	61.24%	49.31%	
Victoria state average						37		\$1,419	20.30%	6.6%	15.30%	\$1,728	35.30%	\$325	28.70%	26.50%	N/A	

MAP 10 | Proportion (%) of raised disconnections in Victoria between July 2015 and June 2018



MAP 11 | Proportion (%) of raised disconnections in Melbourne between July 2015 and June 2018



3.2.2.2 Completed disconnections

For completed disconnections that have been normalised for population, postcodes with the highest proportion of disconnections are still mainly in rural areas, similar to raised disconnections in Victoria. There is, however, a greater number of postcodes located in regional areas, fast-growing outer suburbs, middle suburbs and outer suburbs.

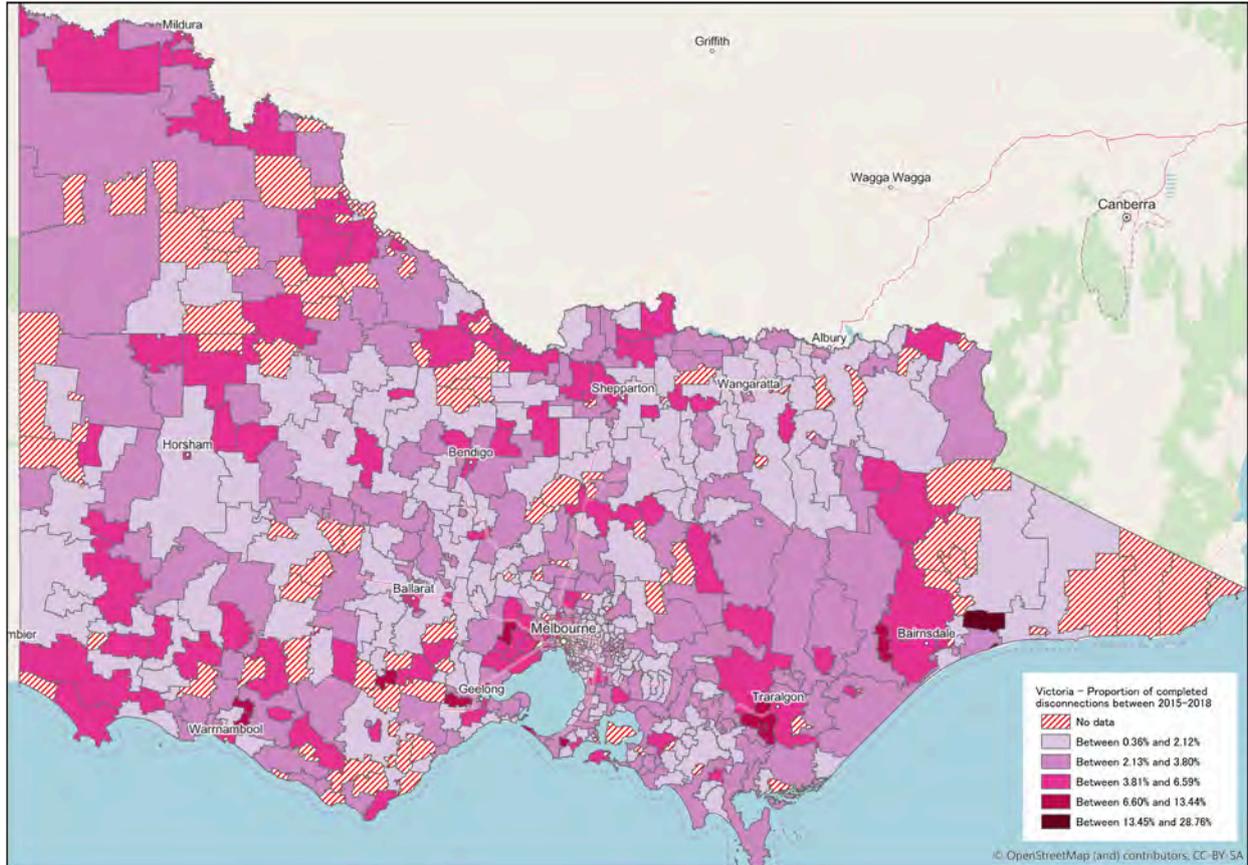
Postcode 3887 (Nowa Nowa and its surroundings) remains the postcode with the highest proportion of disconnections: it is estimated that the equivalent of approximately 30% of occupied private dwellings were disconnected from their electricity supply each year, on average between July 2015 and June 2018. The remainder of the 'top' 30 postcodes have between 5.84% and 13.44% of occupied private dwellings that were disconnected. Table 6 below presents the 'top' 30 disconnection postcodes in Victoria, for both raised and completed disconnections.

From the 'top' 30 disconnections postcodes that had the highest proportion of raised disconnections, 22 are also in the 'top' 30 for completed disconnections. Cudgewa (postcode 3705), Woodstock (postcode 3751), Marysville (postcode 3779) and Nooje (postcode 3833) had some of the highest proportion of raised disconnections in Victoria, however, when looking at completed disconnections, they no longer appear in the 'top' 30. Some of the 'new' postcodes with high proportions of completed disconnections include Sunshine (postcode 3020), Murtoa, northwest of Horsham (postcode 3390) and East Geelong (postcode 3219), amongst other. The proportion of completed disconnections for these postcodes is, however, lower than the postcodes that were also in the 'top' 30 disconnection postcodes for raised disconnections.

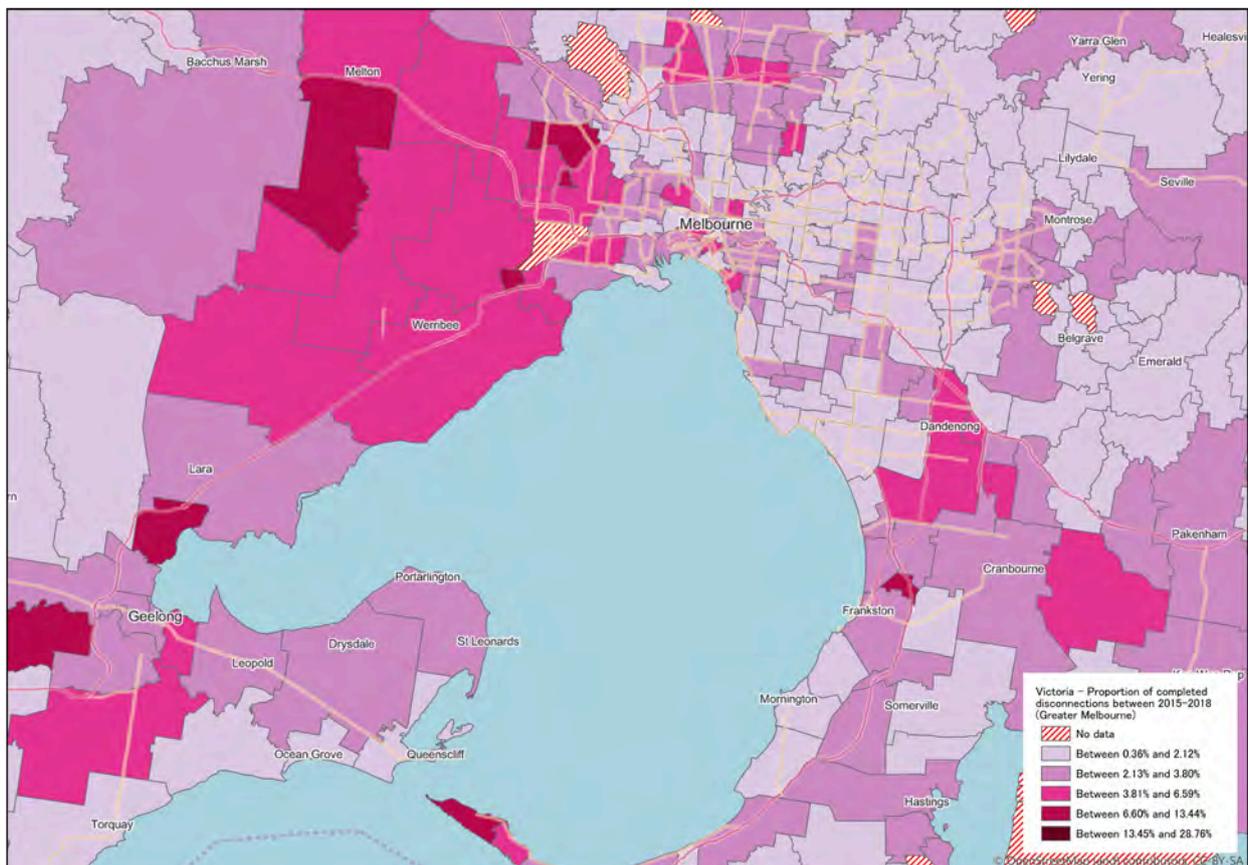
TABLE 7 | Victorian postcodes that are in the 'top' 30 disconnection postcodes for both raised and completed disconnections

Postcode	Place	LGA	In the top '30' raised?	Proportion of raised disconnections	In the top '30' completed?	Proportion of completed disconnections
3019	Braybrook	Maribyrnong (C)			✓	5.93%
3020	Sunshine	Brimbank (C)			✓	6.02%
3021	St Albans	Brimbank (C)	✓	14.97%	✓	7.72%
3022	Ardeer	Brimbank (C)	✓	27.05%	✓	11.35%
3024	Mount Cottrell	Wyndham (C)	✓	13.16%	✓	5.89%
3025	Altona North	Hobsons Bay (C)			✓	5.92%
3027	Williams Landing	Wyndham (C)	✓	16.00%	✓	7.38%
3047	Broadmeadows	Hume (C)	✓	12.77%	✓	6.17%
3200	Frankston North	Frankston (C)	✓	17.99%	✓	8.56%
3211	Little River	Wyndham (C)			✓	5.93%
3214	Corio	Greater Geelong (C)	✓	21.77%	✓	11.07%
3219	East Geelong	Greater Geelong (C)			✓	5.94%
3221	Barrabool	Surf Coast (S)	✓	21.26%	✓	10.63%
3254	Cororooke	Colac-Otway (S)	✓	13.20%		
3278	Purnim	Moyne (S)	✓	17.46%	✓	7.76%
3279	Ballageich	Moyne (S)	✓	14.55%	✓	7.28%
3322	Cressy	Colac-Otway (S)	✓	18.76%	✓	8.04%
3337	Melton	Melton (C)	✓	14.79%	✓	6.59%
3338	Brookfield	Melton (C)	✓	15.67%	✓	7.18%
3355	Wendouree	Ballarat (C)	✓	14.80%	✓	6.17%
3390	Murtoa	Yarriambiack (S)			✓	5.98%
3540	Quambatook	Gannawarra (S)	✓	16.70%		
3575	Pyramid Hill	Loddon (S)	✓	18.16%	✓	5.84%
3588	Woorinen South	Swan Hill (RC)	✓	13.89%		
3595	Nyah West	Swan Hill (RC)	✓	13.02%	✓	6.51%
3629	Ardmona	Greater Shepparton (C)			✓	5.95%
3630	Shepparton-Mooroopna	Greater Shepparton (C)	✓	12.93%	✓	6.34%
3705	Cudgewa	Towong (S)	✓	29.42%		
3751	Woodstock	Whittlesea (C)	✓	30.73%		
3779	Marysville	Murrindindi (S)	✓	16.27%		
3833	Noojee	Baw Baw (S)	✓	17.99%		
3840	Morwell	Latrobe (C) (Vic.)	✓	19.41%	✓	9.14%
3842	Churchill	Latrobe (C) (Vic.)	✓	20.32%	✓	9.27%
3864	Fernbank	East Gippsland (S)	✓	17.99%	✓	8.99%
3887	Nowa Nowa	East Gippsland (S)	✓	58.84%	✓	28.76%
3928	Main Ridge	Mornington Peninsula (S)	✓	16.47%	✓	7.25%
3944	Portsea	Mornington Peninsula (S)	✓	25.28%	✓	13.44%

MAP 12 | Proportion (%) of completed disconnections in Victoria between July 2015 and June 2018



MAP 13 | Proportion (%) of completed disconnections in Melbourne between July 2015 and June 2018



3.2.3 New South Wales

3.2.3.1 Raised disconnections

For raised disconnections in New South Wales that have been normalised for population⁶⁵, there is a prevalence of raised disconnections occurring in rural postcodes: from the 'top' 30 postcodes with the highest proportion of raised disconnections, more than 80% of these are in rural areas. Map 14 and Map 15 below show where postcodes with the highest proportion of raised disconnections are located.

Most importantly, some of these areas, like postcodes 2833 (Collarenebri, between Lightning Ridge and Moree) and 2717 (Dareton, on the Murray River, north of Mildura), have the highest proportion of raised disconnections per occupied private dwellings recorded across all four states. In postcode 2833, for example, the number of disconnections raised is equivalent to more than 70% of dwellings receiving disconnection notices, each year, on average.⁶⁶ Additionally, postcode 2833 also has the lowest socio-economic disadvantage ranking in the state of New South Wales.⁶⁷ Similarly, in postcode 2717, the number of disconnections raised is equivalent to 64% of occupied private dwellings receiving disconnection notices each year, and the postcode is also ranked in the lowest decile of relative socio-economic disadvantage across the entire state.⁶⁸ This is also the case for the remainder of the 'top' 30 postcodes which are all largely on the lower end of the state's socio-economic disadvantage ranking.⁶⁹

Table 7 below provides a summary of 'top' 30 postcodes with the highest proportion of disconnections and some key socio-economic indicators derived from the ABS Census (2016) data. It shows that the 'top' seven postcodes have a median income of less than \$1,000 per week. By comparison, the average for New South Wales is of \$1,486 per week. Whilst the majority of the postcodes listed in Table 7 have an income below the state average, there are some exceptions. For example, the postcode with the 10th most disconnections raised, Liverpool (postcode 2174), has a median income well above the state average (at \$2,280 per week). The SEIFA IRSD decile ranking for that postcode is also high, with a score of 9. Looking at the proportion of occupied private dwellings that are owned with a mortgage and the median mortgage repayment for that postcode would indicate that housing affordability may be a key reason behind such high disconnection numbers. In Liverpool, almost 60% of dwellings are owned with a mortgage (*compared with 32% for New South Wales*) and the median monthly mortgage repayment is \$2,643 (*compared to the New South Wales median of \$1,986*). Furthermore, only 8% of people in this postcode lived at the same address five years earlier. This indicates that this fast-growing outer suburb postcode includes a lot of newly built homes.

⁶⁵ The normalisation for population is based on the number of occupied private dwellings as recorded in the 2016 Census data.

⁶⁶ Note that this percentage **includes** repeat raised disconnections.

⁶⁷ According to the Australian Bureau of Statistics' (ABS) 2016 Socio-Economic Indexes for Areas (SEIFA). The Index of Relative Socio-Economic Disadvantage (IRSD) provides a state-by-state ranking by deciles of socio-economic disadvantage, ranking from greater relative disadvantage (score of '1') to less relative disadvantage (score of '10'). For more information, see: <https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>.

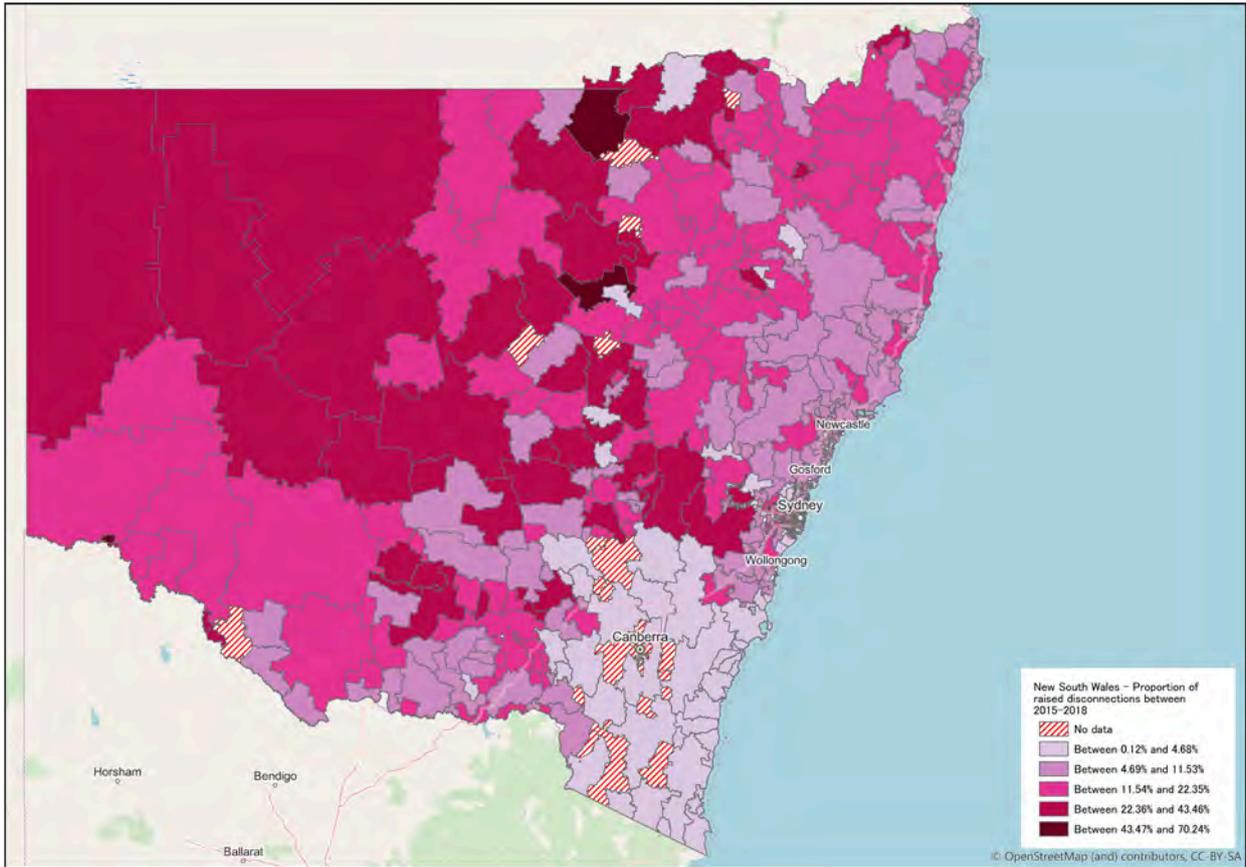
⁶⁸ *Ibid.*

⁶⁹ The ABS' IRSD places 10 of the highest postcodes in the lowest decile (with a score of '1'), 6 with in the second lowest decile (score of '2'), and 5 with a score of '3'. Overall, 28 out of the 30 'top' postcodes, are ranked in the lowest half for New South Wales (i.e., with a score of five or less).

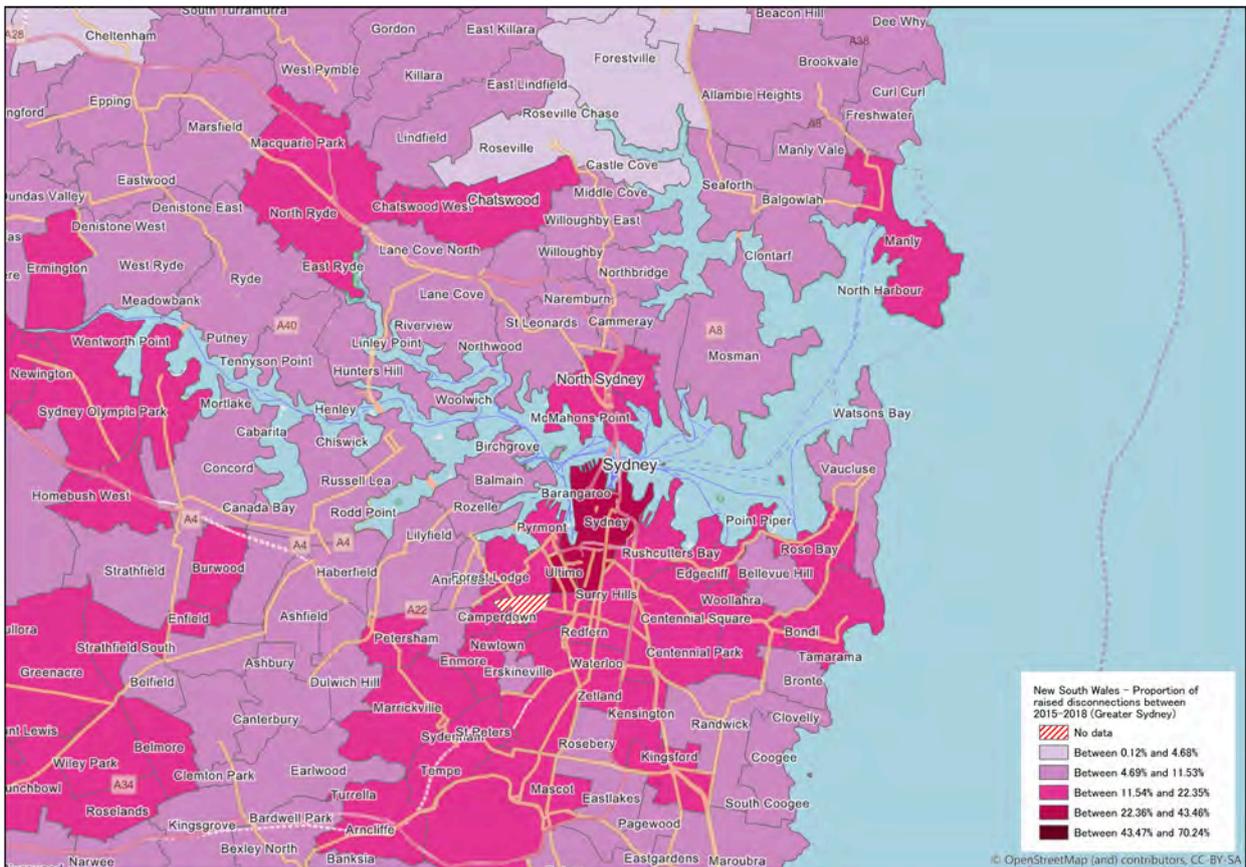
TABLE 7 | 'Top' 30 disconnection postcodes in New South Wales and key socio-economic indicators derived from the ABS Census (2016) data

#	Postcode	Place	Local Government Area (LGA)	Locality	Proportion of raised disconnections	Key indicators from the 2016 Census												
						SEIFA IRDS decile ranking (NSW)	Median age	Median household income (\$/week)	Proportion of families with an income of less than \$650 per week	Unemployment rate	Proportion of one parent families in occupied private dwellings	Median mortgage repayment (\$/month)	Proportion of occupied private dwellings owned with a mortgage	Median weekly rent	Proportion of occupied private dwellings rented	Proportion of persons who speak another language at home	Proportion of persons who lived at the same address five years ago	
#1	2833	Collarenebri	Walgett (A)	Rural	70.24%	1	38	\$907	27.27%	12.9%	27.52%	\$479	13.90%	\$132	49.33%	2.31%	61.69%	
#2	2717	Dareton	Wentworth (A)	Rural	63.73%	1	44	\$864	33.25%	8.5%	23.44%	\$867	24.32%	\$130	34.01%	4.14%	61.65%	
#3	2559	Claymore	Campbelltown (C) (NSW)	FGOS	57.51%	1	24	\$785	39.52%	20.8%	51.05%	\$1,983	6.21%	\$200	84.83%	21.86%	49.30%	
#4	2828	Gulargambone	Coonamble (A)	Rural	48.29%	1	44	\$924	32.00%	8.9%	23.35%	\$582	17.06%	\$120	31.40%	0.84%	56.80%	
#5	2836	White Cliffs	Central Darling (A)	Rural	43.46%	1	34	\$937	35.06%	8.6%	29.95%	\$433	6.45%	\$110	48.75%	3.93%	62.96%	
#6	2820	Wellington	Western Plains Regional (A)	Regional	41.95%	1	42	\$893	33.51%	10.0%	23.18%	\$1,083	26.12%	\$180	28.72%	1.87%	48.37%	
#7	2700	Narrandera	Narrandera (A)	Rural	40.26%	2	44	\$994	31.63%	6.3%	18.80%	\$1,083	28.37%	\$180	27.77%	2.74%	54.53%	
#8	2840	Bourke	Bourke (A)	Rural	39.53%	2	36	\$1,245	20.00%	6.0%	22.86%	\$981	22.94%	\$135	40.71%	2.49%	46.23%	
#9	2400	Moree	Moree Plains (A)	Rural	39.51%	2	38	\$1,284	22.65%	6.4%	22.13%	\$1,300	25.93%	\$185	40.38%	3.99%	50.14%	
#10	2174	Edmondson Park	Liverpool (C)	FGOS	38.32%	9	31	\$2,280	6.14%	6.1%	8.14%	\$2,643	59.79%	\$560	23.40%	57.26%	8.07%	
#11	2800	Orange	Orange (C)	Regional	36.83%	5	37	\$1,339	22.06%	6.0%	17.51%	\$1,668	33.60%	\$270	31.35%	5.56%	47.80%	
#12	2829	Coonamble	Coonamble (A)	Rural	36.46%	1	42	\$1,019	29.84%	8.6%	24.83%	\$910	23.81%	\$168	30.55%	1.29%	51.71%	
#13	2735	Koraleigh	Murray River (A)	Rural	36.09%	4	45	\$833	35.94%	9.6%	13.68%	\$737	39.46%	\$125	19.73%	3.79%	60.04%	
#14	2736	Tooleybuc	Murray River (A)	Rural	35.82%	5	48	\$1,093	25.89%	4.1%	10.42%	\$867	22.39%	\$128	15.67%	10.34%	54.38%	
#15	2702	Ganmain	Coolamonn (A)	Rural	35.06%	3	47	\$935	32.14%	11.8%	10.50%	\$750	33.81%	\$140	13.52%	1.67%	60.46%	
#16	2832	Walgett	Walgett (A)	Rural	34.53%	1	35	\$959	31.41%	9.4%	28.60%	\$909	13.67%	\$150	45.80%	2.76%	52.34%	
#17	2406	Mungindi	Moree Plains (A)	Rural	33.91%	3	36	\$1,203	22.01%	6.4%	17.32%	\$817	18.12%	\$100	44.30%	4.37%	49.09%	
#18	2705	Leeton	Leeton (A)	Rural	33.35%	3	41	\$1,202	22.99%	5.2%	16.02%	\$1,300	31.08%	\$200	28.98%	7.80%	53.97%	
#19	2706	Darlington Point	Murrumbidgee (A)	Rural	33.01%	1	41	\$1,131	25.14%	6.9%	20.65%	\$1,083	27.79%	\$170	38.24%	2.67%	55.34%	
#20	2680	Griffith	Griffith (C)	Rural	32.98%	4	37	\$1,334	20.46%	4.8%	14.89%	\$1,500	28.29%	\$225	32.97%	21.68%	52.01%	
#21	2795	Bathurst	Bathurst Regional (A)	Regional	31.80%	5	37	\$1,310	22.10%	5.9%	17.65%	\$1,668	33.69%	\$275	30.25%	4.04%	47.22%	
#22	2672	Lake Cargelligo	Lachlan (A)	Rural	31.64%	2	37	\$1,026	32.48%	8.2%	21.64%	\$897	20.56%	\$145	35.14%	3.24%	52.98%	
#23	2870	Parkes	Parkes (A)	Rural	31.45%	3	39	\$1,154	26.61%	7.1%	18.85%	\$1,300	30.90%	\$200	30.46%	2.99%	52.18%	
#24	2824	Warren	Warren (A)	Rural	31.43%	2	43	\$1,060	26.84%	8.4%	18.59%	\$953	22.22%	\$145	32.00%	2.06%	57.35%	
#25	2663	Junee	Junee (A)	Rural	31.17%	2	38	\$1,101	25.62%	5.5%	20.30%	\$1,200	33.09%	\$210	27.02%	3.49%	44.49%	
#26	2342	Currabubula	Liverpool Plains (A)	Rural	30.81%	6	46	\$1,130	25.34%	2.4%	17.07%	\$1,537	35.98%	\$110	22.56%	0.64%	57.75%	
#27	2791	Carcoar	Blayney (A)	Rural	30.39%	5	55	\$1,045	31.67%	5.6%	13.19%	\$1,300	26.32%	\$115	16.54%	1.17%	61.22%	
#28	2703	Yanco	Leeton (A)	Rural	30.03%	3	18	\$1,018	32.11%	6.4%	21.15%	\$1,168	29.10%	\$133	31.15%	1.73%	41.77%	
#29	2369	Tingha	Armidale Regional (A)	Rural	29.49%	1	45	\$829	30.77%	17.6%	21.85%	\$867	29.02%	\$155	20.50%	0.86%	62.68%	
#30	2835	Cobar	Cobar (A)	Rural	29.00%	4	35	\$1,628	18.82%	5.7%	15.38%	\$1,304	25.52%	\$170	38.56%	4.39%	46.85%	
New South Wales state average						38		\$1,486	19.70%	6.3%	16.00%	\$1,986	32.30%	\$380	31.80%	27.80%	N/A	

MAP 14 | Proportion (%) of raised disconnections in New South Wales between July 2015 and June 2018



MAP 15 | Proportion (%) of raised disconnections in Sydney between July 2015 and June 2018



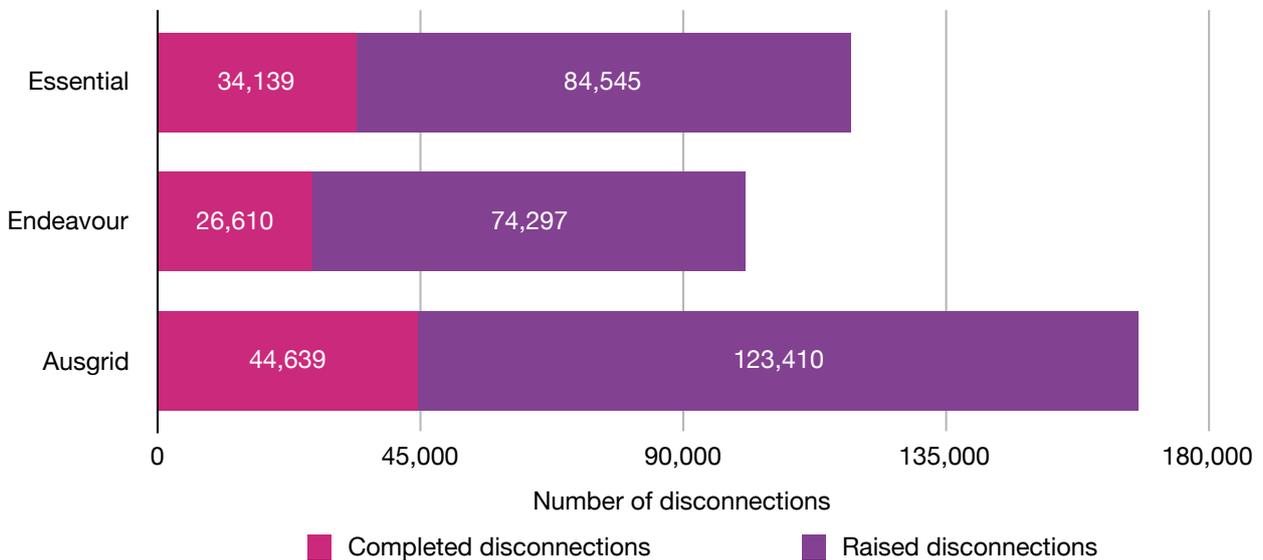
3.2.3.2 Completed disconnections

Postcodes with the highest proportion of completed disconnections per occupied private dwellings also appear to be more densely concentrated on the western part of the state and as such, in more remote areas, as can be seen in Map 16 below.

From the ‘top’ 30 postcodes in New South Wales with the highest proportion of completed disconnections per occupied private dwellings: 25 are in rural areas, four are regional postcodes and one is a fast-growing outer suburb. These postcodes are in the Essential distribution network, and, as discussed in section 1.3. above, the completion rates can vary between network areas.

As Figure 19 below outlines, the completion rates among the different distribution networks in New South Wales are largely similar: Ausgrid and Endeavour have completion rates between 35 and 36%, and Essential at around 40%.

FIGURE 19 | Comparison of completion rates between Ausgrid, Endeavour and Essential distribution network



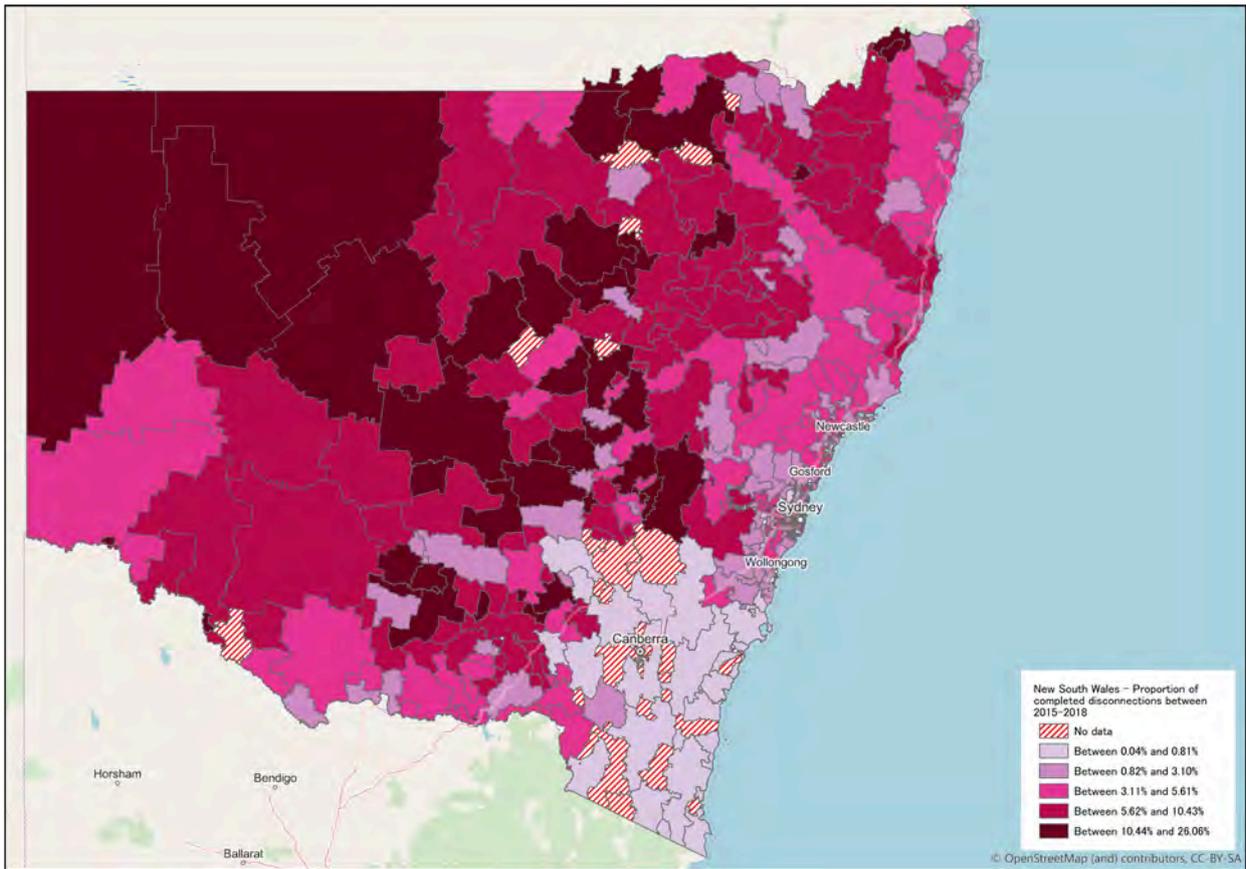
Collarenebri (postcode 2833) remains the postcode with the highest proportion of disconnections: it is estimated that the equivalent of 26% of dwellings were disconnected from their electricity supply each year, on average between July 2015 and June 2018. Table 8 below presents the ‘top’ 30 disconnection postcodes in New South Wales for both raised and completed disconnections.

From the ‘top’ 30 postcodes with the highest proportion of raised disconnections, 24 also have the highest proportion of completed disconnections. Some of the postcodes that do not have the highest proportion of completed disconnections include Edmondson Park (postcode 2174), Currabubula (postcode 2342), Koraleigh (postcode 2735), Griffith (postcode 2680) and Walgett (postcode 2832). Some of the postcodes that only have a high proportion of completed disconnections include Boggabri (postcode 2382), Urbenville (postcode 2475), Gooloogong (postcode 2805), Dubbo (postcode 2830), Nelungaloo (postcode 2876) and Broken Hill (postcode 2880).

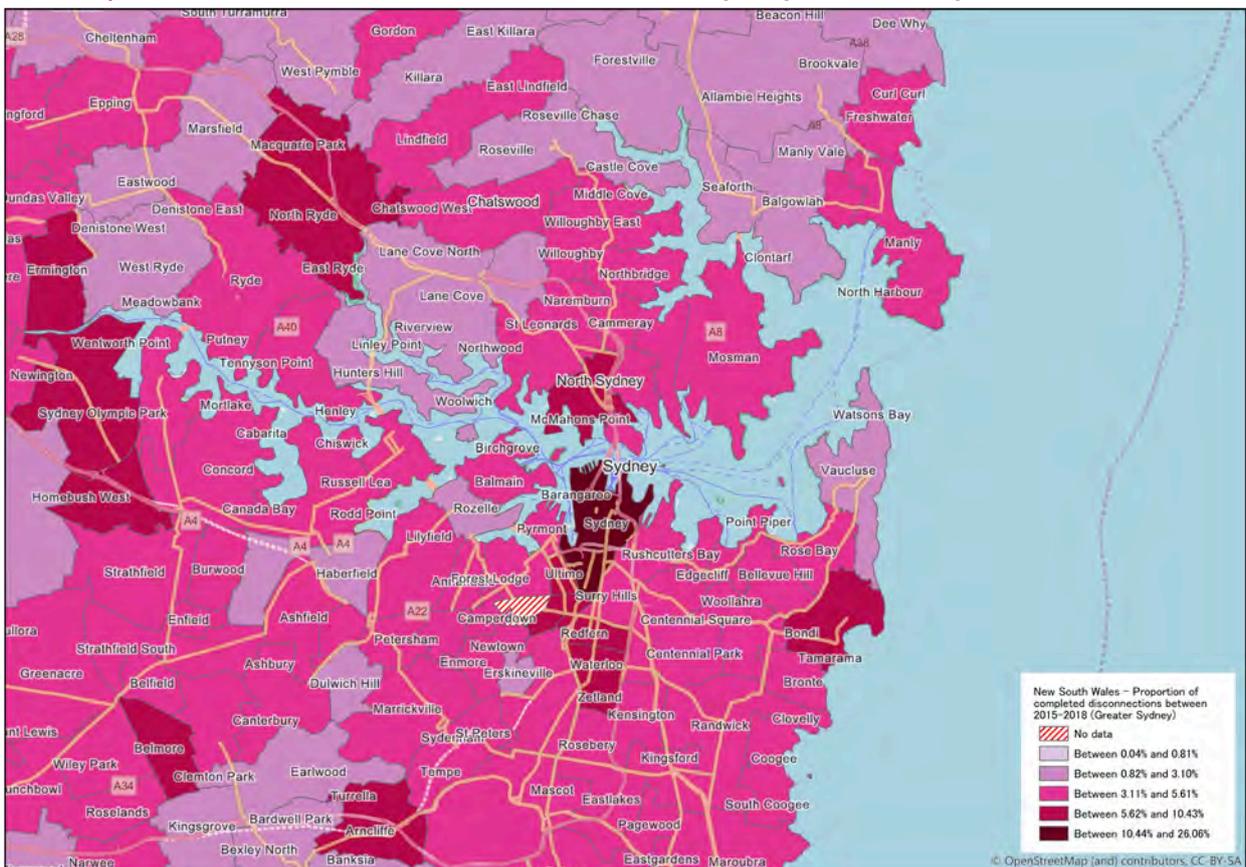
TABLE 8 | New South Wales postcodes that are in the 'top' 30 disconnection postcodes for both raised and completed disconnections

Postcode	Place	LGA	In the top '30' raised?	Proportion of raised disconnections	In the top '30' completed?	Proportion of completed disconnections
2174	Edmondson Park	Liverpool (C)	✓	38.32%		
2342	Currabubula	Liverpool Plains (A)	✓	30.81%		
2369	Tingha	Armidale Regional (A)	✓	29.49%	✓	12.75%
2382	Boggabri	Narrabri (A)			✓	14.15%
2400	Moree	Moree Plains (A)	✓	39.51%	✓	15.22%
2406	Mungindi	Moree Plains (A)	✓	33.91%	✓	17.80%
2475	Urbenville	Tenterfield (A)			✓	14.04%
2559	Claymore	Campbelltown (C) (NSW)	✓	57.51%	✓	16.08%
2663	Juneë	Juneë (A)	✓	31.17%	✓	16.16%
2672	Lake Cargelligo	Lachlan (A)	✓	31.64%	✓	13.69%
2680	Griffith	Griffith (C)	✓	32.98%		
2700	Narrandera	Narrandera (A)	✓	40.26%	✓	13.14%
2702	Ganmain	Coolamonn (A)	✓	35.06%	✓	17.98%
2703	Yanco	Leeton (A)	✓	30.03%	✓	14.50%
2705	Leeton	Leeton (A)	✓	33.35%	✓	12.10%
2706	Darlington Point	Murrumbidgee (A)	✓	33.01%		
2717	Dareton	Wentworth (A)	✓	63.73%	✓	18.21%
2735	Koraleigh	Murray River (A)	✓	36.09%		
2736	Tooleybuc	Murray River (A)	✓	35.82%	✓	13.20%
2791	Carcoar	Blayney (A)	✓	30.39%	✓	15.20%
2795	Bathurst	Bathurst Regional (A)	✓	31.80%	✓	12.73%
2800	Orange	Orange (C)	✓	36.83%	✓	13.24%
2805	Gooloogong	Cowra (A)			✓	12.55%
2820	Wellington	Western Plains Regional (A)	✓	41.95%	✓	20.09%
2824	Warren	Warren (A)	✓	31.43%	✓	14.95%
2828	Gulargambone	Coonamble (A)	✓	48.29%	✓	15.52%
2829	Coonamble	Coonamble (A)	✓	36.46%	✓	14.68%
2830	Dubbo	Western Plains Regional (A)			✓	12.62%
2832	Walgett	Walgett (A)	✓	34.53%		
2833	Collarenebri	Walgett (A)	✓	70.24%	✓	26.06%
2835	Cobar	Cobar (A)	✓	29.00%	✓	14.16%
2836	White Cliffs	Central Darling (A)	✓	43.46%	✓	17.20%
2040	Bourke	Bourke (A)	✓	39.53%	✓	15.46%
2870	Parkes	Parkes (A)	✓	31.45%	✓	13.65%
2876	Nelungaloo	Parkes (A)			✓	13.10%
2880	Broken Hill	Broken Hill (C)			✓	14.08%

MAP 16 | Proportion (%) of completed disconnections in New South Wales between July 2015 and June 2018



MAP 17 | Proportion (%) of completed disconnections in Sydney between July 2015 and June 2018



3.2.3 South East Queensland

3.2.3.1 Raised disconnections

For raised disconnections that have been normalised for population⁷⁰, South East Queensland FGOS Logan Central (postcode 4114) and Riverview (postcode 4303) have the highest proportion of raised disconnections per occupied private dwellings. It is estimated that the number of disconnections raised is equivalent to 25% of occupied private dwellings receiving disconnection notices, each year, on average. For these two postcodes, median household income is significantly below the state average of \$1,402 per week (\$960 per week in Logan Central and \$945 per week in New Chum/Riverview). Additionally, unemployment rates far exceed Queensland's average rate of 7.60% (18.2% in Logan Central and 15.6% in New Chum/Riverview), as evidenced in Table 9 below. The proportion of one parent families in these two postcodes is also almost 1.5 times the average for the rest of Queensland. Additionally, these postcodes fall among Queensland's lowest ranked postcodes in terms of relative socio-economic disadvantage, according to the Australian Bureau of Statistics' (ABS) 2016 Socio-Economic Indexes for Areas (SEIFA).⁷¹

More broadly, the 'top' 30 postcodes with the highest proportion of raised disconnections per occupied private dwellings are predominantly FGOS, accounting for 19 out of the 30 postcodes. These are, once again, broadly characterised by lower median weekly household income, higher unemployment rates and are on the lower end of the state's socio-economic disadvantage ranking.⁷²

In the 'top' 30 postcodes, a few inner-city areas also have a high proportion of raised disconnections. In contrast to the FGOS, these postcodes have relatively high median household incomes, ranging from \$1,618 to \$2,190 per week, and are among the highest ranked Queensland postcodes in terms of relative socio-economic disadvantage. Paddington (postcode 4064), Albion (postcode 4010), East Brisbane (postcode 4169), New Farm (postcode 4005) and Fortitude Valley (postcode 4006) all had a SEIFA IRSD score of 9 or more. These postcodes, however, also have in common that their population is very transient, with only 16.6% to 33.75% of residents living at the same address five years ago. Furthermore, these postcodes are also characterised with a median age that is lower than the state average of 37, coupled with a higher proportion of households being rented, between 49% and 72%. This could be a key element towards explaining why these postcodes have such a high number of disconnections, despite having a high median income and scoring relatively higher in terms of socio-economic disadvantage.

⁷⁰ The normalisation for population is based on the number of occupied private dwellings as recorded in the 2016 Census data.

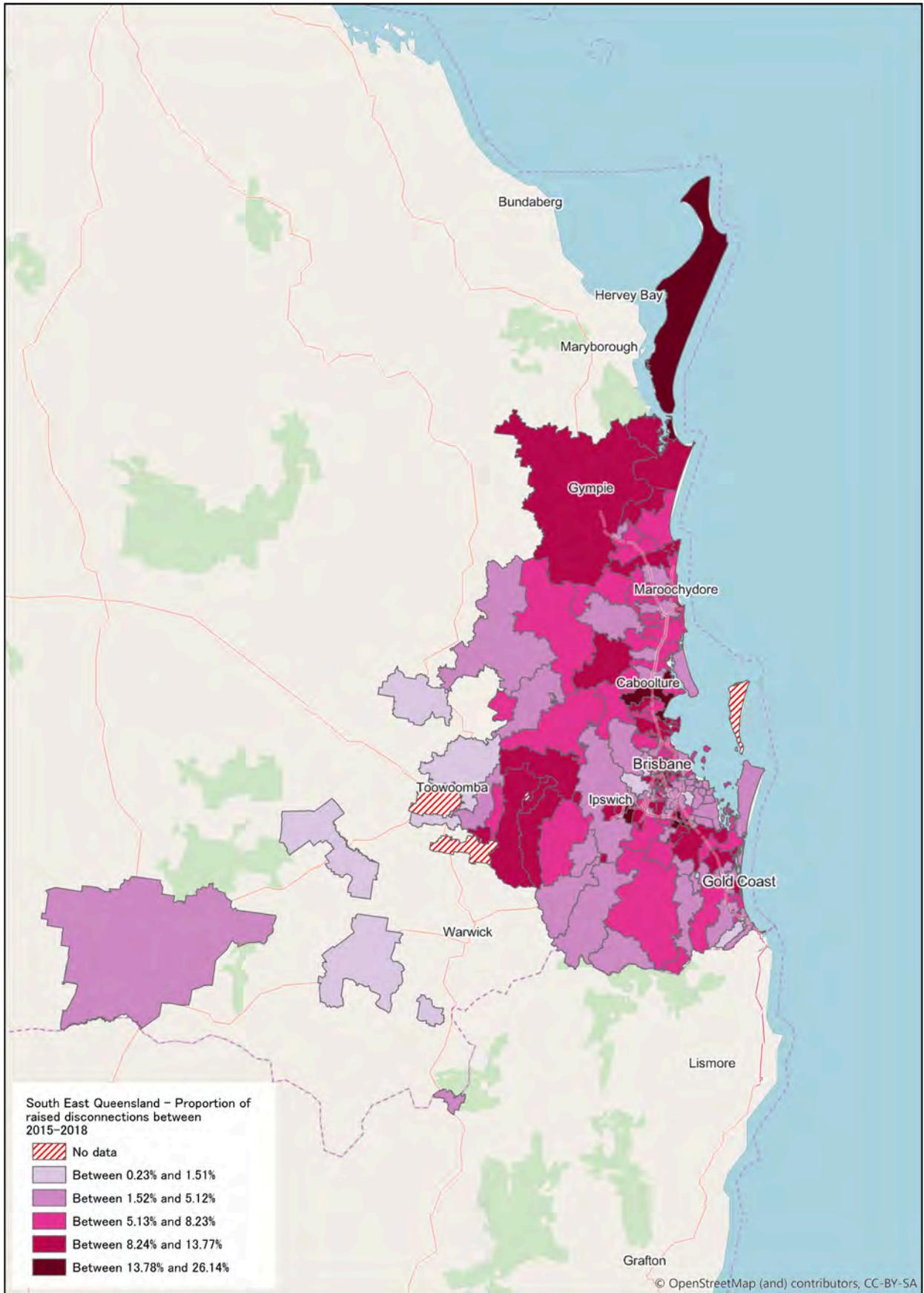
⁷¹ According to the Australian Bureau of Statistics' (ABS) 2016 Socio-Economic Indexes for Areas (SEIFA). The Index of Relative Socio-Economic Disadvantage (IRSD) provides a state-by-state ranking by deciles of socio-economic disadvantage, ranking from greater relative disadvantage (score of '1') to less relative disadvantage (score of '10'). For more information, see: <https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>.

⁷² The ABS' SEIFA IRSD ranks 17 out of the 19 'top' postcodes that are FGOS the lowest half for Queensland (i.e., with a score of five or less).

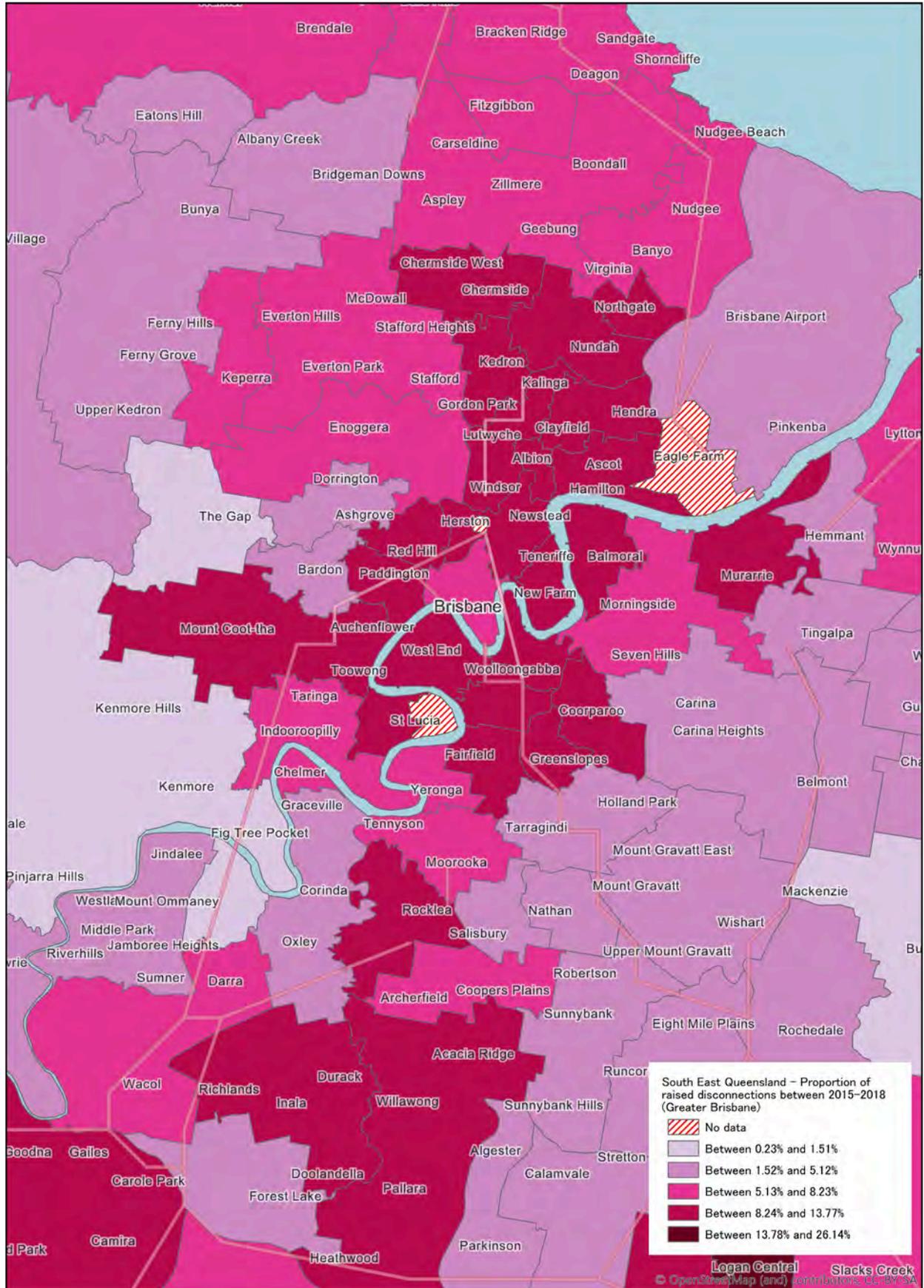
TABLE 9 | 'Top' 30 disconnection postcodes in South East Queensland and key socio-economic indicators derived from the ABS Census (2016) data

#	Postcode	Place	Local Government Area (LGA)	Locality	Proportion of raised disconnections	Key indicators from the 2016 Census												
						SEIFA IRDS decile rank (QLD)	Median age	Median household income (\$/week)	Proportion of families with an income of less than \$650 per week	Unemployment rate	Proportion of one parent families in occupied private dwellings	Median mortgage repayment (\$/month)	Proportion of occupied private dwellings owned with a mortgage	Median weekly rent	Proportion of occupied private dwellings rented	Proportion of persons who speak another language at home	Proportion of persons who lived at the same address five years ago	
#1	4114	Logan Central	Logan (C)	FGOS	26.14%	1	31	\$960	28.98%	18.2%	30.52%	\$1,300	22.33%	\$280	54.70%	33.47%	44.28%	
#2	4303	Riverview	Ipswich (C)	FGOS	25.70%	1	38	\$941	28.81%	15.6%	35.51%	\$1,231	24.96%	\$250	50.41%	14.01%	47.54%	
#3	4581	Fraser Island	Fraser Coast (R)	Regional	19.18%	3	49	\$908	33.40%	6.7%	13.10%	\$1,437	15.97%	\$260	38.29%	4.26%	40.92%	
#4	4301	Redbank	Ipswich (C)	FGOS	16.15%	2	28	\$1,369	14.33%	11.7%	24.59%	\$1,517	33.20%	\$330	49.26%	20.98%	37.85%	
#5	4508	Deception Bay	Moreton Bay (R)	FGOS	16.04%	1	37	\$1,111	22.83%	12.0%	25.09%	\$1,538	32.69%	\$305	40.33%	7.58%	46.70%	
#6	4131	Loganlea	Logan (C)	FGOS	15.45%	2	31	\$1,320	19.81%	11.6%	26.37%	\$1,600	29.06%	\$340	51.82%	20.80%	41.30%	
#7	4510	Caboolture	Moreton Bay (R)	FGOS	15.12%	2	36	\$1,114	24.67%	11.3%	22.70%	\$1,582	30.29%	\$300	42.29%	6.77%	40.16%	
#8	4132	Marsden	Logan (C)	FGOS	14.88%	1	28	\$1,336	16.98%	11.9%	26.46%	\$1,517	35.45%	\$345	47.37%	21.20%	41.08%	
#9	4064	Paddington	Brisbane (C)	Inner City	13.77%	10	32	\$2,190	12.39%	5.1%	10.38%	\$2,400	27.18%	\$450	48.72%	11.67%	33.75%	
#10	4506	Morayfield	Moreton Bay (R)	FGOS	13.61%	4	32	\$1,328	16.28%	9.8%	22.14%	\$1,650	34.72%	\$335	41.85%	5.97%	44.10%	
#11	4209	Coomera	Gold Coast (C)	Regional	13.60%	7	29	\$1,705	9.83%	7.7%	18.44%	\$2,000	34.64%	\$410	53.27%	8.80%	26.91%	
#12	4346	Marburg	Ipswich (C)	FGOS	13.09%	5	41	\$1,307	18.82%	4.3%	15.35%	\$1,394	42.01%	\$270	23.82%	1.95%	51.55%	
#13	4567	Noosa Heads	Noosa (S)	Rural	12.92%	9	47	\$1,373	19.19%	5.3%	15.66%	\$1,900	29.74%	\$410	30.81%	6.98%	42.59%	
#14	4501	Lawnton	Moreton Bay (R)	FGOS	12.85%	4	36	\$1,190	21.00%	9.4%	23.24%	\$1,619	37.46%	\$295	37.23%	6.95%	48.21%	
#15	4102	Woolloongabba	Brisbane (C)	Inner City	12.36%	7	30	\$1,489	24.69%	9.2%	14.28%	\$2,100	18.55%	\$400	62.08%	31.10%	30.43%	
#16	4010	Albion	Brisbane (C)	Inner City	12.23%	10	32	\$1,724	18.12%	5.1%	10.50%	\$2,000	21.19%	\$380	55.37%	14.94%	30.53%	
#17	4106	Rocklea	Brisbane (C)	Middle Suburbs	11.86%	3	33	\$1,375	17.66%	11.0%	21.80%	\$1,603	30.12%	\$340	43.85%	28.53%	34.48%	
#18	4304	Booval	Ipswich (C)	FGOS	11.79%	2	35	\$1,140	23.98%	10.3%	25.15%	\$1,387	28.85%	\$280	42.82%	6.84%	45.87%	
#19	4133	Chambers Flat	Logan (C)	FGOS	11.71%	4	33	\$1,334	19.57%	8.3%	20.24%	\$1,733	33.48%	\$360	38.89%	15.28%	40.53%	
#20	4305	Ipswich	Ipswich (C)	FGOS	11.38%	3	34	\$1,253	20.95%	9.2%	22.97%	\$1,473	31.55%	\$280	40.35%	4.81%	44.98%	
#21	4019	Margate	Moreton Bay (R)	FGOS	11.07%	3	44	\$1,138	25.75%	8.9%	23.22%	\$1,651	28.65%	\$300	40.31%	5.94%	47.94%	
#22	4300	Springfield	Ipswich (C)	FGOS	11.04%	6	30	\$1,706	12.16%	8.4%	18.17%	\$1,800	41.56%	\$360	41.35%	20.02%	37.91%	
#23	4169	East Brisbane	Brisbane (C)	Inner City	10.91%	10	33	\$1,802	15.82%	7.1%	9.55%	\$2,000	20.51%	\$420	57.77%	21.72%	28.77%	
#24	4005	New Farm	Brisbane (C)	Inner City	10.90%	10	36	\$2,054	14.24%	4.5%	8.90%	\$2,200	21.25%	\$440	56.56%	14.04%	27.90%	
#25	4006	Fortitude Valley	Brisbane (C)	Inner City	10.83%	9	31	\$1,618	17.57%	6.6%	7.21%	\$2,000	15.55%	\$400	72.10%	25.55%	16.26%	
#26	4021	Kippa-Ring	Moreton Bay (R)	FGOS	10.80%	3	40	\$1,123	24.82%	9.3%	24.42%	\$1,625	29.83%	\$330	35.17%	7.27%	50.62%	
#27	4503	Kallangur	Moreton Bay (R)	FGOS	10.78%	6	33	\$1,478	15.10%	7.6%	18.81%	\$1,733	37.60%	\$350	39.05%	8.12%	40.38%	
#28	4207	Beenleigh	Logan (C)	FGOS	10.39%	4	35	\$1,272	19.88%	8.9%	21.82%	\$1,673	35.21%	\$325	37.44%	8.53%	43.60%	
#29	4020	Redcliffe	Moreton Bay (R)	FGOS	10.19%	5	49	\$1,125	27.00%	8.0%	18.18%	\$1,733	25.94%	\$315	37.14%	6.33%	45.19%	
#30	4110	Acacia Ridge	Brisbane (C)	Outer Suburbs	10.11%	2	33	\$1,370	19.22%	11.7%	22.25%	\$1,733	35.60%	\$340	40.68%	34.48%	43.54%	
Queensland state average							37	\$1,402	19.50%	7.60%	16.50%	\$1,733	33.70%	\$330	34.20%	13.50%	N/A	

MAP 18 | Proportion (%) of raised disconnections in South East Queensland between July 2015 and June 2018



MAP 19 | Proportion (%) of raised disconnections in Brisbane between July 2015 and June 2018



3.2.3.2 Completed disconnections

For completed disconnections, the 'top' 30 postcodes with the highest proportion of disconnections per occupied private dwellings are predominantly FGOS. The remainder is comprised of inner city (20%), middle and outer suburbs (17%), regional (7%) and rural (3%).

The proportion of completed disconnections per occupied private dwellings in Logan Central (postcode 4114) is significantly higher than in the rest of the 'top' 30 postcodes. It is estimated that the equivalent of 9.33% of occupied private dwellings were disconnected on average, each year. Logan Central also had the highest proportion of raised disconnections across South East Queensland. The disconnection rates for the rest of the postcodes average between 3% and 6%.

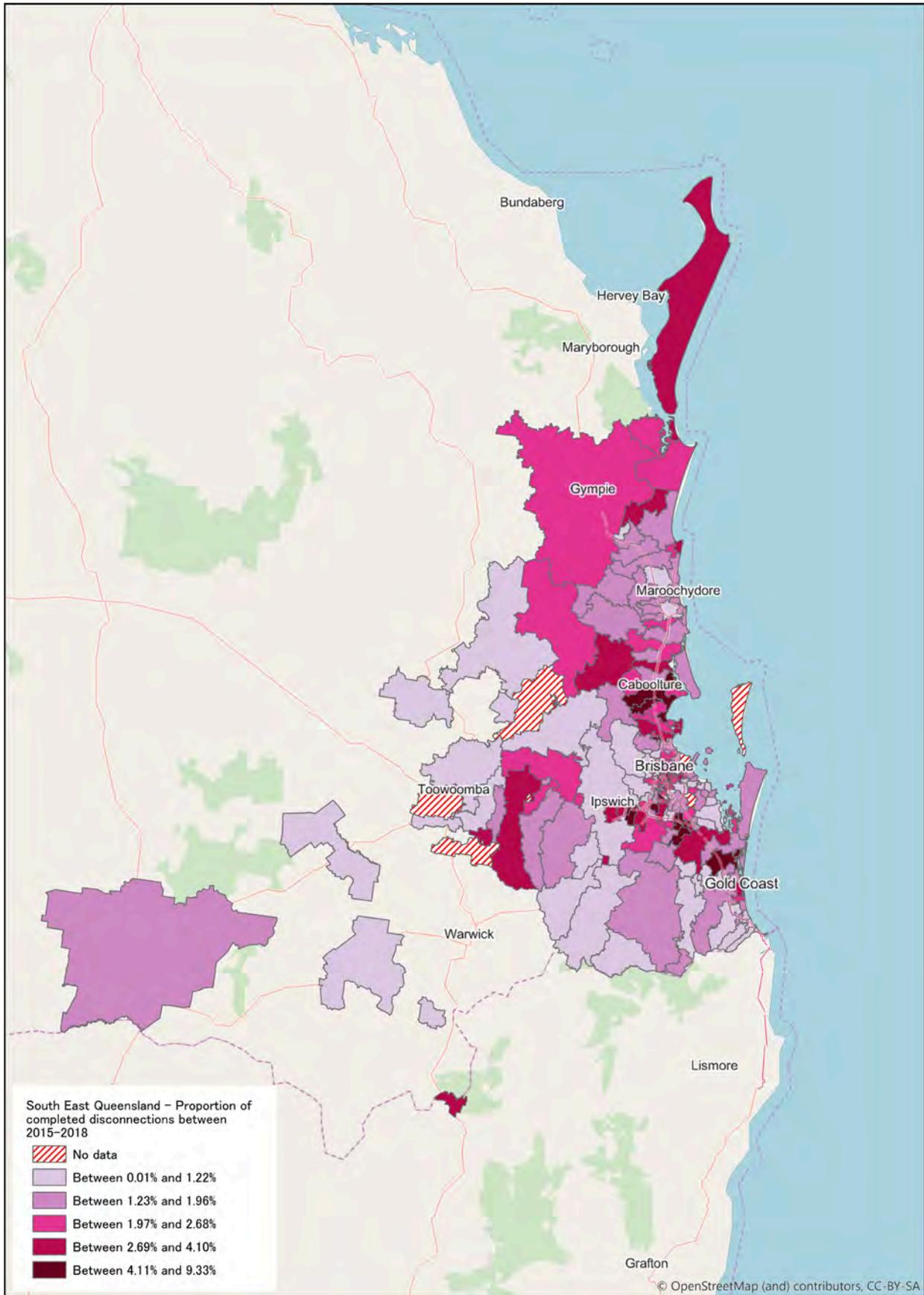
Table 10 presents the postcodes in the South East Queensland that have the highest proportion of disconnections, both for raised and completed. From the 'top' 30 disconnections postcodes with the highest proportion of raised disconnections, 24 of those also have the highest proportion of completed disconnections. These include, for instance, Riverview (postcode 4303), Deception Bay (postcode 4508) or Marsden (postcode 4132).

Some of the 'new' postcodes that did not have high proportion of raised disconnections include some inner Brisbane areas like Ascot (postcode 4077), Annerley (postcode 4103) or Berrinba (postcode 4117) as well as Murarrie (postcode 4172), Bethania (postcode 4205) and Como (postcode 4571).

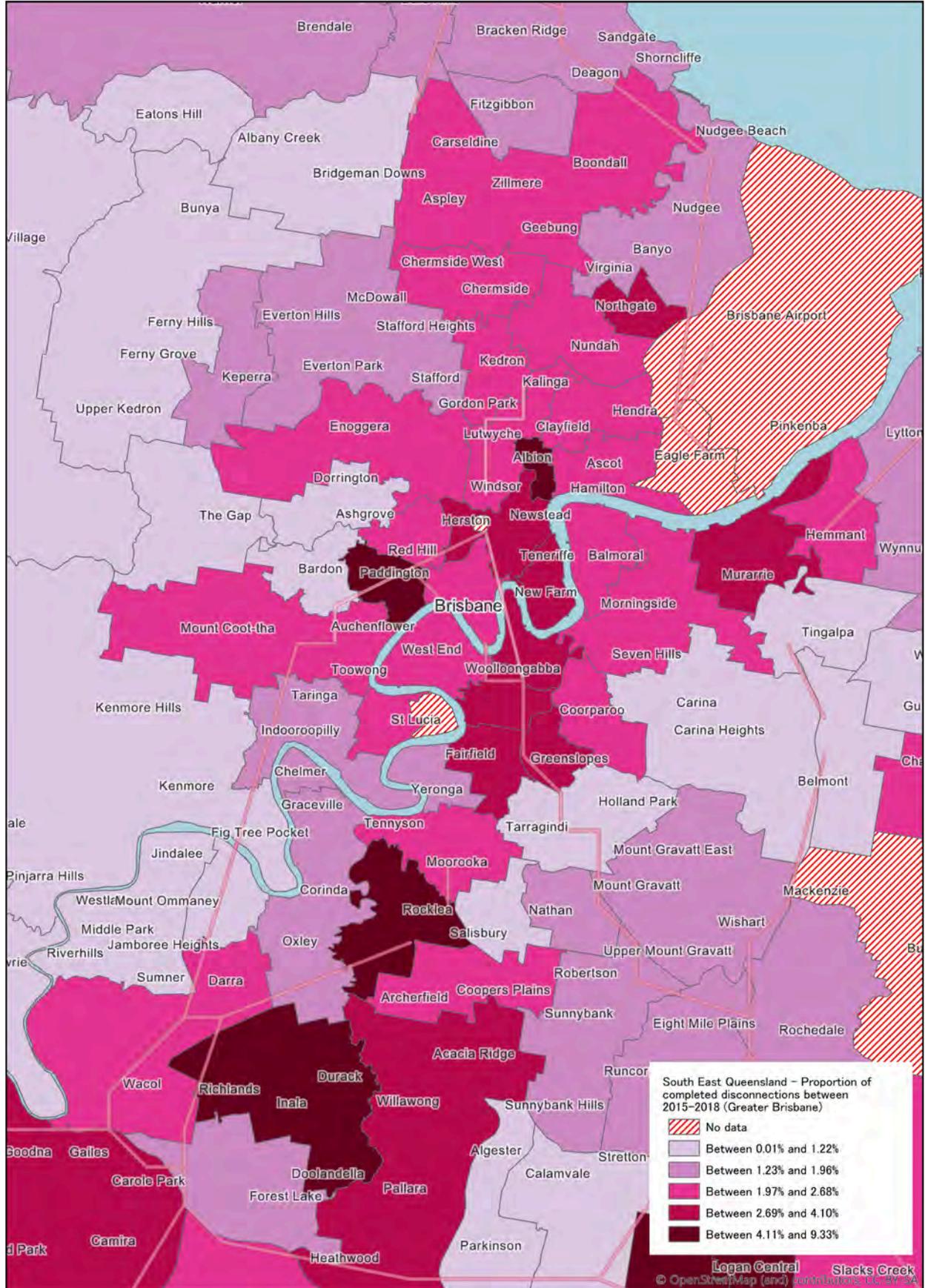
TABLE 10 | Queensland postcodes that are in the ‘top’ 30 disconnection postcodes for both raised and completed disconnections

Postcode	Place	LGA	In the top '30' raised?	Proportion of raised disconnections	In the top '30' completed?	Proportion of completed disconnections
4005	New Farm	Brisbane (C)	✓	10.90%	✓	3.20%
4006	Fortitude Valley	Brisbane (C)	✓	10.83%	✓	4.40%
4010	Albion	Brisbane (C)	✓	12.23%	✓	4.33%
4019	Margate	Moreton Bay (R)	✓	11.07%	✓	3.62%
4020	Redcliffe	Moreton Bay (R)	✓	10.19%		
4021	Kippa-Ring	Moreton Bay (R)	✓	10.80%	✓	3.54%
4064	Paddington	Brisbane (C)	✓	13.77%	✓	4.91%
4077	Ascot	Brisbane (C)			✓	4.33%
4102	Woolloongabba	Brisbane (C)	✓	12.36%	✓	3.66%
4103	Annerley	Brisbane (C)			✓	3.20%
4106	Rocklea	Brisbane (C)	✓	11.86%	✓	4.42%
4110	Acacia Ridge	Brisbane (C)	✓	10.11%	✓	3.96%
4114	Logan Central	Logan (C)	✓	26.14%	✓	9.33%
4117	Berrinba	Brisbane (C)			✓	4.94%
4131	Loganlea	Logan (C)	✓	15.45%	✓	6.08%
4132	Marsden	Logan (C)	✓	14.88%	✓	5.68%
4133	Chambers Flat	Logan (C)	✓	11.71%	✓	4.41%
4169	East Brisbane	Brisbane (C)	✓	10.91%		
4172	Murarrie	Brisbane (C)			✓	3.55%
4205	Bethania	Logan (C)			✓	3.52%
4207	Beenleigh	Logan (C)	✓	10.39%	✓	3.96%
4209	Coomera	Gold Coast (C)	✓	13.60%	✓	4.62%
4300	Springfield	Ipswich (C)	✓	11.04%		
4301	Redbank	Ipswich (C)	✓	16.15%	✓	4.76%
4303	Riverview	Ipswich (C)	✓	25.70%	✓	5.08%
4304	Booval	Ipswich (C)	✓	11.79%	✓	3.47%
4305	Ipswich	Ipswich (C)	✓	11.38%		
4346	Marburg	Ipswich (C)	✓	13.09%		
4501	Lawnton	Moreton Bay (R)	✓	12.85%	✓	4.67%
4503	Kallangur	Moreton Bay (R)	✓	10.78%	✓	3.27%
4506	Morayfield	Moreton Bay (R)	✓	13.61%	✓	4.40%
4508	Deception Bay	Moreton Bay (R)	✓	16.04%	✓	5.44%
4510	Caboolture	Moreton Bay (R)	✓	15.12%	✓	5.06%
4567	Noosa Heads	Noosa (S)	✓	12.92%		
4571	Como	Noosa (S)			✓	3.97%
4581	Fraser Island	Fraser Coast (R)	✓	19.18%	✓	3.55%

MAP 20 | Proportion (%) of completed disconnections in South East Queensland between July 2015 and June 2018



MAP 21 | Proportion (%) of completed disconnections in Brisbane between July 2015 and June 2018



3.3 Repeat Disconnections

As the dataset contained both Customer Account Numbers (CAN) and National Metering Identifier (NMI) numbers for each disconnection, it has enabled this analysis to count and geospatially locate customers and households (dwellings) that were disconnected multiple times. These numbers presented here are a **raw count** of completed disconnections between 1 July 2015 and 30 June 2018 that have been normalised for AGL's market share.

The CAN is unique to the customer, whereas the NMI is unique to the connection point (i.e., building, house, etc.). As such, this information allows for a more in-depth analysis of (a) customers that get disconnected and reconnected multiple times without changing retailer (multiple disconnections based on CAN) and (b) dwellings where the residents often get disconnected (multiple disconnections based on NMI number). So-called “skippers” – customers who get disconnected but do not get reconnected in the same name – would not be included in the repeat CAN disconnections. Repeat NMI disconnections, however, may include “skippers” but high NMI repeat numbers can also indicate the presence of dwellings where residents are more likely to be disconnected.

3.3.1 Unique National Metering Identifier (NMI) numbers

Map 22 shows the number of households (dwellings) per postcode that have been disconnected more than once between July 2015 and June 2018, based on unique national metering identifier (NMI) numbers. All of the ‘top’ 10 postcodes with the highest numbers of repeat disconnections are in Victoria and New South Wales. As highlighted in Table 11 below, Dubbo (postcode 2830) has the highest number of households that were disconnected more than once in the three-year period, estimated at almost 800 households. Werribee (postcode 3030) and St Albans (postcode 3021) also have a significantly high number of repeat disconnections. With regards to the proportion of disconnections that are repeats, St Albans (postcode 3021) and Corio (postcode 3214) once again have a disproportionately higher percentage than the rest of the postcodes, estimated to account for 25% to 30% of all disconnections in that postcode.

In South Australia, fast-growing outer suburbs (FGOS) around Elizabeth (*Elizabeth – postcode 5112 and Elizabeth North – postcode 5113*) have the highest number of households being disconnected more than once over the three-year period, estimated as close to 250 households in postcode 5113 and around 200 in postcode 5112. Queensland's Logan Central (postcode 4114) and Caboolture (postcode 4510) are also FGOS with the highest number of households disconnected across the south-eastern part of the state, with more than 300 households disconnected multiple times between July 2015 and June 2018.

The average proportion of households being disconnected more than once over the three-year period is similar across New South Wales, South East Queensland and South Australia, where around 15% of disconnections were repeats.⁷³ In Victoria, however, these numbers are once again significantly higher, estimated at approximately 25% of all disconnections, on average. This could be attributed to the fact that smart meters have been rolled-out across Victoria and, as smart meters enable disconnections to be processed remotely (no house visit required), they have made the process both faster and cheaper.⁷⁴ It has also been noted that this automatization

⁷³ Based on unique NMI numbers.

⁷⁴ Previous report on electricity disconnections in Australia found that the roll-out of smart meters in Victoria had had a significant impact on disconnection completion rates. For more information, see St Vincent de Paul Society & Alvis Consulting, *Households in the dark: Mapping electricity disconnections in South Australia, Victoria, New South Wales, and South East Queensland*, May 2016.

of the process can be linked to higher disconnection rates for essential services.⁷⁵

As evidenced in Table 11 below, the postcodes with the highest number of repeat disconnections is not a homogeneous group. Broadly speaking, they can be separated into two categories:

1. Postcodes characterised by low median weekly household income, high unemployment, or otherwise ranking quite low on other key socio-economic indicators, which have been attributed a low score of '1' or '2' from the SEIFA IRSD index of relative socio-economic disadvantage – for example, Corio (postcode 3214) or Mount Druitt (postcode 2770); or
2. Postcodes that are on par with the national averages in terms of household income, unemployment or other socio-economic indicators and have SEIFA IRSD scores of '5' or '6'. The explanations for the high numbers of repeat disconnections in these postcodes thus results from a combination of factors beyond socio-economic disadvantage alone – factors that are explored in further detail below. These include postcodes such as Werribee (postcode 3030) or Dubbo (postcode 2830).

Dubbo (postcode 2830) has the highest number of completed repeat disconnections in all of New South Wales, based on unique NMI number. Yet, when looking the ABS Census (2016) data for that postcode, most indicators seem to be largely on par with the national average, with nothing to indicate why so many households in Dubbo would be repeatedly disconnected. In the last few years, Dubbo and other regional areas across New South Wales have been affected by a severe drought⁷⁶, which would inevitably have had repercussions on the socio-economic well-being of the community. In addition, homelessness rates in Dubbo have drastically risen, with a reported increase of 16.3%⁷⁷ in homelessness between 2011 and 2016. For the 2017 and 2018 fiscal years, Dubbo also had the highest number of personal bankruptcies recorded, at both the state and national levels.⁷⁸

The Census data for Werribee (postcode 3030) shows that median weekly household income is relatively high and other key socio-economic indicators are largely on par with national averages. However, Victorian fast-growing outer suburbs (FGOS) like Werribee, have been noted to be facing important job deficits coupled with increasing commuting times, which could explain why there is such a high number of repeat disconnections. A recent analysis conducted by the ABC found that the local government area (LGA) of Wyndham (which covers Werribee), had a job deficit in 2016 of more than 150,000 jobs.⁷⁹ This has been echoed in a recent report from the Melbourne Sustainable Society Institute, which also found that six Victorian LGAs, including Wyndham “*went backwards, relative to the state as a whole over the 1992-2017 period, in*

⁷⁵ For instance, it has been found that in British Columbia the number of hydro disconnections has drastically increased since the installation of smart meters, namely due to the fact that they can disconnected customer so easily. See: Zeidler, M., “BC Hydro smart meters, rate increases lead to more customers cut off from power, says advocate”, *CBC Canada*, June 2006. Accessible at: <https://www.cbc.ca/news/canada/british-columbia/bc-hydro-smart-meters-costs-low-income-1.3630495>. In the Australian context, similar concerns have been raised, see for example: ABC News, “Smart meters will lead to more disconnections in SA, social advocates warn”, November 2016. Accessible at: <https://www.abc.net.au/news/2016-11-02/smart-meters-will-lead-to-disconnections-advocates-warn/7986516>.

⁷⁶ See for example, Sydney Morning Herald, “NSW 100 per cent in drought: minister”, August 2018. Accessible at: <https://www.smh.com.au/environment/weather/nsw-100-per-cent-in-drought-minister-20180808-p4zw62.html> or SBS News, “Drought conditions re-intensify across NSW”, February 2019. Accessible at: <https://www.sbs.com.au/news/drought-conditions-re-intensify-across-nsw>.

⁷⁷ New South Wales Parliamentary Research Service, *Homelessness in NSW: Electorate Statistics*, December 2018.

⁷⁸ Illion, “Australian personal bankruptcies rise 6.1% in 2017”, 30 January 2018. Accessible at: https://www.illion.com.au/wp-content/uploads/2018/03/MR_Personal_Bankruptcy_Analysis-2017_Final_Web.pdf and Illion, “Australian personal bankruptcies rise 4% in FY2018”, 31 July 2018. Accessible at: https://www.illion.com.au/wp-content/uploads/2018/08/Personal-Bankruptcies-FY2018_illion1.pdf.

⁷⁹ Ross, D., “Jobs boom in CBDs leaves a long commute for exploding outer-suburban population” *ABC News*, 12 June 2019. Accessible at: <https://www.abc.net.au/news/2019-06-12/jobs-boom-in-cbds-leaves-a-long-commute/11198142>.

*terms of capturing income from economic activity.*⁸⁰ In addition to bigger commutes, outer suburbs in Melbourne (as well as in Sydney and Brisbane) have been found to be spending a larger proportion of their weekly household expenditure on owning and operating vehicles in comparison to middle suburbs and inner city postcodes.⁸¹ These issues may be contributing factors to the high number of repeat disconnections in Werribee.

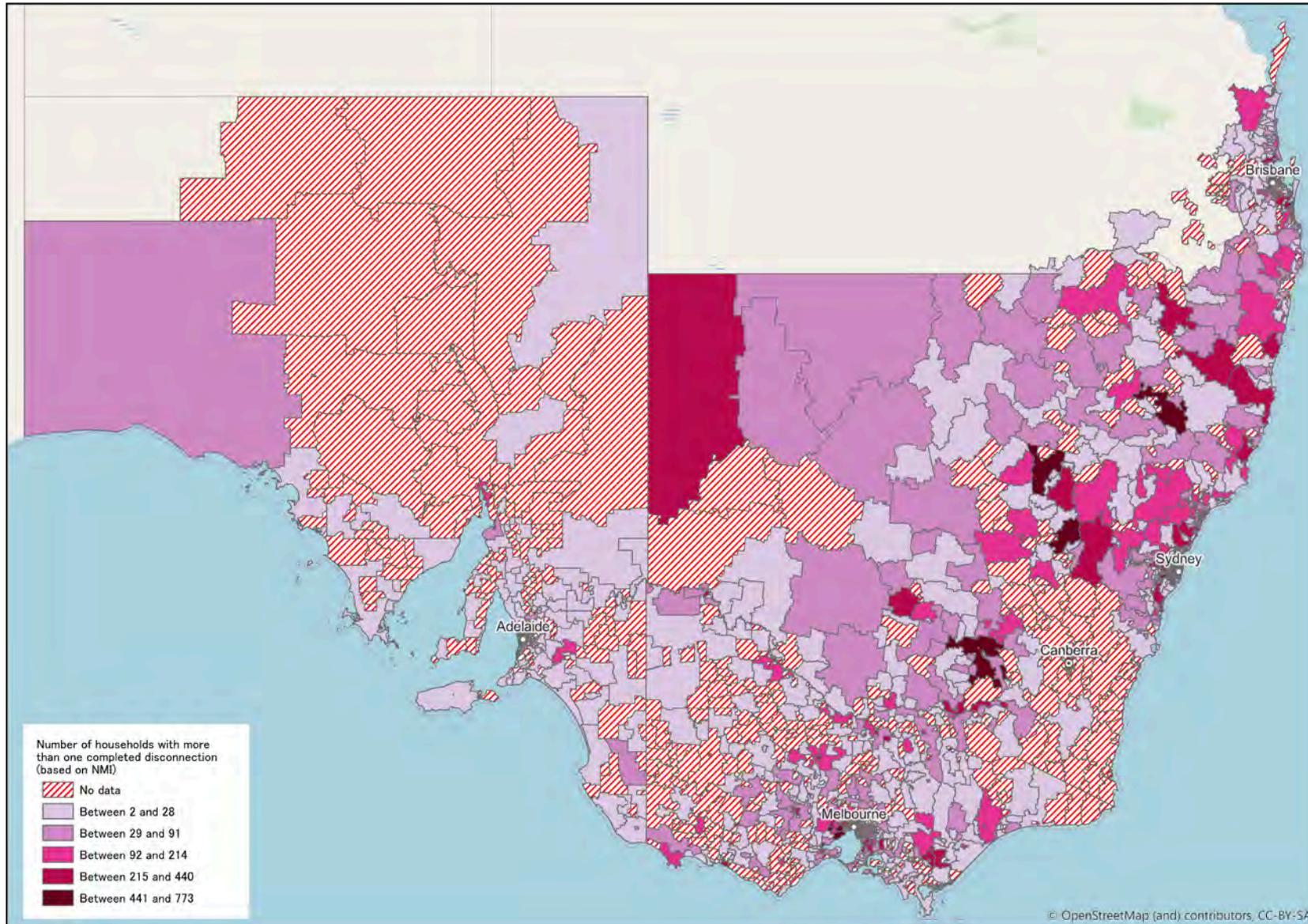
⁸⁰ Brain, P., Stanley, J. and Stanley, J., *Melbourne: How big, how fast and at what cost?*, MSSI Research Paper, Melbourne Sustainable Society Institute, The University of Melbourne, March 2019.

⁸¹ See: Bureau of Infrastructure, Transport and Regional Economics (BITRE), *Spending by Australian households on owning and operating vehicles in 2015-16*, April 2018.

TABLE 11 | 'Top' 10 repeat disconnection postcodes based on NMI and key socio-economic indicators derived from the ABS Census (2016) data

	Postcode	Place	Local Government Area (LGA)	Locality	Number of households disconnected more than once based on NMI	Proportion of disconnections that are repeat disconnections	Key indicators from the 2016 Census											
							IFSD decile ranking (State)	Median age	Median household income (\$/week)	Proportion of families with an income of less than \$650 per week	Unemployment rate	Proportion of one parent families in occupied private dwellings	Median mortgage repayment (\$/month)	Proportion of occupied private dwellings owned with a mortgage	Median weekly rent	Proportion of occupied private dwellings rented	Proportion of persons who speak another language at home	Proportion of persons who lived at the same address five years ago
#1	2830	Dubbo	Western Plains Regional (A)	Regional	773	17.77%	5	37	\$1,344	20.09%	5.4%	19.43%	\$1,517	34.52%	\$265	32.13%	5.45%	47.67%
#2	3030	Werribee	Wyndham (C)	FGOS	746	18.48%	6	33	\$1,676	14.50%	7.8%	14.89%	\$1,800	46.06%	\$331	29.72%	38.43%	44.31%
#3	3021	St Albans	Brimbank (C)	Outer Suburbs	721	24.89%	1	35	\$1,050	27.81%	13.0%	24.16%	\$1,408	28.06%	\$288	30.04%	66.85%	55.81%
#4	3214	Corio	Greater Geelong (C)	Regional	629	30.75%	1	36	\$828	35.94%	14.1%	33.07%	\$1,127	25.31%	\$230	42.63%	19.01%	51.58%
#5	2770	Mount Druitt	Blacktown (C)	FGOS	613	13.39%	1	31	\$1,159	24.39%	11.7%	29.93%	\$1,700	27.61%	\$300	48.22%	35.57%	54.20%
#6	2340	Tamworth	Tamworth Regional (A)	Regional	599	14.60%	4	38	\$1,224	22.33%	5.9%	19.63%	\$1,517	31.19%	\$270	33.09%	4.27%	47.08%
#7	2800	Orange	Orange (C)	Regional	584	10.24%	5	37	\$1,339	22.06%	6.0%	17.51%	\$1,668	33.60%	\$270	31.35%	5.56%	47.80%
#8	3029	Hoppers Crossing	Wyndham (C)	FGOS	574	18.84%	5	31	\$1,578	12.90%	8.5%	14.50%	\$1,733	50.22%	\$320	26.82%	47.40%	42.84%
#9	2650	Wagga Wagga	Wagga Wagga (C)	Regional	553	15.53%	6	36	\$1,349	20.32%	5.6%	17.64%	\$1,521	32.94%	\$270	33.82%	6.83%	47.14%
#10	2170	Liverpool	Liverpool (C)	FGOS	534	14.31%	2	34	\$1,378	20.33%	8.4%	19.40%	\$2,000	35.51%	\$360	35.62%	54.50%	51.27%
National average								38	\$1,438	20.00%	6.9%	15.80%	\$1,755	34.50%	\$335	30.90%	22.20%	N/A

MAP 22 | Estimated number of households that have been disconnected more than once between July 2015 and June 2018, based on unique national metering identified (NMI) numbers



3.3.2 Unique Customer Account Numbers (CAN)

Map 23 shows the number of households, per postcode, that have been disconnected more than once between July 2015 and June 2018, based on unique customer account numbers (CAN). Postcodes with the highest number of repeat disconnections are predominantly located in Victoria, as illustrated in Table 12 below. Werribee (postcode 3030), St Albans (postcode 3021) and Corio (postcode 3214) have a significantly high number of repeat disconnections in comparison to other postcodes, estimated at more than 500 and 600 households being disconnected more than once over the three-year period. In St Albans and Corio, the proportion of disconnections that are repeat disconnections is high as well, accounting for approximately one-fifth of all disconnections in those postcodes.

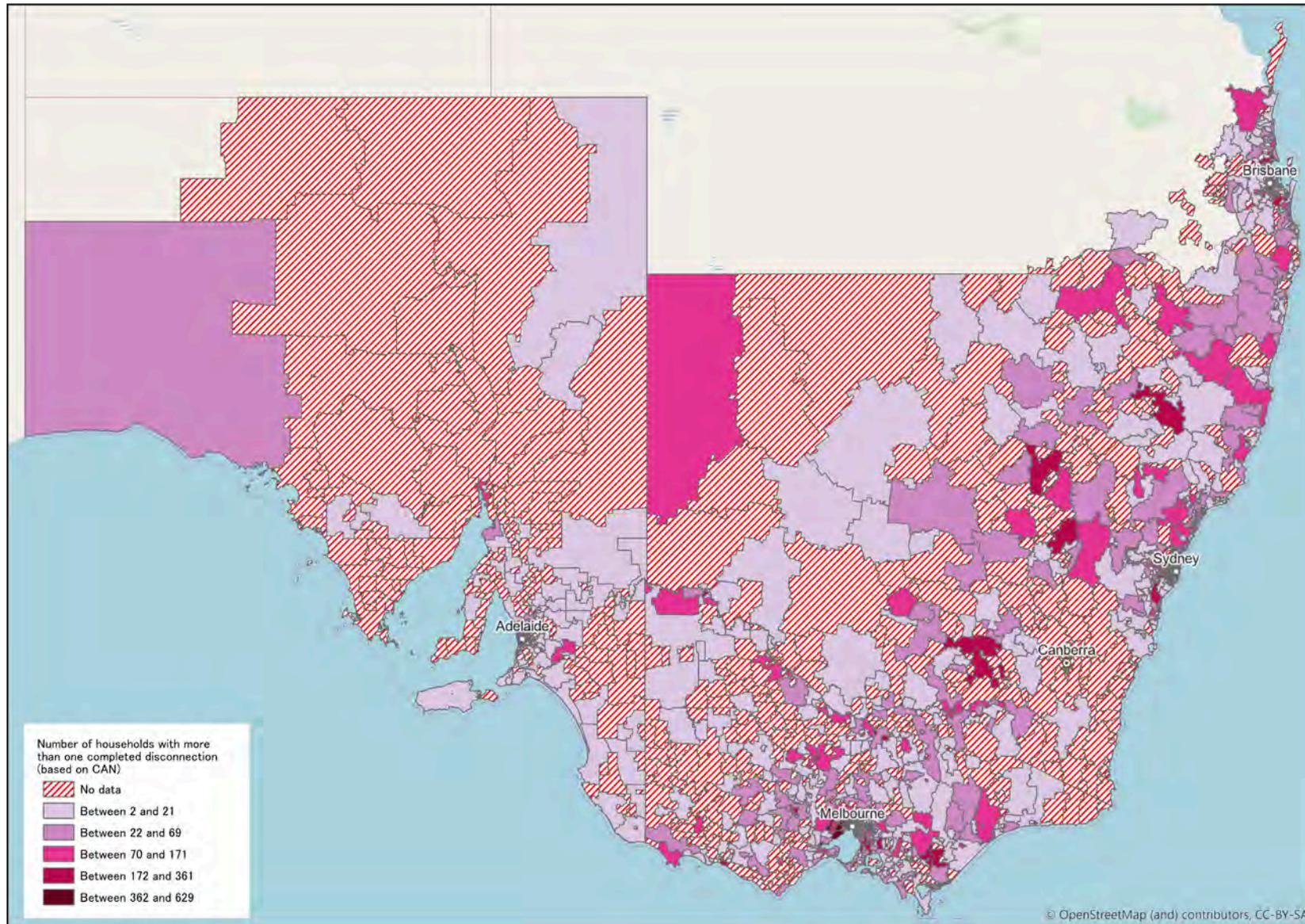
In South Australia, Elizabeth North (postcode 5113) has the highest number of repeat disconnections in the state, estimated at around 150 households being disconnected multiple times between July 2015 and June 2018. For South East Queensland, Logan Central (postcode 4114) and Caboolture (postcode 4510) are estimated to have more than 200 households that were repeatedly disconnected during the three-year period, the highest numbers in the state.

When comparing the proportion of disconnections that are repeats, based on unique CAN, significant inter-state differences appear. For instance, in Victoria, the average proportion of disconnections that are repeats is at 22.04%, versus 5.72% in New South Wales. They are estimated to account for 8.55% of all disconnections in South East Queensland and 10.75% in South Australia.

TABLE 12 | 'Top' 10 repeat disconnection postcodes based on CAN and key socio-economic indicators derived from the ABS Census (2016) data

	Postcode	Place	Local Government Area (LGA)	Locality	Number of households disconnected more than once based on CAN	Proportion of disconnections that are repeat disconnections	Key indicators from the 2016 Census											
							IRSD decile ranking (State)	Median age	Median household income (\$/week)	Proportion of families with an income of less than \$650 per week	Unemployment rate	Proportion of one parent families in occupied private dwellings	Median mortgage repayment (\$/month)	Proportion of occupied private dwellings owned with a mortgage	Median weekly rent	Proportion of occupied private dwellings rented	Proportion of persons who speak another language at home	Proportion of persons who lived at the same address five years ago
#1	3030	Werribee	Wyndham (C)	FGOS	629	14.97%	6	33	\$1,676	14.50%	7.8%	14.89%	\$1,800	46.06%	\$331	29.72%	38.43%	44.31%
#2	3021	St Albans	Brimbank (C)	Outer Suburbs	611	19.65%	1	35	\$1,050	27.81%	13.0%	24.16%	\$1,408	28.06%	\$288	30.04%	66.85%	55.81%
#3	3214	Corio	Greater Geelong (C)	Regional	513	23.14%	1	36	\$828	35.94%	14.1%	33.07%	\$1,127	25.31%	\$230	42.63%	19.01%	51.58%
#4	3029	Hoppers Crossing	Wyndham (C)	FGOS	489	15.47%	5	31	\$1,578	12.90%	8.5%	14.50%	\$1,733	50.22%	\$320	26.82%	47.40%	42.84%
#5	3023	Caroline Springs	Brimbank (C)	Outer Suburbs	434	20.00%	4	33	\$1,586	14.59%	8.4%	16.99%	\$1,800	50.41%	\$346	22.03%	52.48%	52.91%
#6	3350	Ballarat	Ballarat (C)	Regional	361	17.00%	5	37	\$1,238	23.43%	6.9%	17.97%	\$1,408	32.52%	\$255	32.83%	6.28%	45.48%
#7	3977	Cranbourne	Casey (C)	FGOS	348	14.16%	5	32	\$1,560	13.68%	6.6%	16.08%	\$1,768	56.35%	\$340	21.27%	28.59%	42.08%
#8	3337	Melton	Melton (C)	FGOS	348	18.87%	2	33	\$1,296	19.23%	8.5%	22.70%	\$1,465	46.15%	\$275	25.95%	18.77%	50.40%
#9	2770	Mount Druitt	Blacktown (C)	FGOS	328	7.96%	1	31	\$1,159	24.39%	11.7%	29.93%	\$1,700	27.61%	\$300	48.22%	35.57%	54.20%
#10	3020	Sunshine	Brimbank (C)	Middle Suburbs	324	14.97%	1	35	\$1,128	25.81%	12.4%	21.66%	\$1,517	27.99%	\$300	32.33%	63.95%	51.24%
National average								38	\$1,438	20.00%	6.9%	15.80%	\$1,755	34.50%	\$335	30.90%	22.20%	N/A

MAP 23 | Estimated number of households that have been disconnected more than once between July 2015 and June 2018, based on unique customer account numbers (CAN)



4. SOCIO-ECONOMIC INDICATORS BEHIND HIGH DISCONNECTIONS

This section delves into socio-economic indicators behind disconnections, looking at postcodes in South Australia, Victoria, New South Wales and South East Queensland that have the highest number of disconnections.

Section 4.1 examines key socio-economic indicators of the ‘top’ 30 postcodes in each state with the highest proportion of completed disconnections, based on key indicators from the ABS Census (2016) data, such as income, family composition, age and tenure type. It also explores inter-state differences with regards to the geographic distribution of disconnections. In this section, **the data has been normalised for AGL’s market share and for population.**

Section 4.2 presents the five groups that are the most at risk of being disconnected, based on the socio-economic demographics presented in Section 4.1.

4.1 Interstate differences

This section examines key socio-economic indicators from the ABS Census (2016) for the ‘top’ 30 disconnection postcodes⁸² in all four states. It compares the number of postcodes that are either below or above the state median for these indicators, in order to identify commonalities, and differences, shared across postcodes as well as across states.

4.1.1 Household income

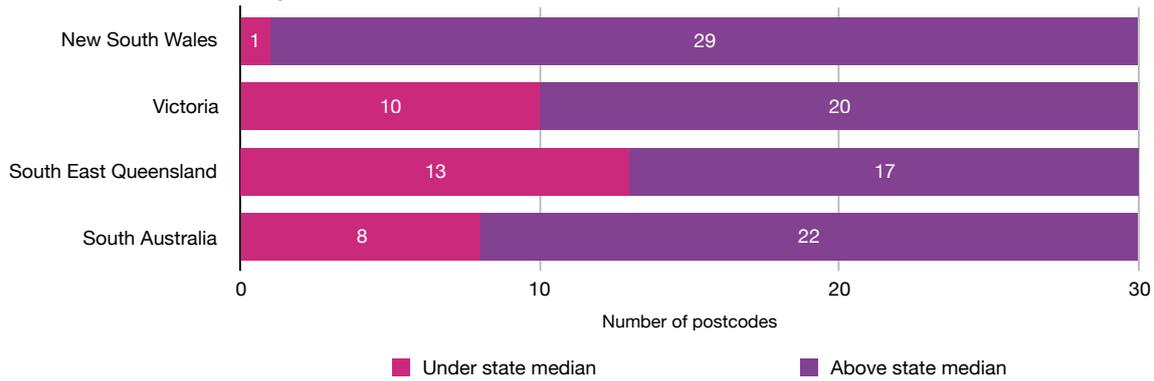
According to the ABS Census (2016), the average proportion of households that make less than \$650 per week is the highest in South Australia, at 23.8%. Victoria has the second highest number, at 20.3% of households, followed by New South Wales at 19.7% and Queensland at 19.5%.

As can be seen from Figure 20 below, the majority of the ‘top’ 30 disconnection postcodes in New South Wales have a proportion of households that make less than \$650 per week⁸³ that is above the state average. Victoria and South Australia are somewhat similar, with around two-thirds of postcodes above the state median. South East Queensland has the lowest number, with slightly more than half of the ‘top’ 30 postcodes above the state median.

⁸² Based on completed disconnections only that have been normalised for AGL’s market share and normalised for population.

⁸³ The key indicator used here is the ABS’ “Household income, total weekly (HIND). This indicator provided 22 income categories (from category 1 – negative income, category 2 – nil income, category 7 – less than \$650 to category 22, more than \$8,000). For more information, see: <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2901.0Chapter4902016>.

FIGURE 20 | Number of ‘top’ 30 disconnection postcodes for each state with a total weekly household income of less than \$650 per week that is above or below the state’s median.



Weekly household income also differs significantly across the different jurisdictions. On average, New South Wales has the highest household income at \$1,486 per week, according to the ABS 2016 Census. Victoria and Queensland are closely behind, respectively at \$1,419 and \$1,402 per week. Median household income is the lowest in South Australia at \$1,206 per week.

The majority of postcodes in each state are under the median in terms of monthly income. Figure 21 below shows the proportion of disconnection postcodes in each state where the median weekly income is above or below the state average. New South Wales has the largest proportion of postcodes that are under the median, with 29 out of 30 earning less than \$1,486 per week. Victoria, South East Queensland and South Australia are largely similar, with around two thirds of postcodes being below the average for each state.

FIGURE 21 | Number of the ‘top’ 30 disconnection postcodes for each state where the median weekly household income is above or below the state average.

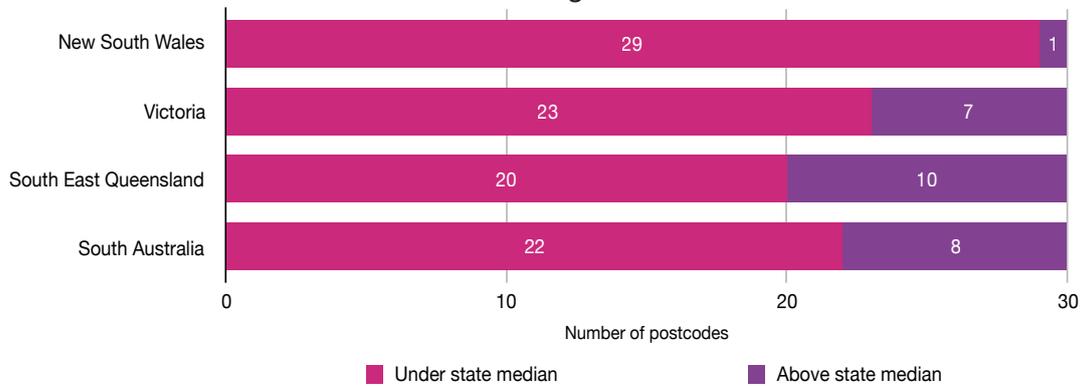
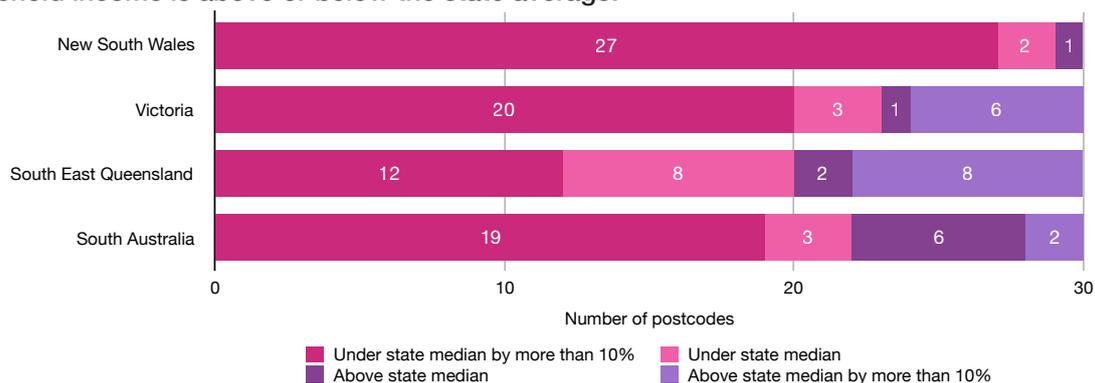


Figure 22 below provides a more detailed breakdown of how many of the ‘top’ 30 postcodes in each state are above or below the median household income. In New South Wales, not only do the ‘top’ 30 postcodes predominantly have a lower income than the state average, but for 27 of those, that income is at least 10% less than the state average. In Victoria and South Australia, there is also a large proportion of postcodes that are significantly lower than the median. In Victoria, on the other hand, there are a number of postcodes that are at least 10% above the median weekly income for the state. In South East Queensland, the ‘top’ 30 postcodes are both significantly higher and significantly lower than the median household income for Queensland.

FIGURE 22 | Number of the ‘top’ 30 disconnection postcodes for each state where the median weekly household income is above or below the state average.



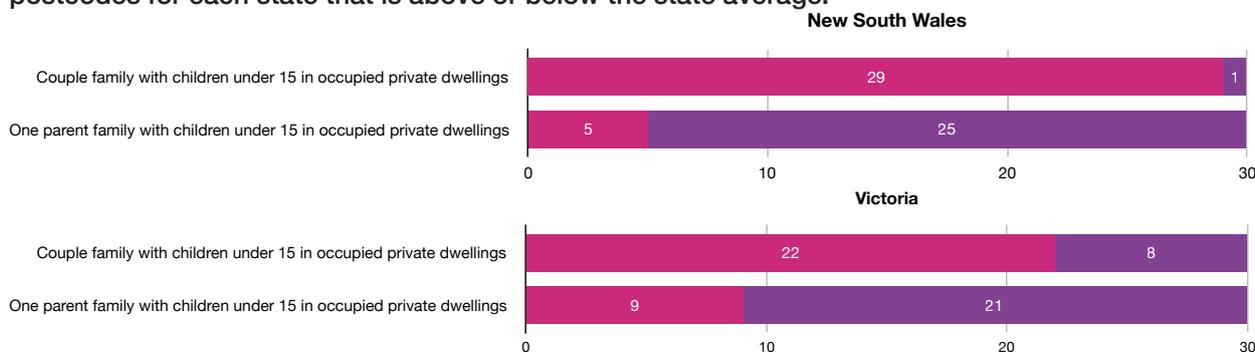
4.1.2 Family composition

In the case of family composition, the proportion of couple families with children or one parent families with children, varies between the different jurisdictions. According to the ABS Census (2016), the median proportion of couple families with children is the highest in South Australia (51.6%) and Victoria (46.3%), closely followed by New South Wales (45.7%) and Queensland (42.5%). For one parent families, the median proportion is the highest in Queensland and South Australia, representing 16.5% of all family households, followed by New South Wales (16%) and Victoria (15.3%).

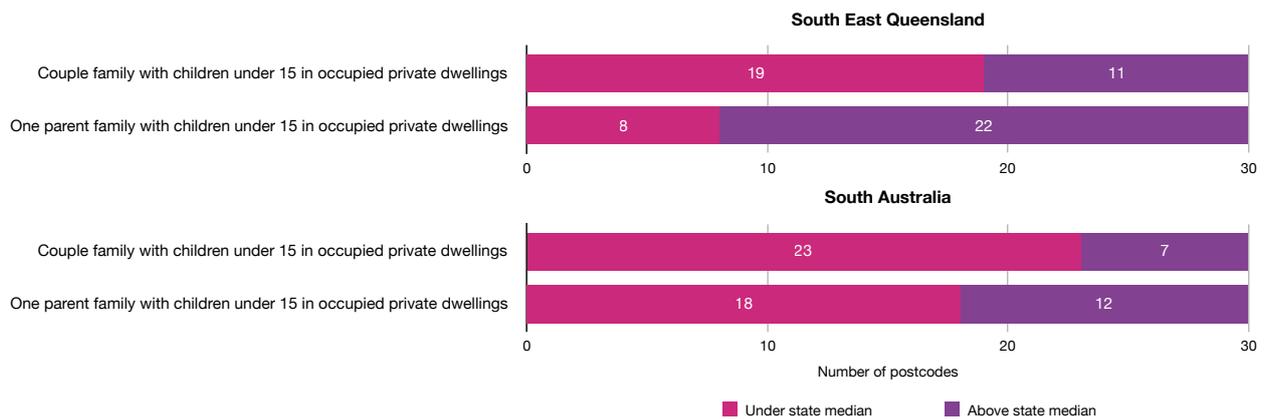
Within this analysis, there are significant differences between all four states in terms of family composition. In New South Wales, only one of the ‘top’ 30 disconnection⁸⁴ postcodes in the state has a proportion of couple families with children that is higher than the average. Figure 23 below shows the number of ‘top’ 30 postcodes in each state where the proportion of couple families and one parent families are either above or below the median. The trends are similar for Victoria, South East Queensland and South Australia, where between two-thirds to three quarter of all ‘top’ disconnection postcodes are under the state average.

For one parent families, 25 of the ‘top’ 30 postcodes in New South Wales are above the state average, the highest among all four states. Victoria and South East Queensland are similar, with around three quarters of postcodes having a higher proportion of one parent families. For South Australia, however, the proportion of one parent families is significantly lower, with the majority of postcodes being below the state average.

FIGURE 23 | Number of couple families or one parent families with children in the ‘top’ 30 disconnection postcodes for each state that is above or below the state average.



⁸⁴ Based on completed disconnections only that have been normalised for AGL’s market share and normalised for population.

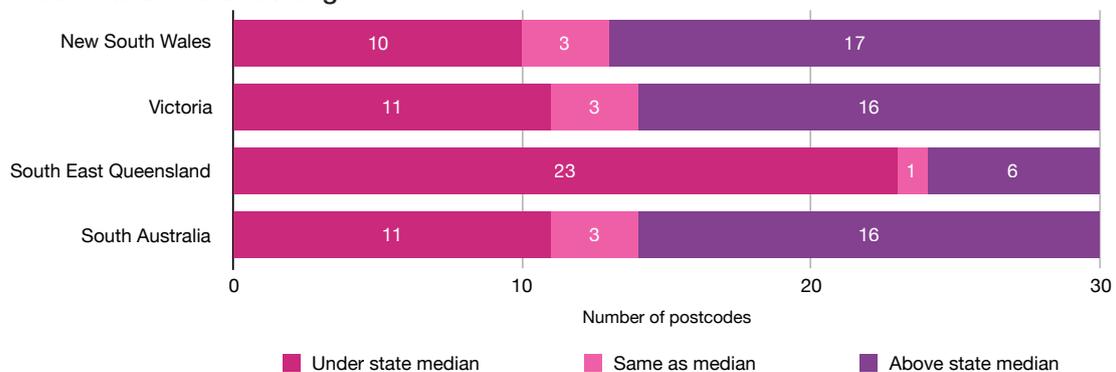


4.1.3 Age

According to the ABS Census (2016), the median age was the highest in South Australia at 40, followed by New South Wales at 38, and Victoria and South East Queensland, both at 37. Figure 24 below shows the number of 'top' 30 disconnection⁸⁵ postcodes across New South Wales, Victoria, South East Queensland and South Australia that are either above or below the state's median age.

Across New South Wales, Victoria and South Australia, the majority of the 'top' 30 disconnection postcodes have a median age that is above the state average. In South East Queensland, however, the majority are below the state average. This, however, may be skewed due to the fact that only Energex postcodes are included in this analysis, and is therefore not representative of the remainder of Queensland, on which the average is based.

FIGURE 24 | Number of the 'top' 30 disconnection postcodes for each state with a median age that is above or below the state average



4.1.4 Tenure type and housing affordability issues

The analysis also looks at the different tenure arrangements, primarily whether households are owned with a mortgage or are rented, in order to explore whether postcodes with high disconnection rates face housing affordability issues.

Victoria and South Australia have the highest number of households that own their homes with a mortgage, accounting for 35.3% of households, according to the ABS Census (2016). Queensland is close behind, at 33.7%. The proportion in New South Wales is significantly lower, at 27.4%. For households that are renting, Queensland has the highest proportion, at 34.2%, followed by New South Wales at 29%, Victoria at 28.7% and South Australia at 28.5%. Figure

⁸⁵ Based on completed disconnections only that have been normalised for AGL's market share and normalised for population.

25 below shows the number of ‘top’ 30 disconnection⁸⁶ postcodes where homes are owned with a mortgage or rented and how they compare to the state averages.

In terms of households with a mortgage, the proportion across all four states is relatively low, especially in South Australia and New South Wales, where only 4 and 5 of the ‘top’ 30 disconnection postcodes are above the state average. In Victoria and South East Queensland, approximately a third of the ‘top’ disconnection postcodes in each state have a higher proportion of homes owned with a mortgage than the state average.

For rented households, South East Queensland has the highest number, with more than three quarters of the top disconnection postcodes being above the state average. New South Wales, Victoria and South Australia are quite similar, with around half of the ‘top’ postcodes being above their respective state averages.

FIGURE 25 | Number of dwellings owned with a mortgage or rented in the ‘top’ 30 disconnection postcodes for each state that are above or below the state average.

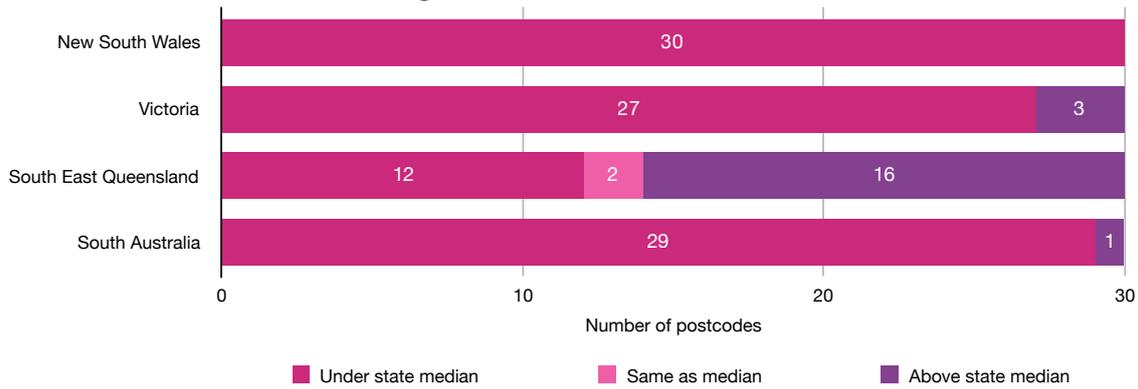


Weekly rent is the highest in New South Wales, according to the ABS Census (2016), estimated at \$380 on average for the whole state. Victoria and Queensland follow closely behind, at \$325 and \$330 per week, respectively. The average weekly rent is significantly lower in South Australia, at \$260 per week.

Figure 26 below highlights some similarities in terms of housing affordability between New South Wales, Victoria and South Australia in the ‘top’ disconnection postcodes. In all three cases, the vast majority of the disconnection postcodes have a median rent which is under the state average. In the case of South East Queensland, however, more than half of the ‘top’ 30 disconnections have median weekly rents that are above the state average. As noted earlier, this may result from the fact that only Energex postcodes have been included in this analysis, and, as such, are not representative of the rest of Queensland, on which the average is based.

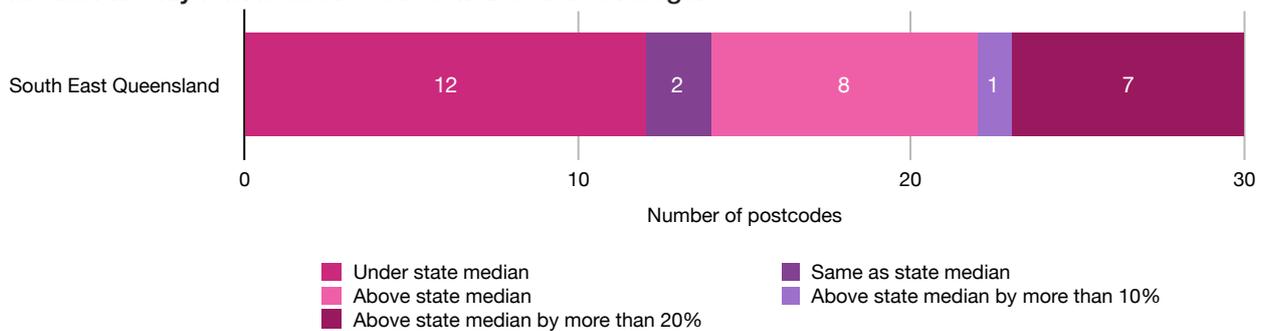
⁸⁶ Based on completed disconnections only that have been normalised for AGL’s market share and normalised for population.

FIGURE 26 | Number of the ‘top’ 30 disconnection postcodes for each state where the median weekly rent is above or below the state average.



In South East Queensland, as Figure 27 below shows, there is also a high proportion of postcodes where the median weekly rent is significantly higher than the state average. Approximately a quarter of the ‘top’ 30 disconnection postcodes have a weekly rent that is at least 20% more than the average of \$330 per week.

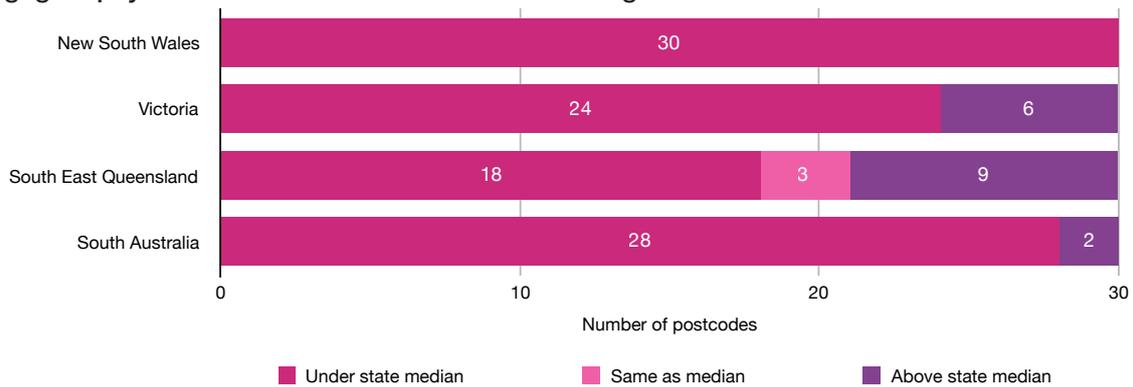
FIGURE 27 | Number of the ‘top’ 30 disconnection postcodes in South East Queensland where the median weekly rent is above or below the state average.



For monthly mortgage repayments, the average across all four states varies considerably. According to the 2016 ABS Census, New South Wales has the highest median mortgage repayments, at \$1,986 per month. Victoria and Queensland are similar, at \$1,728 and \$1,733 respectively. Mortgage repayments are much lower in South Australia, where the median is at \$1,491.

In this analysis, New South Wales, Victoria and South Australia have a low number of disconnection postcodes where mortgage payments exceed the state average. In fact, in New South Wales, all ‘top’ 30 postcodes are below the state average, as can be seen in Figure 28 below. In South East Queensland, on the other hand, approximately one third of postcodes are above the state average.

FIGURE 28 | Number of the ‘top’ 30 disconnection postcodes for each state where the median monthly mortgage repayment is above or below the state average.



4.1.5 Relative socio-economic disadvantage

Across all four states, the ‘top’ 30 disconnection postcodes are predominantly on the lower end of the SEIFA Index of Relative Socio-Economic Disadvantage (IRSD)⁸⁷. In New South Wales, 24 of the ‘top’ 30 disconnection postcodes have a ranking score that is below or equal to 4. Similarly, in Victoria, 22 of the ‘top’ 30 postcodes have scores that are lower or equal to 4. However, as can be seen in Table 13 below, there are a few Victorian postcodes that are also in the highest decile in terms of relative socio-economic disadvantage, with scores of ‘9’ or ‘10’. For South East Queensland, two thirds of the postcodes have a score that is 4 or below, with some postcodes in the higher score categories as well. In South Australia, the ‘top’ 30 postcodes are predominantly in the lower half of the ranking, with a few exceptions that have a score above 7.

TABLE 13 | Number of the ‘top’ 30 disconnection postcodes in each state ranked by their score of relative socio-economic disadvantage¹

	Number of postcodes with an IRSD score between 1-2	Number of postcodes with an IRSD score between 3-4	Number of postcodes with an IRSD score between 5-6	Number of postcodes with an IRSD score between 7-8	Number of postcodes with an IRSD score between 9-10
New South Wales	18	6	6	0	0
Victoria	19	3	1	2	5
South East Queensland	11	9	1	3	6
South Australia	14	6	5	4	1

4.1.6 Urban - Suburban - Rural

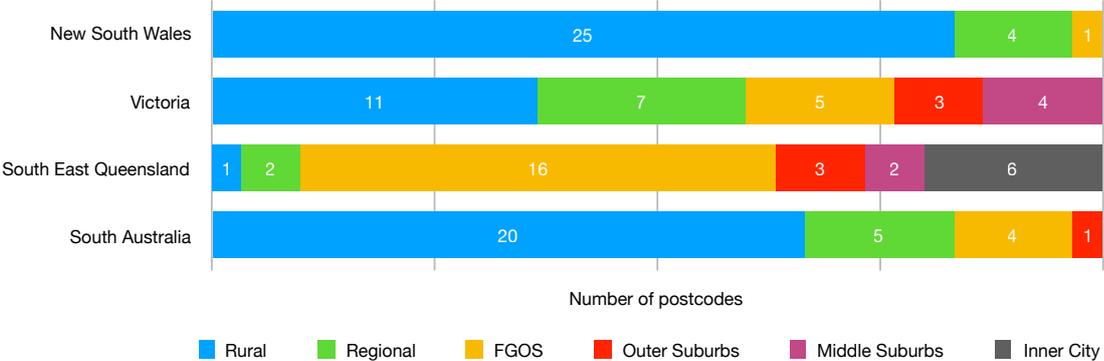
Within each state, the geographical distribution of the ‘top’ 30 disconnection postcodes is also quite different. Figure 29 below shows the geographical location of these postcodes in each state. For the inner city, middle suburb and outer suburb classifications, postcodes were attributed their respective geographical location based on their distance to the General Post Office (GPO). For instance, inner city Melbourne was defined to include any postcode that was within a 10-kilometre radius of the GPO. For Adelaide, that distance was set to five kilometres. Regional centres were defined as non-capital areas with more than 25,000 residents in New South Wales, Victoria and South East Queensland, and 10,000 in South Australia.

Looking at the distribution of postcodes in Figure 29 below, there are notable interstate differences. New South Wales disconnection postcodes are predominantly in rural areas,

⁸⁷ According to the Australian Bureau of Statistics’ (ABS) 2016 Socio-Economic Indexes for Areas (SEIFA). The Index of Relative Socio-Economic Disadvantage (IRSD) provides a state-by-state ranking by deciles of socio-economic disadvantage, ranking from greater relative disadvantage (score of ‘1’) to less relative disadvantage (score of ‘10’). For more information, see: <https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>.

with some regional and fast-growing outer suburbs (FGOS) postcodes. Victoria, on the other hand, has a mixture of rural, regional, FGOS, middle suburbs and outer suburbs. In South East Queensland, disconnections have predominantly occurred in FGOS, with some inner city, middle suburb and outer suburb postcodes. This would, however, also reflect that the analysis is based on the largely urbanised Energex network only.⁸⁸ In South Australia, the majority of the 'top' 30 disconnection postcodes are in rural areas, with some regional and FGOS postcodes.

FIGURE 29 | Geographical distribution of the 'top' 30 disconnection postcodes



4.2 Key groups being disconnected

Based on the key indicators from the Census data discussed above, the 'top' 30 disconnection postcodes across New South Wales, Victoria, South East Queensland and South Australia can be broadly categorised into five distinct groups. These are the groups of households that are at the greatest risk of being disconnected:

Group 1: Postcodes characterised by entrenched disadvantage

- Key characteristics: Low income, high unemployment, high proportion of households making less than \$650 per week, coupled with some housing affordability issues and a high proportion of one parent families.

Group 2: Postcodes characterised by low income and a more elderly population

- Key characteristics: More elderly, low income with a high proportion of households making less than \$650 per week.

Group 3: Postcodes characterised by housing affordability issues

- Key characteristics: High mortgage repayments, high weekly rent.

Group 4: Postcodes characterised by low income and a high proportion of one parent families

- Key characteristics: High proportion of one parent families, coupled with low-income and unemployment issues as well as some housing affordability issues.

Group 5: Postcodes characterised by being mixed communities

In this group, no indicators from the ABS Census (2016) data provide a clear explanation as to why these postcodes have such a high number of disconnections. Indicators such as median

⁸⁸ As there is no retail competition in Queensland's predominantly rural Ergon network, AGL does not have customers in this area.

income level, family composition, rate of unemployment or high housing costs do not particularly stand out in these postcodes. However, as a paper from the Australian Government's Productivity Commission points out, indicators like the SEIFA IRDS which are based on Census data and are calculated as an average, may not be entirely accurate in depicting disadvantage within a certain area:

"[...] the scores are an average for residents in Statistical Local Areas (SLAs) and therefore mask heterogeneity – where residents with various degrees of disadvantage are co-located with residents who may not experience disadvantage."⁸⁹

These postcodes have therefore been labelled as 'mixed communities.' Although the SEIFA IRSD scores might be relatively high and indicators from the Census data might not reveal apparent disadvantage for the postcode as a whole, there appear to be segments within the communities that are facing a high level of energy affordability issues.

4.2.1 South Australia

In South Australia there is an important number of 'top' disconnection postcodes that are characteristic of Group 2 and Group 5. Map 24 below shows South Australia's 'top' 30 disconnection postcodes and the groups to which they have been allocated.

Group 2 postcodes – that is, postcodes characterised by lower income and more elderly residents – include areas such as: down the Yorke peninsula (Warooka, postcode 5577), Meningie (postcode 5264), around Coonalpyn (postcode 5265 and 5301), Murray Bridge (postcode 5253), Wellington (postcode 5259), Swan Reach (postcode 5354), Blanchetown (postcode 5357), Waikerie (postcodes 5330), Sunlands (postcode 5322), Kingston on Murray (postcode 5331) and Minnipa (postcode 5654).

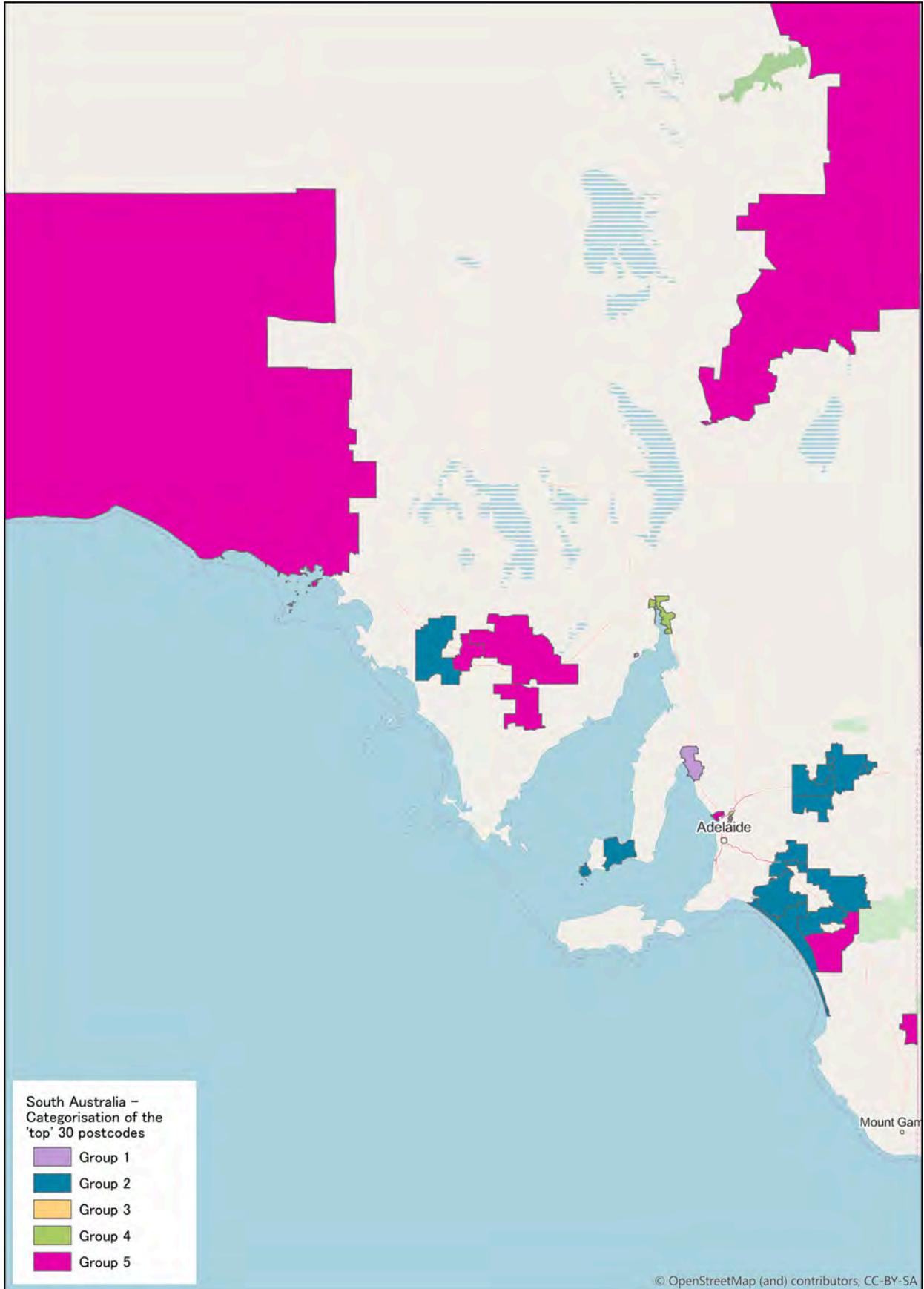
In the Group 5 postcodes, there is east of Naracoorte (Frances, postcode 5262), Tintinara (postcode 5266), Virginia (postcode 5120), Kimba (postcode 5641), Wudinna (postcode 5652), Darke Peak (postcode 5642), Ceduna (postcode 5690), Whyalla (postcode 5609) and postcode 5731 (north-eastern tip of the state).

There are also two postcodes in South Australia that have a high proportion of one parent families (Group 4): Port Augusta (postcode 5700) and Kudla (postcode 5115).

The remainder, like Port Wakefield (postcode 5550), Whyalla Norrie (postcode 5608) and around Elizabeth (*Elizabeth – postcode 5112 and Elizabeth North – postcode 5113*) have been allocated to Group 1, where there is more entrenched disadvantage.

⁸⁹ McLachlan, R., Gilfillan, G & J. Gordon, *Deep and Persistent Disadvantage in Australia*, Productivity Commission Staff Working Paper, July 2013, p. 88.

MAP 24 | Key groups being disconnected in South Australia's 'top' 30 disconnection postcodes



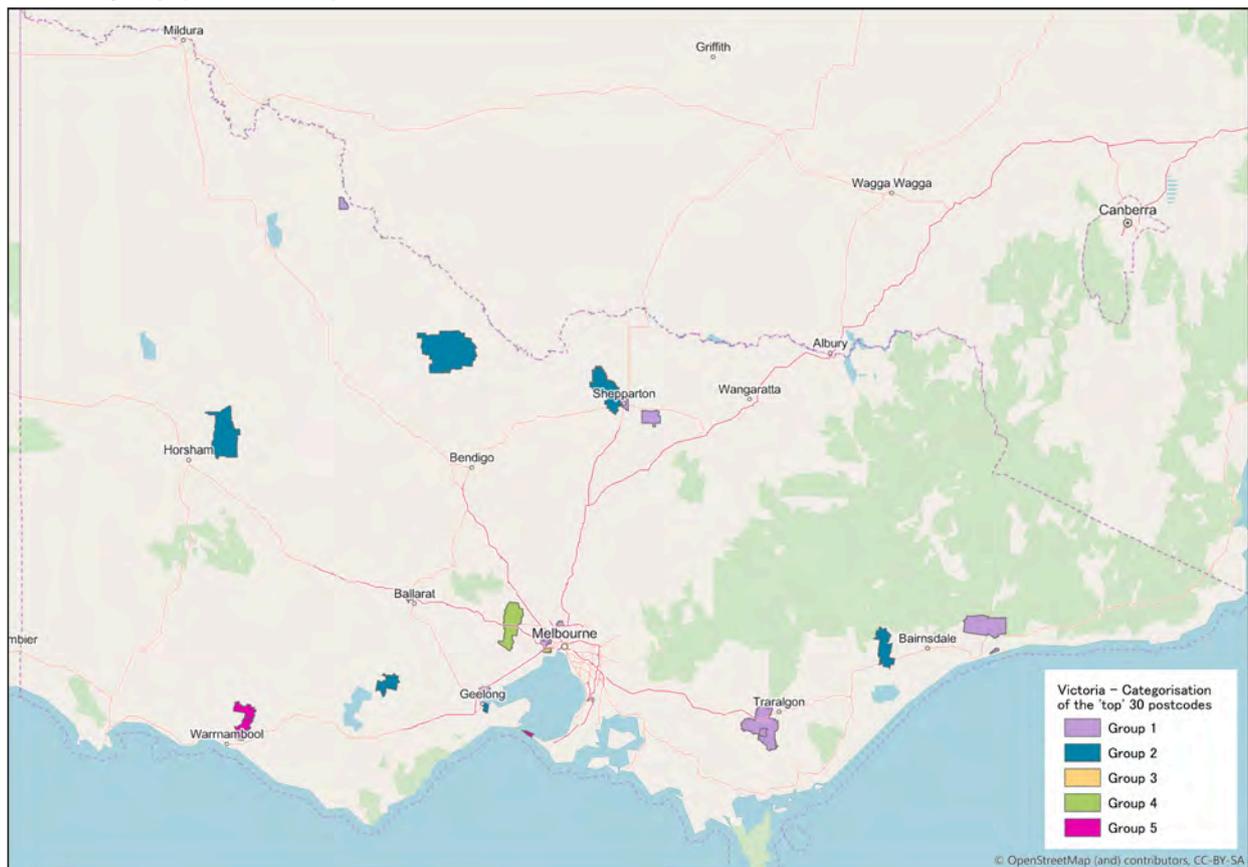
4.2.2 Victoria

In Victoria, similarly to New South Wales, close to half of the 'top' 30 disconnection postcodes are also Group 1 postcodes. They include areas such as Broadmeadows (postcode 3047), Sunshine (postcode 3020), Ardeer (postcode 3022), St Albans (postcode 3021), Frankston North (postcode 3200), Morwell (postcode 3840), Churchill (postcode 3842), Nowa Nowa (postcode 3887), Shepparton-Mooroopna (postcode 3630), Nyah West (postcode 3595), Corio (postcode 3214) and Wendouree, northeast of Ballarat (postcode 3355). The remaining postcodes are, however, dispersed amongst the remaining four categories. These are shown in Map 25 below. There are some areas characterised by housing affordability issues (i.e., belonging group 3) around Geelong (Barrabool, postcode 3221), near Werribee (postcodes 3211, 3024 and 3027) and on the Mornington Peninsula (Main Ridge, postcode 3928).

There are also a few disconnection postcodes where the proportion of one parent families is quite high (i.e., group 4). These include Altona North (postcode 3025), Melton (postcode 3337) and Brookfield (postcode 3338).

Disconnection postcodes like those around Warrnambool (Purnim – postcode 3278 and Ballageich – postcode 3279) as well as Portsea (postcode 3944) have been categorized under group 5 as, although these postcodes are not typically associated with high-levels of socio-economic disadvantage, there is still a significant number of residents who are being disconnected.

MAP 25 | Key groups being disconnected in Victoria's 'top' 30 disconnection postcodes



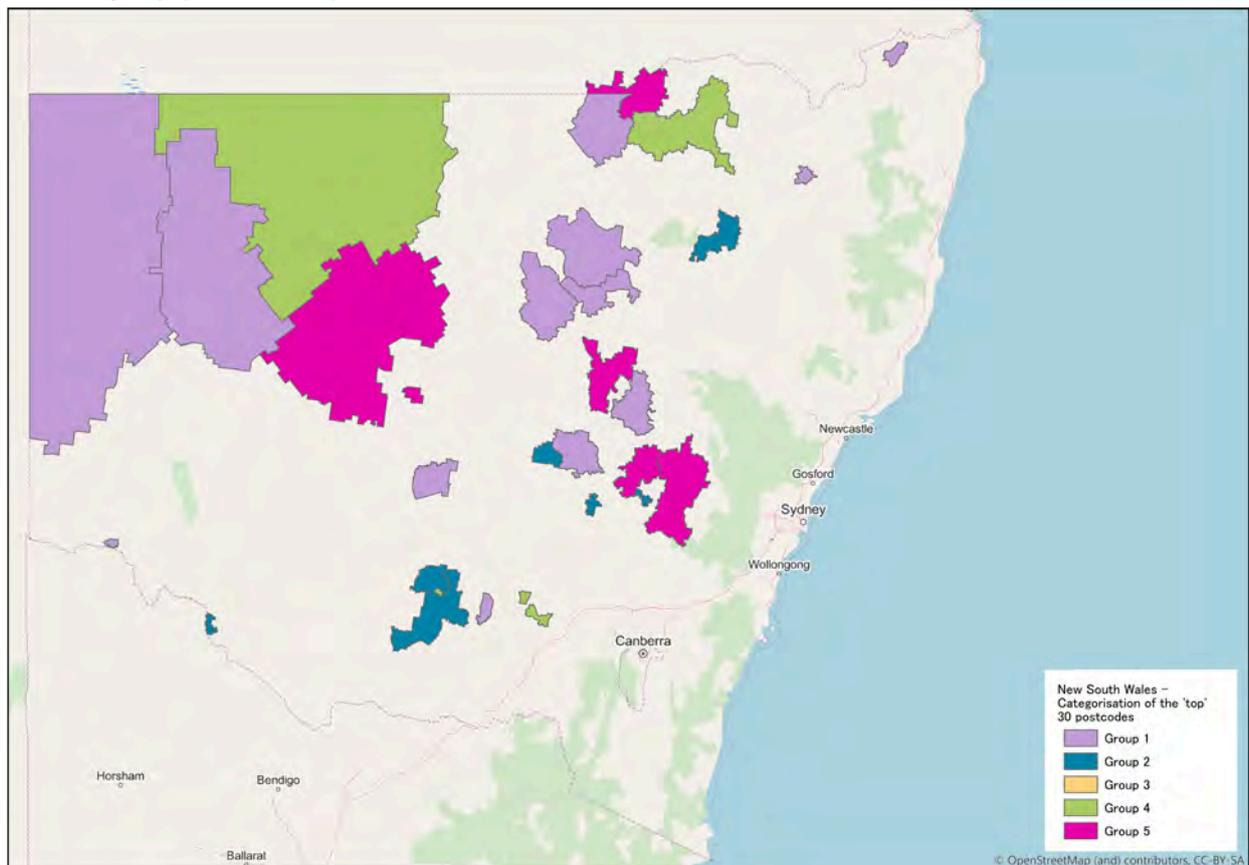
4.2.3 New South Wales

In New South Wales, almost half of the 'top' 30 disconnection postcodes belong to Group 1, as can be seen in Map 26 below. These are characterised by entrenched disadvantage and include postcodes such as Ganmain, northwest of Wagga Wagga (postcode 2702), Curlew Water, north of Griffith (Lake Cargelligo, postcode 2672), Broken Hill (postcode 2880), White Cliffs (postcode 2836), east of Lightning Ridge (Collarenebri, postcode 2833), Coonamble (postcodes 2829), Gulargambone (postcode 2828), Warren (postcode 2824), Wellington (postcode 2820), Parkes (postcode 2870), Claymore (postcode 2559), Dareton, northwest of Mildura (postcode 2717), Tingha (postcode 2369) and Urbenville (postcode 2475).

There is also a small number of Group 2 postcodes, for instance southeast of Griffith (Narrandera and Leeton, postcodes 2700 and 2705), north of Nyah (Tooleybuc, postcode 2736), Carcoar, south of Orange (postcode 2791), Nelungaloo, west of Parkes (postcode 2876) and Boggabri, northwest of Tamworth (postcode 2382). These postcodes are characterised by low income and a population that is older compared to the New South Wales average.

There are also postcodes that are in Group 5, like Dubbo (postcode 2830), Orange (postcode 2800), Bathurst (postcode 2795), Cobar (postcode 2835) and Mungindi (postcode 2406). There are no Group 3 postcodes in New South Wales, which underlines that housing affordability issues are less of a key indicator for identifying households that are at a greater risk of being disconnected.

MAP 26 | Key groups being disconnected in New South Wales 'top' 30 disconnection postcodes



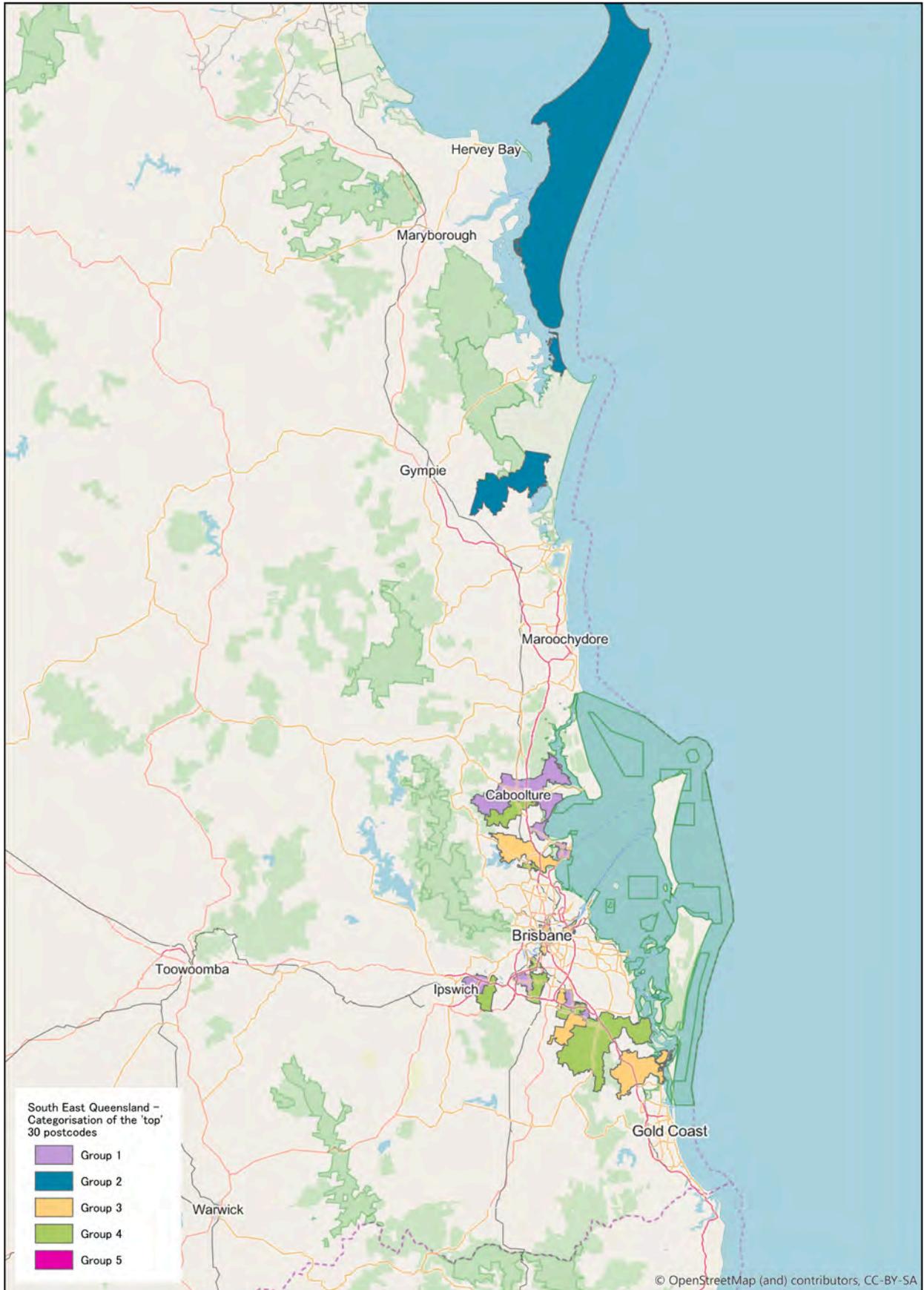
4.2.4 South East Queensland

In South East Queensland, the majority of the 'top' 30 postcodes are in Group 1, 3 or 4. Map 27 below presents the categorization of the 'top' 30 disconnection postcodes in South East Queensland. The disconnection postcodes characterised by more entrenched disadvantage (i.e., belonging to Group 1) include areas such as Deception Bay (postcode 4508), Kippa-Ring (postcode 4021), Margate (postcode 4019), Caboolture (postcode 4510), east of Ipswich (Booval, postcode 4304 and Riverview, postcode 4303) and in the vicinity of Logan (postcodes 4114 and 4205).

Within the 'top' disconnection postcodes, there are also areas like Coomera (postcode 4209), around Logan (postcodes 4133 and 4117), Kallangur (postcode 4503), and more inner Brisbane postcodes (postcodes 4006, 4010, 4005, 4064, 4102, 4103 and 4172), where housing affordability is a key issue (i.e., group 3 postcodes).

There are also a few Group 4 postcodes – who are characterised by a high proportion of one parent families – for example, around Logan (postcodes 4207, 4131 and 4132), southeast Ipswich (Redbank, postcode 4301), suburbs like Acacia Ridge (postcode 4110) and Rocklea (postcode 4106), Morayfield (postcode 4506) and Lawnton (postcode 4501). Once again, since this analysis only looked at postcodes in the Energex distribution network, this may have over-represented some groups compared to others.

MAP 27 | Key groups being disconnected in South East Queensland's 'top' 30 disconnection postcodes



In summary:

1. Postcodes in **South Australia** that are at the greater risk of being disconnected are predominantly located in **rural areas** and are either **more elderly** and **low-income** communities or communities with high disconnection numbers that are not typically associated with a high level of disadvantage.
2. Postcodes in **Victoria** that are at the greatest risk of being disconnected are more diverse. The largest group at risk are those with high disadvantage (with low income, high unemployment, housing affordability issues, often one parent families), predominantly located in **regional areas** but in **middle suburbs, outer suburbs and rural areas** as well. The other key groups identified that are also at risk in Victoria, include (i) communities with an **elderly** population and **low incomes** in **rural and regional areas**, (ii) postcodes with high levels of **housing affordability issues** in **rural areas** and **fast-growing outer suburbs (FGOS)**, and (iii) **FGOS and middle suburbs** with high proportions of **one parent families**.
3. Postcodes in **New South Wales** that are at greatest risk of being disconnected are less diverse than in Victoria: it is predominantly **postcodes with high disadvantage** (that is, characterised by (i) low income, (ii) high unemployment, (iii) some degree of housing affordability issues, and (iv) some high proportions of one parent families) located in **rural and regional areas**.
4. Postcodes in **South East Queensland** that are at the greatest risk of being disconnected are largely inner-city postcodes facing **housing affordability** issues. Other key groups also include **FGOS** postcodes characterised by either **entrenched disadvantage** or a **high proportion of one parent families**.

5. CHANGES OVER TIME

This section compares the ‘top’ 30 disconnection postcodes identified in this analysis with the ones from the previous analysis⁹⁰ (2012-2015), in order to examine if there have been any significant changes in postcodes with high disconnections numbers and assess if there are any notable differences or similarities between the two.

The comparison here is based on completed disconnections that have been normalised for population in each postcode.

The maps in this section shows the ‘top’ disconnection postcodes that were in the first analysis only (*labelled ‘2012-2015 only’*), in this analysis only (*labelled ‘2015-2018’ only*) or in both (*labelled ‘2012-2015 and 2015-2018’*).

When looking at the number of completed disconnections per postcode⁹¹, there are some significant similarities and a few notable changes between the analysis (2012-2015 and 2015-2018) in terms of where disconnections occur:

1. In **South Australia**, the number of metropolitan areas with high disconnection numbers has decreased significantly from the previous analysis. Disconnections are still predominantly occurring in rural postcodes, although some of the rural postcodes that were in the first analysis have been replaced by other rural postcodes in this analysis.
2. In **Victoria**, inner city and northern suburbs postcodes are no longer areas with the highest disconnection numbers. Western suburbs and outer south-eastern suburbs, however, do remain areas that have a very high number of disconnections. There is also been a clear shift from suburbs to regional areas for the postcodes that have the highest proportion of completed disconnections.
3. In **New South Wales**, disconnections are still predominantly occurring in rural areas. In contrast to the previous analysis, there are no inner-city or suburban postcodes in the ‘top’ disconnection areas for New South Wales between 2015-2018.
4. For **South East Queensland**, there has been an increase in the number of high disconnection postcodes that are located in metropolitan areas.

5.1 South Australia

In South Australia, see Map 28 below, there are now a few rural postcodes that no longer are ‘top’ disconnection postcodes. These include areas such as Renmark (postcode 5341), Barmera (postcode 5345), Berri (postcode 5343), Loxton (postcode 5333), Glencoe (postcode 5291), Penola (postcode 5277), Port Lincoln (postcode 5606 and 5607) and Dublin (postcode 5501).

These have, however, been replaced by postcodes that share quite similar characteristics and are in close proximity to the ones from the previous analysis. Within the ‘top’ 30, we now see rural postcodes such as east of Naracoorte (Frances, postcode 5262), Geranium (postcode 5301), Meningie (postcode 5264), Tintinara (postcode 5266), Coonalpyn (postcode 5265), Blanchetown (postcode 5357), Swan Reach (postcode 5354), Kingston on Murray (postcode 5331), Sunlands (postcode 5322), Port Wakefield (postcode 5550), American River (postcode 5221), down the Yorke Peninsula (Warooka, postcode 5577), Darke Peak (postcode 5642), Kimba (postcode

⁹⁰ See St Vincent de Paul Society & Alvis Consulting, *Households in the Dark: Mapping Electricity Disconnections in South Australia, Victoria, New South Wales and South East Queensland*, May 2016.

⁹¹ In this instance, disconnections **have not been** normalised for population.

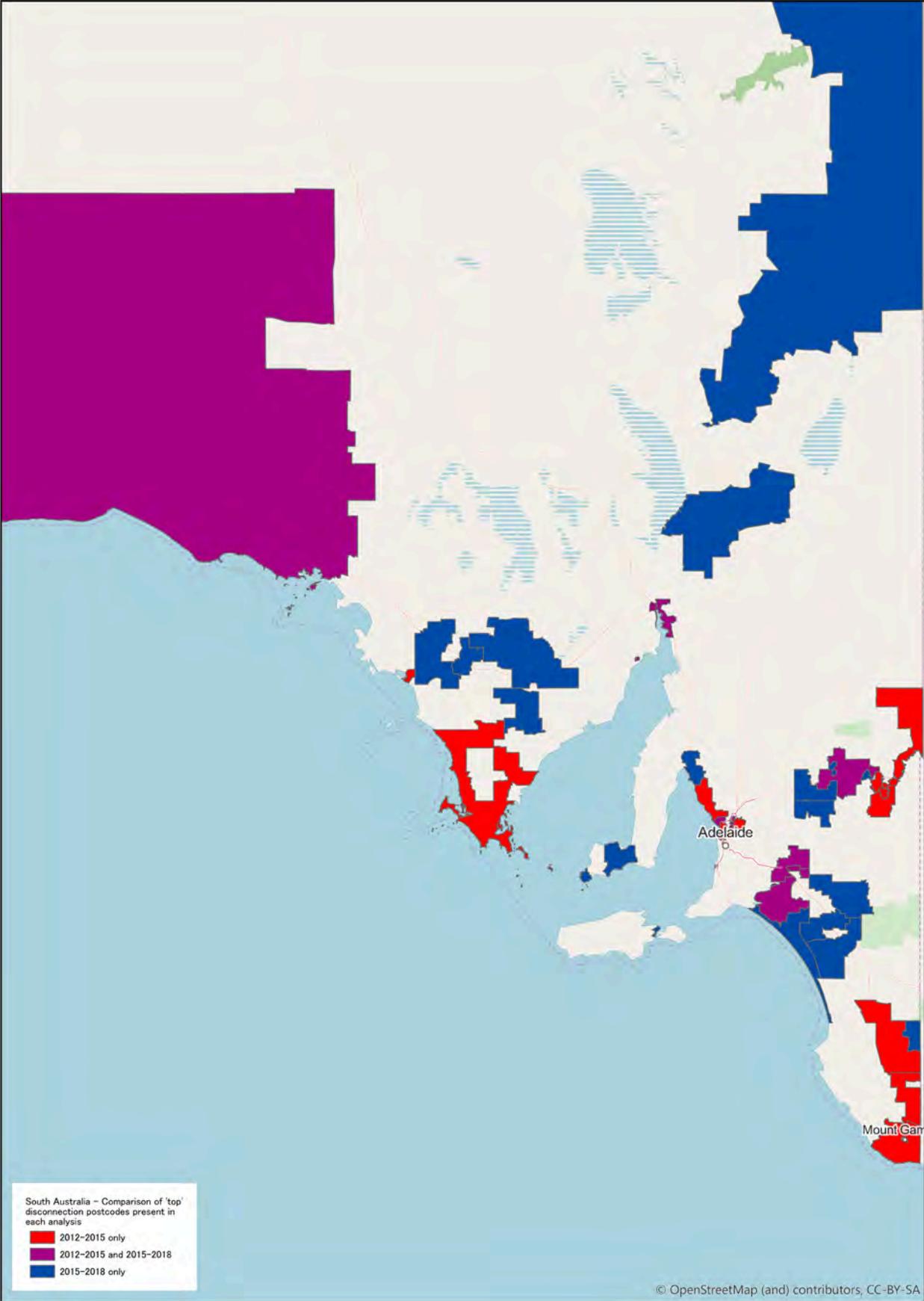
5641), Wudinna (postcode 5652), Minnipa (postcode 5654), Hawker (postcode 5434), and the north-eastern part of state which includes the towns of Leigh Creek and Lyndhurst (postcode 5731).

There are 11 South Australian postcodes that are in the 'top' 30 in both analyses. These include the rural and regional postcodes of Ceduna (postcode 5690), Whyalla Norrie (postcode 5608), Port Augusta (postcode 5700), Wellington (postcode 5259), Riverglens (postcode 5253) and Waikerie (postcode 5330). There are also some metropolitan postcodes which are discussed in further detail below.

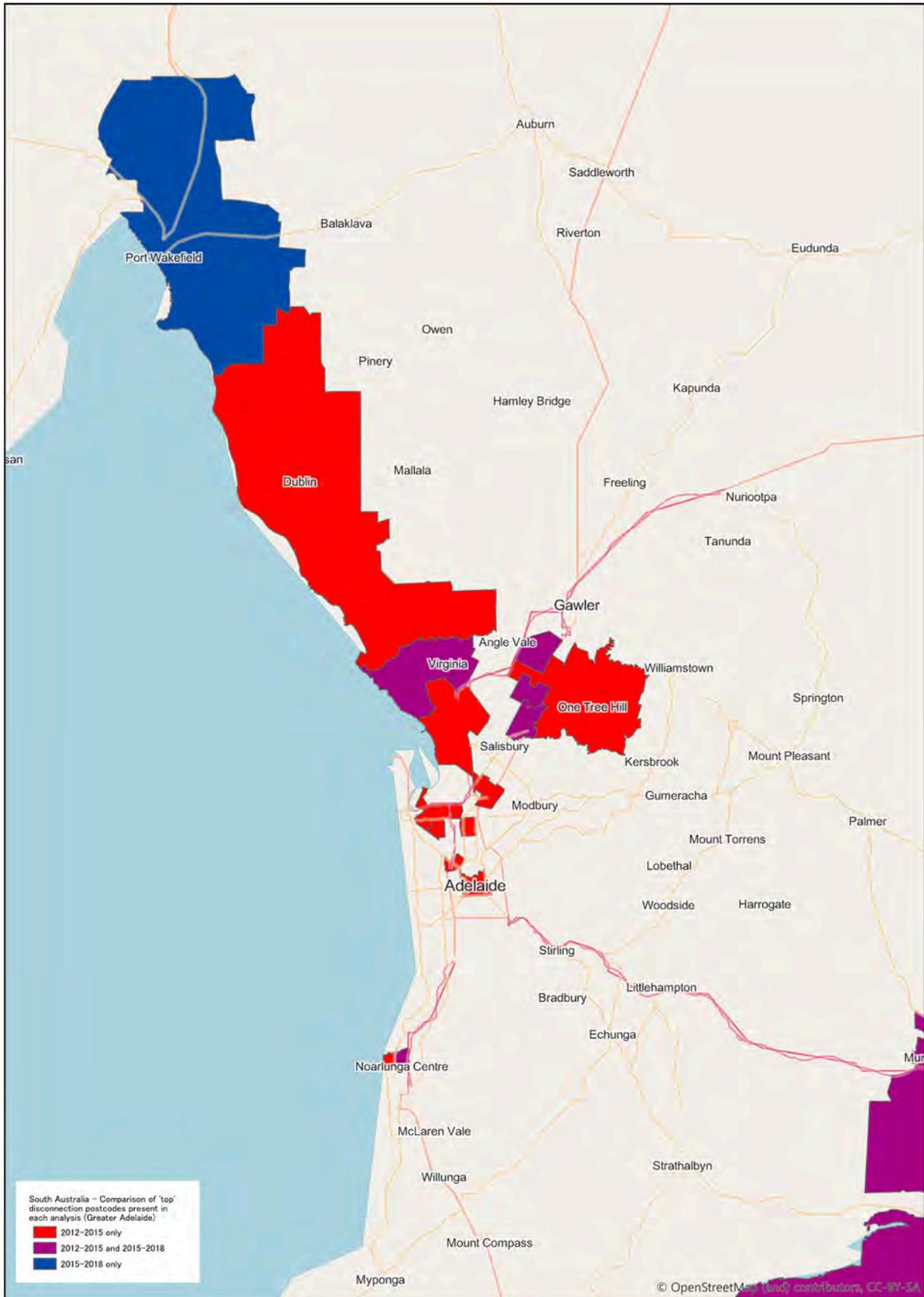
The number of 'top' disconnection postcodes in South Australia that are located in metropolitan areas has decreased significantly. In the 2015-2018 analysis, there are no inner-city areas in the 'top' 30. As can be seen from Map 29, there are some Greater Adelaide postcodes that had high disconnection numbers in both the 2012-2015 and the 2015-2018 analysis. These include FGOS such as Virginia (postcode 5120), Kudla (postcode 5115), Elizabeth North (postcode 5113), Elizabeth (postcode 5112) and the outer suburb Christie Downs (postcode 5164).

In summary, we note that South Australia has seen a shift in disconnections from urban postcodes to rural and regional areas over the timeline of these two studies.

MAP 28 | Comparison of 'top' disconnection postcodes in South Australia between current and previous analysis



MAP 29 | Comparison of 'top' disconnection postcodes in South Australia between current and previous analysis (Greater Adelaide)



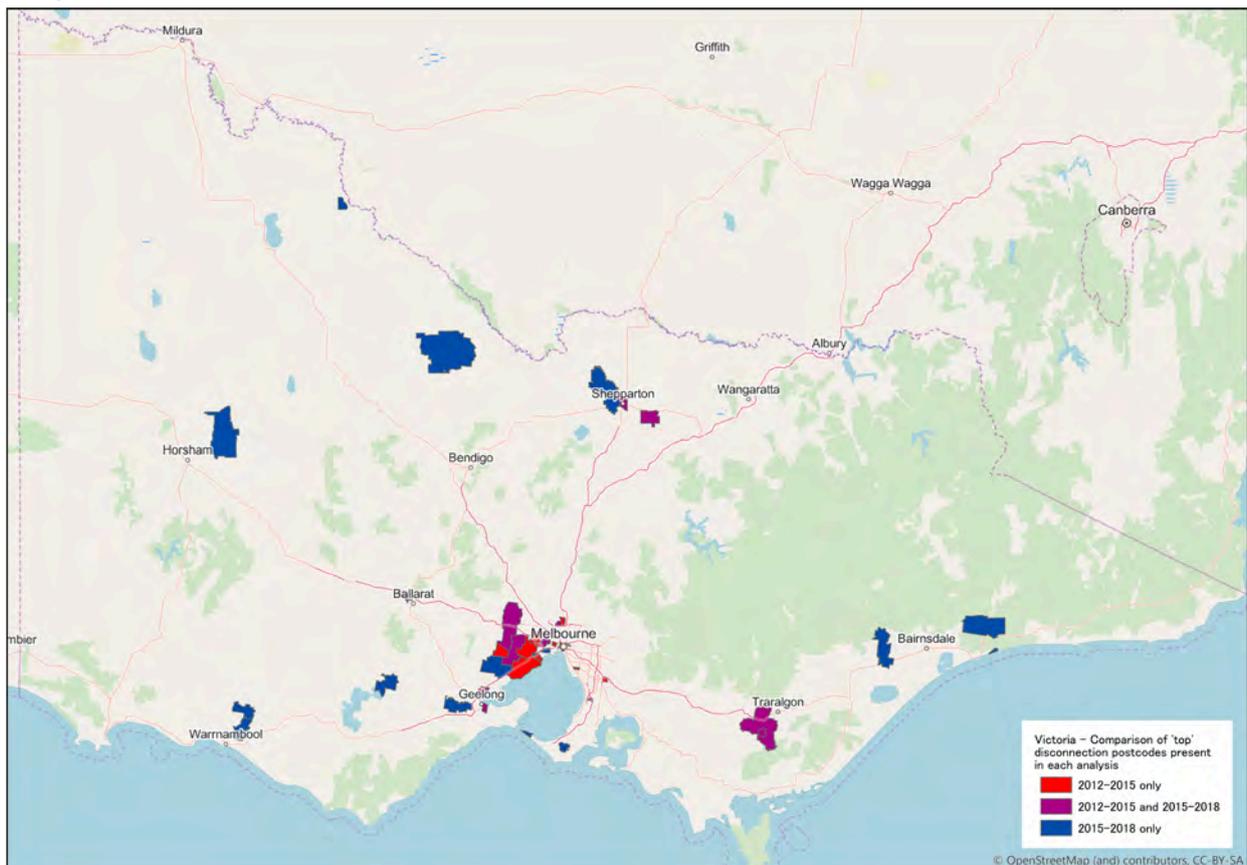
5.2 Victoria

In Victoria, the 'top' 30 disconnection postcodes that were largely characterised as facing housing affordability issues in the previous analysis are no longer in the 'top' 30. Map 30 below shows the 'top' disconnection postcodes in Victoria that were present in each analysis.

By comparing the two time periods, it is evident that there has been a clear shift from suburbs to regional areas in the 'top' disconnection postcodes across Victoria. These include areas such as Ardmona (postcode 3629), Pyramid Hill, south of Kerang (Pyramid Hill, postcode 3575), Nyah West (postcode 3595), Murtoa, northwest of Horsham (postcode 3390), north of Warrnambool (Ballangeich - postcode 3279 and Purnim - postcode 3278), Cressy (postcode 3322), around Geelong, in Barrabool (postcode 3221), Little River (postcode 3211), Nowa Nowa in East Gippsland (postcode 3887) and on the Mornington Peninsula (Main Ridge, postcode 3928).

Fifteen postcodes, however, have been in the 'top' 30 for both studies. These include areas such as Wendouree, northwest of Ballarat (postcode 3355), Shepparton-Mooroopna (postcode 3630), Morwell (postcode 3840), Churchill (postcode 3842), Frankston North (postcode 3200), East Geelong (postcode 3219), Corio (postcode 3214), Brookfield (postcode 3338), Melton (postcode 3337), Broadmeadows (postcode 3047), St Albans (postcode 3021), Sunshine (postcode 3020), Ardeer (postcode 3022) and Braybrook (postcode 3019).

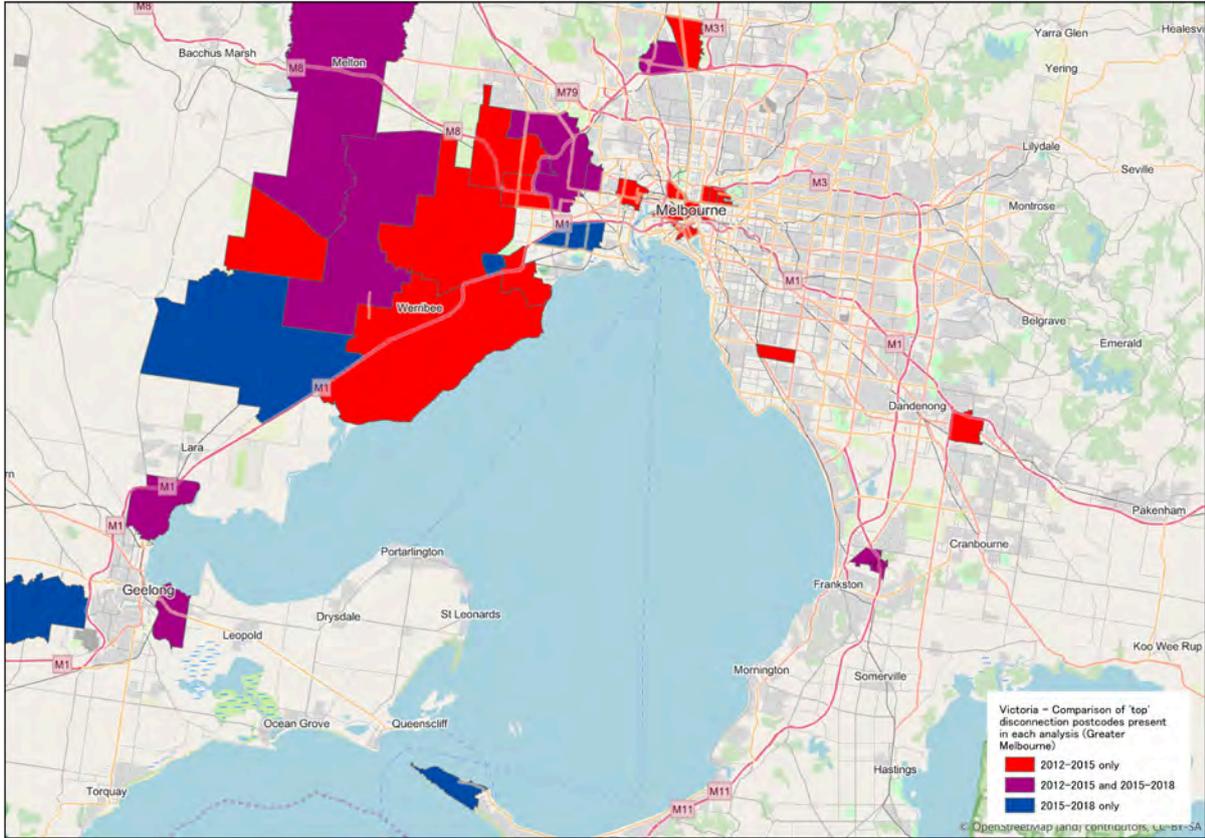
MAP 30 | Comparison of 'top' disconnection postcodes in Victoria between current and previous analysis



Map 31 shows a number of urban postcodes, such as Footscray (postcode 3011), Fitzroy (postcode 3065), Collingwood (postcode 3066), Abbotsford (postcode 3067), North Melbourne (postcode 3051), Melbourne CBD (postcode 3000), Docklands (postcode 3008), Moorabbin (postcode 3189), Hallam (postcode 3803), Derrimut (postcode 3030), Caroline Springs (postcode 3023), Hoppers Crossing (postcode 3029), Werribee (postcode 3030), Altona Meadows (postcode 3028) and Campbellfield (postcode 3061), which were ‘top’ disconnection postcodes in the first study only.⁹²

As such, the majority of the ‘top’ disconnection postcodes are no longer located in the Greater Melbourne area, as was the case when the first iteration of this analysis was conducted. Disconnections have now shifted either to more regional and rural areas, or to new housing developments in Melbourne’s outer western suburbs.

MAP 31 | Comparison of ‘top’ disconnection postcodes in Victoria between current and previous analysis (Greater Melbourne)



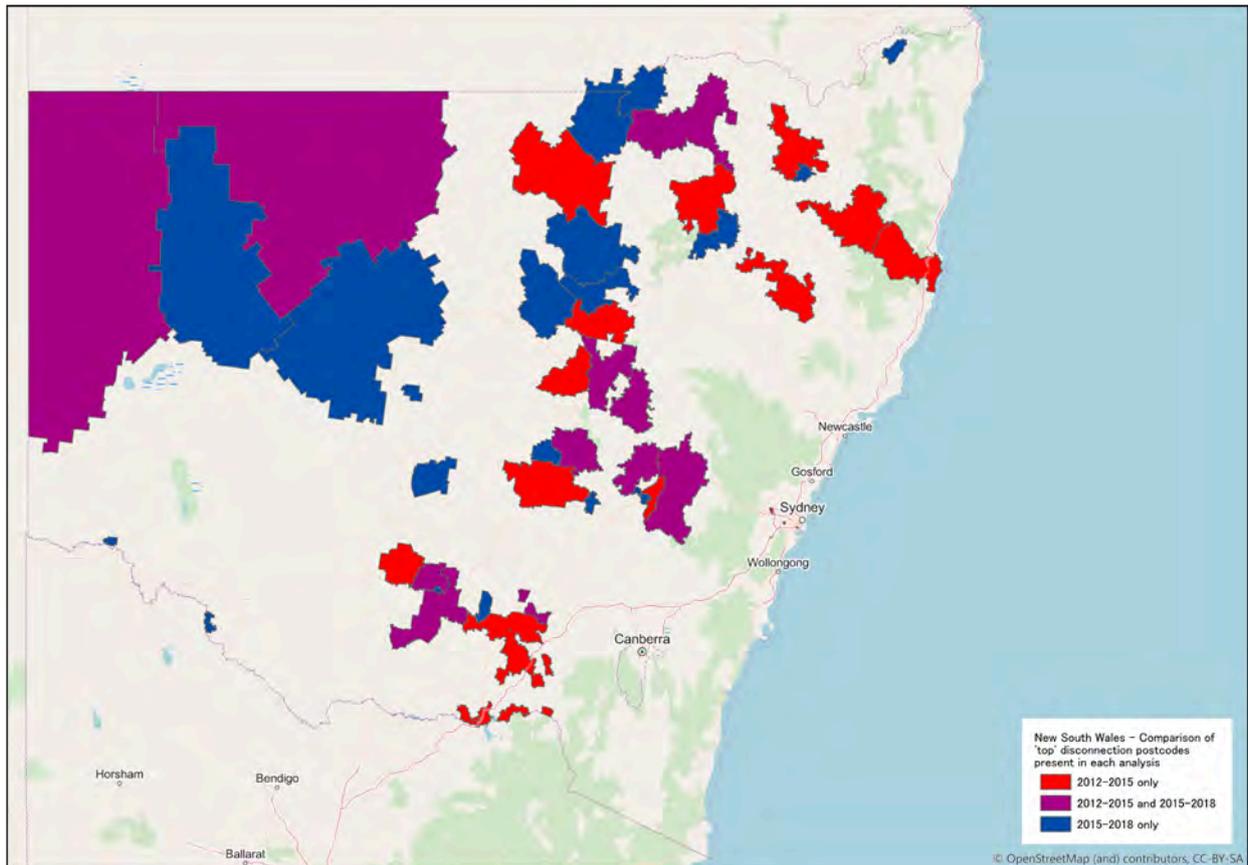
⁹² It should be noted, however, that some of these postcodes were in the ‘top’ disconnection postcodes in Victoria when looking at the number (raw count) of disconnections raised, for examples Werribee (postcode 3030) and Hoppers Crossing (postcode 3029). See Section 3.1.2 above. These were not in the ‘top’ disconnection postcodes once the data has been normalised for population.

5.3 New South Wales

In the previous analysis, a large proportion of the New South Wales ‘top’ disconnection postcodes were characterised as low to median income households that had lower housing costs but greater transport costs. These postcodes, like Wagga Wagga (postcode 2650) or Albury (postcode 2640) for instance, are no longer in the New South Wales ‘top’ 30. They have, however, been replaced by postcodes that share quite similar characteristics and are in close proximity to the ones from the previous analysis. Other postcodes with very high disconnection numbers in the first analysis (2012-2015) only, analysis include Griffith (postcode 2680), Central Sydney (postcode 2000), Darlington (postcode 2008), Mount Druitt (postcode 2770), Villawood (postcode 2163) and Tamworth (postcode 2340), amongst others. See Map 36 below.

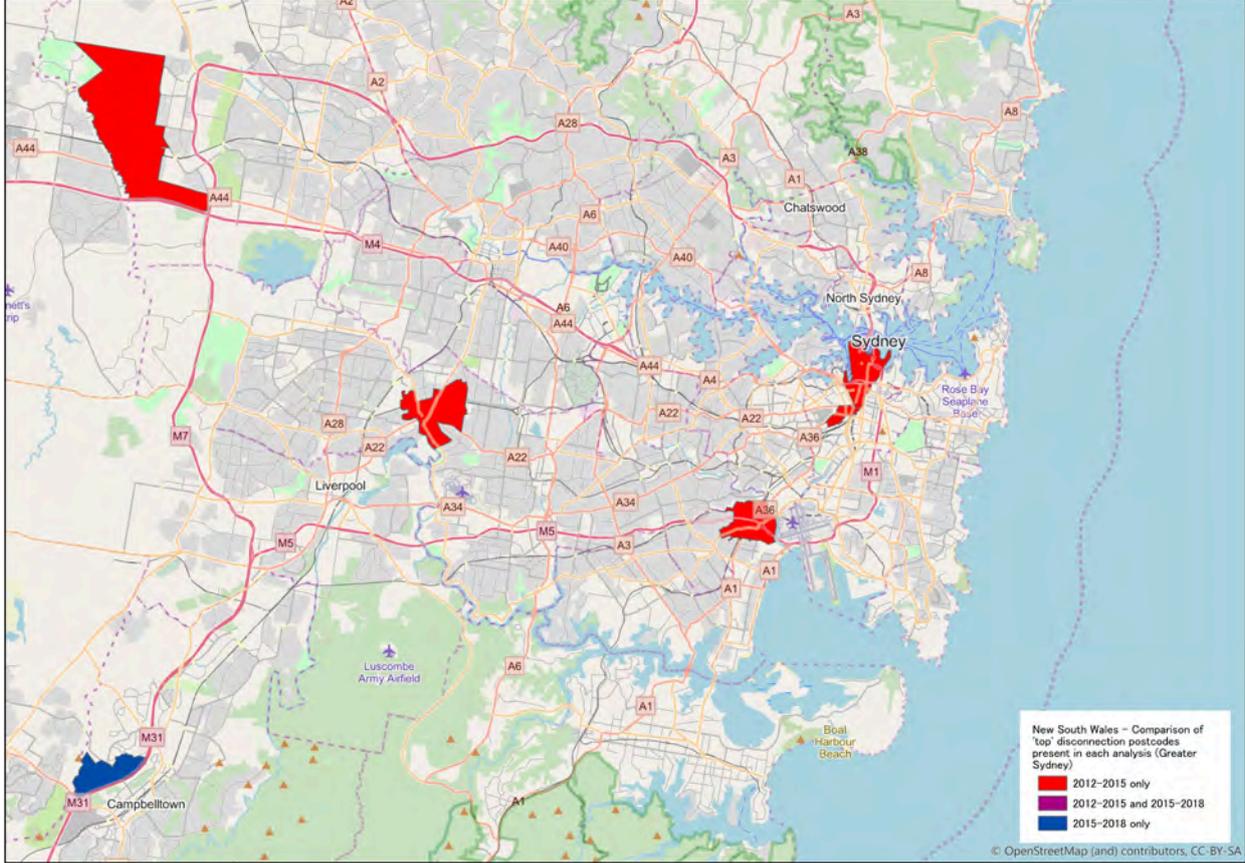
In terms of overlap between the two analyses, 11 postcodes were in New South Wales’ ‘top’ disconnection postcodes across both time periods. These include Broken Hill (postcode 2880), Bourke (postcode 2840), Moree (postcode 2400), Dubbo (postcode 2830), Wellington (postcode 2820), Bathurst (postcode 2795), Orange (postcode 2800), Parkes (postcode 2870), Narrandera and Leeton (postcodes 2700 and 2705) and Junee (postcode 2663).

MAP 32 | Comparison of ‘top’ disconnection postcodes in New South Wales between current and previous analysis



For the Greater Sydney area, inner-city and suburban postcodes are no longer in the ‘top’ disconnection postcodes, as evidenced in Map 33 below. In the previous analysis, these were Haymarket (postcode 2000), Arncliffe (postcode 2205), Villawood (postcode 2163) and Mount Drutt (postcode 2770).

MAP 33 | Comparison of ‘top’ disconnection postcodes in New South Wales between current and previous analysis (Greater Sydney)



5.4 South East Queensland

In South East Queensland, many of the previous 'top' disconnection postcodes that were facing high housing costs are no longer in the state's 'top' 30. Map 34 highlights these postcodes in red below. They included areas such as Ipswich (postcode 4305), East Brisbane (postcode 4169), Warner, north of Brisbane (postcode 4500), Springfield (postcode 4300), Greenbank (postcode 4214), Varsity Lakes (postcode 4227), Sandstone Point (postcode 4511), Beerwah (postcode 4519), Maroochydore (postcode 4558) and Marcoola (postcode 4564).

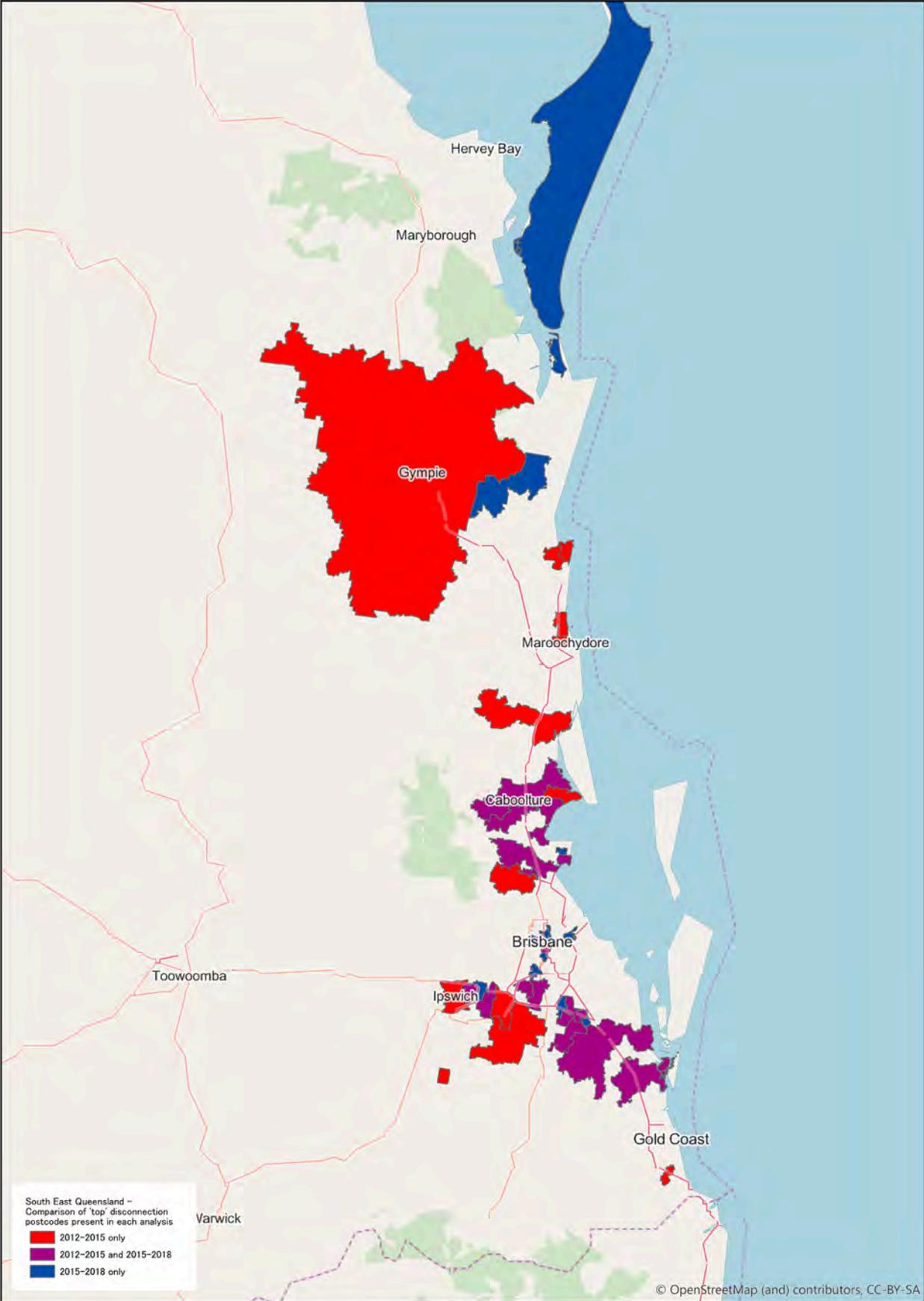
The new 'top' 30 disconnection postcodes are predominantly located in metropolitan areas – discussed further below – and as well as in a few rural and regional areas. These include postcodes characterised by high disadvantage such as Riverview (postcode 4303) and Bethania (postcode 4205), or by a more elderly and low-income population such as Como (postcode 4571) and Fraser Island (postcode 4581).

The first and second analysis share 17 postcodes that were in South East Queensland's 'top' disconnection postcodes across both time periods. These include Caboolture (postcode 4510), Morayfield (4506), Deception Bay (postcode 4508), Kallangur (postcode 4503), Margate (postcode 4019), Lawnton (postcode 4501), Coomera (postcode 4209), Beenleigh (postcode 4207), Chambers Flat (postcode 4133), Loganlea (postcode 4131), Logan Central (postcode 4114), Marsden (postcode 4132), Redbank (postcode 4301), Booval (postcode 4304), Richlands (postcode 4077), Acacia Ridge (postcode 4110) and Dutton Park (postcode 4102).

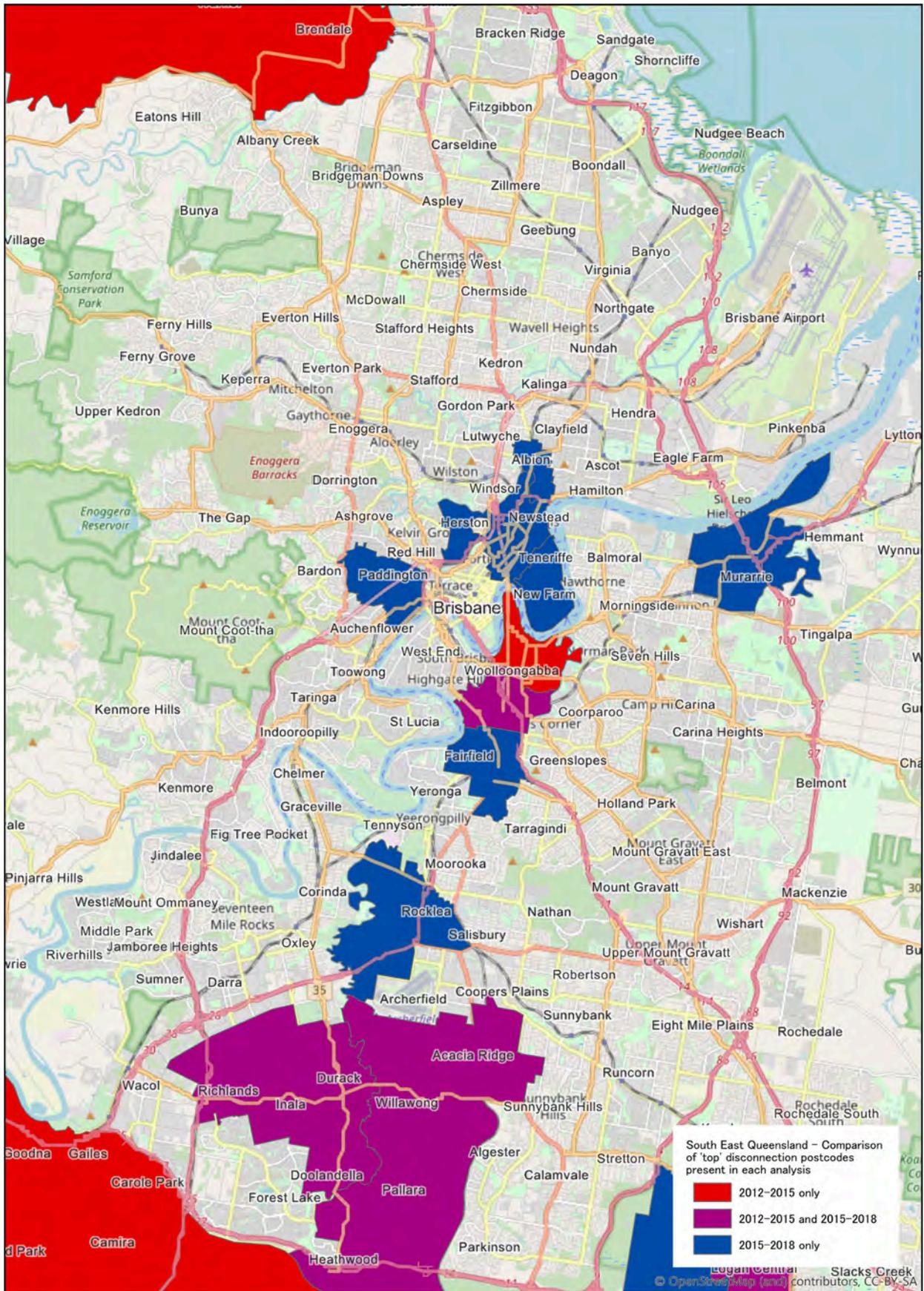
In the most recent analysis (2015-2018), new postcodes facing high levels of housing costs⁹³ have appeared and these are mostly located in metropolitan areas. They have been highlighted in blue in Map 35 and include Murarrie (postcode 4172), Annerley (postcode 4103), Paddington (postcode 4064), Fortitude Valley (postcode 4006), Albion (postcode 4010), New Farm (postcode 4005), Rocklea (postcode 4106) and Kippa-Ring (postcode 4021).

⁹³ These were labelled as belonging to Group 3 in Section 4.2.

MAP 34 | Comparison of 'top' disconnection postcodes in South East Queensland between current and previous analysis



MAP 35 | Comparison of 'top' disconnection postcodes in South East Queensland between current and previous analysis (Greater Brisbane)



Some of the differences between the high disconnection postcodes in this analysis (2015-2018) and the previous one (2012-2015), may be attributed to the increasing number of households that have installed rooftop solar. According to the Clean Energy Regulator (CER), there are currently more than 2 million small generation solar systems installed in Australia.⁹⁴ Between 2015 and 2018, approximately 165,000 solar systems were installed in New South Wales, 175,000 in Queensland, 62,000 in South Australia and 136,000 in Victoria.⁹⁵ Increase in the uptake of rooftop solar can provide a pathway to alleviate some of the energy affordability issues that have been identified in this study.

We note that from the postcodes with the highest uptake of solar⁹⁶, there are a few that are also in the 'top' disconnection postcodes of this analysis. These include Swan Reach (postcode 5354) and American River (postcode 5221) that all had some of the highest proportion of completed disconnections between July 2015 and June 2018. These postcodes, however, have a more elderly population compared to the South Australian average. For instance, according to the ABS Census (2016), the median age is 54 in Swan Reach and 57 in American River, whereas the median age for the whole of South Australia is 40. Additionally, these postcodes have a proportion of households owned outright that is significantly higher than the state average. In Swan Reach and American River, more than 55% of households are owned outright (compared to 32.2% on average for South Australia). Hence, while these postcodes have had a noticeably higher uptake of solar than other 'top' disconnection postcodes from this analysis, this could be attributed to the fact that they are characterised by being more elderly as well as having a high proportion of households owning their homes outright.

A recent report conducted by the Victorian Energy Policy Centre found that the uptake of rooftop solar was more prevalent amongst households in the lower and middle socio-economic deciles than in wealthier households across Australia.⁹⁷ The report further noted an inversely proportionate relationship between the uptake of rooftop solar and the value of the property, with rooftop solar recorded to be predominantly installed on 'less valuable' houses. In our analysis, however, the 'top' disconnection postcodes that have lower socio-economic rankings are often those where homeownership rates are low. As Figure 30 below shows, for the 'top' disconnection postcodes across the two analyses (2012-2015 and 2015-2018), solar uptake decreases as ownership decreases (owned outright and owned with a mortgage to a lesser extent). Conversely, there is an inverse relationship between solar uptake and the proportion of households rented. Furthermore, solar uptake also decreases when age decreases.

Hence, for the high disconnection postcodes in both analyses, it appears that homeownership, and by association, age, are key factors behind high solar uptake. Thus, the challenge remains of how to use solar to alleviate energy affordability issues in postcodes where homeownership and median age are lower.

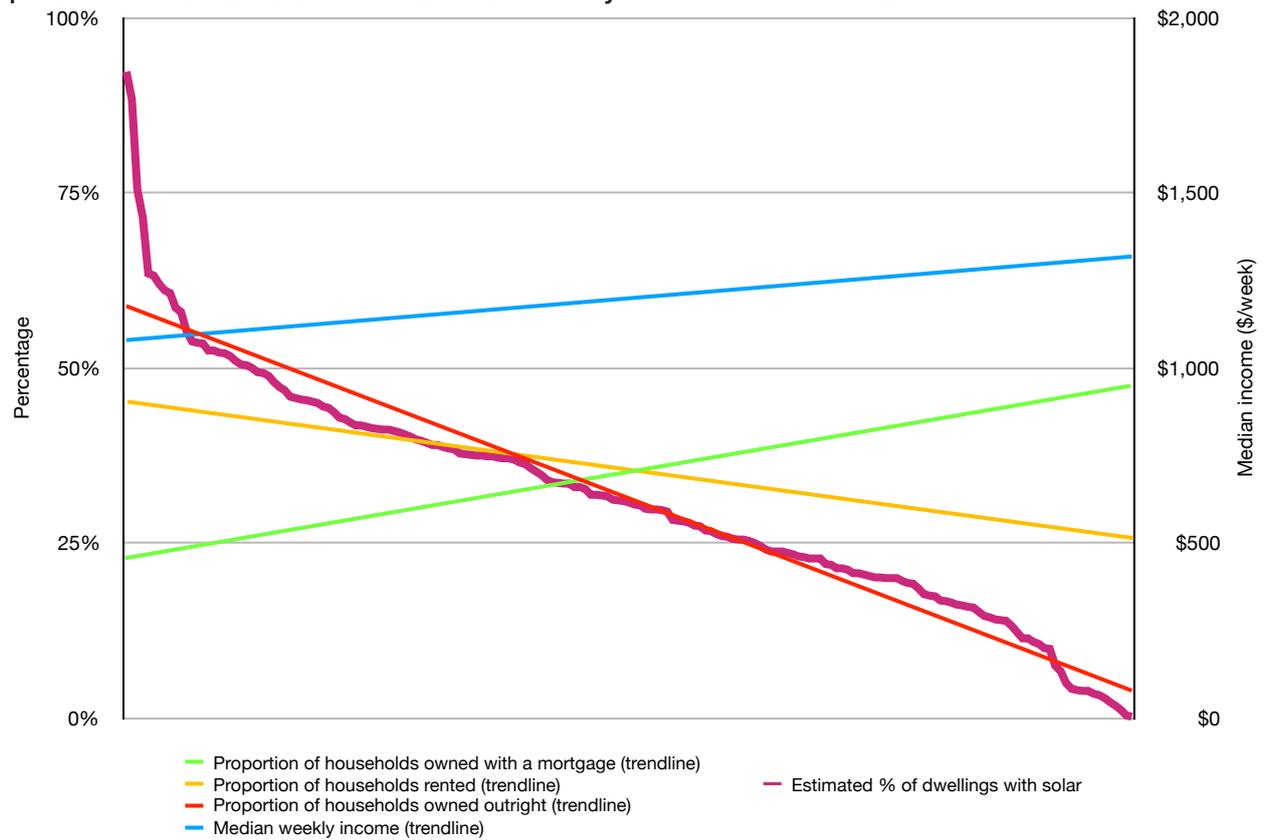
⁹⁴ Clean Energy Regulator (CER), "Postcode data for small-scale installations", July 2019. Accessible at: <http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations>.

⁹⁵ *Ibid.*

⁹⁶ Solar uptake was calculated by aggregating CER postcode-level data on the number of small-scale solar installations until June 2018 and dividing it by the number of occupied private dwellings in each postcode (according to the ABS Census (2016) data).

⁹⁷ Mountain, B., and Kars, A., *Using electricity bills to shine a light on rooftop solar photovoltaics in Australia*, Victoria Energy Policy Centre, Victoria University, Melbourne, Australia, November 2018.

FIGURE 30 | Estimated number of dwellings with solar installations from the 'top' disconnection postcodes in the 2012-2015 and 2015-2018 analyses and associated ABS Census data⁹⁸



⁹⁸ This is based on the 'top' 30 disconnection postcodes in each state for both analyses (2012-2015 and 2015-2018), the estimated percentage of dwellings with solar PVs (see fn 104), and ABS Census (2016) data on the proportion of households rented, owned with a mortgage and owned outright as well as median age. **Note that the R2 value for these trendlines is low and that this chart should therefore be interpreted with caution.**

6. COMPARING FINDINGS TO OTHER DATA SOURCES AND RESEARCH

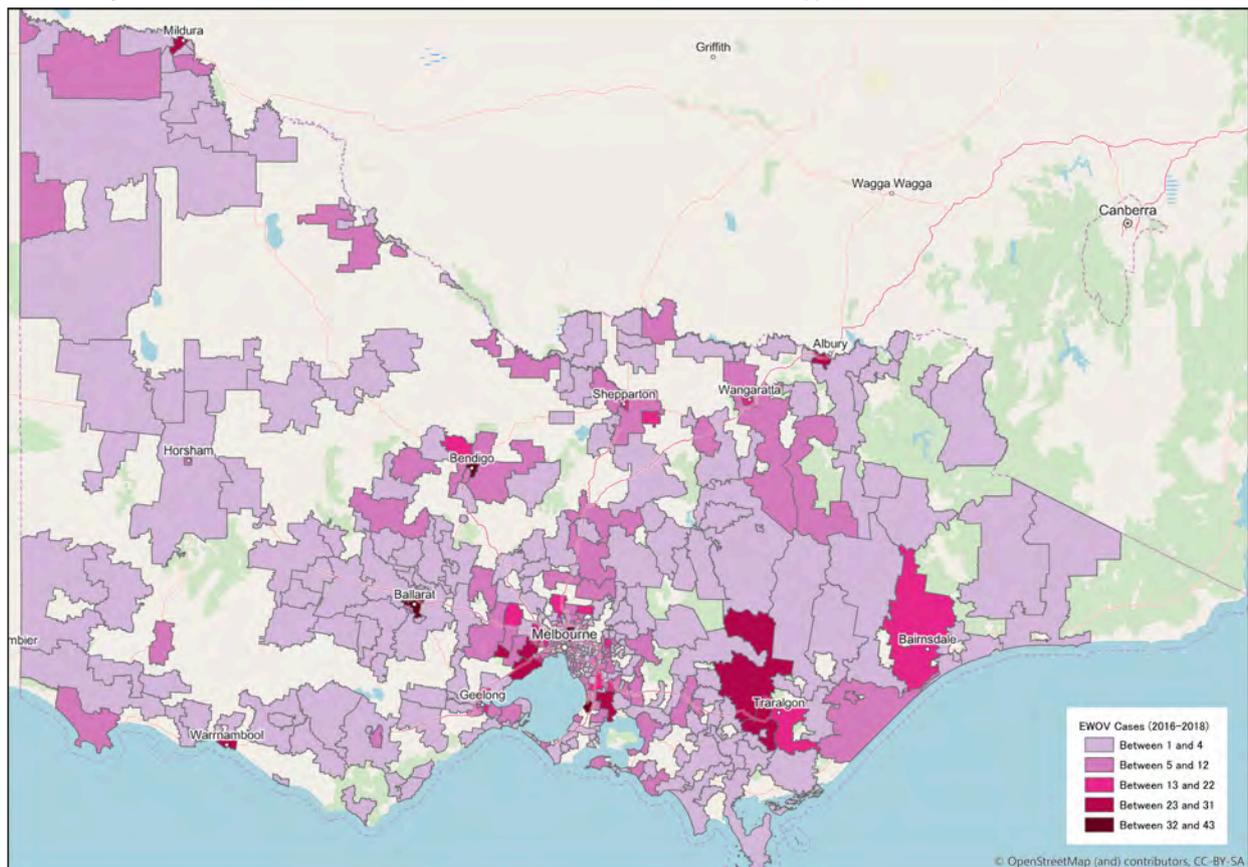
This section compares the findings from this analysis with other recent reports and data obtained from key groups, such as Energy and Water Ombudsman Victoria and the Jesuit Social Services.

6.1 Cases from the Energy and Water Ombudsman Victoria

This analysis was able to obtain data from the Energy and Water Ombudsman Victoria (EWOV) on the number of cases relating to electricity disconnections that were received between July 2015 and June 2018. These include both “actual disconnections”, relating to cases from residents who had already been disconnected and “imminent disconnections” pertaining to cases where customers had received disconnection notices. For ease of understanding, however, these have been grouped into a single category.

As highlighted in Table 14 below, Victorian postcodes with the highest number of disconnection cases received by EWOV are Frankston (postcode 3199) and Reservoir (postcode 3073). It also includes postcodes such as Bendigo (postcode 3550), Ballarat (postcode 3350) or Walhalla (postcode 3825). These correspond to the ‘top’ 30 disconnection postcodes that had the highest number of completed and raised disconnections.

MAP 36 | EWOV cases received between 2016 and 2018 on energy disconnections in Victoria



MAP 37 | EWOV cases received between 2016 and 2018 on energy disconnections in Greater Melbourne area

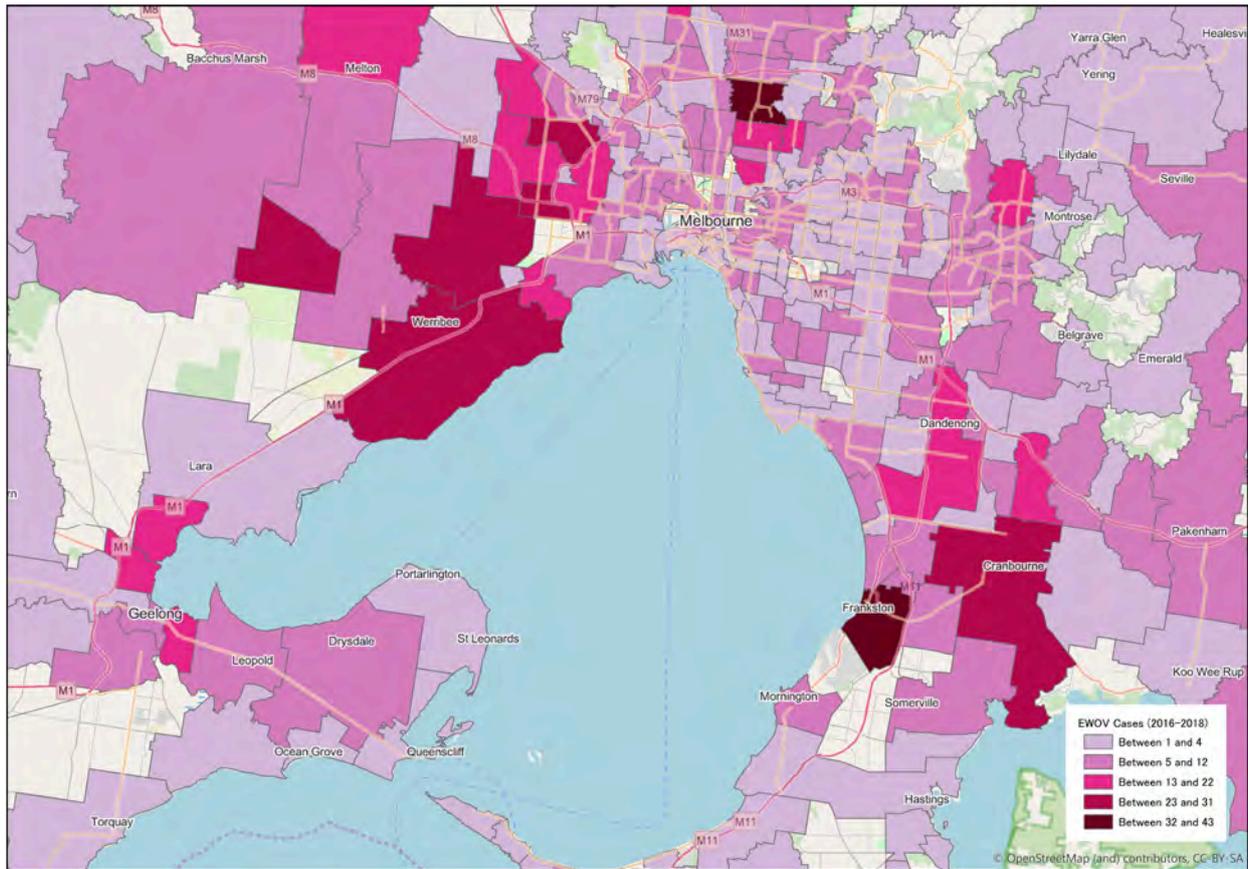


TABLE 14 | Victorian postcodes with the highest number of EWOV cases relating to disconnections

Postcode	Place	LGA	Classification	Number of EWOV cases	Number of raised disconnections (Ranking in VIC) [*]	Number of completed disconnections (Ranking in VIC) [^]	SEIFA ranking
3199	Frankston	Frankston (C)	Outer Suburbs	43	4,119 (#14)	1,800 (#14)	5
3073	Reservoir	Darebin (C)	Middle Suburbs	38	3,316 (#24)	1,469 (#22)	2
3550	Bendigo	Greater Bendigo (C)	Regional	36	4,681 (#11)	2,151 (#10)	3
3350	Ballarat	Ballarat (C)	Regional	34	5,977 (#5)	2,591 (#8)	5
3825	Walhalla	Latrobe (C) (Vic.)	Regional	31	3,092 (#26)	1,311 (#28)	1
3840	Morwell	Latrobe (C) (Vic.)	Regional	31	3,794 (#9)	1,786 (#15)	1
3977	Cranbourne	Casey (C)	FGOS	31	7,721 (#4)	2,802 (#6)	5
3690	Wodonga	Wodonga (C)	Regional	29	3,855 (#16)	1,305 (#30)	2
3500	Mildura	Mildura (RC)	Regional	28	3,330 (#22)	1,687 (#16)	1
3029	Hoppers Crossing	Wyndham (C)	FGOS	27	8,079 (#2)	3,911 (#3)	5
3021	St Albans	Brimbank (C)	Outer Suburbs	26	7,792 (#3)	4,021 (#2)	1
3280	Warrnambool	Warrnambool (C)	Regional	25	3,269 (#14)	1,601 (#19)	4
3030	Werribee	Wyndham (C)	FGOS	24	10,242 (#1)	5,097 (#1)	6
3175	Dandenong	Greater Dandenong (C)	Outer Suburbs	22	4,438 (#7)	2,030 (#12)	1
3337	Melton	Melton (C)	FGOS	22	5,359 (#5)	2,389 (#9)	2

^{*} Based on the number of disconnections (count) per postcode raised between July 2015 and June 2018. Postcodes with the lowest ranking have the highest number of disconnections in comparison to the rest of the state.

[^] Based on the number of disconnections (count) per postcode completed between July 2015 and June 2018. Postcodes with the lowest ranking have the highest number of disconnections in comparison to the rest of the state.

As such, the similarities between the ‘top’ disconnection postcodes that have been identified from the dataset and the EWOV data support the representativeness of the dataset used and the robustness of this analysis. Furthermore, as the data obtained from EWOV encompasses all electricity retailers, this helps to ensure that the postcodes we have identified as high disconnection areas (based on data from one retailer only) are not retailer specific findings.

6.2 2015 Dropping off the Edge Report

The 2015 *Dropping off the Edge (DOTE)* study was the second study conducted by the Jesuit Social Services and the Catholic Social Services into place-based disadvantage in Australia.⁹⁹ The DOTE 2015 report was conducted throughout 2014 and uses 22 indicators to study the geographic distribution of disadvantage. The study used different ‘counting units’ to capture the spatial distribution of these indicators, including local government areas in South Australia and Queensland, and postcodes in Victoria and New South Wales. The following therefore provides a brief comparison of New South Wales and Victorian postcodes that have been classified as highly disadvantaged in the DOTE study and postcodes that have been identified as high disconnection areas in this analysis.

In the ‘top’ 15 most disadvantaged DOTE postcodes in New South Wales, only three postcodes were in the ‘top’ 15 disconnection postcodes of this analysis, as highlighted in Table 15 below. These were the rural postcode of Dareton (*postcode 2717 and ranked as the number 3 in terms of completed disconnections*), the rural postcode of White Cliffs (*postcode 2836 and ranked as number 6*), and the fast-growing outer suburb of Claymore (*postcode 2559 and ranked as number 8*). These three postcodes have an estimated completed disconnection rate of approximately 16% to 18%. However, there are also four New South Wales postcodes in the ‘top’ 15 DOTE postcodes that are **not** ranked highly as disconnection areas in this analysis. These are the two rural postcodes in the Nambucca LGA (*postcodes 2448 and 2449, ranked as number 171 and 145*), the Mid-Western regional postcode 2848 (*ranked as number 135*) and the regional postcode of Primbee (*postcode 2502 and ranked as number 132*). These four postcodes have estimated disconnection rates of around 5% to 6%.

The two Nambucca LGA postcodes (postcodes 2448 and 2449) as well as the Mid-Western regional postcode of 2848 are all postcodes characterised by having a more elderly population and a high proportion of couple families without children.¹⁰⁰ The DOTE indicators show that a high proportion of people in these postcodes receive disability support payments and rent assistance. In the high disconnection postcode of Claymore (postcode 2559), on the other hand, a relatively low proportion of households received rent assistance (although it was the postcode in New South Wales with the greatest proportion of long-term Newstart recipients).¹⁰¹ The proportion of households experiencing housing stress¹⁰² was also significantly higher in Campbelltown compared to Nambucca and Mid-Western postcodes (postcodes 2448, 2449 and 2848).

⁹⁹ See <https://dote.org.au>.

¹⁰⁰ Based on ABS Census (2016) data.

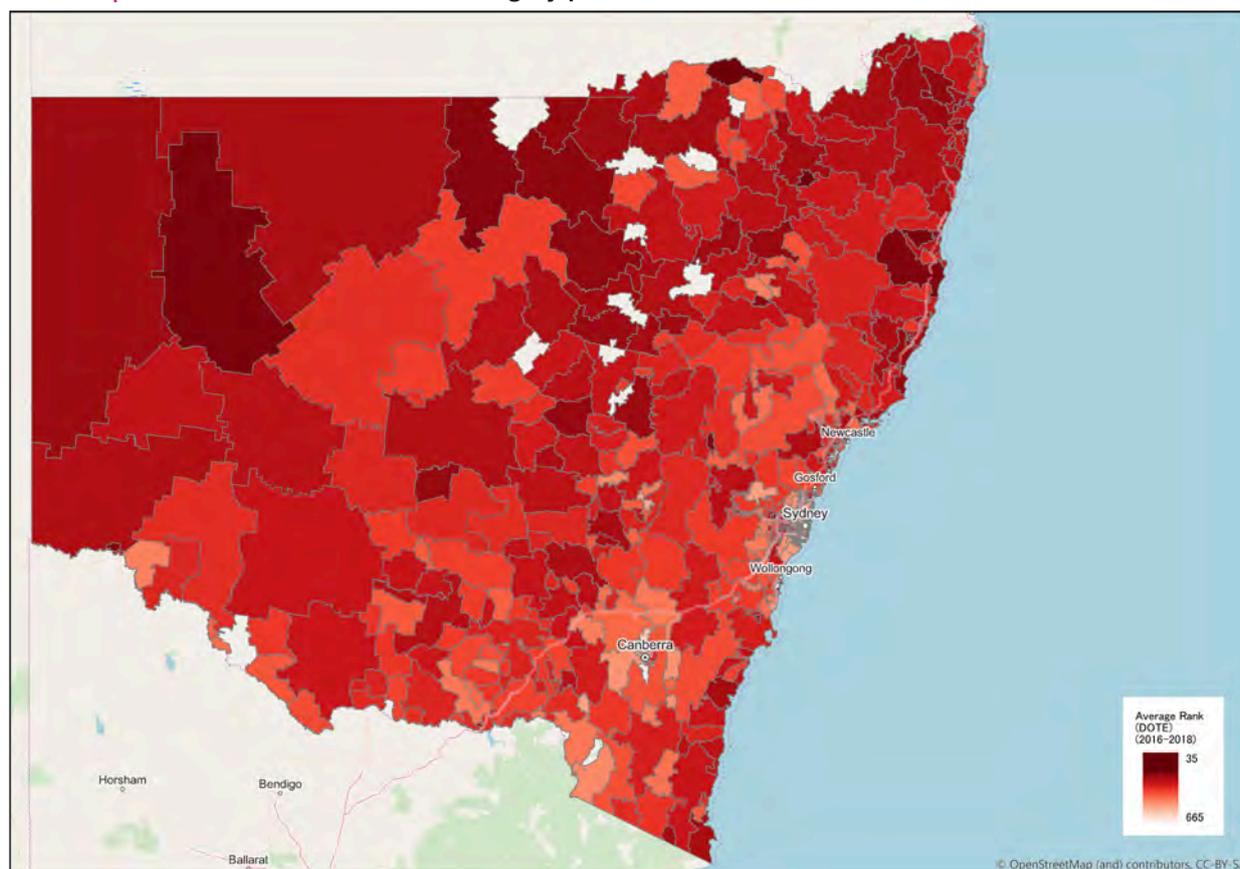
¹⁰¹ Campbelltown received the lowest score on the ‘long term unemployment’ variable in the DOTE study. The variable is defined as “proportion of the workforce (ABS definition) aged 18-64 years in receipt of Newstart for one year or more in each counting area”. See Jesuit Social Services and Catholic Social Services, *Dropping off the edge 2015*, 7 at http://k46cs13u1432b9asz49wnhcx-wpengine.netdna-ssl.com/wp-content/uploads/0001_dote_2015.pdf

¹⁰² As defined in the DOTE study.

TABLE 15 | Top '15' New South Wales disconnection postcodes in the DOTE report and other indicators

Postcode	Place	LGA	Classification	Average rank (DOTE)	Proportion of completed disconnections [state ranking]	SEIFA IRDS index
2559	Claymore	Campbelltown (C) (NSW)	FGOS	46	16.08% [#8]	1
2409	Boggabilla	Moree Plains (A)	Rural	50	8.45% [#64]	1
2163	Villawood	Canterbury-Bankstown (A)	Middle Suburbs	51	8.18% [#69]	1
2369	Tingha	Armidale Regional (A)	Rural	55	12.75% [#26]	1
2306	Windale	Lake Macquarie (C)	Rural	56	7.88% [#72]	1
2770	Mount Druitt	Blacktown (C)	FGOS	61	8.17% [#70]	1
2502	Primbee	Wollongong (C)	Regional	63	5.75% [#132]	1
2836	White Cliffs	Central Darling (A)	Rural	64	17.2% [#6]	1
2449	Bowraville	Nambucca (A)	Rural	70	5.57% [#145]	1
2440	Kempsey	Kempsey (A)	Rural	72	7.55% [#77]	1
2848	Kandos	Mid-Western Regional (A)	Rural	75	5.71% [#135]	1
2717	Dareton	Wentworth (A)	Rural	76	18.21% [#3]	1
2839	Brewarrina	Brewarrina (A)	Rural	80	10.24% [#48]	1
2448	Nambucca Heads	Nambucca (A)	Rural	81	4.87% [#171]	1
2341	Werris Creek	Liverpool Plains (A)	Rural	86	8.43% [#67]	1

MAP 38 | New South Wales DOTE ranking by postcode



In the 'top' 15 most disadvantaged DOTE postcodes in Victoria, only five postcodes were in the 'top' 15 disconnection postcodes of this analysis (and 8 in the 'top' 15 disconnection postcodes). See Table 16 below. The five postcodes ranked as highly disadvantaged by DOTE and that have very high disconnection numbers are: St Albans (postcodes 3021), Ardeer (postcode 3022), Corio (postcode 3214), Morwell (postcode 3840) and Frankston North (postcode 3200). These five postcodes have an estimated completed disconnection rate of approximately 8% to 11%. In the DOTE study, all five postcodes also include a very high proportion of long-term Newstart recipients.¹⁰³

As in New South Wales, there are also four Victorian postcodes in the 'top' 15 DOTE postcodes that are not ranked highly in terms of disconnection numbers in this analysis. These are the semi-rural postcodes of Maryborough (postcode 3465) and Hastings (postcode 3915) as well as the outer suburban postcodes of Campbellfield (postcode 3061) and Dandenong (postcode 3175). These four postcodes have estimated disconnection rates of around 2% to 4%.

Based on ABS Census (2016) data, Campbellfield (postcode 3061) and Dandenong (postcode 3175) are postcodes with a relatively high proportion of couple families with children and households with an income of less than \$650 per week. Hastings (postcode 3915) consists of both couple families with children and one parent families. This postcode also has a high proportion of renters. Maryborough (postcode 3465), on the other hand, is characterised by a more elderly population, a high proportion owning their homes and low incomes.

Whilst we would expect to see more disconnections in more disadvantaged postcodes, energy disconnections and hardship are not necessarily limited to the most disadvantaged postcodes. As was pointed out in our previous analysis, various cost pressures and bill priorities issues can also have important impacts on where disconnections occur.¹⁰⁴

Furthermore, we note that the DOTE study was conducted in 2014 (published in 2015) and changes would have occurred in some communities between July 2015 and June 2018.

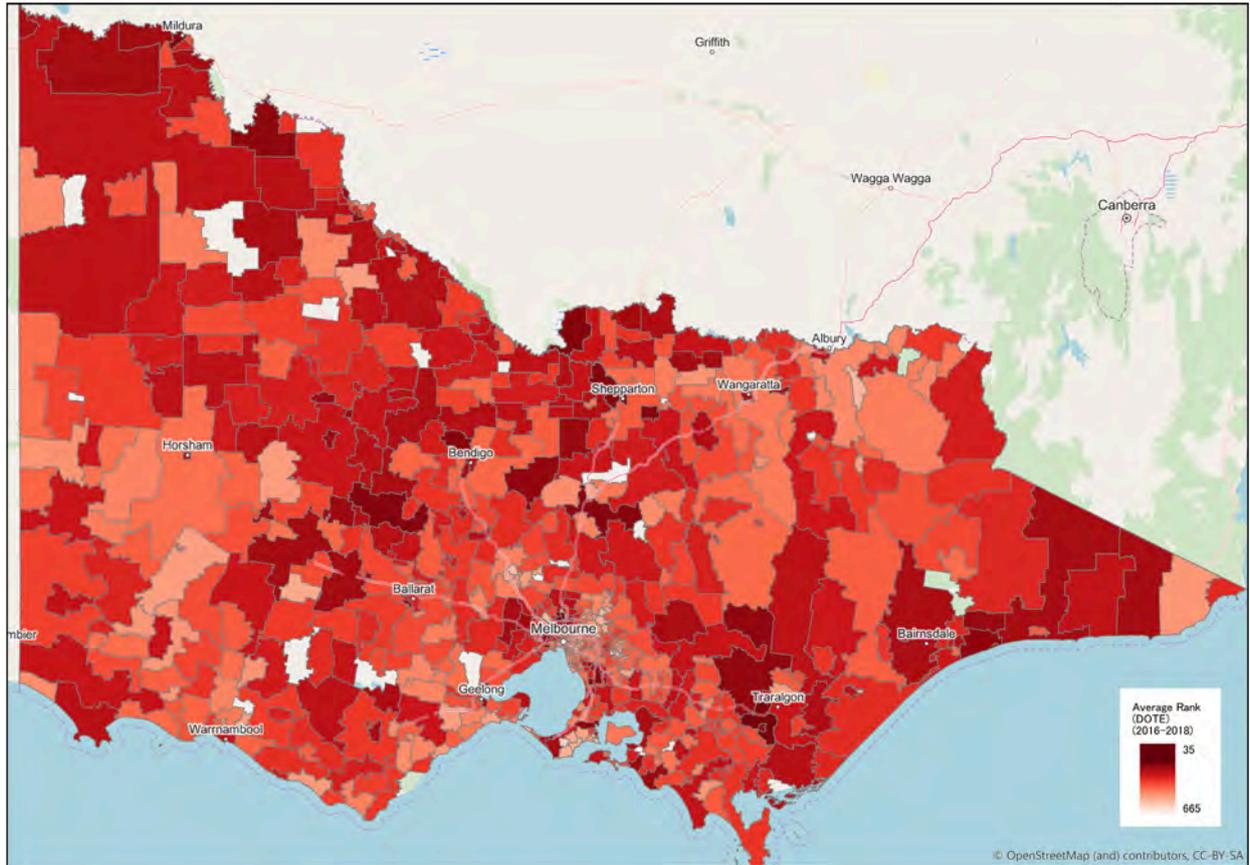
TABLE 16 | Top '15' Victorian disconnection postcodes in the DOTE report and other indicators

Postcode	Place	LGA	Classification	Average rank (DOTE)	Proportion of completed disconnections [state ranking]	SEIFA IRDS index
3047	Broadmeadows	Hume (C)	Outer Suburbs	35	6.17% [#20]	1
3177	Doveton	Casey (C)	FGOS	40	4.27% [#90]	1
3214	Corio	Greater Geelong (C)	Regional	45	11.07% [#4]	1
3200	Frankston North	Frankston (C)	Outer Suburbs	47	8.56% [#9]	1
3022	Ardeer	Brimbank (C)	Middle Suburbs	55	11.35% [#3]	1
3048	Coolaroo	Hume (C)	Outer Suburbs	58	4.46% [#78]	1
3840	Morwell	Latrobe (C) (Vic.)	Regional	59	9.14% [#7]	1
3019	Braybrook	Maribyrnong (C)	Middle Suburbs	66	5.97% [#24]	1
3061	Campbellfield	Hume (C)	Outer Suburbs	66	2.70% [#226]	1
3175	Dandenong	Greater Dandenong (C)	Outer Suburbs	70	3.92% [#109]	1
3500	Mildura	Mildura (RC)	Regional	71	4.55% [#72]	1
3021	St Albans	Brimbank (C)	Outer Suburbs	72	7.72% [#12]	1
3630	Shepparton-Mooroopna	Greater Shepparton (C)	Regional	77	6.34% [#19]	1
3465	Maryborough	Central Goldfields (S)	Rural	79	3.28% [#164]	1
3915	Hastings	Mornington Peninsula (S)	Rural	81	2.37% [#271]	1

¹⁰³ See FN above for definition of long-term unemployment.

¹⁰⁴ St Vincent de Paul Society & Alvis Consulting, *Households in the Dark: Mapping Electricity Disconnections in South Australia, Victoria, New South Wales and South East Queensland*, May 2016.

MAP 39 | Victoria DOTE ranking by postcode



7. CONCLUSION AND RECOMMENDATIONS

On the basis of the sheer number of disconnections raised, it is evident that energy affordability continues to be a major issue for Australian households.

Rural and regional South Australia, Victoria and New South Wales have a particularly high proportion of households being cut off from supply due to non-payment. Furthermore, there appears to have been a shift from metropolitan postcodes to rural and regional areas in terms of disconnection 'hot spots' during the 2012 to 2018 period.

The other geographical location characterised by a significant number of 'hot spots' are fast-growing outer suburbs (FGOS).

As a general trend, for South Australia, Victoria and New South Wales, we observe that a high proportion of energy affordability problems are manifesting themselves further away from the city centers, in comparison to our previous analysis.

On the other hand, in South East Queensland, where energy affordability problems are more concentrated in FGOS, there has been an increase in inner-city disconnection 'hot spots'¹⁰⁵

This study has found that while electricity disconnections occur in most postcodes, there are significant differences between the frequencies of disconnection across postcodes. Furthermore, there are significant inter-state differences in terms of the geographical locations and socio-economic characteristics of postcodes that have high disconnection numbers.

Postcodes in South Australia that are at the greater risk of being disconnected are predominantly located in rural areas and are either (i) **more elderly** and **low-income communities** or (ii) **communities with high disconnection numbers that are not typically associated with a high level of disadvantage**.

In Victoria, the largest group at risk are those with **high disadvantage** (*with low income, high unemployment, housing affordability issues, often one parent families*), predominantly located in **regional areas** but in **middle suburbs, outer suburbs and rural areas** as well. The other key groups identified that are also at risk in Victoria, include (i) communities with an **elderly population** and **low incomes** in **rural** and **regional** areas, (ii) postcodes with high levels of **housing affordability issues** in **rural** areas and **FGOS**, and (iii) **FGOS** and **middle suburbs** with high proportions of **one parent families**.

Postcodes in New South Wales that are at the greatest risk of being disconnected are less diverse than in Victoria. They are predominantly postcodes with **high disadvantage** (that is, characterised by (i) low income, (ii) high unemployment, (iii) some degree of housing affordability issues, and (iv) some high proportions of one parent families located in **rural and regional areas**).

Postcodes in South East Queensland that are at the greatest risk of being disconnected are largely **inner-city postcodes facing housing affordability issues**. Other key groups also include FGOS postcodes characterised by either **entrenched disadvantage** or a high proportion of **one parent families**.

¹⁰⁵ Only postcodes located in the Energex distribution network were included in this analysis, which only services the south-eastern part of the Queensland, and thus would explain why there is an important proportion of inner city postcodes with high disconnection numbers.

Several of the recommendations listed below are similar to the recommendations we made in the initial Households in the Dark report (May 2016). While regulators have reviewed and amended frameworks and guidelines for industry to better assist customers with payment difficulties, it remains to be seen whether these initiatives will have a significant impact on reducing energy related hardship and disconnections for non-payment.¹⁰⁶ Nonetheless, regulators, and energy retailers by extension, have implemented new measures to minimise disconnections. State and Federal policy makers, on the other hand, have not yet taken a holistic approach to these issues.

The St Vincent de Paul Society assist people unable to pay their energy bills on a daily basis and the number of people struggling to pay, as well as the amounts owed, have increased rather than decreased over the last few years.

Our recommendations are thus primarily directed at energy policies at both Commonwealth and state level, as well as social policy measures that address the underlying poverty that is a major cause of energy related hardship and disconnections.

RECOMMENDATIONS

1. Recommendations directed at the Commonwealth Government

1.1. National review of energy concession arrangements

The COAG Energy Council should initiate a review of energy concession arrangements in the NEM to assess whether energy consumers in need of concessions have access to adequate concession arrangements. This review should encompass: (1) the identification of households in need of assistance, (2) access and eligibility, (3) level of assistance provided, (4) impact of assistance provided, (5) opportunities to introduce complimentary measures (e.g. energy efficiency and Distributed Energy Resources (DER)) and (6) methods to deliver targeted financial assistance to non-concession recipients (if found to be in need under point 1), through tax and transfer mechanisms (e.g. family tax benefits).

1.2 Income security

Energy policy and regulatory measures alone cannot prevent households from being disconnected. Increased social security payments are necessary to help households out of poverty. This report (based on July 2015 – June 2018 data), and our previous report (based on July 2012 – June 2015 data) found that a large proportion of the postcodes with high disconnection numbers are areas with high unemployment, low weekly incomes as well as a high proportion of sole parents. We urge the Federal Government to increase income support payments for Newstart recipients.

1.3 Targeted complimentary measures for remote communities

Disconnections normalised for population show that remote communities have a high proportion of households that are struggling with their energy bills. As the cost of electricity (price per kWh and daily supply charges) can be higher in remote areas (e.g. NSW's Essential Network), energy consumption can be greater due to a warmer climate, income levels are often lower, and cost of other essentials (e.g. petrol) can be high by comparison, remote inland communities are particularly at risk of energy poverty. Furthermore, some of these areas have sizable aboriginal communities which have additional complexities, needs and disadvantage. The Government should implement a Distributed Energy Resources (DER) scheme that targets remote communities facing high levels of energy affordability issues.

¹⁰⁶ The AER, for example, issued a new Customer Hardship Policy Guideline in April 2019 and completed a guideline for Sustainable Payment Plans in July 2016 while the ESC (Victoria) amended the Energy retail Code in relation to the payment difficulty framework in January 2019.

2. Recommendations directed at state governments

2.1 Review of emergency relief schemes

The governments in South Australia, Victoria, NSW and Queensland should review their emergency assistance programs designed to support households in acute need of financial assistance to pay for energy bills. These reviews should assess whether the South Australian Emergency Electricity Payment Scheme (EEPS), Victorian Utility Relief Grant scheme (URGs), NSW's Energy Accounts Payment Assistance (EAPA) scheme and Queensland's Home Energy Emergency Assistance Scheme (HEEAS) reach their target groups, to whom and where assistance is provided, the ease of access and approval process, as well as the adequacy of the assistance provided.

2.2 Targeting of disadvantaged areas when rolling-out Distributed Energy Resources (DER) and other schemes aimed at reducing consumption of traditional electricity generation

State governments continue to initiate and support schemes that increase the uptake of solar, batteries and other energy management technologies. As these schemes typically reduce the electricity bills of participants (and often require a cross-subsidy from other consumers), they should also be regarded as an opportunity to assist consumers in the states' more disadvantaged areas.

2.3 State operated energy savings programs

The governments in South Australia, Victoria, NSW and Queensland should target their energy efficiency programs to areas that need assistance with energy bills. These programs should in part focus on postcodes with larger households (i.e. high consumption families) and high disconnection numbers.

2.4 Energy efficiency standards

State governments should develop and require minimum energy efficiency standards for all public and private rental properties

2.5 State government funded and/or delivered education programs

The governments in South Australia, Victoria, NSW and Queensland should ensure that education programs adequately inform households about concession arrangements, access to energy retailer hardship programs, relief schemes and other relevant support measures. Furthermore, as automated and remote disconnection processes clearly impact on disconnection completion rates and the frequency with which households experience multiple disconnections, this is particularly important in areas with a high proportion of smart meters.

3. Recommendations directed at energy industry and local governments

3.1 Address findings through the Energy Charter

The Energy Charter is a whole-of-industry initiative focused on embedding customer-centric culture and conduct in the energy sector. Industry should note issues and findings raised in this report and consider options for how the Charter can assist households with payment difficulties and reduce the level of disconnections for non-payment occurring.

3.2 Develop local outreach programs

The analysis shows that several postcodes that are high disconnection areas in this report (based on July 2015 – June 2018 data) also were high disconnection areas in our previous report (based on July 2012 – June 2015 data). In these areas, local governments should initiate outreach programs that effectively reach and assist households in their constituencies. These programs can be developed in collaboration with key stakeholders (e.g. energy retailers, Ombudsmen Schemes and consumer/welfare organisations) to ensure that households are aware of available support as well as being able to access additional assistance measures based on local needs and issues.

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