

APPENDIX C

Data to support the First Nations Clean Energy Strategy

This document provides a summary of leading research and key data that informs the focus areas of the First Nations Clean Energy Strategy.

| First Nations Demographic Data | |
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| People who identify as First Nations | <p>Aboriginal and Torres Strait Islander people Census, 2021 - ABS:</p> <ul style="list-style-type: none"> In 2021, 812,728 people identified as being of Aboriginal and/or Torres Strait Islander origin, representing 3.2% of the total population. This is up 25.2% (163,557 people) from 2016. |
| Age | <p>Profile of First Nations people - Australian Institute of Health and Welfare:</p> <ul style="list-style-type: none"> The First Nations population has a relatively young age structure, with larger proportions of people aged 29 and under, when compared with the non-Indigenous population. As of 2021, an estimated one-third (33%) of First Nations peoples were aged under 15, compared with 18% of non-Indigenous people in the same age group. <p>Aboriginal and Torres Strait Islander people Census, 2021:</p> <ul style="list-style-type: none"> In 2021, the median age of First Nations peoples was 24 years. In 2021, 51.1% of First Nations peoples were aged under 25 years. |
| Regional and remote vs. metropolitan | <p>Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 2006 - 2031:</p> <ul style="list-style-type: none"> In 2016, there were 298,400 First Nations peoples residing in Major Cities, followed by 351,200 in Inner and Outer Regional areas and 148,700 in Remote and Very Remote areas. In 2021, the majority of First Nations peoples lived in non-remote areas (84.7%), with 14.5% of First Nations peoples living in remote areas. In 2021, Very Remote Australia had the highest proportion (40.6%) of people who identified as First Nations, followed by Remote Australia (15.3%). As of 2016, there were an estimated 148,729 First Nations peoples living in remote and very remote areas, up from 116,572 in 2006. There are a total of 1,187 discrete First Nations communities in Australia, the majority (95%) of which are located in Western Australia, the Northern Territory, South Australia and Queensland. The total number of discrete First Nations communities with populations of greater than 50 is 322. |

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| <p>Language</p> | <p>Language Statistics for Aboriginal and Torres Strait Islander Peoples, 2021 - Australian Bureau of Statistics:</p> <ul style="list-style-type: none"> • Over 150 Aboriginal and Torres Strait Islander languages were spoken in 2021. • 76,978 (9.5%) Aboriginal and Torres Strait Islander peoples reported speaking an Aboriginal or Torres Strait Islander language in 2021, up from 63,754 (9.8%) in 2016. <p>Aboriginal and Torres Strait Islander people: Census, 2021 - Australian Bureau of Statistics:</p> <ul style="list-style-type: none"> • In 2021, there were 167 Aboriginal and Torres Strait Islander languages used at home in 2021 by 76,978 Aboriginal and Torres Strait Islander peoples. |
| <p>Home ownership levels vs. rental and social housing levels</p> | <p>Housing circumstances of First Nations people - Australian Institute of Health and Welfare:</p> <ul style="list-style-type: none"> • More than 68% of First Nations adults are renters, with 34% living in social housing and 34% in private rentals. • The statistics change considerably when looking at First Nations populations in remote and very remote areas, with 89% renting, including 71% living in social housing. • First Nations households in Very Remote areas had the highest rate of renting (82%). In Very Remote areas, 68% of First Nations households were renting from a social housing provider (48% from a state or territory housing authority, and 20% from a community housing provider). • In non-remote areas (major cities, inner regional and outer regional), 44% of First Nations peoples are home owners. |
| <p>Employment</p> | <p>Closing the Gap Information Repository - Productivity Commission:</p> <ul style="list-style-type: none"> • Nationally in 2021, 55.7% of First Nations peoples aged 25–64 years were employed. |
| <p>Energy security</p> | |
| <p>Prepaid meter use</p> | <p>Pre-Payment Meters and Energy Efficiency in Indigenous Households - Centre for Appropriate Technology:</p> <ul style="list-style-type: none"> • Pre-payment meters are almost universally used in First Nations communities and town camps throughout the Northern Territory, Queensland and Western Australia. <p>Energy Justice - Original Power:</p> <ul style="list-style-type: none"> • In the Northern Territory, over 10,000 households access their power through a prepaid metering system. |

Disconnection rates

[Energy Insecurity during Temperature Extremes in Remote Australia – Longden et al.](#) + [Temperature extremes exacerbate energy insecurity for Indigenous communities in remote Australia - Longden et al.:](#)

Data from smart meters of 3,300 households in 28 Northern Territory remote Aboriginal communities where prepay is used:

- Electricity disconnection events were experienced by almost all (91%) households during the 2018/19 financial year, while almost three quarters (74%) of households were disconnected more than ten times.
- The average length of disconnection was 10.62 hours. For multi-day disconnections, which were experienced by 66% of households at least once, the average length of disconnection was 98.5 hours.

[Northern Territory Electricity Retail Review 2022-23 – Utilities Commission of the Northern Territory:](#)

- In 2019/20, 2,049 households using prepay in the four major centres of Darwin, Katherine, Tennant Creek, and Alice Springs recorded 69,888 electricity disconnections, or 34 disconnections per household for an average duration of 380 minutes.
- During 2019/2020, 2,049 households recorded 69,888 self-disconnections, representing 34 disconnections per prepay metre for an average duration of 380 minutes.
- In 2020/2021, this increased to 84,439 disconnections experienced by an expanded cohort of 2,173 households, or approximately 39 disconnections per prepay metre for an average duration of 504 minutes.
- In 2022, this increased to 898, 252 disconnections experienced by a cohort of 2,158 households, or approximately 41 disconnections per prepay metre for an average duration of 408 minutes.
- In 2023, this increased to 103,895 disconnections experienced by a cohort of 2,430 households, or approximately 43 disconnections per prepay metre for an average duration of 355 minutes.

[Energy Reports – Western Australia Economic Regulation Authority:](#)

- During 2020/21, Synergy had 11 prepayment households and 249 disconnections across these households. There were 21 instances where disconnections longer than 120 minutes occurred twice or more within any one month period.
- During 2021/21, Horizon Power had 1,348 prepayment households and 30,307 disconnections across these households in 2021. There were 2,454 instances where disconnections longer than 120 minutes occurred twice or more within any one month period.
- During 2021/22, Horizon Power had 1,423 prepayment customers and 66,841 disconnections. Residential customers experienced an average of 0.07 disconnections per meter. For pre-

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payment customers, it was almost 47 disconnections per customer, per year.

- During 2021/22, Synergy had 11 prepayment customers and 560 disconnections across these households.
- During 2022/23, Horizon Power had 1,450 prepayment customers and 49,429 disconnections across these households.
- During 2022/23, Synergy had 11 prepayment households and 270 disconnections across these households.

[Disconnected during disruption: Energy insecurity of Indigenous Australian prepay customers during the COVID-19 pandemic - Riley et al.:](#)

- When disconnection protections were put in place during the COVID-19 pandemic, more than 10,000 households in remote and regional communities on prepaid systems were overlooked.
- During the pandemic, the number of disconnections for households living within NEM regulated jurisdictions was significantly reduced, with 29,700 fewer customers disconnected in 2020/21 than in the year prior.
- This level of protection did not extend to prepay households, with 1,300 remote-living First Nations prepay households experiencing 30,307 disconnections in 2020/21, down only marginally from 31,969 incidences in 2019/20.

[House of Representatives Inquiry into Homelessness in Australia – Tangentyere Council:](#)

- In the final quarter of the 2018/19 financial year, there were 2,374 Jacana prepayment customers living in Darwin, Katherine, Tennant Creek and Alice Springs. Of these 2,374 households, 62% (1,480) had at least one electricity disconnection
- The average duration of these disconnections was 8 hours.
- Alice Springs: Of the 570 houses with prepaid meters, 420 had at least one disconnection for an average duration of 455 minutes.
- Darwin: Of the 457 houses with prepaid meters, 331 had at least one disconnection for an average duration of 454 minutes.
- Katherine: Of the 834 houses with prepaid meters, 413 had at least one disconnection for an average duration of 460 minutes.
- Tennant Creek: Of the 513 houses with prepaid meters, 316 had at least one disconnection for an average duration of 480 minutes.

Extreme heat

[Climate change - Australia State of the Environment 2021:](#)

- Many desert-based First Nations communities are experiencing such extreme heat that they are unable to continue to live on their own Country during certain times of the year.

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| | <p>Stuck in the Heat: Lived Experiences of Public Housing Tenants in the Kimberley - Kimberley Community Legal Services:</p> <ul style="list-style-type: none"> • In some regions in northern Australia, high temperatures remain above 35 degrees for months. For example, daily temperatures reach 35 degrees in Kununurra for more than half the year. Temperatures at or above 35 degrees are dangerous to human health and wellbeing, especially when combined with humid conditions. • Tenants in the Kimberley described their homes as a ‘heat box’, ‘sweat box’, ‘oven’, ‘incinerator’ or ‘tin box’. The effects of extreme heat in inadequate housing impacts not only the health of tenants but their social, mental, and financial well-being. • A third of public housing tenants who had children said their children had been unwell 10 or more times in the past year due to the heat. <p>Energy Insecurity during Temperature Extremes in Remote Australia – Longden et al.:</p> <ul style="list-style-type: none"> • Temperatures over 35°C and even over 40°C are increasingly common in the Northern Territory as climate changes. • Temperature is confirmed to affect electricity use. • In the 28 remote First Nations communities that are the focus of this study, disconnections increased from a high baseline of one in seventeen during mild temperatures (20–25°C), to a one in eleven chance of disconnection during hot days (34–40°C) and a one in six chance during cold days (0–10°C). |
| Consumer protections | <p>Geographies of regulatory disparity underlying Australia’s energy transition - White et al.:</p> <ul style="list-style-type: none"> • First Nations communities are 15% more likely to be underserved [by regulations to: protect life-support customers, guarantee service levels, clarify connection requirements for rooftop solar, require disconnection reporting and set clear and independent complaints processes] across multiple metrics and remote communities are 18% more likely to be underserved. |
| Access to clean and affordable electricity | |
| Cost of electricity | <p>Stuck in the Heat: Lived Experiences of Public Housing Tenants in the Kimberley:</p> <ul style="list-style-type: none"> • Public housing tenants in the Kimberley live on low incomes not sufficient for the high cost of energy and water in remote WA. • The median non-Aboriginal income in the Kimberley is \$2,014 whereas the median Aboriginal household income is \$920. • Low-income households spend more than 10% of their disposable income on electricity, compared to an average of 4% of spending for an average household. |

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- The public housing tenant spent up to 15% of their income on their power bill. In comparison, the government employee spent 0.8% of their income on their power bill.

[Pre-Payment Meters and Energy Efficiency in Indigenous Households – Centre for Appropriate Technology:](#)

- Household overcrowding increases average electricity costs, especially during times of frequent and extended family visits.
- In remote First Nations homes, there was a very high reported average weekly spend on electricity (\$61 - \$80 per week).

[Energy Insecurity during Temperature Extremes in Remote Australia – Longden et al.:](#)

- Temperature-related disconnections are driven by an increased need for electricity to maintain thermal comfort and safety during extreme temperatures.
- The chance of being disconnected increases to a one in 11 chance on hot days with average temperatures between 35°C and 40°C.
- Temperature-related increases in electricity use, and therefore costs, are evident in the Northern Territory which is characterised by tropical heat.
- Extremely hot days with average temperatures between 30°C and 40°C corresponded to a 16–19 kWh increase (on average) for the households with the highest electricity use. When considering all houses, the average increase was 6–8 kWh.

Housing

[The Living Conditions of Aboriginal People in Victoria - Bedggood et al.](#)

- Most First Nations households in Victoria lived in homes older than 20 years old.
- Of the 867 First Nations households studied, 13% reported having no fixed heating appliance, leading to the use of smaller less efficient appliances that cost more to run.
- First Nations peoples were also shown to live in homes with higher-than-average occupancy levels and relied heavily on gas heating in winter.

Access to solar

[The Cost of Solar Panels - Solar Panel Price - Solar Choice:](#)

Average 6kW solar panel cost by capital city (household system size):

- Adelaide: \$5,390.
- Brisbane: \$5,710.
- Canberra: \$5,850.
- Darwin: \$9,920.
- Hobart: \$7,440.
- Melbourne: \$5,580,
- Sydney: \$4,990.
- Perth: \$5,430.

[The final frontiers of rooftop solar: opportunities for energy entrepreneurs - James Tilbury:](#)

- In 2018 in Australia, only 4% of rental households had solar panels installed.

[Housing Statistics for Aboriginal and Torres Strait Islander Peoples, 2021 | Australian Bureau of Statistics:](#)

- In 2021, 56.1% of First Nations households in Australia were living in rental properties.
- First Nations peoples also represent 14.76% of social housing occupants in Australia.

First Nations rights and interests

First Nations Estate

[Environment and Land – National Indigenous Australians Agency:](#)

- First Nations peoples’ rights and interests in land are formally recognised in over around 50% of Australia’s lands and waters.

[Resources Sector Regulation - Productivity Commission Study Report:](#)

- More than 60% of Australian resources projects, including exploration and extraction, operate on land covered by a native title claim or determination.

[Closing the Gap Information Repository - Productivity Commission:](#)

- Nationally as at June 2022, 16.1% of Australia’s land area was owned or controlled by First Nations peoples. This is unchanged from the same time in the previous two years (June 2020 and 2021).

[Downscaling – Net-zero transitions, Australian communities, the land and sea – Net Zero Australia:](#)

- It is estimated that 43% of clean energy infrastructure for Australia’s net zero goal will be on the First Nations Estate.

[Facilitating and administering Aboriginal land claim processes | Audit Office of New South Wales:](#)

- Since the enactment of the NSW Aboriginal Land Rights Act in 1983, 53,800 land claims have been lodged.
- As of 2022, 38,200 of these claims await determination.

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| Land rights | <p>Mapping Critical Minerals Projects and their Intersection with Indigenous Peoples' Land Rights in Australia - Burton et al.:</p> <ul style="list-style-type: none"> • 57.8% of critical minerals projects are located where Indigenous peoples have a right to negotiate. • Including native title claims, these rights are available for 79.2% of critical minerals projects. |
| Getting to net zero | |
| Transmission | <p>Draft 2024 Integrated System Plan - AEMO:</p> <ul style="list-style-type: none"> • To get to net zero by 2050, close to 10,000 km of transmission is needed. |
| Capacity | <p>Draft 2024 Integrated System Plan - AEMO:</p> <ul style="list-style-type: none"> • The National Electricity Market must almost triple its capacity to supply energy by 2050 to replace retiring coal capacity and to meet increased electricity consumption. |
| Workforce | <p>Closing the Gap Information Repository – Productivity Commission:</p> <ul style="list-style-type: none"> • Nationally in 2021, only 55.7% of First Nations peoples aged 25–64 years were employed. <p>Empowering Everyone: Diversity in the Australian Clean Energy Sector – Clean Energy Council:</p> <ul style="list-style-type: none"> • In 2021, First Nations representation of Australian clean energy workforce was 0.8%. <p>The Clean Energy Generation: Workforce Needs for a Net Zero Economy – Jobs and Skills Australia:</p> <ul style="list-style-type: none"> • It is estimated that by 2033, 32,000 additional electricians will be needed and 450,000 jobs will be created in construction alone. • The transitioning energy sector, particularly coal mining, has been a major employer of First Nations peoples, with employment levels at 3.4% (above the labour force average of 1.9%). • The clean energy sector is yet to reach these levels, with First Nations employment levels around 1.9%. <p>Skilling the workforce for energy transition - KPMG Australia:</p> <ul style="list-style-type: none"> • It is estimated that Australia needs a 30% increase in the clean energy workforce by 2033 to deliver the energy transition. <p>Skilling Australian Industry for the Energy Transition - Australian Industry Energy Transitions Initiative:</p> <ul style="list-style-type: none"> • Currently, there are approximately 26,000 workers employed in renewable energy across solar, wind and storage across Australia. • On an annual basis, there is a need for at least 64,200 workers to fill the annual construction demand. |

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| | <ul style="list-style-type: none"> • The remaining 129,600 jobs will support the ongoing operations and maintenance of the new renewable energy infrastructure. • 85,000 workers will be required by 2030. This means that an additional 59,000 workers will be required to support the construction and ongoing O&M of key renewable energy infrastructure. <p>Draft 2024 Integrated System Plan - AEMO:</p> <ul style="list-style-type: none"> • Just within the National Electricity Market, regions are forecasted to need over 70,000 people in jobs to build and maintain the new infrastructure over the next 20 years. <p>Clean Energy at Work - Clean Energy Council:</p> <ul style="list-style-type: none"> • Around 70% of renewable energy job opportunities to 2035 could be distributed across regional and rural Australia. • Although construction and installation jobs now dominate the renewable energy labour market (72%), by 2035 as many as half of renewable energy jobs could be ongoing jobs in operation and maintenance, especially in the wind sector. |
| <p>Capital investment</p> | <p>Final Modelling Results – Net Zero Australia:</p> <ul style="list-style-type: none"> • Net zero scenarios require \$7-9 trillion of cumulative capital investment to 2060. |
| <p>International data</p> | |
| <p>Canada</p> | <p>Waves of Change: Indigenous Clean Leadership for Canada’s Clean, Electric Future – Indigenous Clean Energy:</p> <ul style="list-style-type: none"> • First Nations, Metis and Inuit entities are partners or beneficiaries of almost 20% of Canada’s electricity-generating infrastructure, almost all of which is producing renewable energy. <p>Acceleration Transition: Economic Impacts of Indigenous Leadership in Catalyzing the Transition to a Clean Energy Future Across Canada - Indigenous Clean Energy:</p> <ul style="list-style-type: none"> • In Canada, a total of 197 medium to large scale renewable energy developments with Indigenous involvement are in operation or the final stages of planning or construction. Most of these projects involve partnerships between Indigenous communities and energy companies, utilities or developers. |
| <p>Critical Minerals and Global First Nations Estate</p> | <p>Energy Transition Minerals and their Intersection with Land-Connected Peoples - Owen et al.:</p> <ul style="list-style-type: none"> • 54% of the world's global reserves and critical minerals are located on, or nearby, First Nations land, with 29% of these projects on or near lands over which First Nations people are recognised as managing or exercising some form of control or influence for the purposes of conservation. |

[Mineral Supply for Sustainable Development Requires Resource Governance – Ali et al.:](#)

- The production of minerals, such as graphite, lithium and cobalt, could increase by nearly 500% by 2050, to meet the growing demand for clean energy technologies.

[Critical Minerals Dataset - International Energy Agency:](#)

- The global demand for critical minerals will need to increase by around 350% by 2040 as the world progresses towards its net zero commitments.

[Resources Sector Regulation - Productivity Commission:](#)

- More than 60% of resources projects in Australia take place on areas with a native title claim or determination. This means that many resources companies must either negotiate with native title holders or claimants, or show that their resources activity will not affect native title holders' or claimants' interests.