RACE for 2030

Scenarios for Future Living

SECTION 1: CONSUMER ENERGY RESOURCES (CER) — HOMEOWNERSHIP, HOUSEHOLD TYPE, AND INCOME MATTER

HOUSEHOLD AND HOME BUSINESSES RESEARCH:

EMERGING LIFESTYLES, PREFERENCES AND PRACTICES

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Project team

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- University of Technology Sydney
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Acknowledgement of Country

The authors of this report would like to respectfully acknowledge the Traditional Owners of the ancestral lands throughout Australia and their connection to land, sea and community. We recognise their continuing connection to the land, waters and culture and pay our respects to them, their cultures and to their Elders past, present, and emerging.

What is RACE for 2030?

RACE for 2030 CRC is a 10-year cooperative research program with AUD350 million of resources to fund research towards a reliable, affordable, and clean energy future.

Disclaimer

The authors have taken all reasonable care to ensure that the information in this report was accurate at the time of publication. However, they accept no responsibility for any loss or damage that may result from reliance on its contents.

This document presents findings from Section 1 of the main report. To view the complete findings, research design, and sociodemographic overview of household respondents, please refer to the main report. Four section summaries have been produced in total.

Section 1	Consumer Energy Resources (CER) — Homeownership, household type, and income matter
Section 2	Demand-Side Management (DSM) and Household Routines — Home business and working-from-home (WFH) households present opportunities for DSM initiatives
Section 3	Future Smart Appliance Automation and V2G — Connected futures
Section 4	Hardship and Access Inequities — Weak points for resilience

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SUMMARY OF KEY FINDINGS

Section 1: Consumer energy resources (CER): homeownership, household type, and income matter

ROOFTOP SOLAR: GROWTH AMID PERSISTENT INEQUITIES

- Around half of owner-occupiers reported currently using rooftop solar, compared to 18% of renters/government-assisted; use rose with income (29% of <$40k to 51% of >$241k).
- Families reported the highest use (44—46%), while one-person and shared households were most likely to have no plans to install solar. Detached houses led (46%), while only 19% of apartment residents currently used solar, with nearly half (43%) reporting no plans.
- There were high levels of current use across all ages, especially older groups, but stronger future plans among younger age groups.
- **A persistent access gap suggests solar uptake is shaped less by willingness and more by feasibility, affordability, and control over housing.**

HOME BATTERIES: UPTAKE CURRENTLY LOW, FUTURE PROSPECTS STRONG

- Current use was highest among aged care and co-op households and lowest among renters (7%), with renters and social housing residents most likely to have no plans to purchase (51—55%).
- Families, especially couples with children, reported the highest use (17%) and intent (43%), while one-person, couples without children and group households were most likely to have no plans to acquire a battery (46—57%).
- Use rose with income (9% <$40k to 26% >$241k), with the strongest intent among mid-to-high incomes (>40% planning above $120k).
- Detached and townhouse residents showed the strongest future intent, while apartment residents had the highest "no plans" (49%).
- Under-45s led in current use and future plans of home batteries, but a majority of over-65s reported no plans to own one.
- Among households planning installation in the next 5 years (19%), selecting from a diverse range of future planned strategies, most intended to maximise solar use (77%) and minimise costs (68%).
- **Targeted interventions are needed to ensure that battery storage and its associated flexibility and resilience benefits are accessible to specific household types.**

Section 1: Consumer energy resources (CER): homeownership, household type, and income matter

ELECTRIC VEHICLES (EVS) AND PLUG-IN HYBRIDS: AFFORDABILITY MATTERS, HOUSING LESS SO, WHILE HOME CHARGING IS KEY

- Residents in cooperative housing and aged care reported the strongest current use and planned future ownership of EVs, although these groups represented very small sample sizes.
- Of traditional housing tenures, EV use was highest among mortgaged owners (12%) and lowest among renters (5%). Government-supported and renter households were most likely to have no plans to purchase EVs.
- Couples with children reported the highest current use (15%) and future intent (41%), while one-person and "other" households had the highest rates of no plans (64–72%).
- Use rose with income (4% <$40k to 22% >$241k); future intent was strongest among mid-to-high incomes ($161k–$240k, 45%).
- Apartments and semi-detached homes showed the highest use (11%) and strong future intent, while "other" dwellings reported the lowest (1% currently use; 76% no plans).
- Current use of EVs peaked among younger groups, while older groups mostly reported no plans to own one.
- Most current and prospective EV households preferred home-based charging, particularly least-cost options such as solar or off-peak electricity (31%).
- **While interest in EVs is growing, widespread use remains constrained by affordability and infrastructure access.**

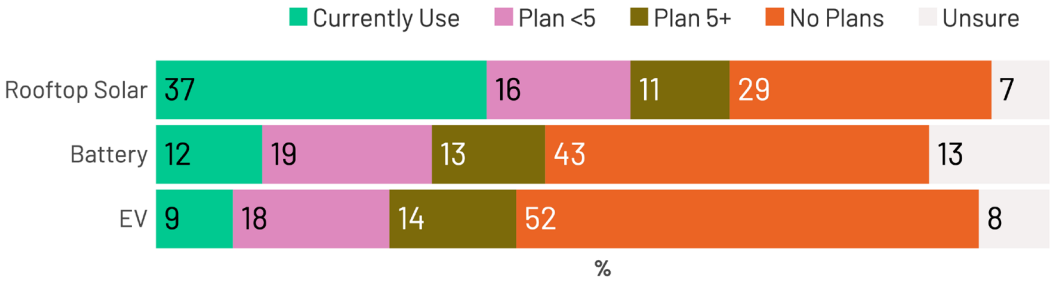
Photo by Zaptec on Unsplash

SECTION 1:

CER: HOME-OWNERSHIP, HOUSEHOLD TYPE, AND INCOME MATTER

Households were asked about their current ownership and future intentions ("plan to get in next 5 years" or "plan to get in 5+ years") to own rooftop solar, home batteries, and EVs (including plug-in hybrids).

There was a high degree of rooftop solar use, while home batteries and electric vehicles (EV) were marked by future interest but also very high levels of hesitancy and uncertainty.



- Rooftop solar emerged as the most widely used CER (37%, n=1856) of households reporting current use. Home batteries and EVs were less commonly currently used, at 12% (n=595) and 9% (n=432), respectively.
- Home batteries were most often planned to be obtained in the next five years, with 19% (n=956) of households indicating this. EVs followed at 18% (n=877), while rooftop solar was slightly lower at 16% (n=805).
- EVs were most frequently planned for in 5+ years, with 14% (n=714) of households planning to obtain one. Home batteries were next at 13% (n=635), followed by rooftop solar at 11% (n=555).
- No plans to own were greatest for EVs, with 52% (n=2592) of households reporting no plans. This was followed by home batteries at 43% (n=2153) and rooftop solar at 29% (n=1470).
- Households were most unsure about whether to obtain home batteries (13%, n=674). EVs followed at 8% (n=397), while rooftop solar had the lowest proportion of unsure households at 7% (n=326).

SECTION 1:

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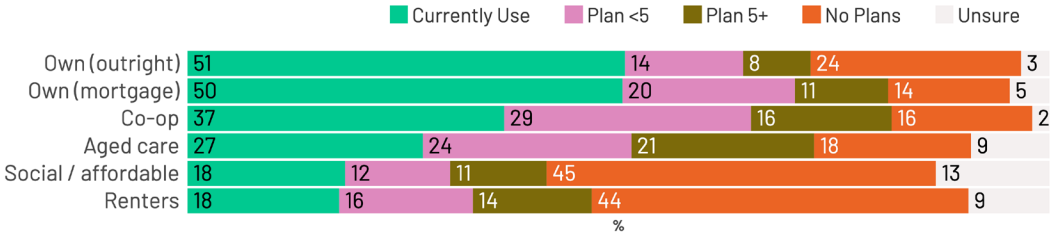
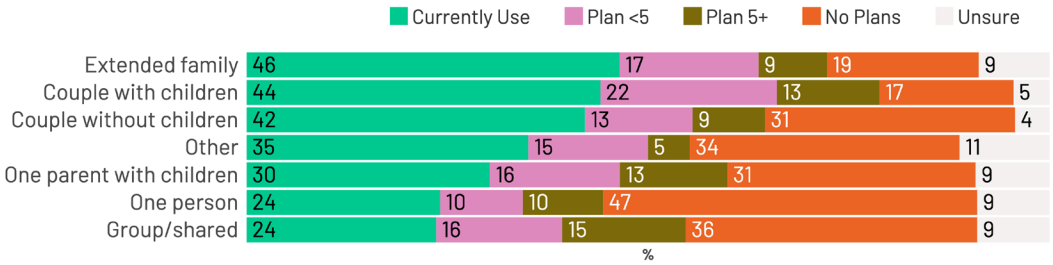
Rooftop solar: growth amid persistent inequities

Homeowners dominated current rooftop solar use, leaving renters and government-supported residents behind.[1]



- Owner-occupiers, both outright (51%, n=747) and mortgaged (50%, n=693), reported the highest levels of current rooftop solar use.
- There was low current use among renters (18%, n=317) and residents in social or affordable housing (18%, n=36), with high proportions indicating no plans to own (renters: 44%, n=788; social/affordable housing: 45%, n=89).
- Cooperative housing had a distinct profile, with both high current use (37%, n=18) and high future intent (45%, n=22). It is important to note the small sample size for this cohort.

Families led in current and planned future use, outpacing one-person and shared households.[2]



- Extended family households (46%, n=174) reported the highest current use of rooftop solar, followed by couples with children (44%, n=638).
- One-person (47%, n=427) and group/shared households (36%, n=146) were most likely to report no plans to own rooftop solar.

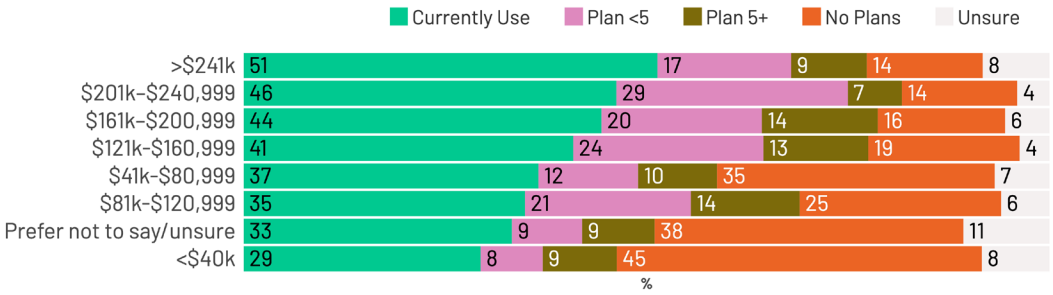
1 The association between household tenure and rooftop solar current and future use was statistically significant: $x^2(24, n = 5012) = 773.52$, $p < .001$. Effect size is small to moderate, Cramer's V = .20. "Other" tenure types were excluded from the analysis.

2 The association between household characteristics and rooftop solar current and future use was statistically significant: $x^2(20, n = 4098) = 227.71$, $p < .001$. Small effect size, Cramer's V = .12.

SECTION 1:

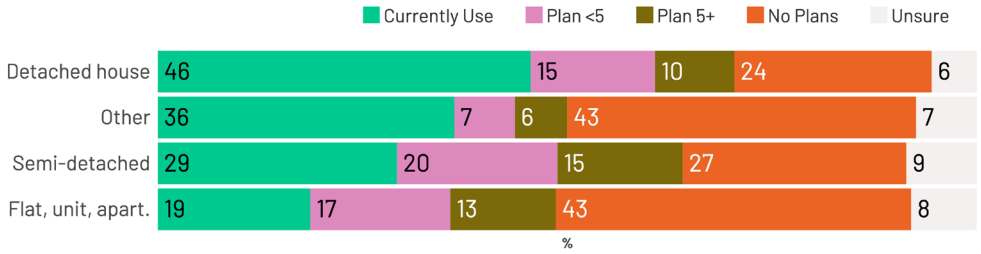
CER: HOME-OWNERSHIP, HOUSEHOLD TYPE, AND INCOME MATTER

Income levels were associated with rooftop solar use and future plans.[3]



- Rooftop solar use increased steadily with income, from 29% (n=260) among those earning less than $40k to 51% (n=93) for those earning more than $241k.
- Households with incomes below $80k were more likely to report no plans to own the technology (35%—45%).
- Future intent was highest among mid-to-high-income groups ($121k—$240k), where more than one-third planned to own rooftop solar.

Housing type was associated with rooftop solar use and future plans, highest in detached houses and lowest in flats and apartments.[4]



- Rooftop solar use was highest among detached houses (46%, n=1421) and lowest among flats/apartments (19%, n=218).
- Nearly half of apartment residents (43%, n=508) had no plans to own solar, compared to just 24% (n=752) of those in detached homes.
- Apartments and semi-detached dwellings also showed higher levels of uncertainty about ownership of rooftop solar (8%, n=94 and 9%, n=54, respectively).

3 The association between household income and rooftop solar current and future use was statistically significant: $x^2(28, n = 5012) = 399.85, p < .001$. Small effect size, Cramer's V = .14.

4 The association between household dwelling and rooftop solar current and future use was statistically significant: $x^2(12, n = 5012) = 338.50, p < .001$.

SECTION 1:

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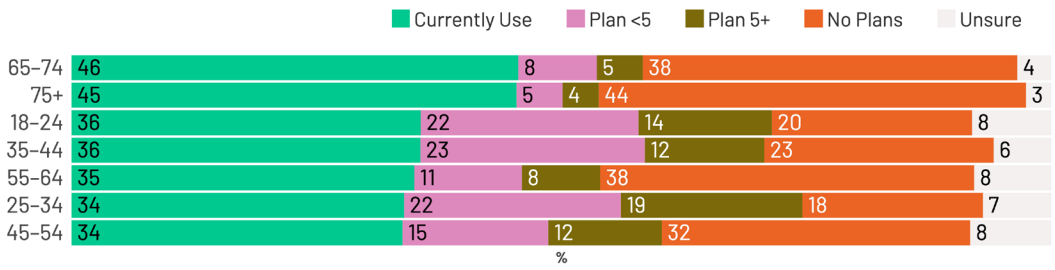
High levels of current use across all ages, especially older groups, but stronger future plans among younger groups.[5]

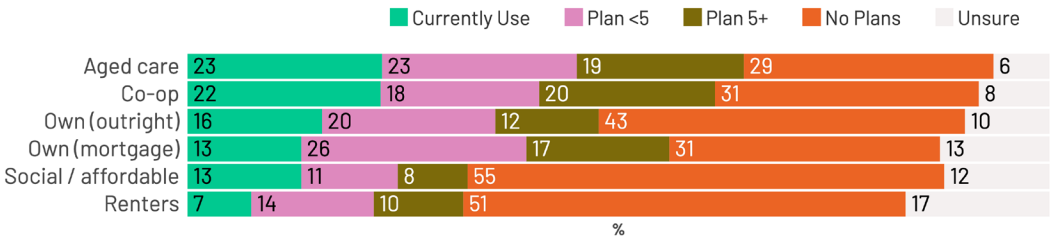


- The most future-focused age group was 25—34-year-olds, with the strongest intent to purchase and the lowest no plans to own.
- Age groups 65 and above had the highest current use but the lowest future plans to own the technology.
- Combined current use and future plans were strongest among 18—44 age groups: 71% (n=447) of 18-24-year-olds currently used or intended to own, 75% (n=647) of 25-34-year-olds, and 71% (n=596) of 35-44-year-olds.

5 The association between age groups and rooftop solar current and future use was statistically significant: x^2 (24, n = 5012) = 414.21, p < .001. Small effect size, Cramer's V = .14.

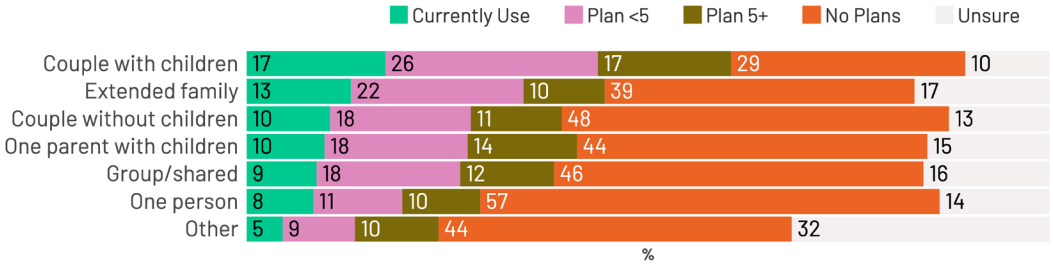
Home battery: uptake currently low, future prospects strong

Current home battery use was highest among owners with a mortgage, while renters and supported housing residents more often reported no plans or uncertainty.[6]



- Current home battery use was highest among aged care and co-op households and lowest among renters (7%, n=133).
- Renters (51%, n=925) and those in social housing (55%, n=109) were most likely to report having no plans to get a home battery, with renters also indicating the highest uncertainty (17%, n=301).

Families, especially couples with children, showed the highest home battery use and future intent, while one-person and non-traditional households ("other") reported low current use and greater uncertainty.[7]



- Couples with children reported the highest current use (17%, n=250) and future intent (43%, n=623) to get a home battery.
- One-person (57%, n=523), couples without children (48%, n=630), and group households (46%, n=185) were among the most likely to report no plans to own a home battery.

6 The association between household tenure and home battery current and future use was statistically significant: $x^2(24, n = 5010) = 286.26$, $p < .001$. Small effect size, Cramer's V = .12. "Other" tenure type excluded from the analysis.

7 The association between household characteristics and home battery current and future use was statistically significant: $x^2(20, n = 4098) = 227.71$, $p < .001$. Small effect size, Cramer's V = .12.

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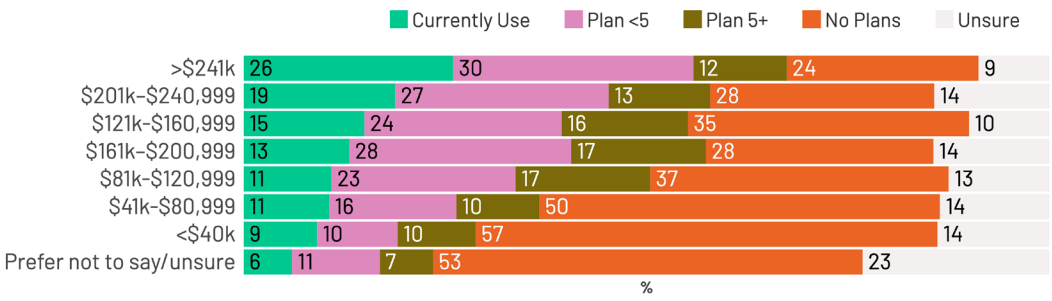
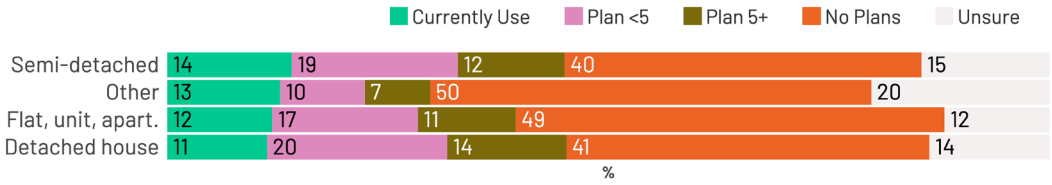
CER: HOME-OWNERSHIP, HOUSEHOLD TYPE, AND INCOME MATTER

Higher incomes were associated with higher home battery use and future plans, while lower-income groups had no plans or were unsure.[8]



- Current home battery use increased with income, from 9% (n=80) in households earning less than $40k to 26% (n=47) in those earning more than $241k.
- Households earning over $120k showed the strongest future intent to use a home battery, with more than 40% planning to get one.
- No plans to own a home battery was highest among lower-income households (57%, n=506 for less than $40k) and declined with rising income to 24% (n=43) for households earning more than $241k.

Those living in standalone houses had the most future plans to obtain a home battery, while non-detached housing types showed more hesitation.[9]



- Current home battery use was similar across detached houses (11%, n=354), apartments (12%, n=140), and townhouses (14%, n=88).
- No plans to own the technology were highest among flat, unit and apartment residents (49%, n=570) and those in "other" dwellings (50%, n=47).
- Households in townhouses (n=194) and detached homes (n=1059) reported the strongest future intent, with over 30% planning to own a home battery.

8 The association between household income and home battery current and future use was statistically significant: $x^2(28, n = 5012) = 378.54$, $p < .001$. Small effect size, Cramer's V = .14.
9 The association between household dwelling and home battery current and future use was statistically significant: $x^2(12, n = 5012) = 40.37$, $p < .001$. Very small effect size, Cramer's V = .05.

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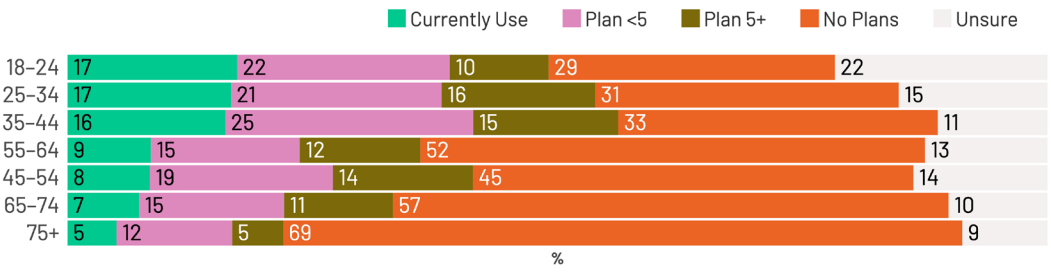
Under-45s led in current use and future plans of home batteries, but a majority of over-65s reported no plans to own one.[10]



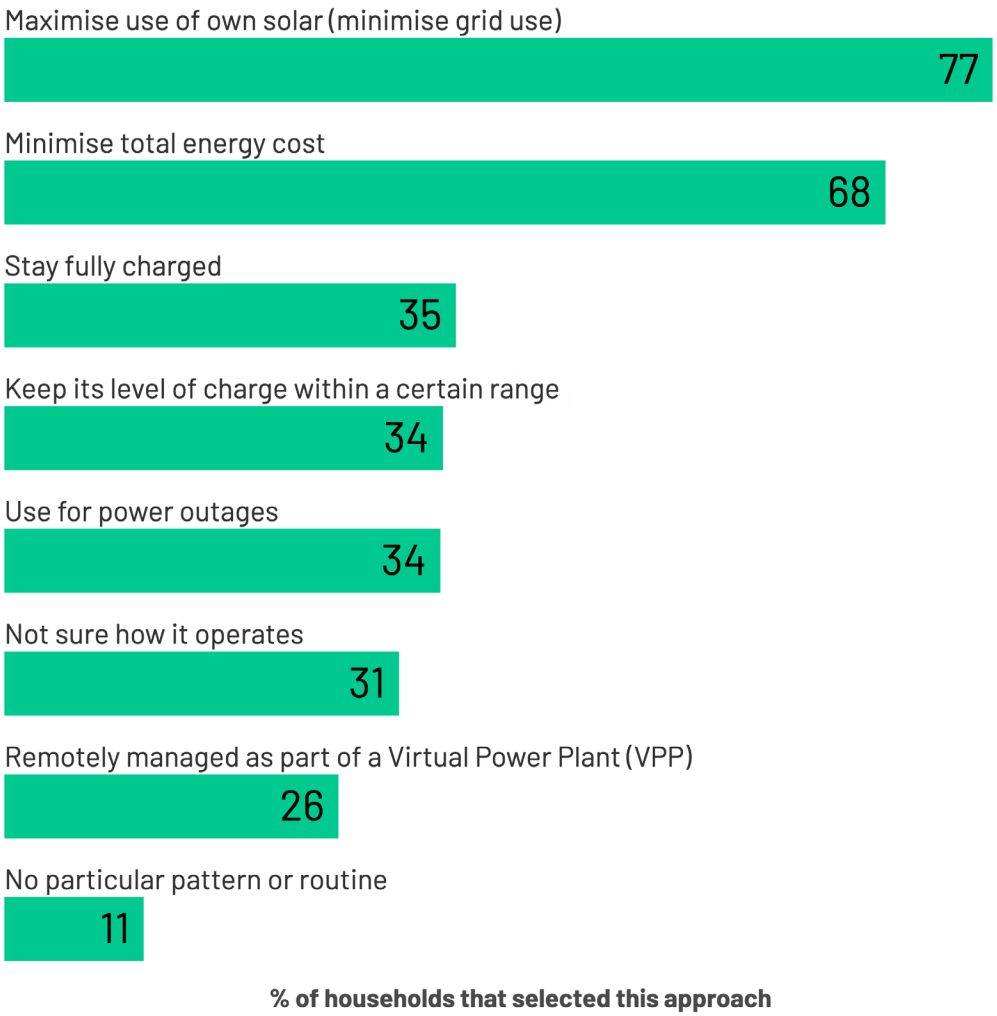
- Younger households (18—44) were leading both in current usage and future intentions to use a home battery, with more than half in almost each group reporting either current usage or future intentions (18-24: 49%, n=307; 25-34: 54%, n=468; 35-44: 56%, n=474). However, uncertainty was higher for younger groups: 1 in 5 18—24-year-olds were unsure.
- Those aged 35—44 showed the highest "next 5 years" intention (25%, n=213) to own home batteries.
- Older households (65+) overwhelmingly had no plans. Among those aged 75+, nearly 70% (n=264) expressed no plans to own a home battery.

10 The association between age groups and home battery current and future use was statistically significant: $x^2(24, n = 5011) = 398.27$, $p < .001$. Small effect size, Cramer's V = .14.

Future battery use: different approaches, solar at the core

Most households planning to install a home battery in the next 5 years intended to maximise their own solar energy as one of a diverse range of future planned strategies.

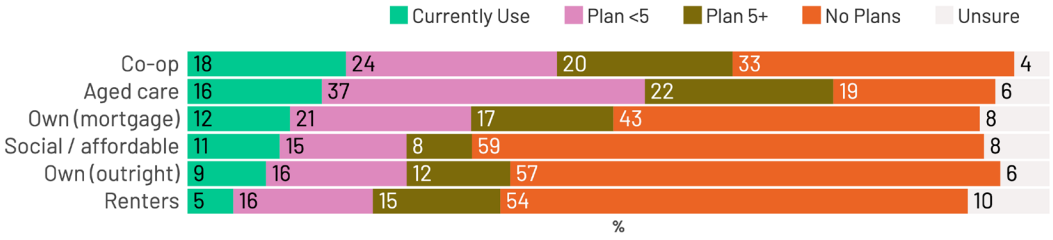
Households intending to install a home battery in the next five years (19%, n=956) were asked which method best describes how they would operate their home battery. Most intended to maximise use of their own solar energy (77%) and minimise energy costs (68%). Other common plans included keeping the battery fully charged (35%), maintaining a charge range (34%), and using it for backup during outages (34%), while 31% were unsure of their approach and 26% planned VPP participation.



SFL Q11. Base: Households planning to install a home battery in the next five years (19.1%, n = 956); multiple responses permitted

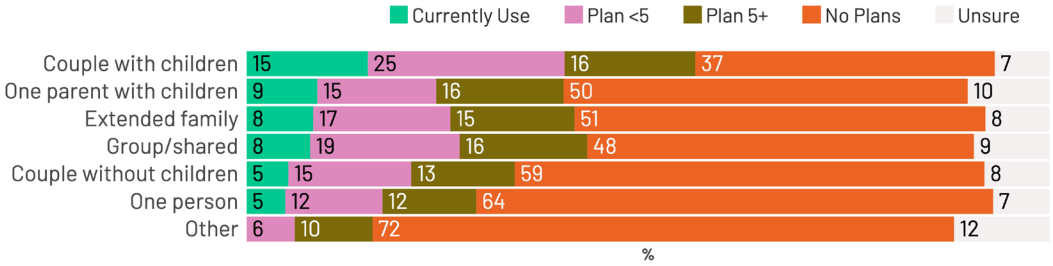
EVs and plug-in hybrids: affordability matters, housing less so

Co-op and aged care residents were most likely to currently use or intend to own an EV in the next 5 years.[11]



- Respondents living in cooperative housing and aged care reported the strongest current use and planned future ownership of EVs, although these groups represented very small sample sizes.
- Of traditional housing tenures, EV use was highest among mortgaged owners (12%, n=163) and lowest among renters (5%, n=96).
- Government-supported households, renters and outright owners showed the highest levels of no plan to own an EV.

Couples with children were most likely to currently use or plan to own an EV in the next 5 years, while one-person and "other" households were least likely to currently use or have future plans for EV ownership.[12]



- Couples with children reported the highest current use of EVs (15%, n=219) and future intent (41%, n=589), with 37% (n=539) having no future plans.
- One-person (64%, n=588) and "other" households (72%, n=97) had the highest rates of no plans to own an EV, with minimal current or planned use.
- Group/shared (8%, n=32) and multigenerational (8%, n=31) households reported moderate current use but relatively strong future intent to own an EV.

11 The association between household tenure and EV current and future use was statistically significant: $x^2(24, n = 5012) = 173.08$, $p < .001$. Very small effect size, Cramer's V = .09. "Other" tenure type excluded from analysis.
12 The association between household characteristics and EV current and future use was statistically significant: $x^2(20, n = 4097) = 235.54$, $p < .001$. Small effect size, Cramer's V = .12.

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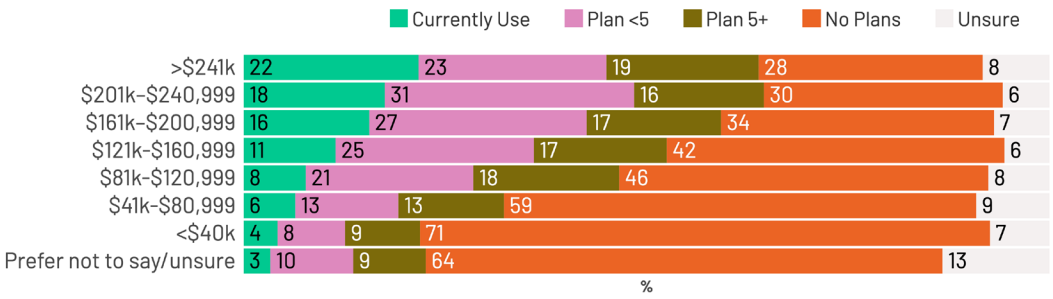
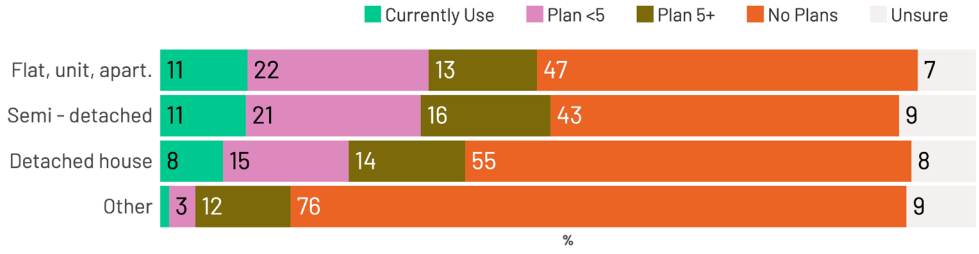
CER: HOME-OWNERSHIP, HOUSEHOLD TYPE, AND INCOME MATTER

Current use of EVs and future intentions to own one increased with income. Lower-income households were substantially less likely to currently use or plan to own an EV.[13]



- EV use increased sharply with income, from just 4% (n=37) among those earning less than $40k to 22% (n=39) in households earning more than $241k.
- No plans to own an EV was highest in the lowest income group (71%, n=625) and lowest in high-income households (28%, n=50).
- Future intent was strongest among households earning $161k—$240k, with over 45% (n=296) planning to own an EV.

Patterns of current and future use of EVs across dwelling types suggest that housing is less correlated with uptake than rooftop solar.[14]



- EV use was highest among flat, unit, apartment (11%, n=125) and semi-detached home households (11%, n=66).
- Residents in "other" dwellings were the most excluded, with just 1 household reporting current use and 76% (n=71) reporting no plans to own an EV.
- Future intent was strongest among residents of semi-detached homes and apartments, with over one-third planning to own an EV.

13 The association between household income and EV current and future use was statistically significant: $x^2(28, n = 5012) = 499.57$, $p < .001$. Small effect size, Cramer's V = .16.

14 The association between household dwelling and EV current and future use was statistically significant: $x^2(12, n = 5012) = 93.60$, $p < .001$. Very small effect size, Cramer's V = .08.

SECTION 1:

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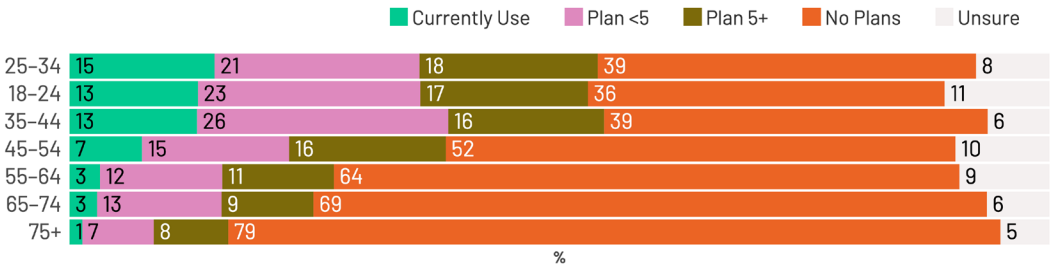
Current use of EVs peaked among younger groups, while older groups mostly reported no plans to own one.[15]



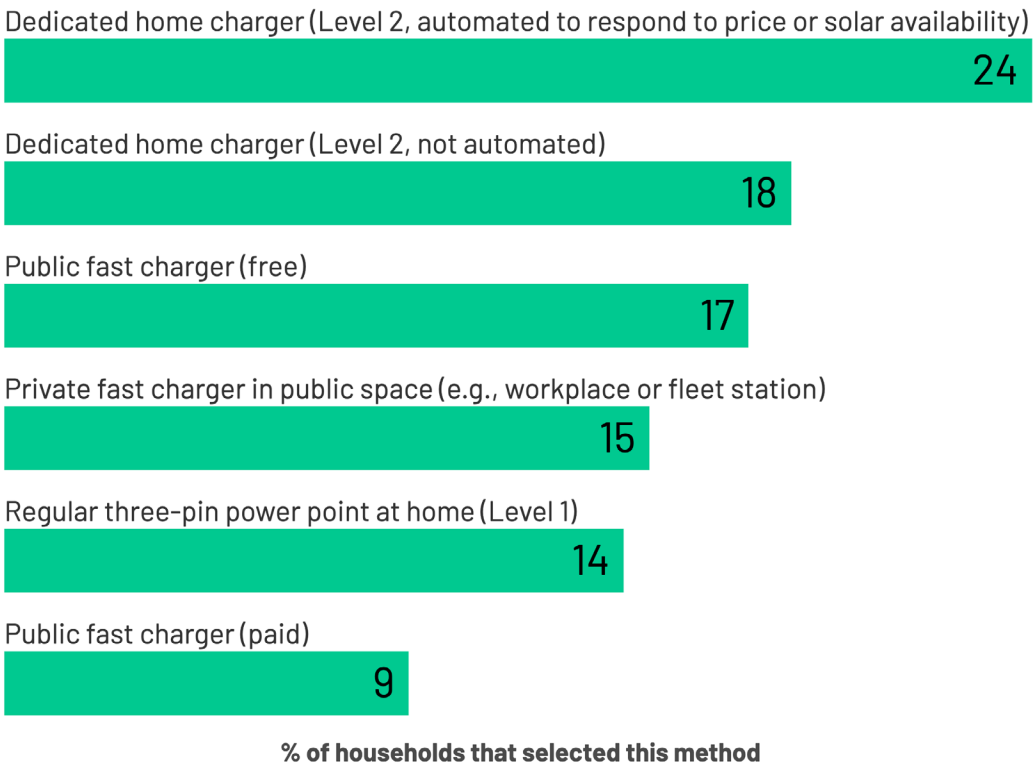
- Younger groups were much more open to purchasing an EV, with 53% (n=939) of 18-44-year-olds showing interest in owning one at some point in the future, while older groups (44+) overwhelmingly did not plan to.
- Only 3% (n=19) of 65-74-year-olds currently owned an EV, while nearly 69% (n=470) had no plans.

15 The association between age groups and EV/plug-in hybrid current and future use was statistically significant: $x^2(24, n = 5012) = 507.46$, $p < .001$. Small-to-moderate effect size, Cramer's V = .16.

EV charging: home-based and solar-smart

There was a strong preference for home-based charging and charging in the least expensive way, such as using solar power or off-peak electricity.

Preferred charging method: Among households that currently owned or planned to purchase an EV or plug-in hybrid in the next five years (n=1,309), home-based charging dominated as the primary preferred method, with nearly a quarter (24%) using or intending to use a dedicated home charger (Level 2) with automation to optimise charging based on electricity prices or solar availability. A further 18% used or planned to use a dedicated home charger without automation.



SFL Q13. Base: households that currently owned or planned to purchase an EV or plug-in hybrid in the next five years (n = 1,309)

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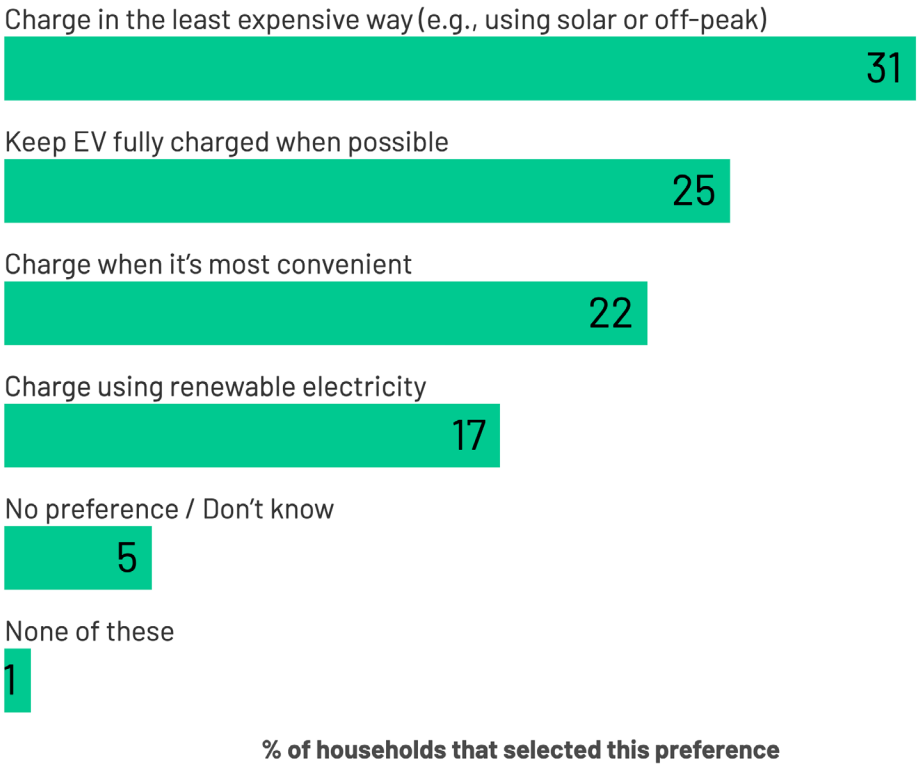
CER: HOME-OWNERSHIP, HOUSEHOLD TYPE, AND INCOME MATTER

Charging preference: Almost one-third (31%) of households that currently owned or planned to purchase an EV or plug-in hybrid in the next five years indicated their preference for charging in the least expensive way, such as using solar power or off-peak electricity. A quarter (25%) aimed to keep their EV fully charged whenever possible, while 22% preferred charging at the most convenient time.



SFL Q14. Base: households that currently owned or planned to purchase an EV or plug-in hybrid in the next five years (n = 1,309)

SECTION 1:

CER: HOME-OWNERSHIP, HOUSEHOLD TYPE, AND INCOME MATTER

Key implications: affordable, solar-first, home-based futures

Rooftop solar: a persistent access gap suggests solar uptake is shaped less by willingness and more by feasibility, affordability, and control over housing.

- Despite its growing prominence in national energy planning, rooftop solar remained unevenly distributed. Current use was significantly lower among apartment dwellers, renters, and lower-income households, groups that are often constrained by physical, regulatory, or financial barriers.

Home batteries: targeted interventions are needed to ensure that battery storage and its associated flexibility and resilience benefits are accessible to specific household types.

- Home battery use remained limited and highly uneven, with use concentrated among higher-income, owner-occupied, and family households. Renters, low-income groups, and those in social or marginal housing faced substantial barriers, with over half reporting no plans to own the technology.
- Use preference:
  - Rising concern about power outages may be influencing household battery strategies, with many viewing storage as a potential resilience tool in the face of increasing climate impacts. However, this may deepen inequalities in energy security in disaster-prone areas, as use and future intent were strongly associated with income.
  - With many households unsure about how they would use a battery, retailers and installers will likely play a significant role in shaping use through default settings and advice.
- As the federal government's Cheaper Home Batteries Program scales up, it will be critical to monitor who is participating and design complementary measures to ensure that the scheme does not inadvertently widen existing inequalities in access to clean energy technologies.

EVs and plug-in hybrids: while interest in EVs is growing, widespread use remains constrained by affordability and infrastructure access.

- EV current and future ownership was closely tied to income and household composition, with the highest uptake among high-income, mortgaged, and family households. In contrast, lower-income groups, one-person households, and those in marginal or undefined housing reported low current use and limited future intent. Cost, familiarity with technology, and shorter perceived driving horizons may explain lower current and future use among older households.
  - **Charging method:** While investments in shared or public charging infrastructure may help to broaden EV ownership, especially in dense or low-income housing areas, there was a strong preference for home-based charging, meaning renters and apartment dwellers risk being forced to rely on less convenient and often more expensive public charging. The integration of shared EV charging infrastructure in new and existing multi-unit dwellings (MUDs), along with mechanisms that empower renters to access it, is likely to become increasingly important for equitable EV adoption and effective policy outcomes.
  - **Charging preference:** Many households planned to charge their EVs using solar or off-peak electricity, a trend that could increase rooftop solar and home battery ownership. This strong preference for low-cost charging also presents opportunities to inform DSM programs encouraging shifting demand to off-peak periods.

NEXT STEPS

The findings presented in this report are part of a longitudinal evidence base being developed and delivered as part of the Scenarios for Future Living project.

The intention is to run this national survey again in Q2 2026 and Q2 2027 to track these trends over time and to use these findings to inform the ethnographic research, scenarios, qualitative research, living labs, speculative designs, foresighting, and modelling and tool development being delivered across the project's seven work packages.

In turn, subsequent iterations of this survey will be informed by the research from other work packages and consultation with our partners and Industry Reference Group to ensure ongoing relevance and targeted findings which support the project's objectives.

Photo by Martin David on Unsplash

Scenarios for
Future Living

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