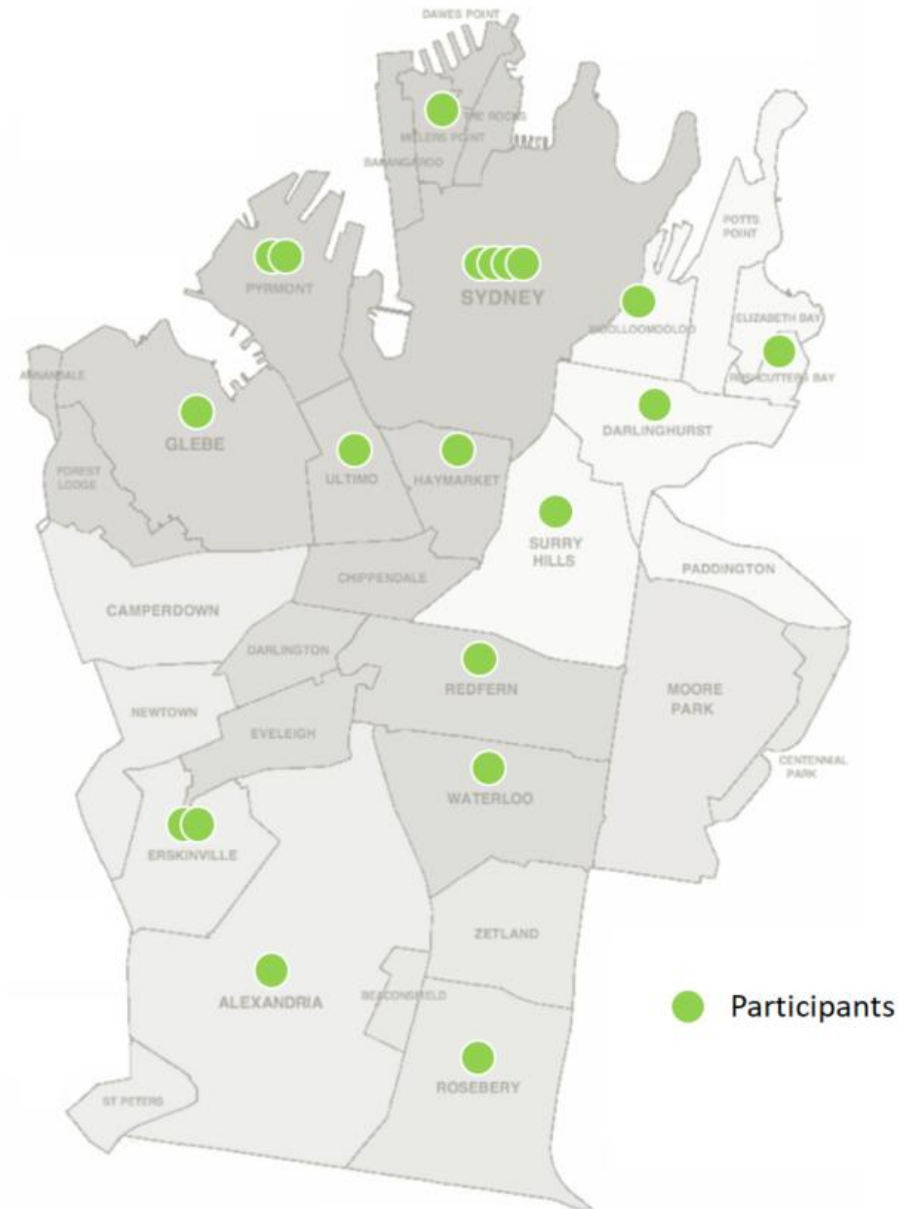


Electric Vehicle Charging In Residential Strata

Executive Summary



Study Conducted in Association with



High Engagement on EV Charging

112 apartment blocks have participated so far.

850 residents within those apartment blocks have participated.

Participants from:

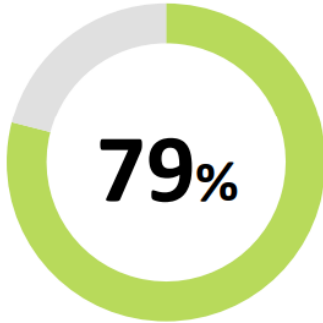
- Sunshine Coast
- Brisbane
- Gold Coast
- Sydney
- Melbourne
- Perth (coming soon!)

Provided input to:

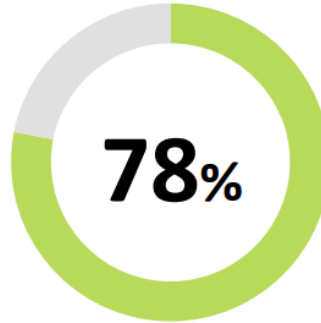
- City of Sydney
- City of Melbourne
- City of Perth
- North Sydney Council
- Kuring-Gai Council
- NSW Department of Industry
- Department of Planning, Lands & Heritage (Western Australia)



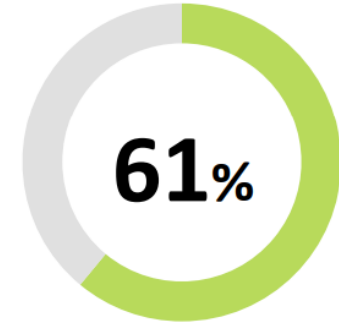
Resident Survey Findings



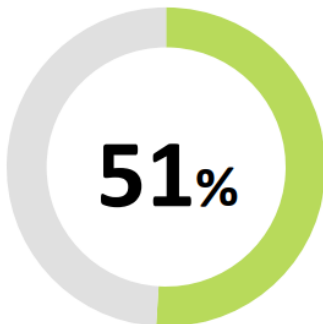
Favoured a **user pays** charging system



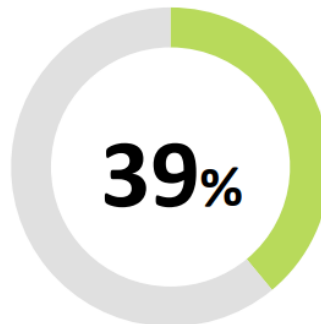
Were in favour of **installing** charging systems now



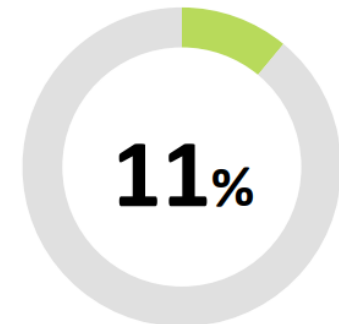
Favoured charging in their **individual lot carspaces**



Expressed **no preference** of hybrid electric vehicles over electric vehicles



Of vehicles in strata are **family cars**, which is the most common type of vehicle



Knew the location of the nearest public charging station

Positive Feedback

"I love the way our we are thinking about the future of our building. Well done to the strata team."

"Is there a plan to scale out over 10 years (and electric vehicles become more common)."

"Support for EV car sharing services in the building would be very welcome."

"If the provision of charging facilities may (surely 'will') AFFECT valuation/rentals, I suggest that, at the very least, one or two units be installed in the common area."

"Request my own dedicated power outlet at my parking spot to charge my vehicle overnight"

"I am looking to buy a new car but holding of to get a small - medium electric car when charging stations are more available"

"There should probably also be charging facilities for mobility scooters - we're not getting any younger!"

Detractors

"How will this impact strata fees? It does not make sense to install this unless there is a justified need to have it! "

"Utter waste of body corporate time. Install solar panels on roof first"

"Wait for electric cars to become common (if they ever do)."

"chairman has vested interest, just like the ECC member seeking a kayak pontoon on an adjacent Strata site with no indication it will be a user pays basis. Not happy at potentially having to subsidize "

"This is not Soviet Russia. It is disgusting to even suggest this as a possibility at all. Electric cars should be BANNED from the building and those who contravene this by-law forcibly evicted Just my opinion of course"

"If subsidies exist for the provision of the infrastructure for electric cars then perhaps worthy of investigation."

Who Drives Electric



Penny Pincher

Cost Savings

EVs don't need oil changes and are less expensive to maintain than internal combustion engine (ICE) vehicles. Plus, charging is much cheaper than gas:

Driving electric can save **\$13,000** over the life of an EV.**

Most EVs are eligible for federal tax credits of up to **\$7,500**.



Gene Green

Environmental Benefits

Driving electric cuts greenhouse gas emissions in half—or more, depending on how electricity is generated where drivers live. Many drivers are also interested in EVs for energy independence.



Tina Techie

Bells & Whistles

Tech fanatics want their cars to have the latest features, from cutting-edge software to falcon wing doors. EVs also have instant torque and are fun to drive, plus they're completely quiet so drivers can fully enjoy the pristine sound of a high-end stereo.



Oscar Office

Carpool Convenience

Several states offer High-Occupancy Vehicle (HOV) carpool lane access to EV drivers, which can save tons of time, especially for people with tough commutes. A hybrid offers these folks the convenience of a back-up gas engine.

Types of Electric Vehicles



1. Tesla Model S (BEV)



2. Chevy Volt (PHEV)



3. Ford Fusion (PHEV)



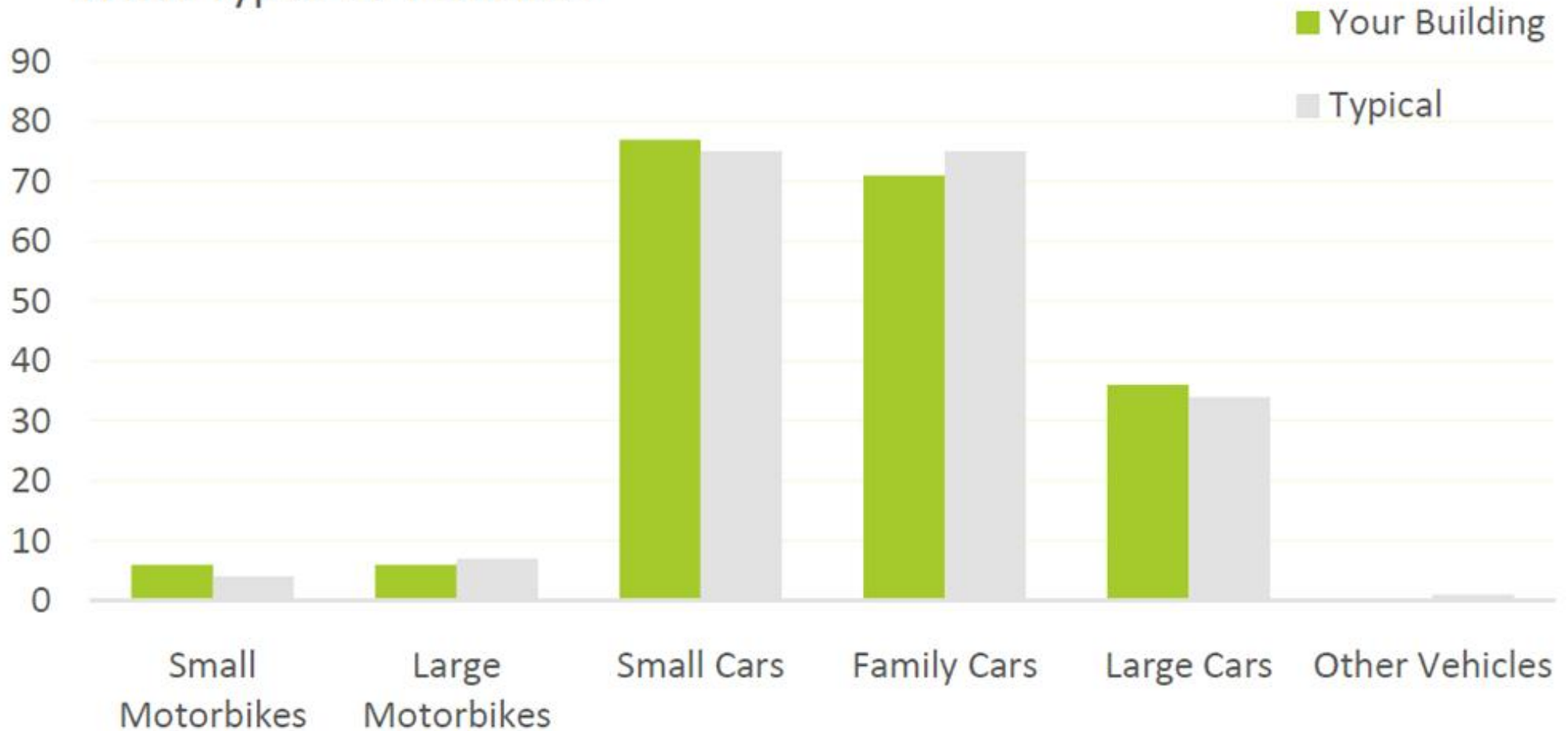
4. Tesla Model X (BEV)



5. Nissan LEAF (BEV)

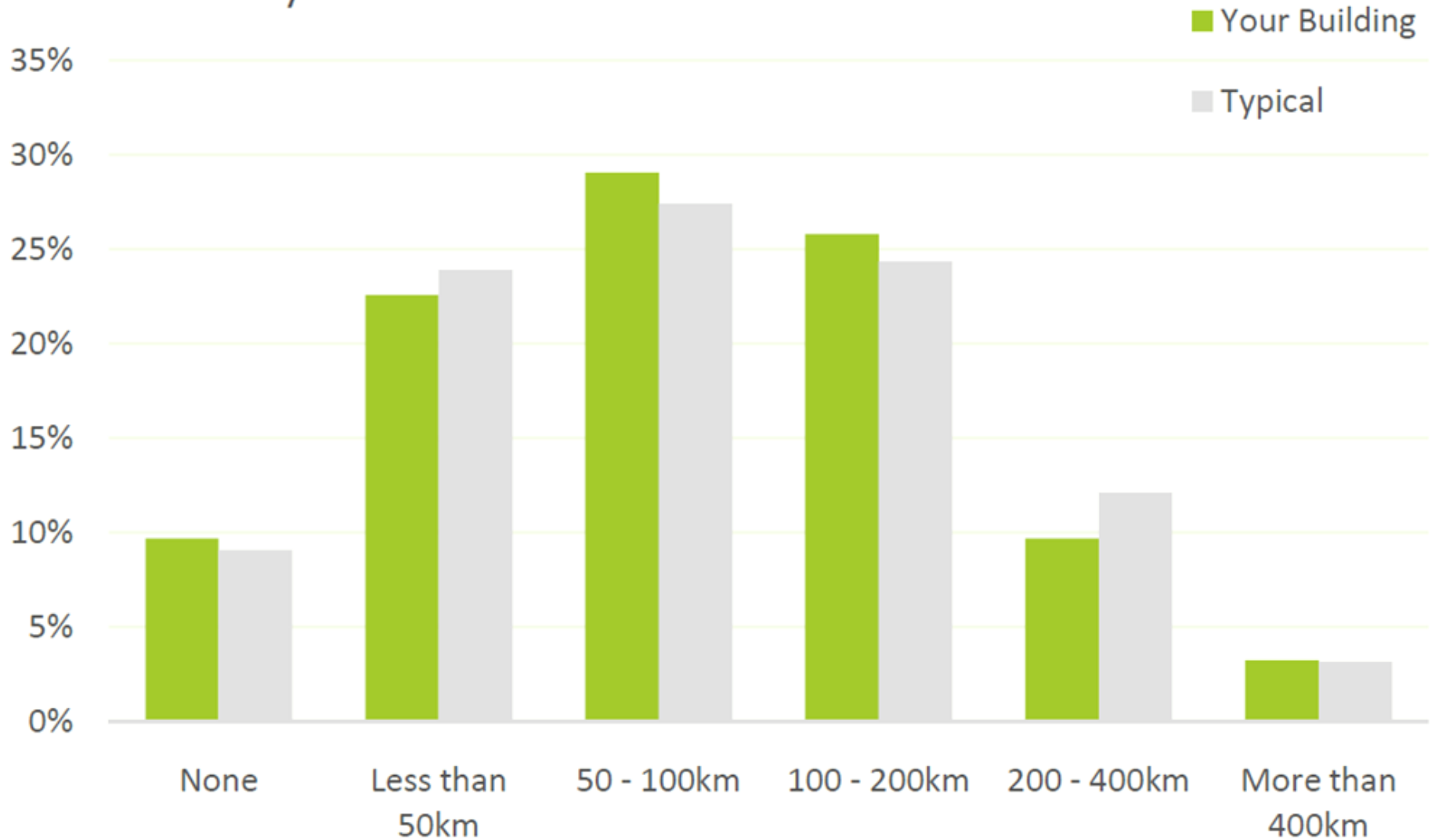
Vehicle Ownership in Strata

What Types of Vehicles?

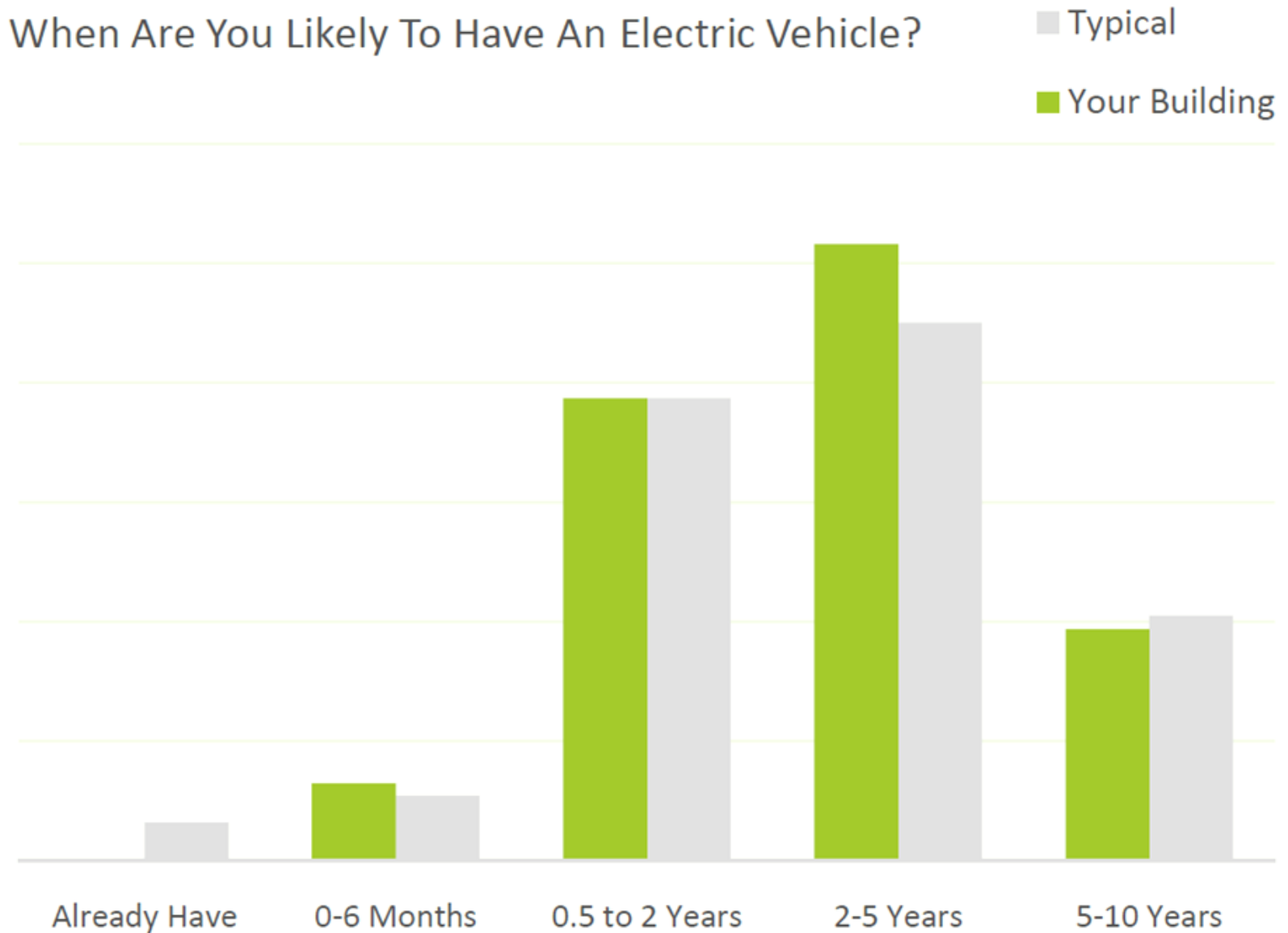


Driving Behaviour

How Many Kilometres Do You Drive Per Week?

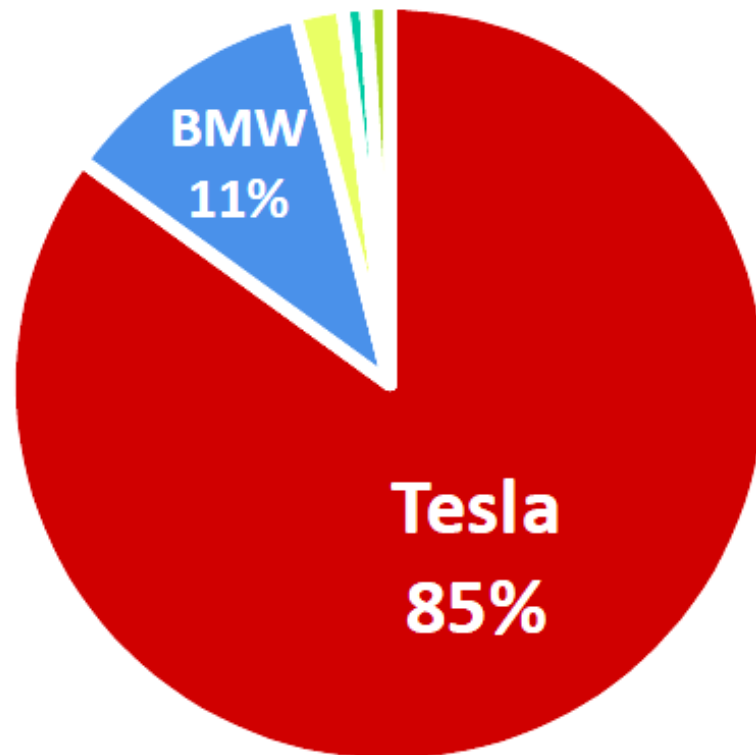


Electric Vehicle Purchase Intentions



Electric Vehicle Preferences

Which Make, Model or Brand?



- Tesla
- BMW
- Nissan
- Jaguar
- Mitsubishi



Popular Electric Vehicles in Australia



Audi A3 e-tron



BMW 330e



BMW i3



BMW i8



Mercedes-Benz C350e



Mercedes-Benz GLE500e



Mitsubishi Outlander PHEV



Nissan Leaf



Porsche Cayenne S E-Hybrid



Tesla Model S



Tesla Model X



Volvo XC90 T8

Public Charging Stations

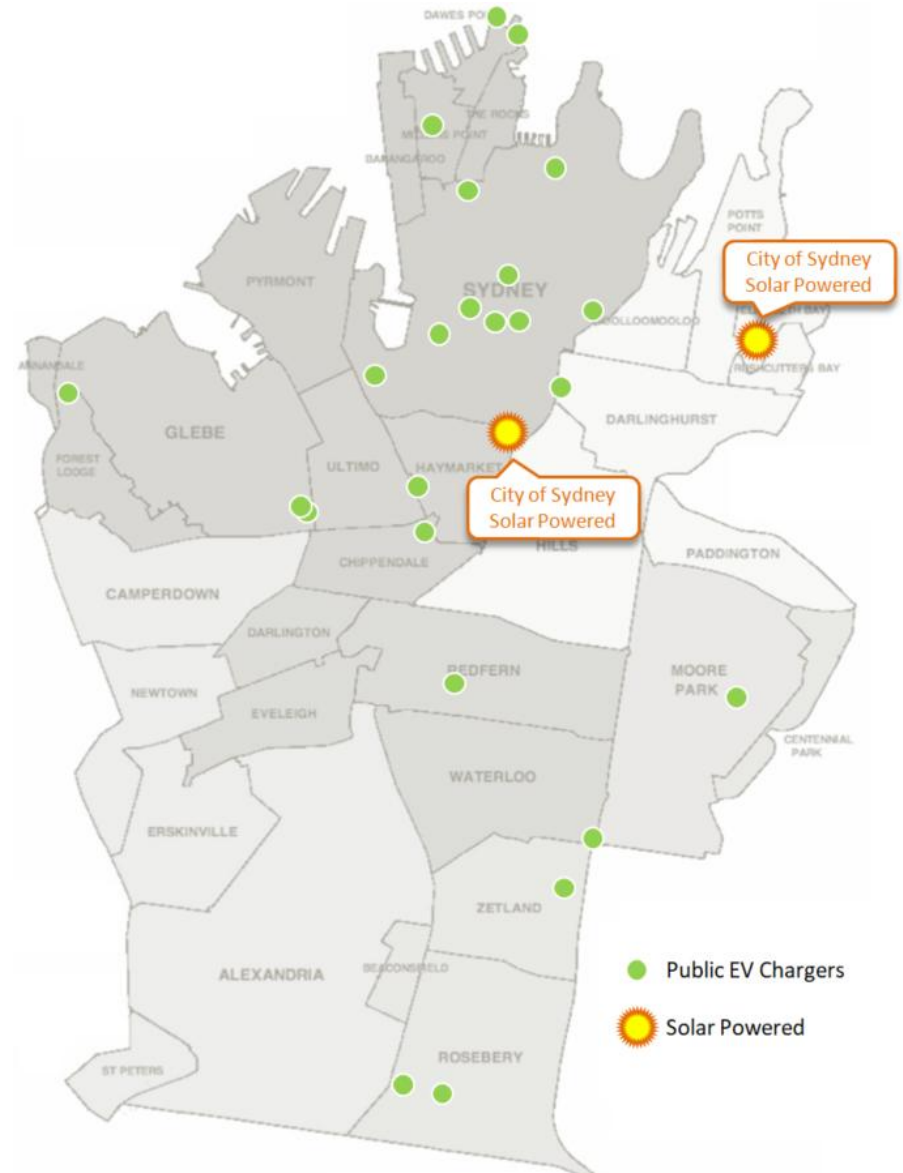
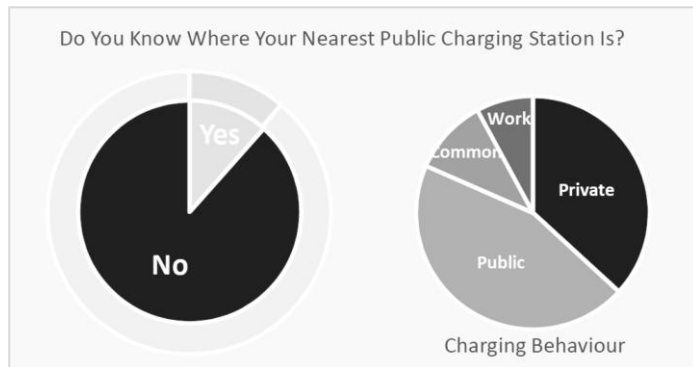


City of Sydney Charging

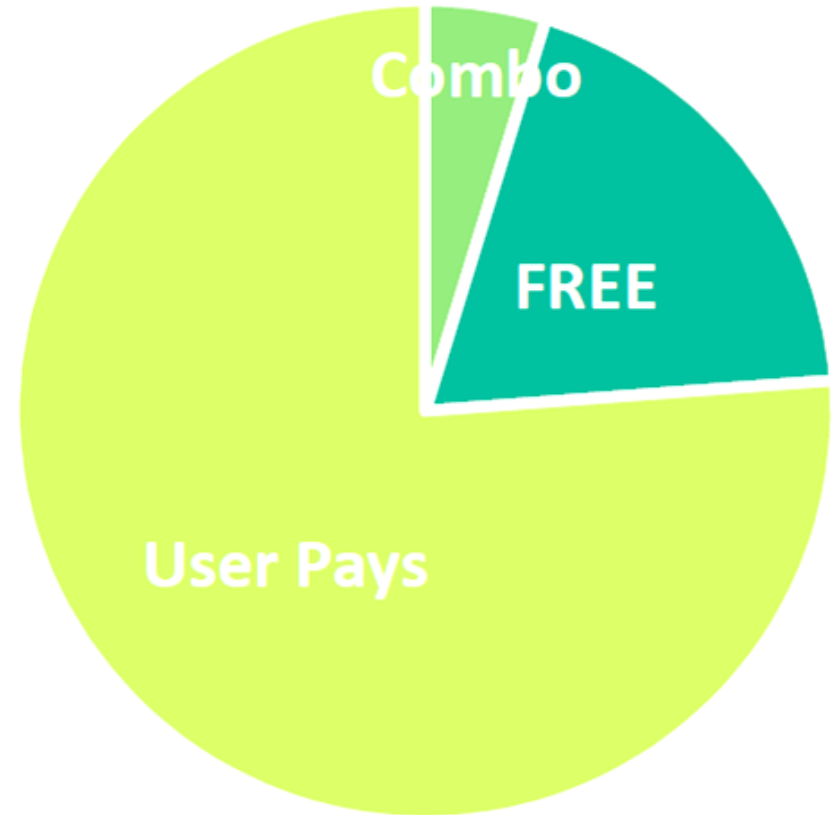
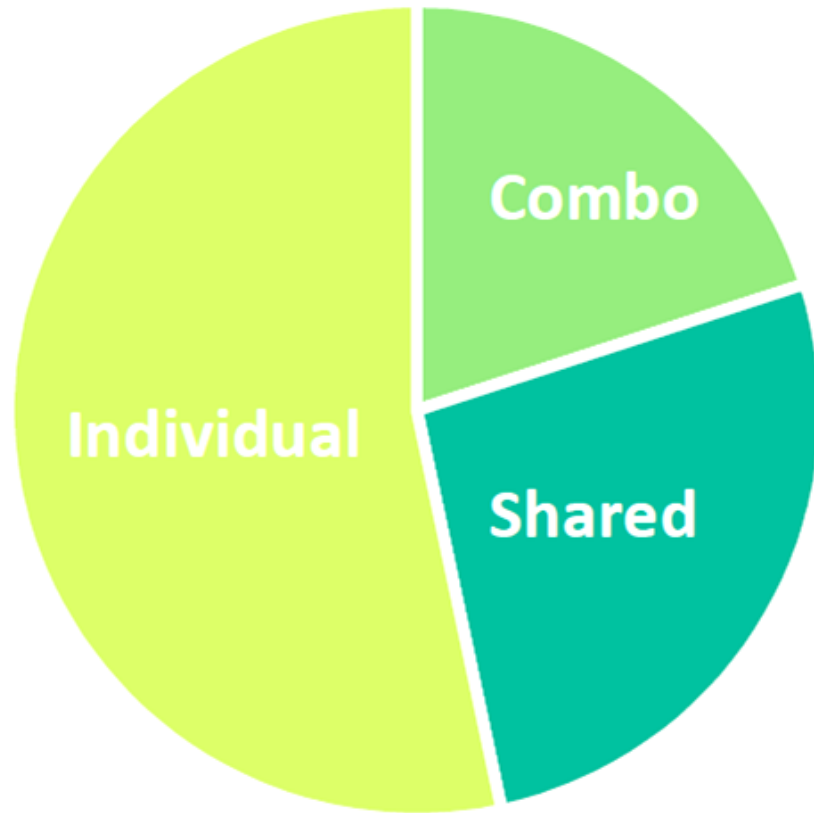
12% of respondents know where their nearest public charging station is even though only 1% have electric vehicles.

45% of respondents with electric vehicles use public charging facilities. Private chargers are used by 37% with a smaller proportion using charging facilities at work (8%) or using common area power (11%).

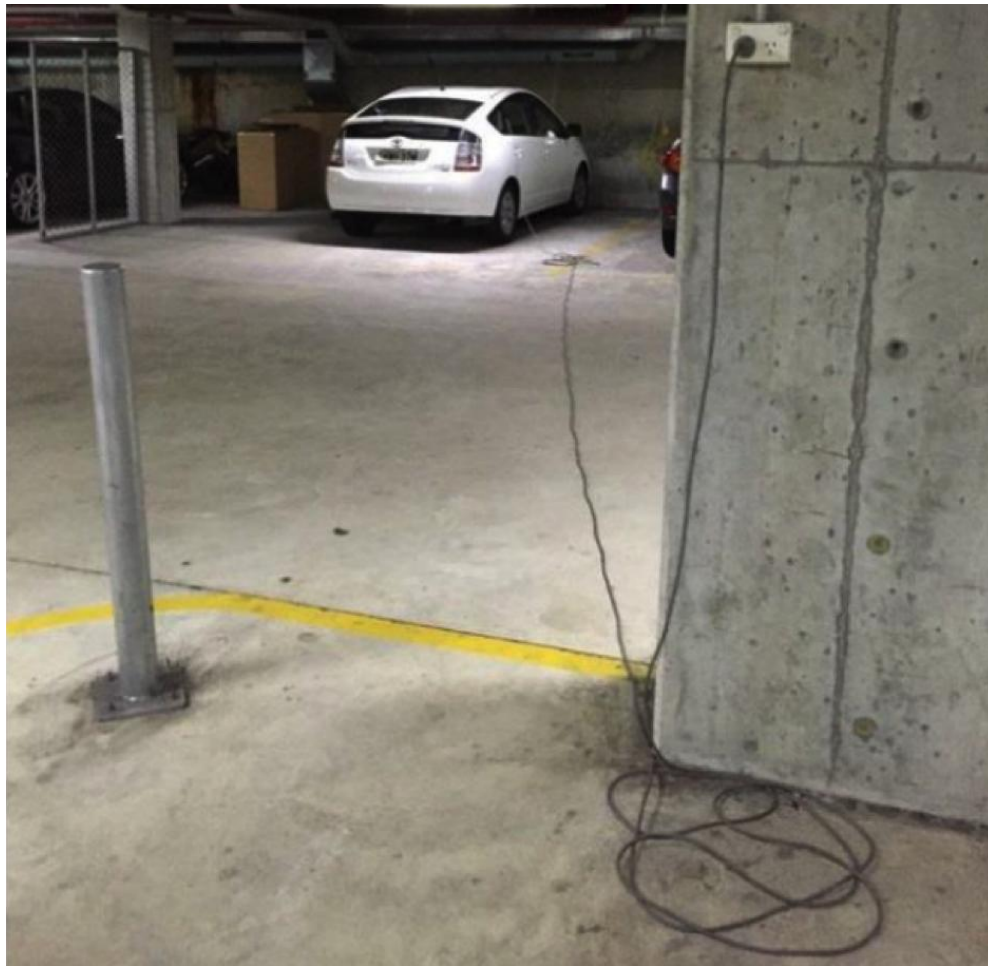
98% of respondents were against their building offering a public charging facility.



EV Charging Preferences



Residents Already Charging Today



Deep Dive Assessments

Participant Buildings	Age (Years)	Blocks	Units	Residential Levels	Commercial Levels	Carparking Levels	Survey Reponse
Waterloo	5	5	289	10	1	2	15%
Alexandria	12	1	45	5	0	1	53%
Haymarket	25	3	646	31	0	6	4%
Millers Point	11	1	83	24	0	9	18%
Ultimo	19	1	328	7	1	9	25%
Erskineville #1	1	6	197	6	0	1	20%
Rosebery	16	1	288	7	0	1	4%
Rushcutters Bay	17	2	139	15	1	2	27%
Glebe	12	1	75	3	0	1	21%
Surry Hills	47	1	54	3	0	1	52%
Erskineville #2	10	1	48	4	0	1	40%
Woolloomooloo	3	3	76	7	2	3	18%
Pymont #1	9	2	104	5	2	1	24%
Pymont #2	17	2	118	9	1	3	21%
Sydney #1	21	1	199	25	1	5	33%
Darlinghurst	6	2	86	23	0	3	48%
Sydney #2	20	1	131	22	1	7	
Sydney #3	18	4	238	12	3	4	26%
Sydney #4	117	1	61	7	0	2	10%
Redfern	39	1	112	6	1	2	14%
Average	21	2	166	12	1	3	19%

Resident Concerns

"Believe that this is the future - would like to understand the drain on the resources such as air conditioning and lifts given our aging system. Plus the options of having meters in place to ensure the user payment."

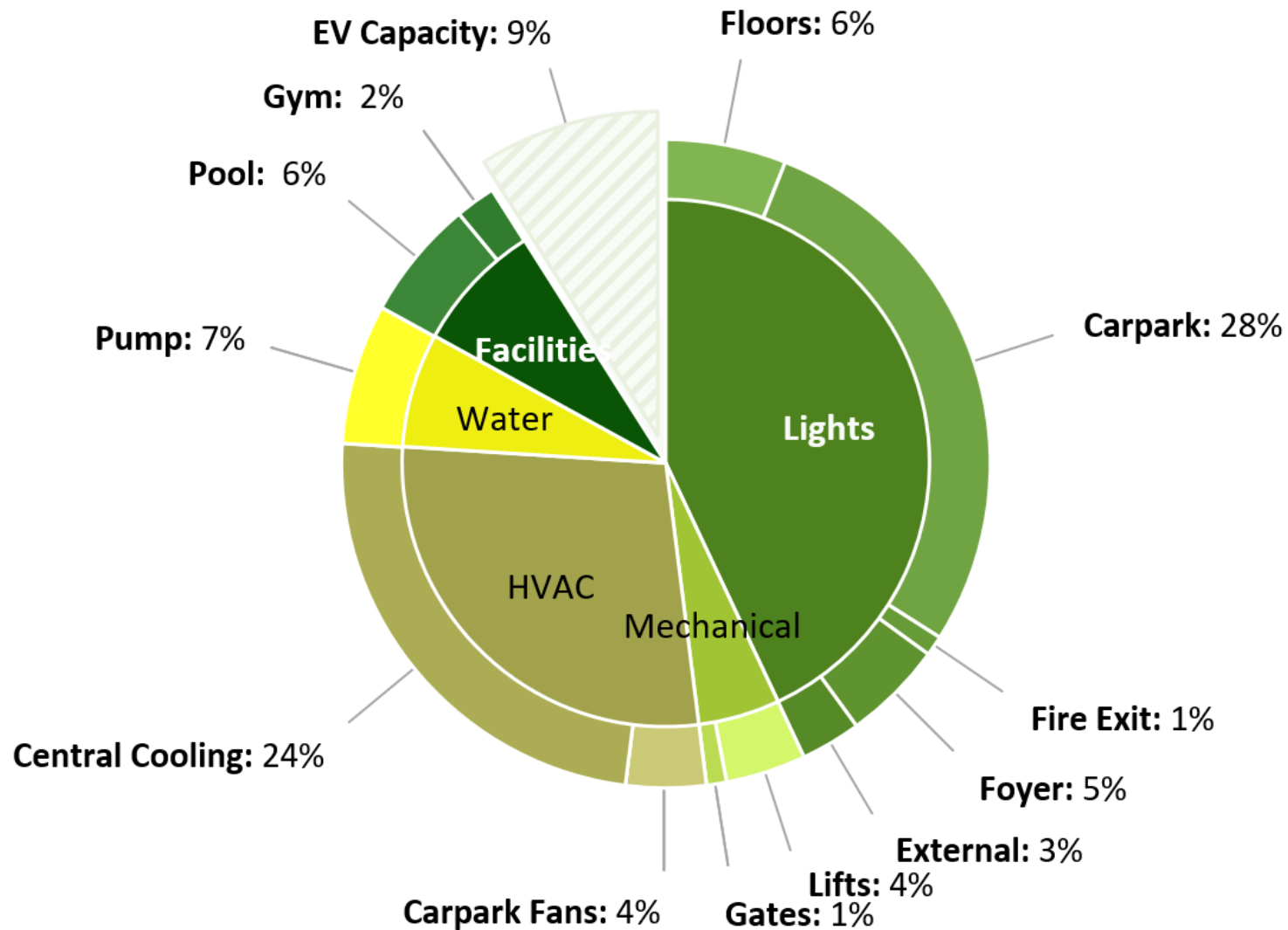
"Residents should be permitted to install their own charging stations and battery units."

"If significant electrics work is being done in the garage, I would like to see more simple power points, reachable by each bay, to allow for the occasional battery charging and use of small appliances such as car vacuums."

"Strata levy has been increasing over the years for what is already high for our city apartment. However, we do support the e-vehicles for the greater good of the environment but it would be best to have the charging stations at our building at the cost of the e-vehicle users (user pay)."

"We need to look at solar panels and battery storage to help reduce costs and should be part of the entire proposal"

EV Capacity on Common Power



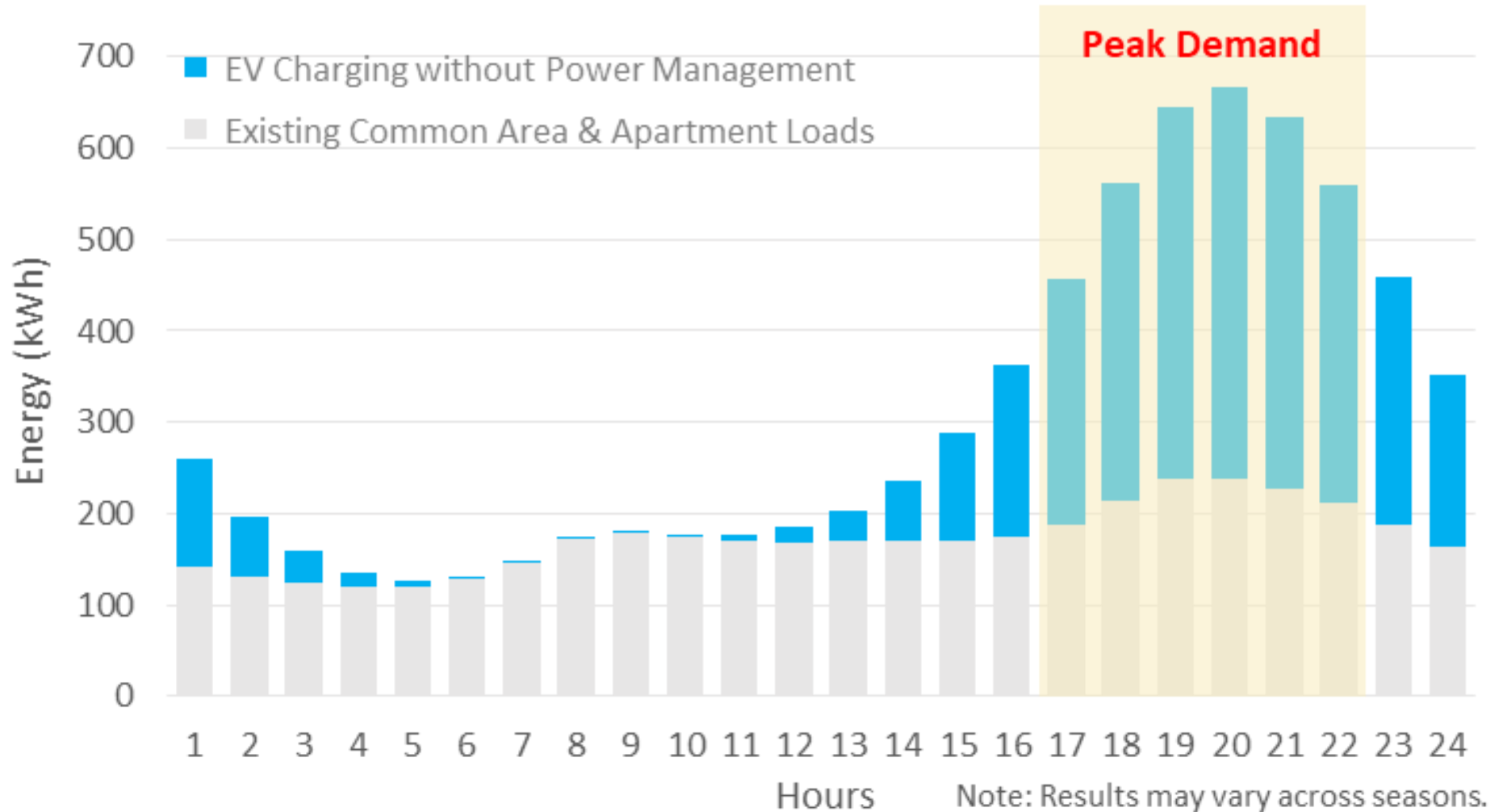
Electrical Infrastructure



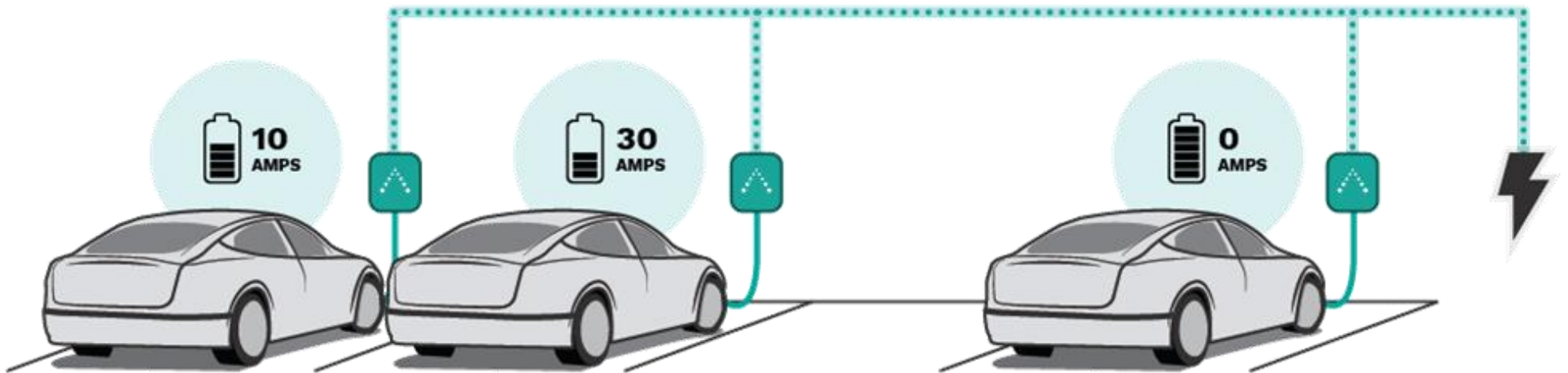
Distribution Board Limitations



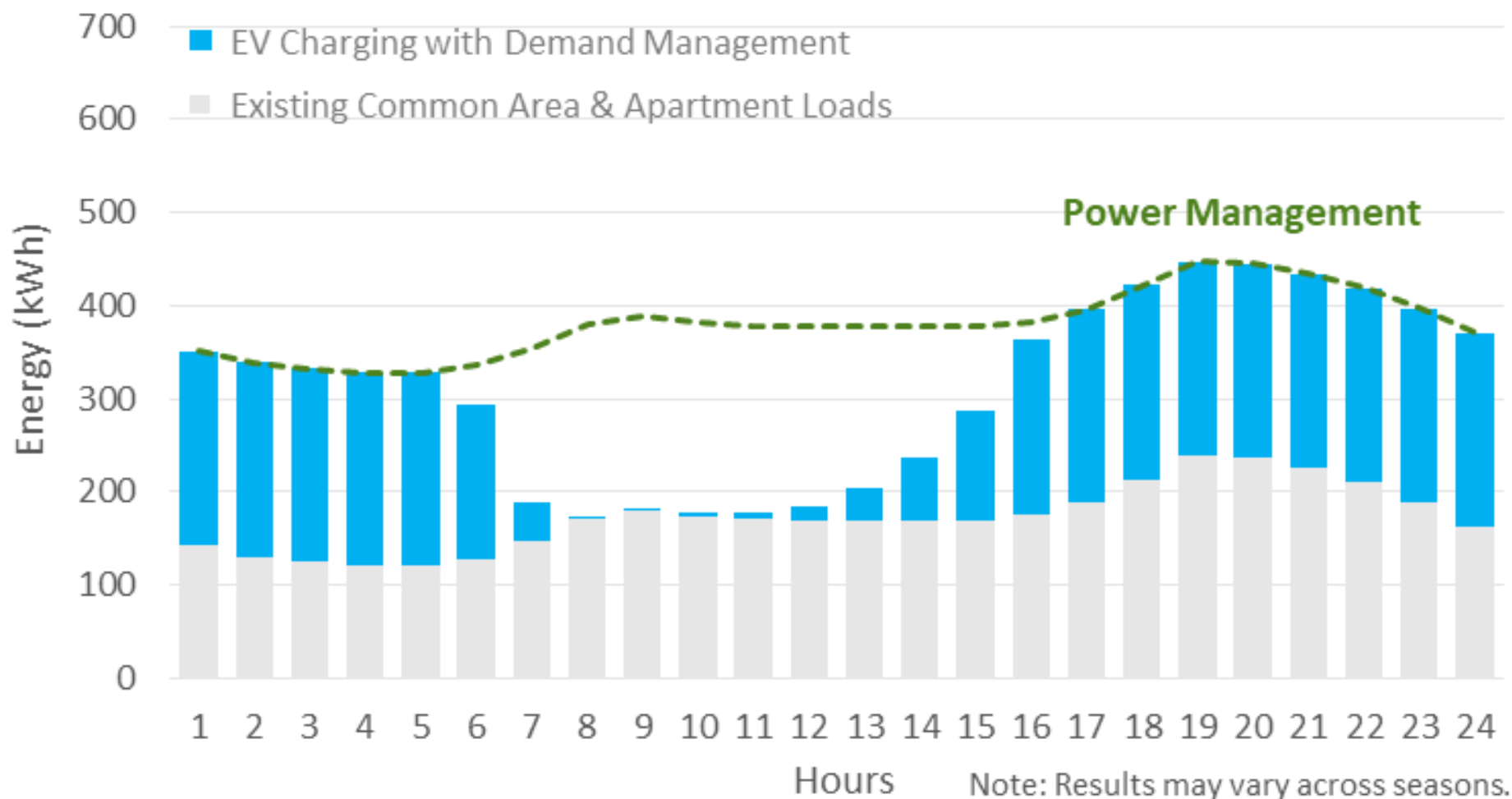
After Work Charging Peak



Demand Management Systems



10x Greater Capacity

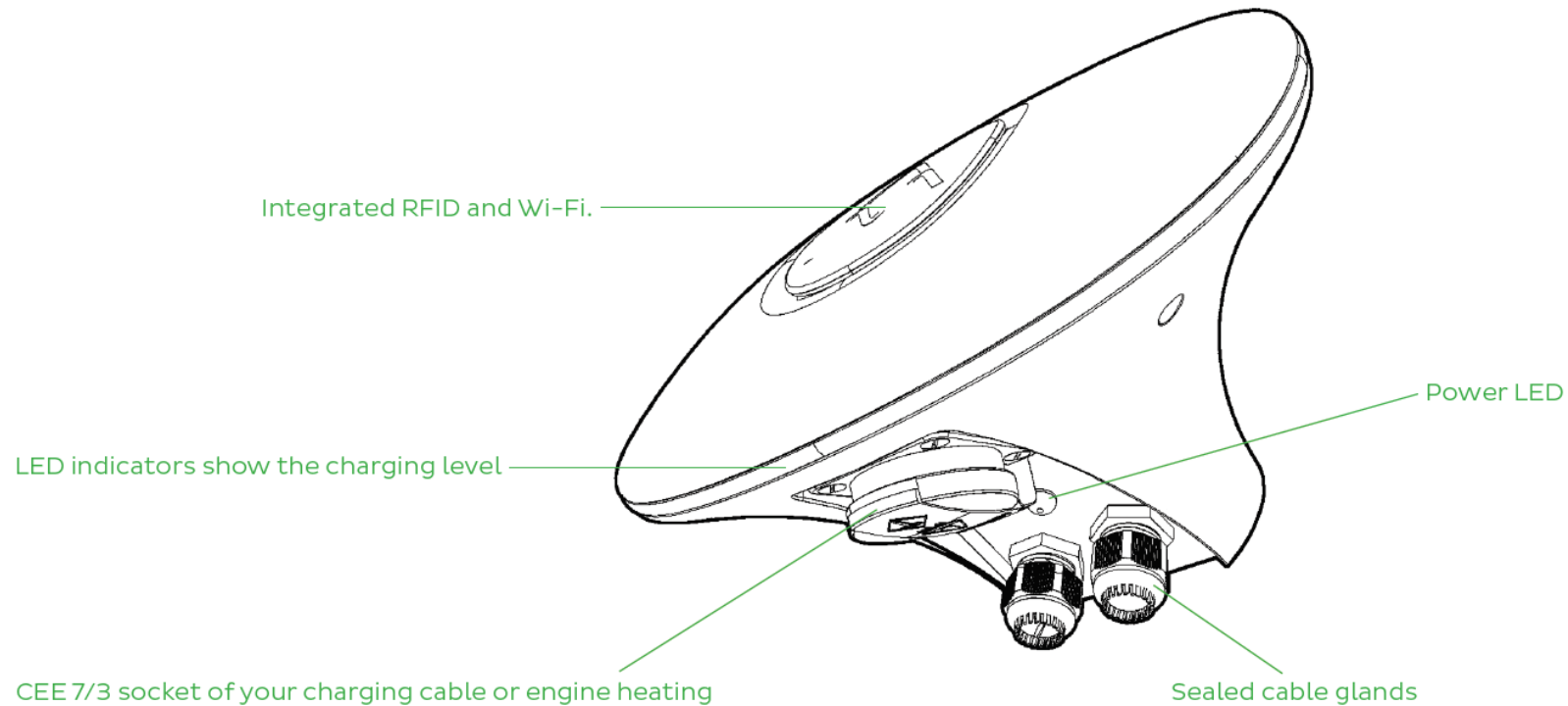


Super Charging in Strata?



Reference: Teslarati 2017

User Pays Solutions



EV Charger RFID and Wi-Fi Access Control

High Density Challenge



Solutions to Congestion



Energy Revolution

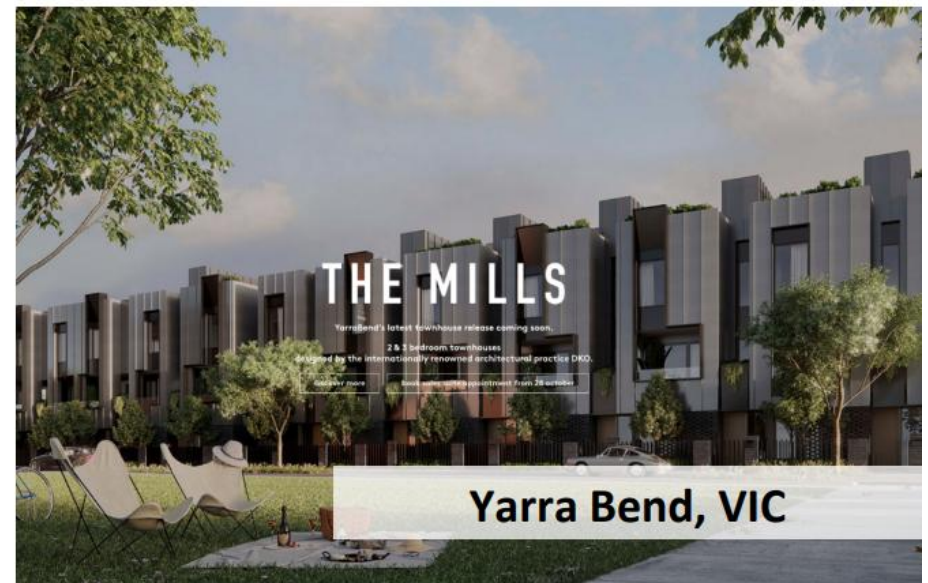


NABERS for Apartment Buildings



Launched June 2018

Sustainable Developments



Marketing EV Ready Developments



Focused on Sustainability

Genesis Shepherds Bay values and has put emphasis on being a truly sustainable development. The development will have a focus on energy efficiency, renewable energy, water efficiency and communal green roof at the core of its design. Whilst developing a sustainable building is important for the environment it also has direct benefits to the owners with 'green buildings' enjoying lower operating costs which drives additional value into the units.

Some key elements of sustainability at Genesis Shepherds Bay are:

- A community solar system which can share solar power inside individual apartments
- Smart metering allowing all residents to bulk-buy electricity together, saving money
- Ready for electric vehicle recharging
- Carbon emissions reduction equivalent to planting over 2,000 trees, 7 times the national target for 2020
- Wattblock 5-Star energy rating

[Click here to download the full WattBlock Building Report](#)



Learning from British Columbia

[EV101](#) [CHARGING STATIONS](#) [INCENTIVES](#) [FLEETS](#) [EMOTIVE](#) [POLICY](#) [RESOURCES](#)



Plug In BC

Navigating Stratas

The process of installing an EVSE or charging station in a MURB may seem complicated. This page is meant to offer guidance to applicants to make the process a quick and simple one. The steps offered below are complementary to the steps applicants must complete as part of the application. These are meant to be used by tenants and strata council or property managers. Applicants should also visit our [Resource Library](#) and view a [guide to charging in stratas](#) published by BOMA BC. Checklists are also provided by Metro Vancouver for both [residents or homeowners](#), and for [strata councils or property managers](#).

We have a new resource for stratas. Now available are [user agreement and bylaw templates](#) for stratas to become EV ready. Of course these are not meant to be substitutes for seeking legal counsel.

[signup for](#)  [newsletter](#)

resource spotlight



-  [EV models available in BC >>](#)
-  [Installing a charging station >>](#)
-  [Opportunities for fleets >>](#)
-  [Charging in multi unit buildings >>](#)
-  [Calculating charging time >>](#)
-  [Emotive: community outreach >>](#)

WATTBLOCK ENERGY REPORT

PREMIUM ASSESSMENT

Prepared For: Owners Corporation
1 John Street
Brisbane QLD 4000

Block Type: High Rise
Total Floors: 16 + 4 Parking
Total Units: 82



Common Energy: \$39,139 p.a. | Apartment Energy: Est. \$137,500 p.a. | Water: Est. \$42,977 p.a.

FAST PAYBACK OPPORTUNITIES

Wattblock estimates the annual energy costs for your common areas can be reduced by 44% after all fast payback projects.

ESTIMATED
COST
REDUCTION

44%

ESTIMATED
ANNUAL
SAVINGS

\$17,331

ESTIMATED
PROJECT COSTS

\$35,797

ESTIMATED
PAYBACK

2.1 Years

Note: All figures are GST inclusive.

SUSTAINABILITY ROADMAP

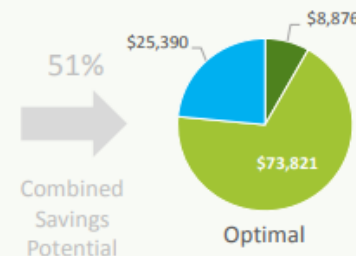
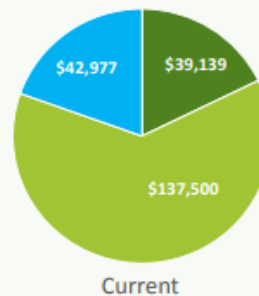
Energy efficiency upgrades (e.g. LED lighting) and renewable technologies can lower your energy bill by reducing grid usage.

The energy rate for tenants can be reduced through the use of bulk billing.

Water savings can be achieved by targeting water leakages and efficiency.

Annual Utility Costs

■ Common Energy ■ Tenant Energy ■ Water



LOW HANGING FRUIT

Wattblock recommends the top projects for your block as summarised in the table.

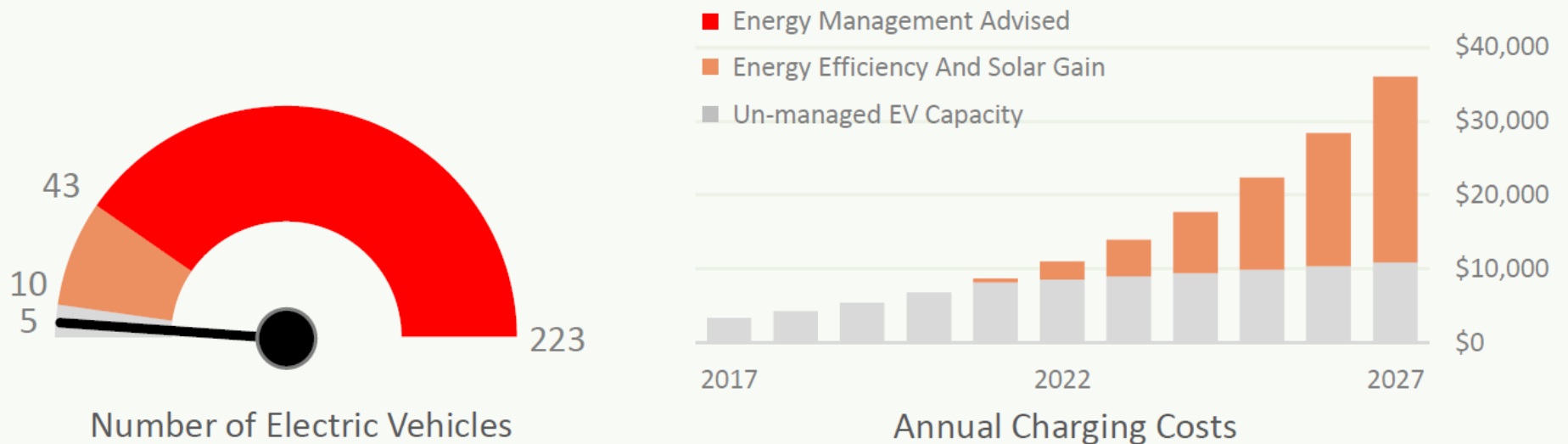
Projects	Description	Est. Savings	Est. Cost	Est. Payback
1 Carpark Lighting	Replace fluoro tubes in basement carpark with LED.	\$3,848	\$7,274	1.9 Years
2 Common Area Lighting	Replace common area lighting in foyers, floor, fire escapes and stairs with LED.	\$8,162	\$19,370	2.4 Years



Communicating Results

ELECTRIC VEHICLE CHARGING

Understanding how Electric Vehicles (EVs) will affect common area and individual energy costs will help committees in working with current and future EV owners.



The building has an estimated 5 electric vehicles today, growing to 33 by 2027 with a charging cost of \$36,015 p.a. Based on similar buildings, your common energy supply can support an estimated 10 charge stations before energy management is advised.

Energy management regulates EV recharge to avoid excess demand charges or disrupting other facilities such as lighting and lifts. Number of electric vehicles include hybrids and is based on statistical averages unless an EV sub-metering system is in place.

Communicating Options



SOLUTION 1 UNMETERED USERS



This solution is most common where there are power outlets in the carpark. There are no set-up costs but the strata pays for the usage.

**WHO PAYS
STRATA**

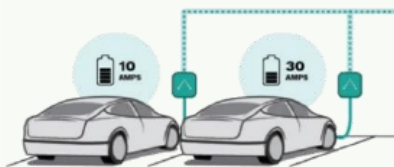
SET-UP COST
\$0
Per Electric Vehicle

OPERATING COST
\$670 p.a.
Based on 15,500 km p.a.

COST PER 1,000 KM
\$43.24
Electric Powered km

RECOMMENDED

SOLUTION 2 MANAGED CHARGING



User pays sub-metering of common power for EV recharge enables lower cost and helps with power management.

**WHO PAYS
OWNER**

SET-UP COST
Est. \$2,500
Excluding Charging Unit

OPERATING COST
\$790 p.a.
Based on 15,500 km p.a. + billing fees

COST PER 1,000 KM
\$27.74
Electric Powered km

SOLUTION 3 PRIVATE CONNECTION



Connecting an EV charger to private power still requires strata approval. This can be costly to set-up and usage costs will be higher as well.

**WHO PAYS
OWNER**

SET-UP COST
Est. \$8,000
Excluding Charging Unit

OPERATING COST
\$896 p.a.
Based on 15,500 km p.a.

COST PER 1,000 KM
\$57.81
Electric Powered km

Acknowledgements

Research Director

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Wattblock

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Brent Clark, CEO, Wattblock

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Patrick Chen, Data Analyst

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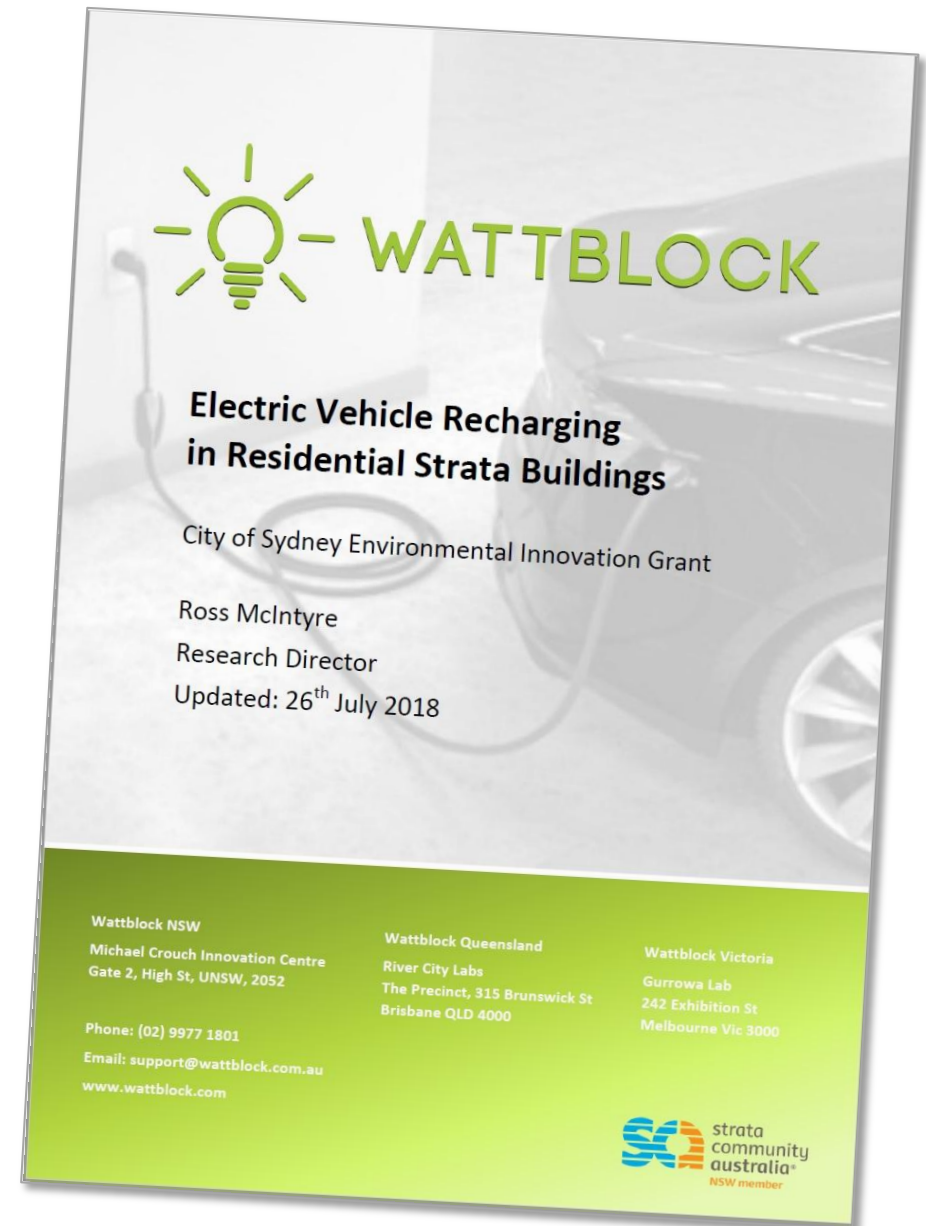
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Frank Groot, Site Developer, Tesla

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Further Information

Prepared by:

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Ross is the Chief Data Officer and Co-founder of Wattblock. Winner of the SCA Innovation of the Year in 2016, Wattblock has developed a “smart city” analytics platform to reduce energy waste in high density urban environments. Previously Ross spent 10 years working for First Data in Australia, Hong Kong, Singapore and China. He has consulted to tier 1 banks on high volume transaction data for ATMs and merchant acquiring. Ross has a masters in finance and an honours degree in product development and innovation from the University of NSW.

About Wattblock

wattblock.com

[@Wattblock](https://twitter.com/Wattblock)

Wattblock provides sustainability reports for strata buildings covering energy efficiency, solar, batteries, smart meters, electric vehicle recharging, gas and water. It has offices in Sydney and Brisbane and has assisted strata buildings across Australia.

Wattblock has received an environmental innovation grant from the City of Sydney. The development of this solution has been supported in part by the Department of Industry, Skills and Regional Development through the Innovate NSW program. Wattblock has received investment from muru-D as part of Telstra's startup accelerator program.

Wattblock NSW

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Wattblock Victoria

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