Low Power QR Code Activated Power Outlet Retrofit under ARENA ‘Driving the Nation’ program

CASE STUDY:
‘FREESIA GARDENS’

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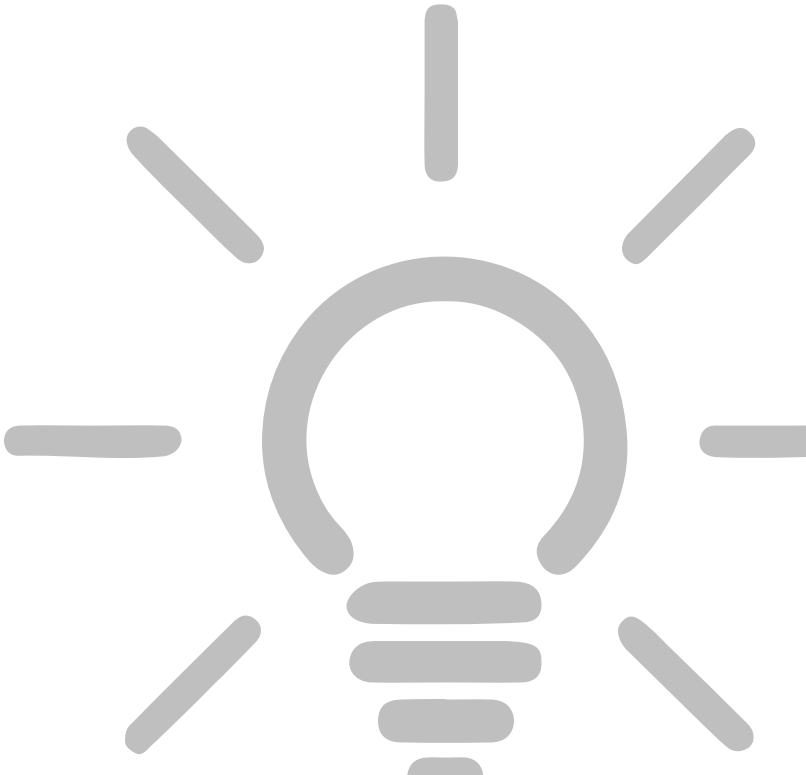
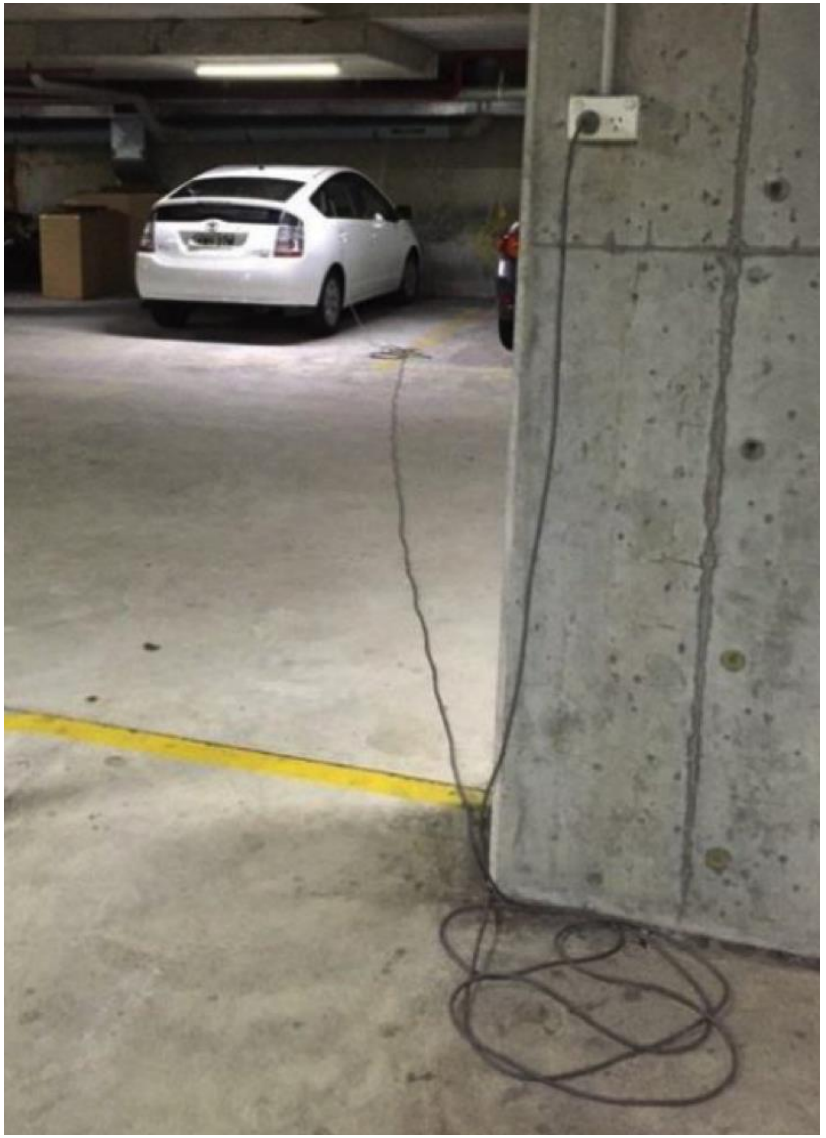


Energy theft off common power outlet by hybrid electric vehicle in 2017



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Energy theft off common power outlet by battery electric vehicle in 2023

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Approved EV charging from common area power outlet in visitor parking

An early adopter Tesla Model S driver used manual recording to reimburse strata for electricity.

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NSW government EV charging costing tool for Level 2 backbone

NSW Department of Planning, Industry and Environment

EV ready buildings costing tool

While the assumptions used in the tool are based on industry best practices and have been peer-reviewed by key industry stakeholders, it is to be used as a guide only. The actual costs will vary based on specific circumstances, some key special considerations are listed below. It is recommended that quotes are obtained from charging equipment providers to determine an accurate cost estimate for your site.

The following outputs provide a total installed charging capacity and anticipated infrastructure costs.

Installed capacity [kW]	Total chargers
389.2	51 x 7kW (AC)
	1 x 22kW (AC)

New infrastructure	
Chargers	$ 99,100
Cable trays	$ 28,400
Distribution boards	$ 45,000
Sub-mains	$ 3,000
Concrete coring	$ 265
Final circuits	$ 18,460
Ethernet	$ 7,584
New infrastructure cost	**$ 201,809**

Site and upstream works	Lower estimate	Upper estimate
Site electrical upgrades	$ 32,000	$ 75,000
Upstream upgrade cost	$ 40,000	$ 250,000
Site and upstream works costs	**$ 72,000**	**$ 325,000**
Total site estimate	**$ 273,809**	**$ 526,809**

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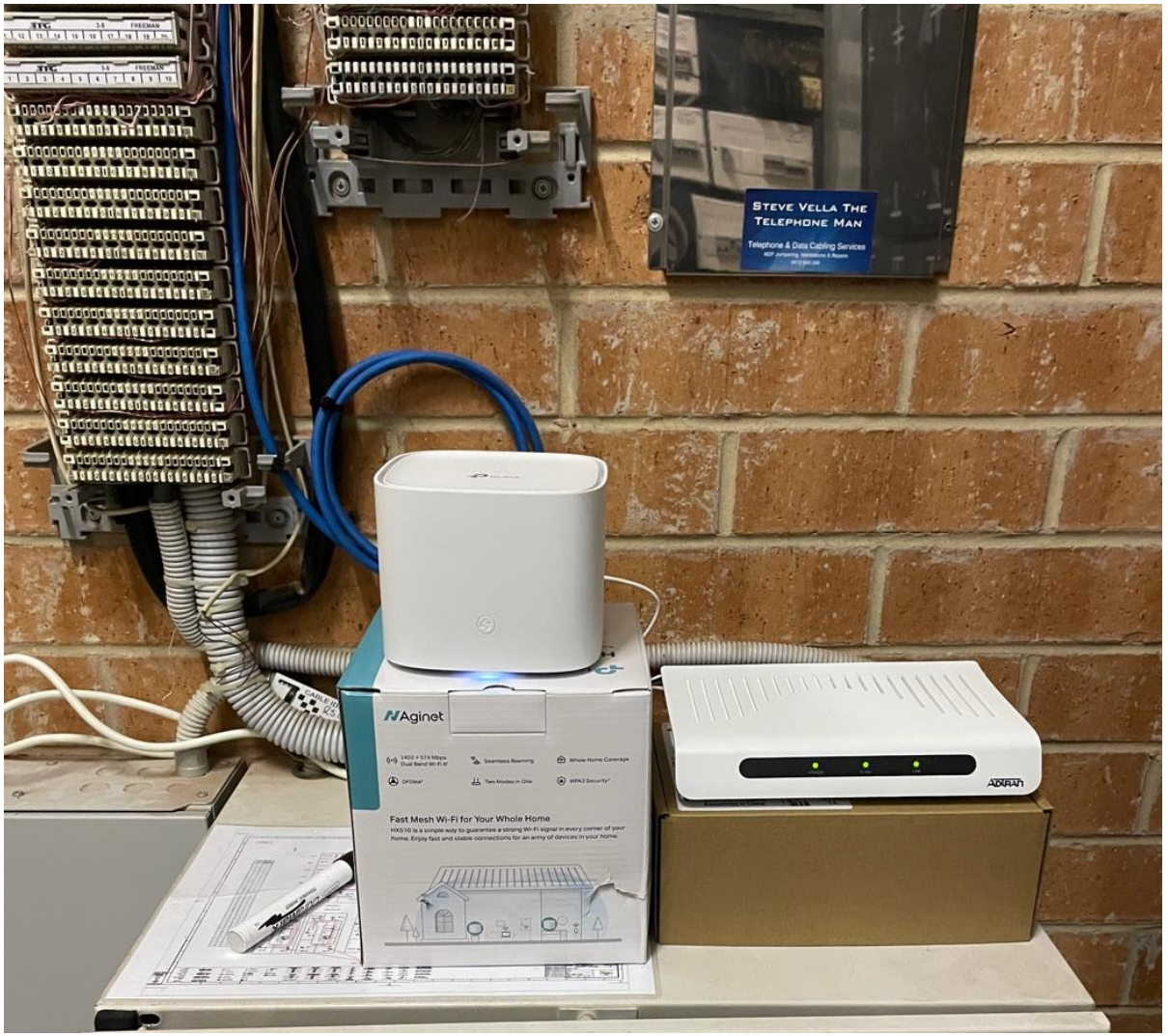
Gigacomm connects Fibre to the Basement and offers Owners Corp Wi-Fi

Gigacomm is a fast broadband provider. They offered to install a base station on the rooftop to provide fast internet. The Owners corporation requested that Gigacomm install Fibre to the Basement instead. In return for connecting the fibre to the basement equipment to the common property power the Owners Corporation was offered either $500 compensation per year or a modem/router and fast internet account for the common areas. It elected to take the modem/router and this was installed in November 2025 and covers most of 2 levels of carpark area.



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ARENA subsidizing low power EV charging in strata

https://noxenergy.com.au/apply-for-ev-charging/

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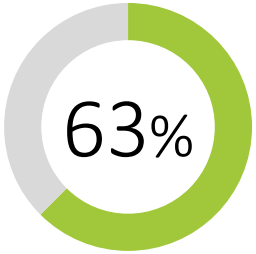
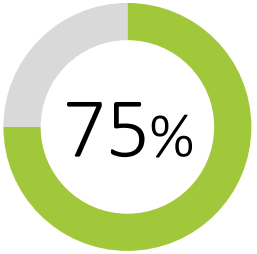
EV charging survey in a block of 40 lots

An EV charging survey was conducted at Freesia Gardens. There were 8 respondents. None of them owned an EV.



planned to buy an EV in the next 1-2 years



indicated that they would need an EV charger at their individual carspace, if they purchased an EV

Comments:

It would be good to have a shared EV charging station in the visitor carpark as we have 12 spaces there.

Due to the fragile nature of these types of batteries, I think significant fire retardant must be installed and strict limits set on their usage. I have a very low expectation that this will be done since people in the building can't even seem to figure out putting things in the recycle bin!

E-bikes:

1 respondent already had an e-bike and confirmed that they are currently charging the battery in their own apartment (there is no by-law to stop charging of e-bikes in apartments at Freesia Gardens). The e-bike owner indicated that they would like to have e-bike charging near the bike racks in the building.

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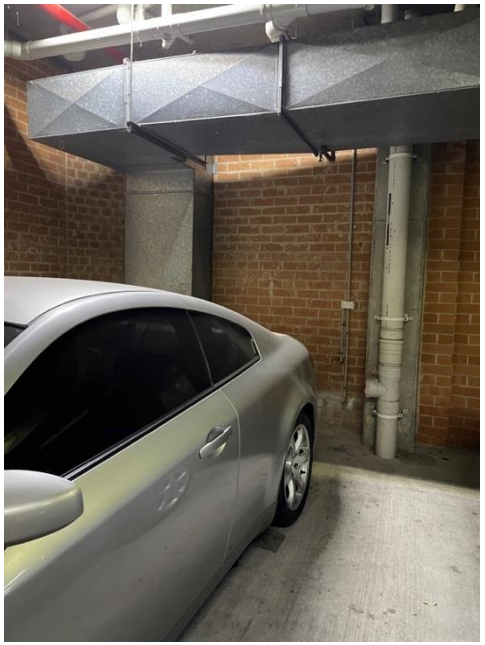
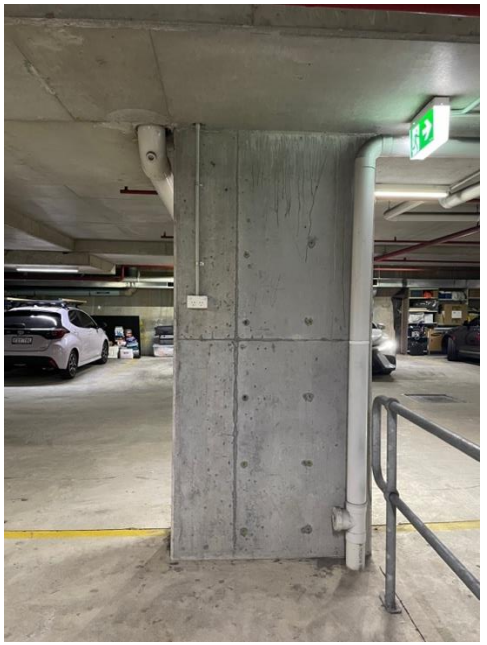
Freesia Gardens had 4 existing common area power outlets in carpark

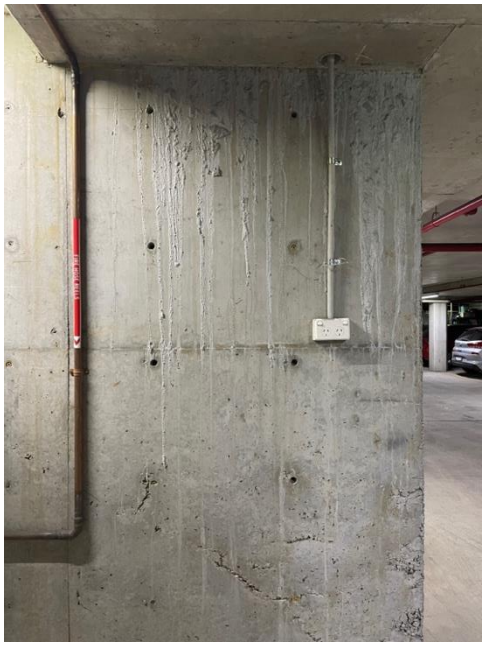


Behind Shared Visitor Space on Basement 1 which had previously been used for charging a Tesla Model S with the EV driver manually recording kWh and paying strata

Next to private EV owner space on Basement 1



Power outlet on B2 which had been subject to energy theft by both hybrid and battery EV's using extension leads



Power outlet on B2

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Design for QR code activated low power EV chargepoints

ARENA's Driving the Nation program required a minimum of 5 QR code activated power outlets to be installed.

By installing a new QR code activated power outlet on a brick wall between 2 visitor spaces, it opened the possibility for both visitor spaces to charge using the new chargepoint.

- **B1 Visitor Parking:** 2 QR code activated power outlets to share same circuit and do time-share load balancing
- **B1 Resident Parking:** 1 QR code activated power outlet to be on its own 16 amp circuit
- **B2 Resident Parking:** 2 QR code activated power outlets to be on a third circuit and eventually do time share load balancing

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Checked that product was tested to Australian Standards

SAA APPROVALS

Certificate of Conformity/Approval

Certificate No.: **SAA-240273-EA**

Certificate Holder: Nox Energy Pty Ltd
401/541 Kent Street
Sydney NSW 2000
Australia

Regulatory Definition: Socket-Outlet

Product Description: Single-phase Surface-type Switched socket Outlet
(Socket-outlet with Earthing-contact, electronic switching)

Standard/s: AS/NZS 3112:2017 Inc A1
AS/NZS 3100:2022
AS 60669.2.1:2020
AS/NZS 60669.1:2013

Condition/s: Nil

Approval Marks: RCM (In accordance with AS/NZS 4417 and EESS requirements)
and
SAA-240273-EA (In accordance with NSW legislative requirements)

Initial Issue Date: 18 June 2024

Expiry Date: 18 June 2029

R A Nillo

For and on Behalf of
SAA Approvals Pty Ltd

This certificate is issued by SAA Approvals Pty Ltd in accordance with the SAA Approvals Electrical Product Safety Certification Scheme accredited by JAS-ANZ under AS/NZS ISO/IEC 17065, RECS accreditation under the Queensland Government legislative requirements and RFAS accreditation under the NSW Government legislative requirements. SAA certifies the product nominated in this certificate complies with standard/s listed above in accordance with the schemes herein. For SAA Contact Details and Certificate verification, go to: www.saaapprovals.com.au

JAS-ANZ

www.jas-anz.org/register

SAA Approvals CERTIFIED

Issued: 18-06-24 240273
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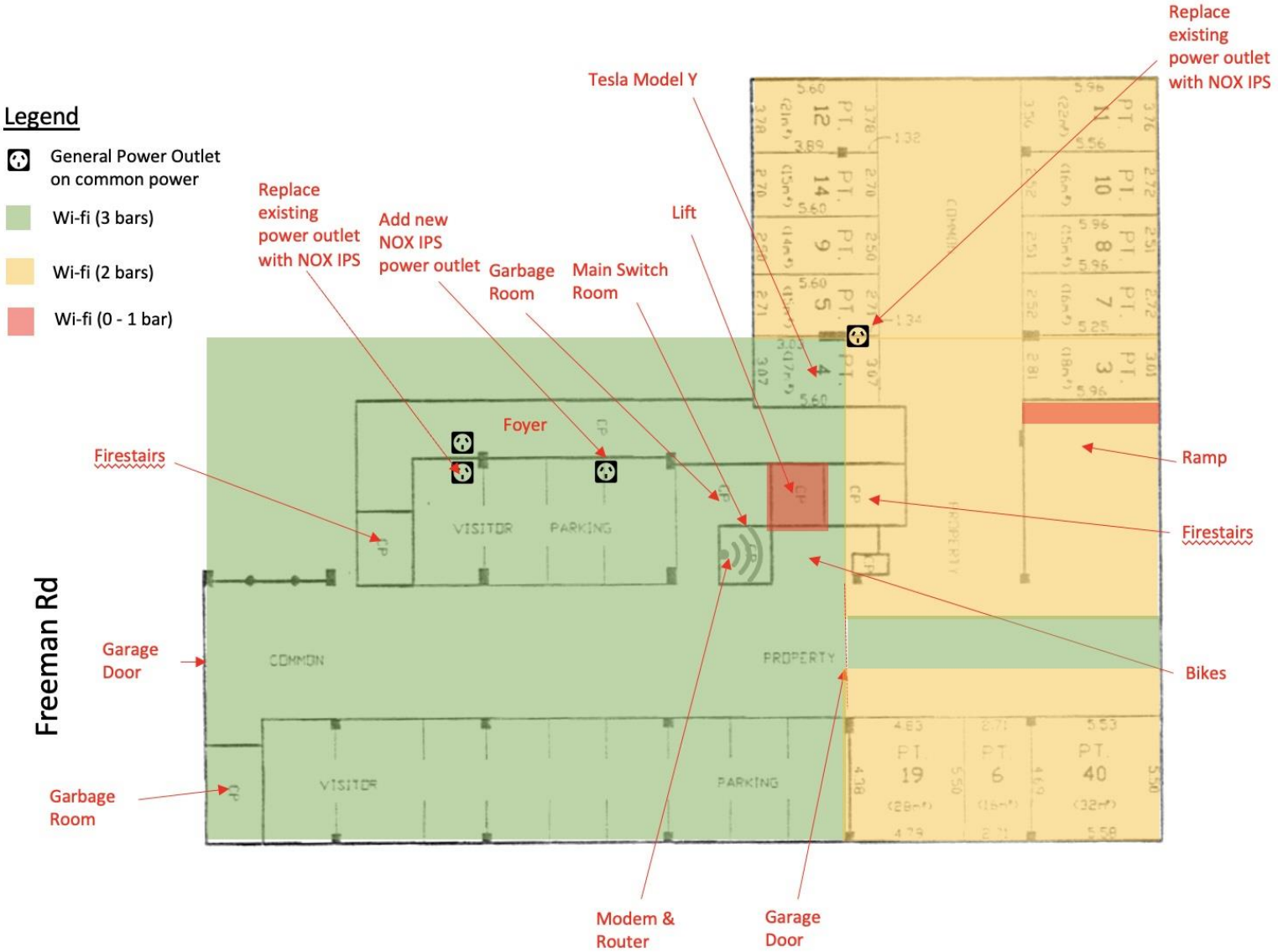
Basement 1 – Scope of Works



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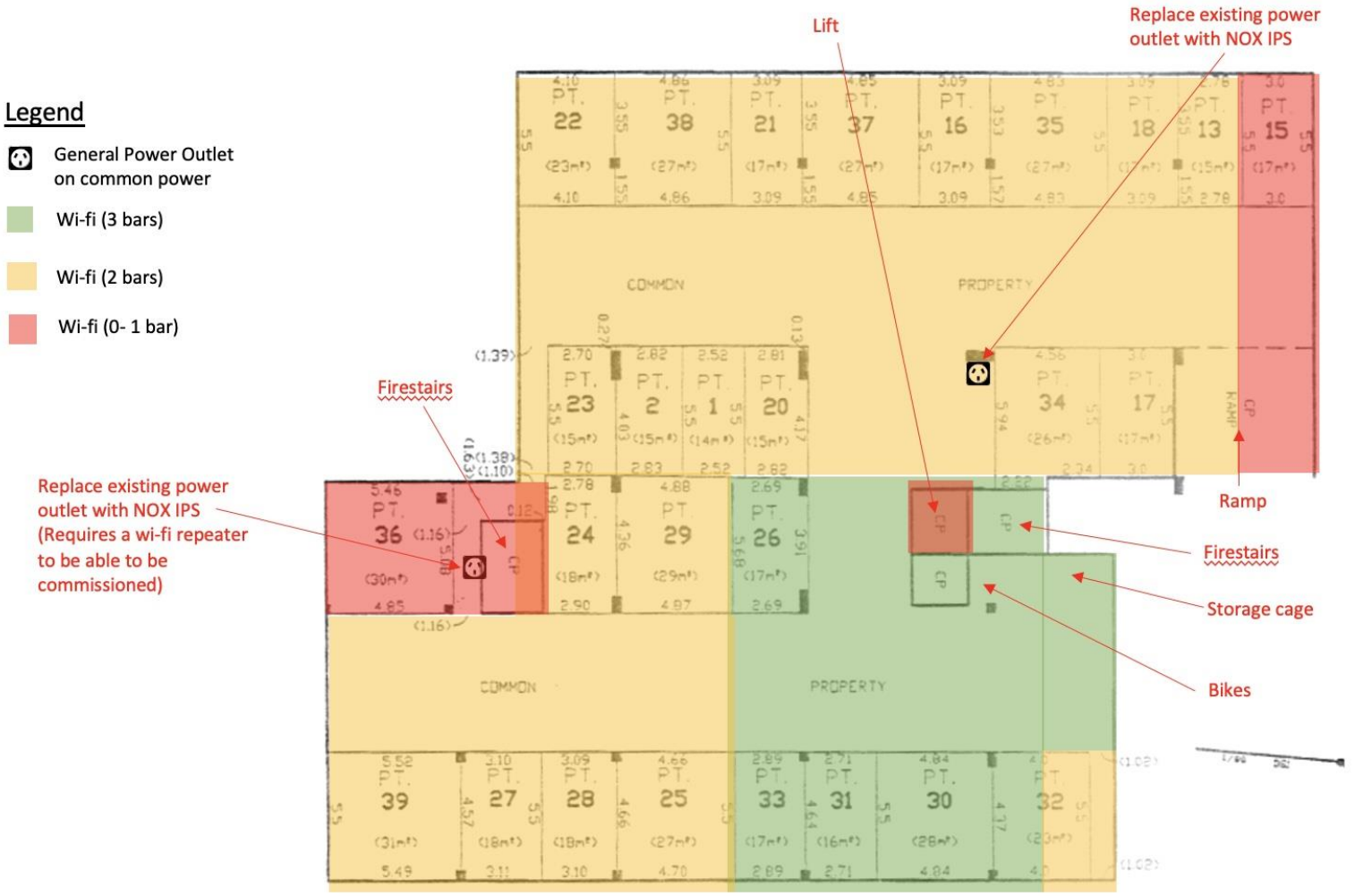
Basement 2 – Scope of Works



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Owners Corporation signs agreement with NOX Energy

NOX Energy is the provider of the QR code activated low power power outlets which they call “Intelligent Power Socket” or IPS.

The Strata Manager signed a non-exclusive Chargepoint Operator agreement with NOX Energy on behalf of the Owners Corporation via online document signing.

The existing 5 power outlets installed are governed by the Chargepoint Operator Agreement.

Individual lot owners have the right to contact NOX Energy and on a user pays basis get another IPS installed at their private lot carspace, governed by an End-User License Agreement (EULA).

NOX Energy engaged Future Services as a licensed electrical contractor to install the low power outlets.

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Setting an energy rate for charging

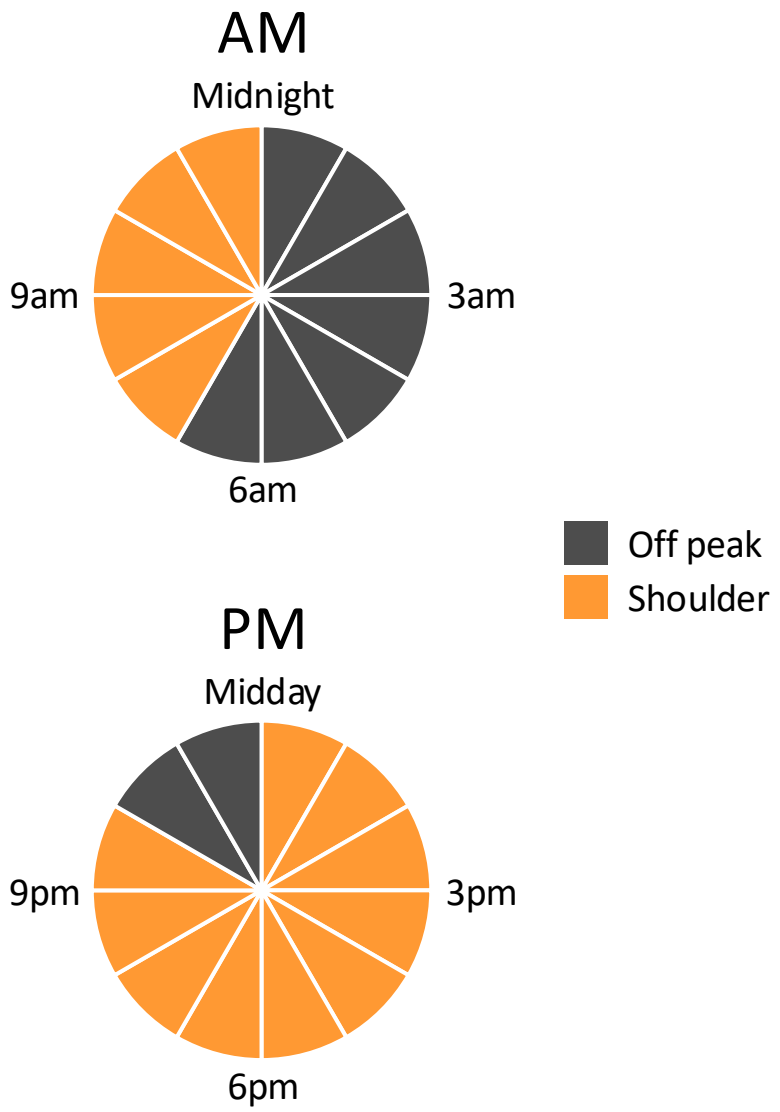
Freesia Gardens are on the following rates with Energy Australia in Ausgrid Areas with a 34% discount:

- **Peak** $0.7488690 per kWh * 0.66 = $0.4942535 per kWh
- **Shoulder** $0.4543770 per kWh * 0.66 = $0.2998888 per kWh
- **Off peak** $0.3350490 per kWh * 0.66 = $0.2211323 per kWh

However, it is a seasonal tariff structure which means that in Spring and Autumn there are no 'peak rates' at all.

For this reason, a weighted average of the rates based upon common area interval data was decided to be set for all EV charging throughout the year at: **$0.2968/kWh inc GST.**

NOX Energy will take a 0.05c / kWh commission on each charging session.



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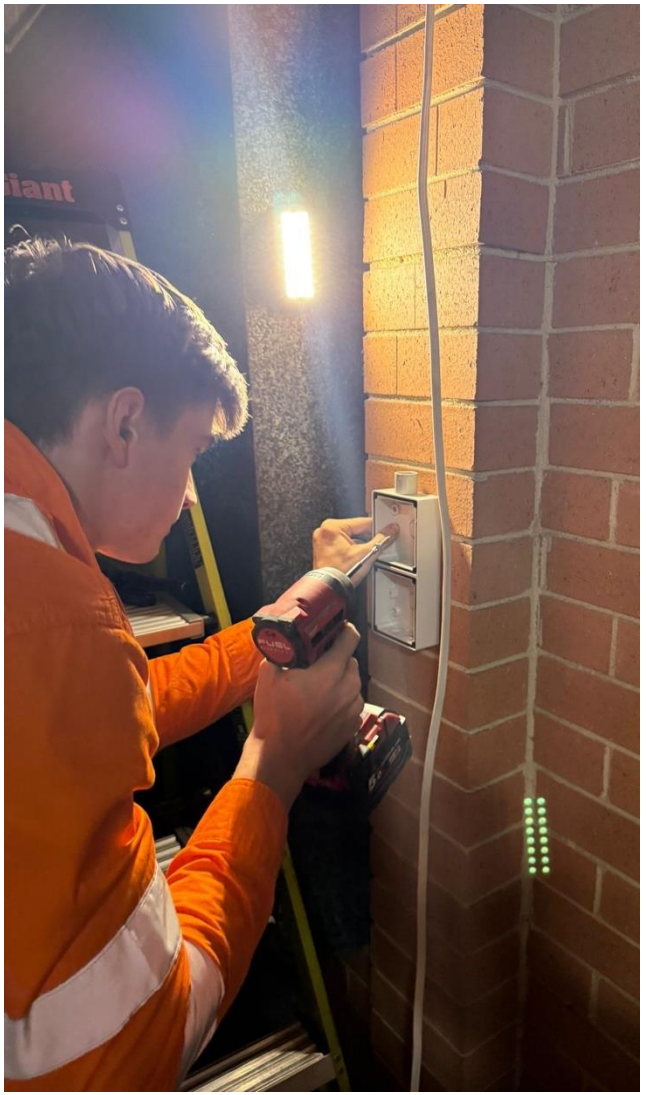
Installation day

- Provide name of Wi-Fi network and password to NOX Energy to assist with commissioning the Intelligent Power Sockets on the house wi-fi network provided by Gigacomm
- Provide perimeter keys/fire escape keys to assist NOX Energy/Future Services with access to the building
- Future Services needed to determine the circuits which the 4 existing power outlets were on as there was no single line diagram available and the house sub-board wasn't marked properly.
- Replacement of 4 existing power outlets
- New conduit and install of a 5th power outlet
- Labelling of each new power outlet with the circuit that it was connected to
- Installation time: ~3 hours for Future Services team
- Test operation of a chargepoint by scanning the QR code on the NOX Energy device and downloading an app and registering on the app
- Take existing EV owner down to carpark to show the new system



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Post-installation photos

Replaced power outlet behind Shared Visitor Space on Basement 1 which can be used by two different carspaces. Light around the QR code indicates ‘charging in progress’

Newly installed Intelligent Power Socket which can be used by two different shared visitor carspaces

Next to private EV owner space on Basement 1 with existing Tesla Model Y. Model Y owner needs to purchase a new 15-16 amp charging cable to use it

Power outlet on B2 which had been subject to energy theft by both hybrid and battery EV’s using extension leads. Green light on unit indicates Wi-Fi connected

Power outlet on B2 is waiting a Wi-FI repeater to be installed, so that it can be commissioned

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Conclusion

Low power QR code activated Level 1 EV charging (10amps-16amps) was **substantially lower cost** than installing a Level 2 EV charging backbone (32 amps).

NSW government online EV charging calculator estimated the cost of a Level 2 EV charging backbone servicing every space to be $201,809 and this could increase to between $273k and $526k if site and upstream electrical works needed to be conducted.

The initial install of **5 QR code activated chargepoints** cost under $3,000 with ARENA subsidy and has enabled 8 carspaces in a block of 40.

This includes 4 shared visitor carparking spaces which could have bollards and booking system installed at a later point when more electric vehicles arrive at the building.

The cost to charge for the Tesla Model Y owner to charge at the nearest Supercharger is 60-80 cents per kWh. The cost to charge slowly inside the building is 50%-63% cheaper than charging at the nearest Tesla Supercharger.

It is **more convenient** to charge inside the building than at the nearest Tesla Supercharger as you don't have to move your car to avoid idle fees of 0.50c per minute if you leave your car there after charging finishes.

Further information

Brent Clark

CEO, Wattblock

Ph: 0414 900 515

brent.clark@wattblock.com.au

https://www.wattblock.com/

https://www.youtube.com/c/WattblockAu/videos

https://www.wattblock.com/blog/incentives-rebates-from-government-for-strata-sustainability-in-nsw-may-2023

https://www.wattblock.com/ev-charging-training.html

Electrify Strata

Electrify Strata is a WhatsApp community of over 250 strata electrification enthusiasts helping each other to install solar, batteries, EV charging, heat pumps and more. Scan the QR code to join the WhatsApp group.

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Press

realestate.com.au

Brent Clark, CEO and founder of Sydney-based Wattblock, which creates energy reports for strata buildings, said a growing number of developers are looking to meet buyer demand for earth-friendly, sustainable apartments, particularly in Sydney and Melbourne.

That has led to apartment developments such as Genesis and The Burcham (both in Sydney) offering solar-powered electric vehicle charging in their basement car parks.

9th July 2021

The Guardian

Brent Clark is the chief executive of Wattblock, a consultancy that works with strata committees to improve the sustainability of apartment blocks. He says strata management contributes to the inertia on electrification.

“Think of strata as the fourth tier of government,” Clark says. “You’ve got federal, state, local and then strata.

Residents of older buildings face the biggest challenges, Clark says.

“The most common is the red- or white-brick walk-up built in the 60s or 70s,” he says. “Sometimes you’ll only have as little as 100 amps from the nearest substation for the whole building.”

As each building will have different needs, there is no one-size-fits-all solution but Clark says older buildings will likely be forced to at least double or triple their capacity to meet the future needs of their tenants.

“We had one of our customers, they wanted to add another 100 amps into their building. They were looking at paying $100k.”

8th May 2022

The Sydney Morning Herald

Brent Clark of Wattblock, which provides advice to strata committees and councils, says that while there are 31 EV models available today, there’ll be 58 by the end of 2022. Most buildings will start with charging in communal car parks, via booking or remote bollard-lowering systems, and then may convert to individual spaces as more money is invested.

31st December 2021

ecogeneration

Brent Clark, chief executive officer and founder of Wattblock, says for people living in apartments, who face more barriers to charging EVs than their counterparts with double garages, interest in EVs is rising.

25th November 2021

WATTBLOCK