

21 September 2021

# Solar for Strata Webinar



## Agenda

- 5:30 Welcome: *Sonya Williams, Renewable Energy Innovation Officer, Inner West Council*
- 5:35 Go Solar for Strata Round 2 program overview: *Brent Clark, CEO, Wattblock*
- 6:15 Q&A
- 6:30 Close

[www.innerwest.nsw.gov.au/SolarForStrata](http://www.innerwest.nsw.gov.au/SolarForStrata)





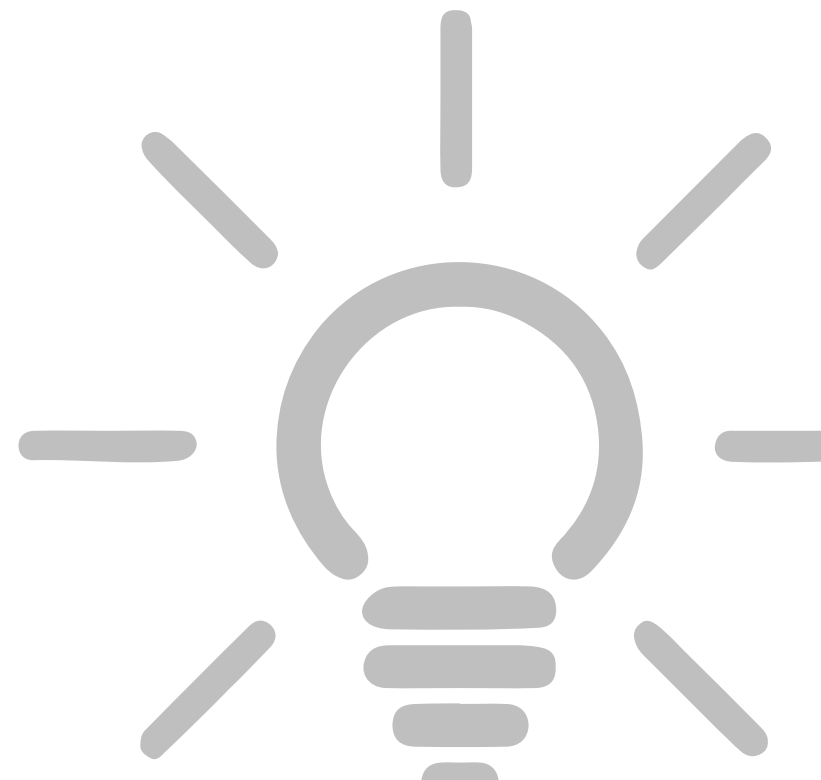
INNER WEST

# Go Solar for Strata

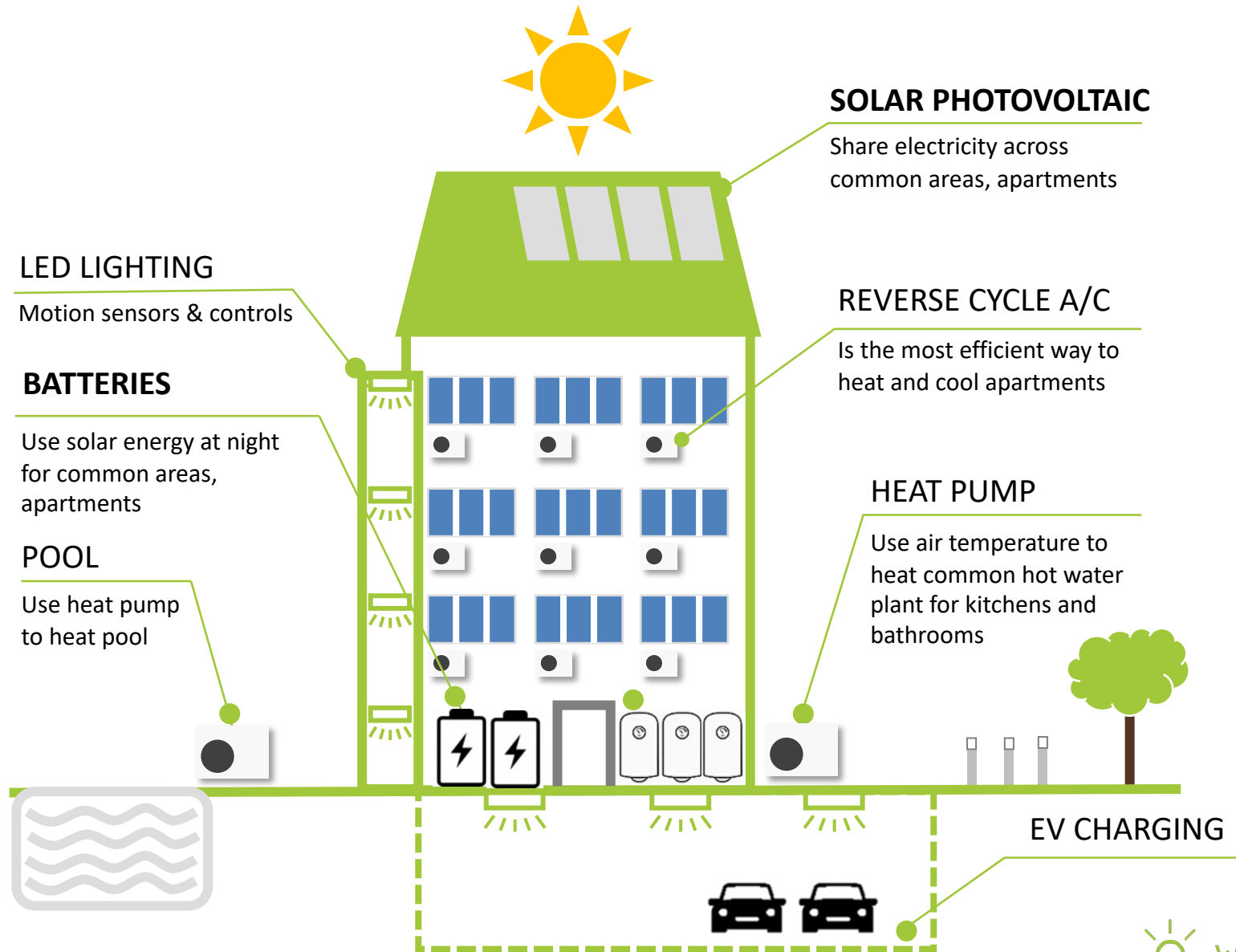


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1. Sustainability in apartment buildings
2. Why put solar on apartment buildings?
3. Barriers for Owners Corporations
4. The opportunity
5. Solar models
6. Payment models
7. Federal rebates
8. Other considerations
9. Case studies
10. Sustainability Infrastructure Amendment
11. Strata committee archetypes
12. Joining Inner West Go Solar for Strata



# Sustainability in Apartment Buildings



# Why put solar on apartment buildings?



Clean electricity



Lower bills



Increased energy  
security



Low cost generation



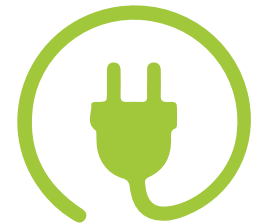
Reduced fossil fuel  
reliance



Reduced CO2  
emissions



Reduce network  
demand



Reduce distribution  
losses

# Barriers to Solar for Owners Corporations

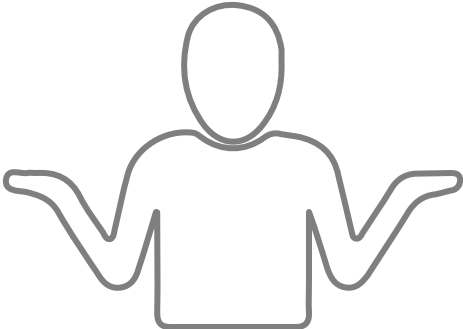
**Split incentives**



**Communication**



**Apathy**



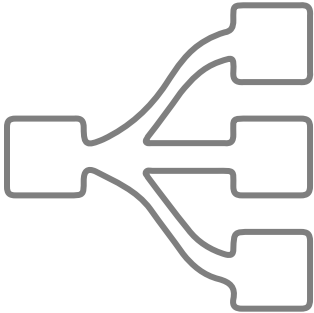
**Lack of information**



**Access to finance**



**Embedded networks**



# The Opportunity

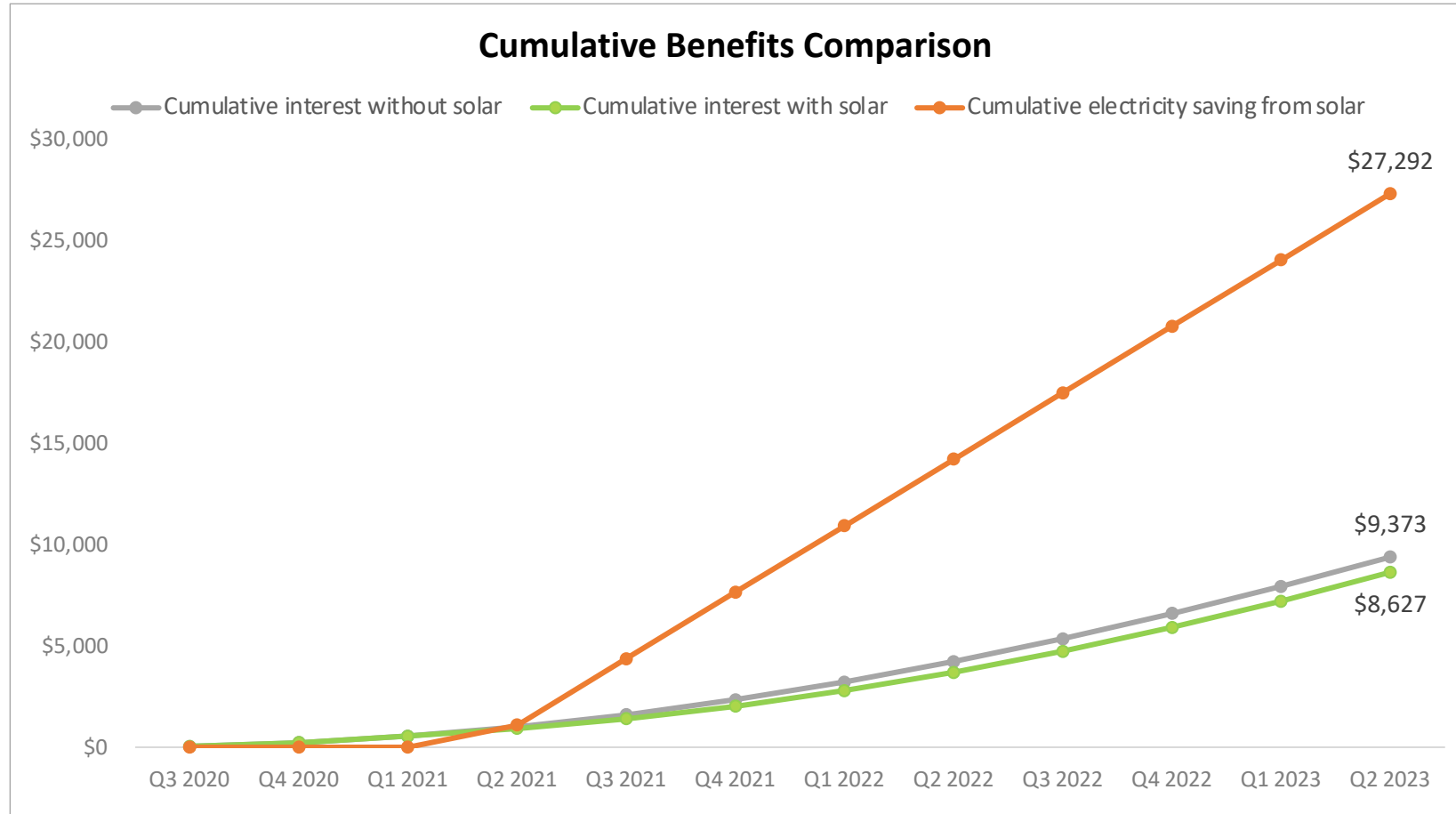
- 2.2 million apartments
- 15% of households
- 62% of Australian apartments are in buildings under 4 storeys high
- A third of new dwellings are apartment buildings



80A Victoria Rd Marrickville. ~20kW solar system on apartment block

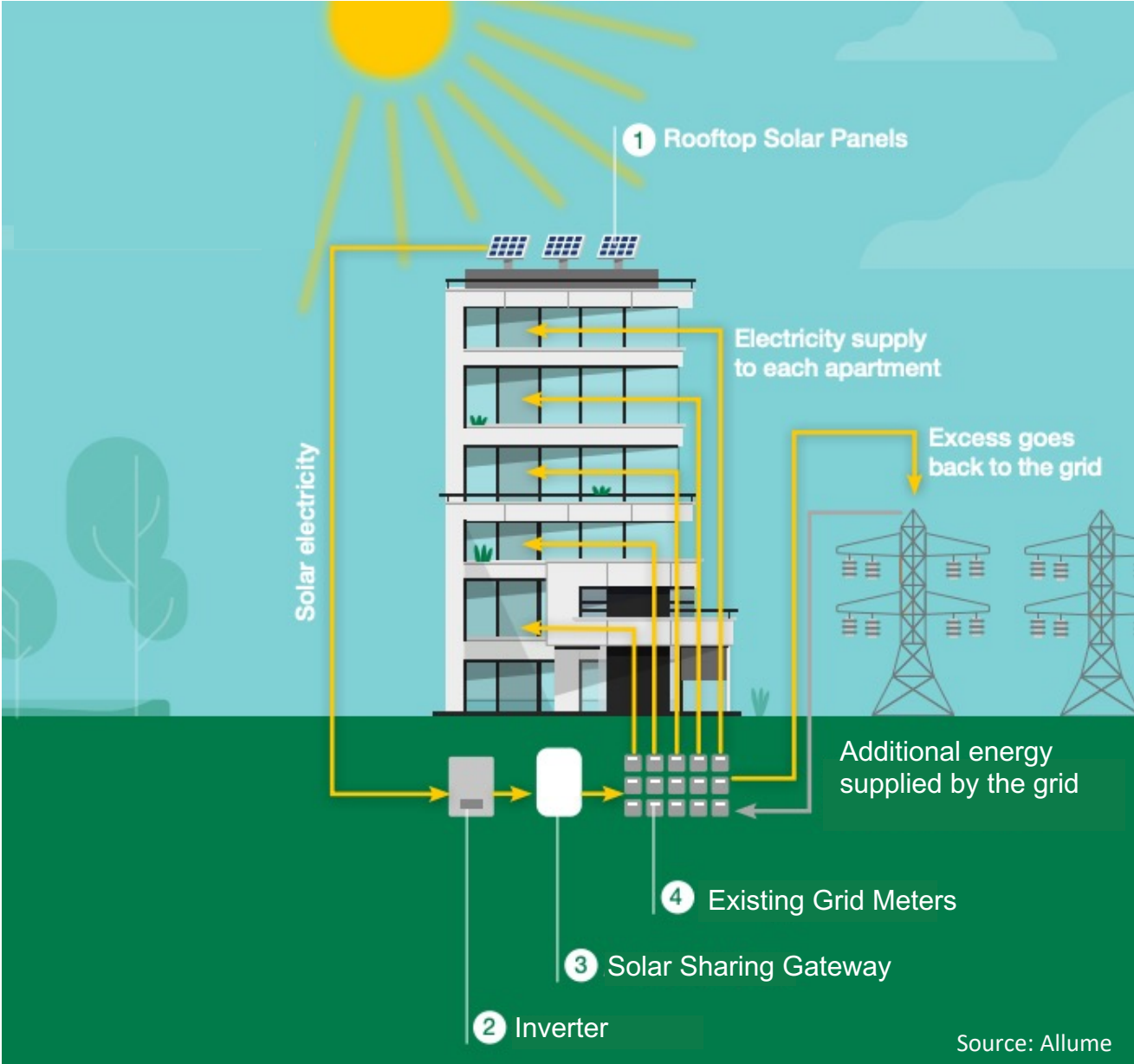
# Solar savings are better than cash at bank

- Very little interest is generated with capital works fund receiving 0.45% interest p.a. The solar savings for a strata scheme can be the equivalent of receiving 14% interest p.a.





# How can solar work in an apartment block?



Source: Allume

# Units of Measurement

## Kilowatt (kW)



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A measure of instantaneous **power**.

The size of a solar system is measured in kilowatts. E.g. a **25kW solar system**.

Solar systems make Direct Current (DC) which needs to be transformed into Alternating Current (AC) which means there is some loss of power in conversion

## Kilowatt hour (kWh)



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A measure of **energy**.

- This is what you get billed by your energy retailer for electricity you buy from the grid.
- This is the measure of energy which is stored in a battery e.g. a **14kWh Tesla Powerwall**

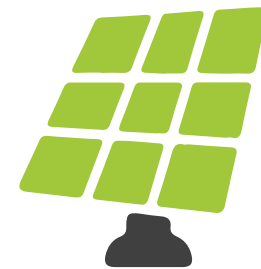
# Rules of thumb in solar

## The relationship between solar system size in kW and energy produced in kWh

- A 25kW solar system might produce 100kWh of total energy over the course of a day.
- **Rule of thumb** is 4 times the energy in kWh per day is created as the size of the system in kW.

## The relationship between solar system size in kW and number of solar panels

- Each solar panel is roughly 2m x 1m
- Panels of similar size may produce more or less power e.g. 330W vs 450W per panel
- The number of panels to make up 1kW of solar system may be 3 panels
- The highest performance panels are the most expensive e.g. 500W to 600W panels coming.



# Rules of thumb in solar

The average **cost per watt** of solar installed on a sample of Australia wide strata buildings after taking off the small-scale technology certificate rebate and including lifting costs is **\$1.40 inc GST per watt**.

The solar panels themselves have dropped by a factor of 5 over 10 years, making the labour costs involved in installing a larger proportion of the overall installed system cost in 2021-2022.

Inner West Strata Building from Go Solar for Strata Round 1	Average Cost Per Watt Solar Install Estimate (after STC rebate inc GST)
Low Rise - 1 to 3 Levels	\$1.23
Medium Rise – 4 to 8 Levels	\$1.28
High Rise – 9 Levels and above	\$1.42

Recap

The Band



AC ⚡ DC

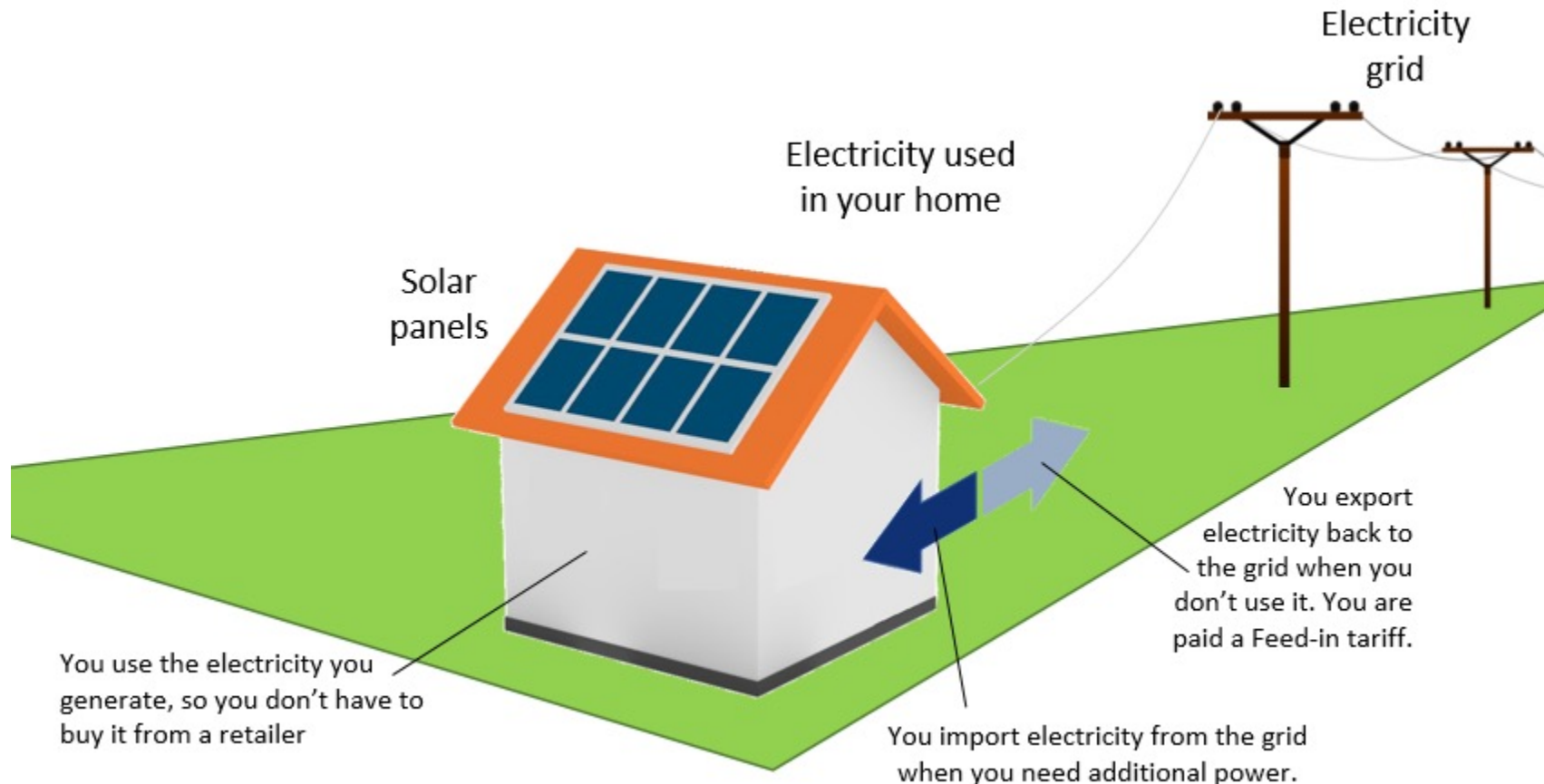
Solar



DC ⚡ AC

# What is feed-in?

Excess solar power generated which cannot be used onsite as there is not enough load, is fed back into the grid. Your energy retailer pays you in cents per kWh e.g. between 6 and 21c depending on your feed-in tariff. Feed-in IS NOT a government rebate. If feed-in is taxed, buy a battery instead!

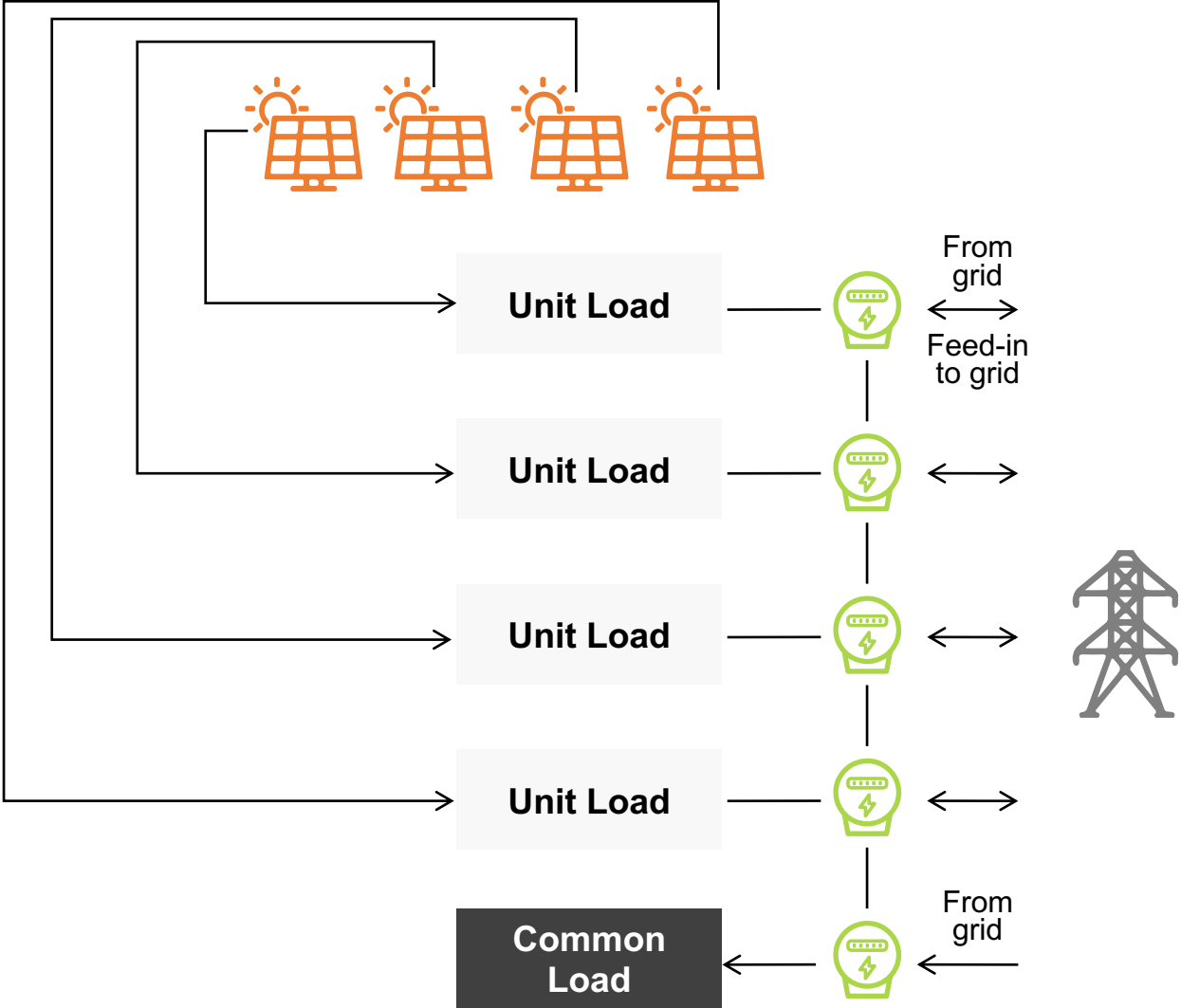




~1kW individual solar system, 37 Darling St Balmain East

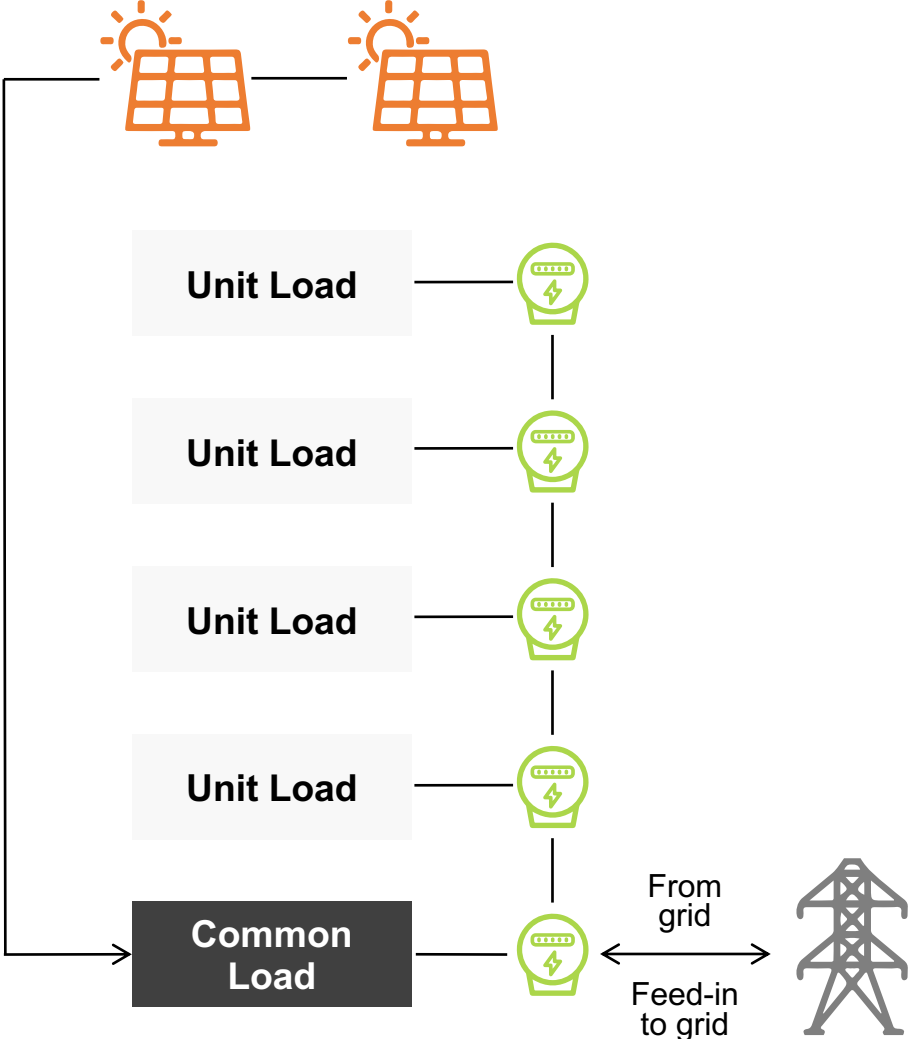
# Four different solar models

# 1) Individual solar systems for individual units





## 2) Solar system for common property only



## Revolution Apartments, Marrickville – 80kW of solar

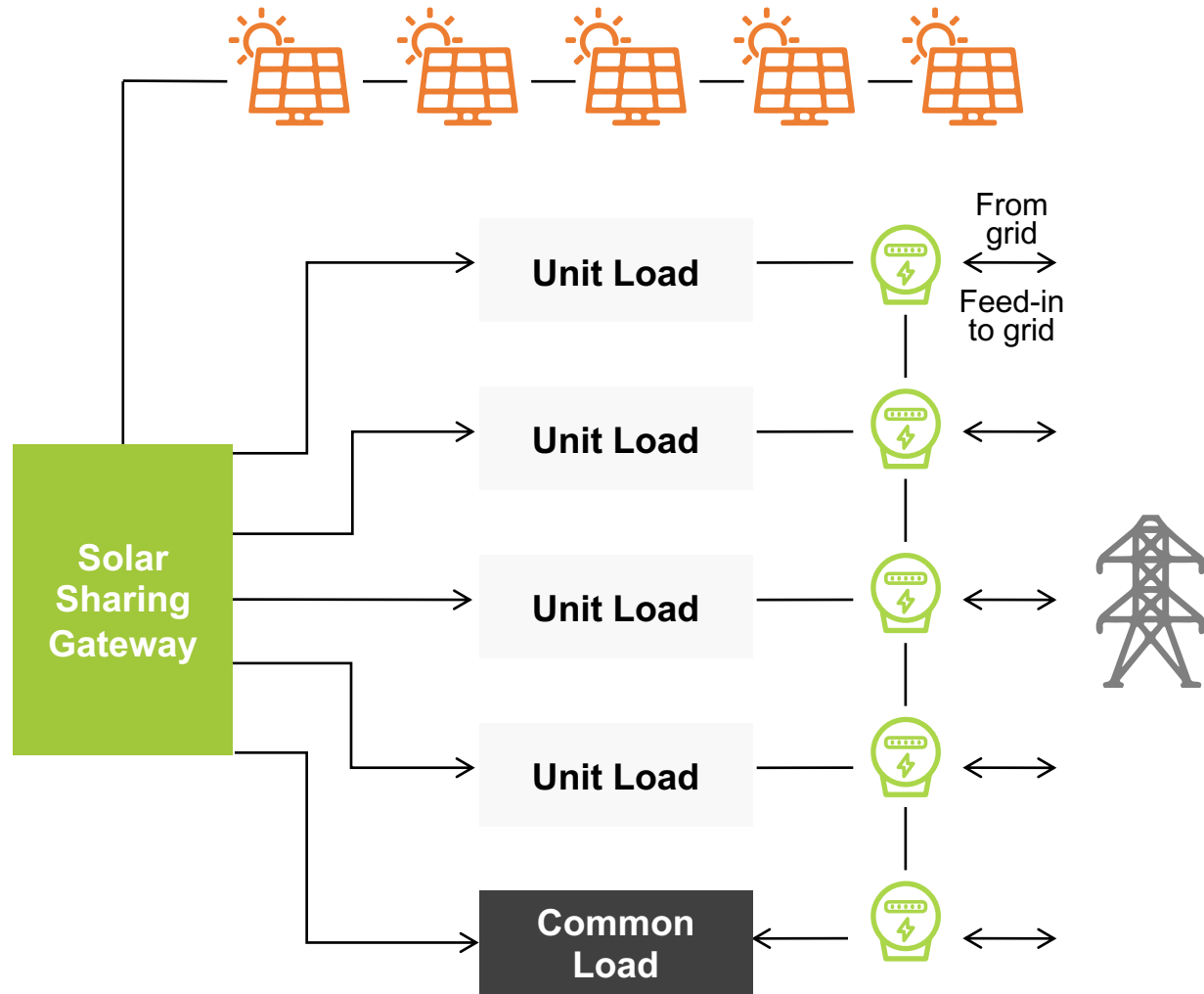
The largest solar system on a residential apartment complex in Inner West is in Marrickville. This was installed by the developer at the time that the building was constructed.



359 Illawarra Road Marrickville

- Estimated Cost \$70k
- Estimated Payback 5.5 years

### 3) Solar for units & common areas via solar sharing gateway



# Solar Sharing Gateway – 13-19 Warren St Ryde

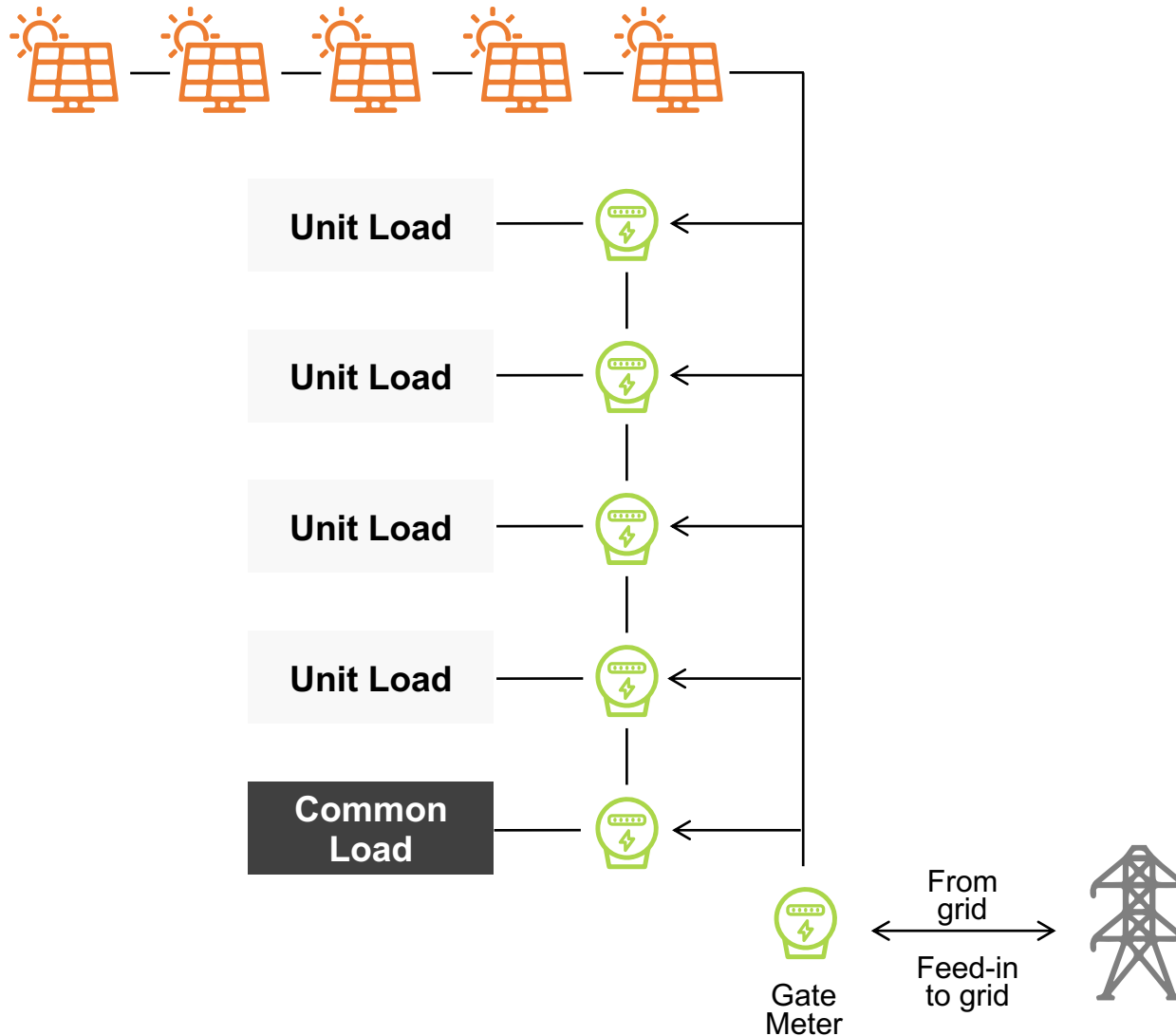


13-19 Warren St Ryde has two inverters and two solar sharing gateways for 17 apartments. Each solar sharing gateway has maximum of 15 apartment connections.



25kW solar system sharing into apartments.

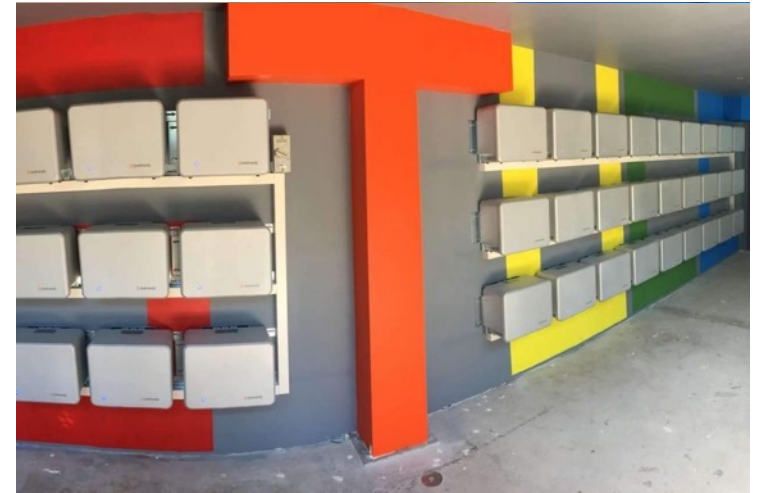
## 4) Solar for units & common areas via embedded network



# Embedded network solar – Sydney Uni Housing, Newtown

**Stucco** was the first multi-tenant apartment building to install solar and batteries on an embedded electrical network in Australia in 2015.

The project cost ~\$130,000 and payback is estimated to occur within 7 years (2022).



- Embedded electrical network
- 30kW solar (114 panels)
- 42kWh batteries (36 batteries)

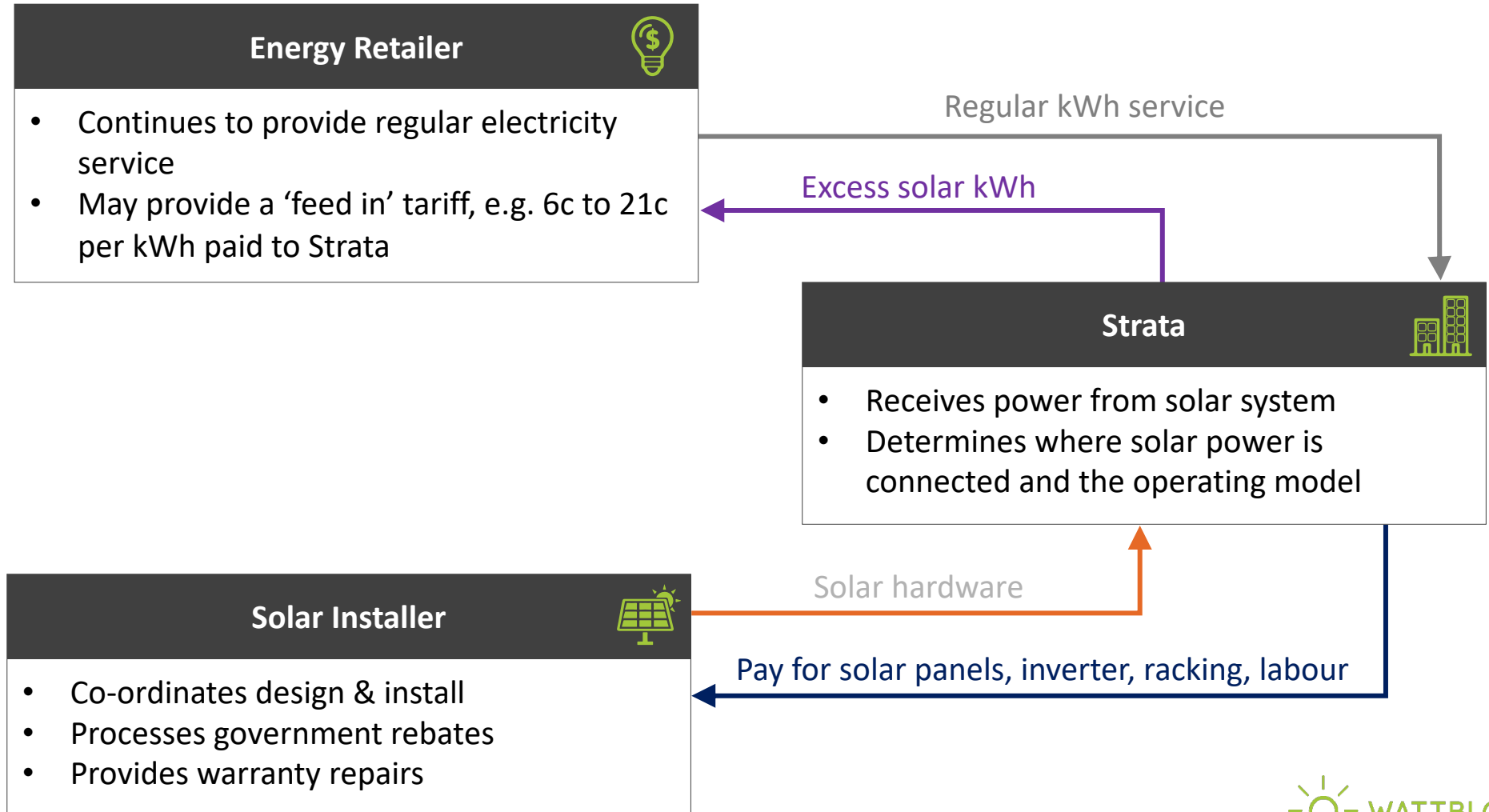


# Two different payment models

28 Gower St Summer Hill, 15kW solar on apartment block

# Own solar outright

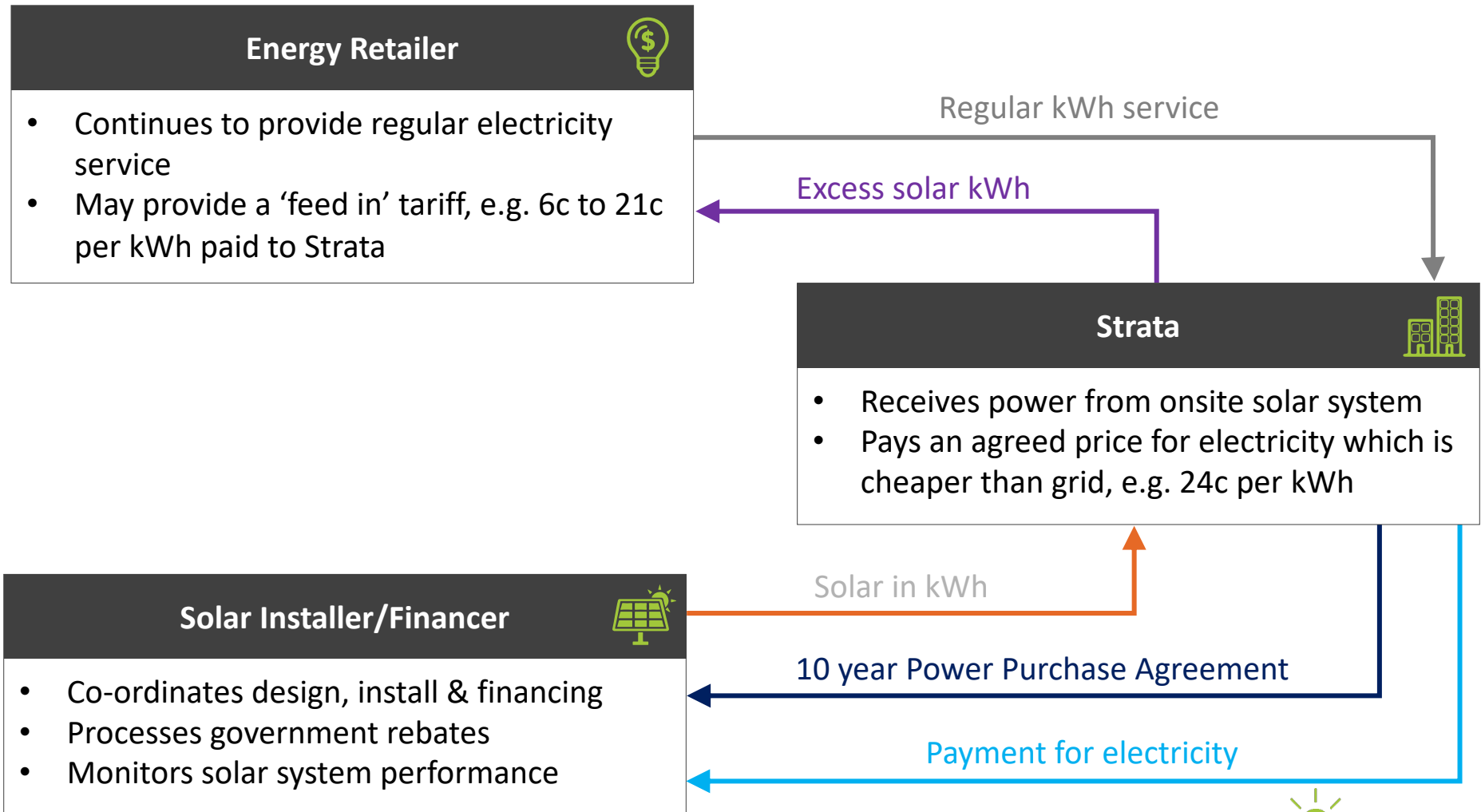
Usually the best way for a body corporate to purchase a solar system is to purchase it outright on a capital expenditure or **capex** model. This gives the maximum amount of control to the strata.





# What is a power purchase agreement (PPA)?

Solar finance or leasing is involved. Strata doesn't initially own the solar system. \$0 paid upfront.



# What are the federal government rebates?

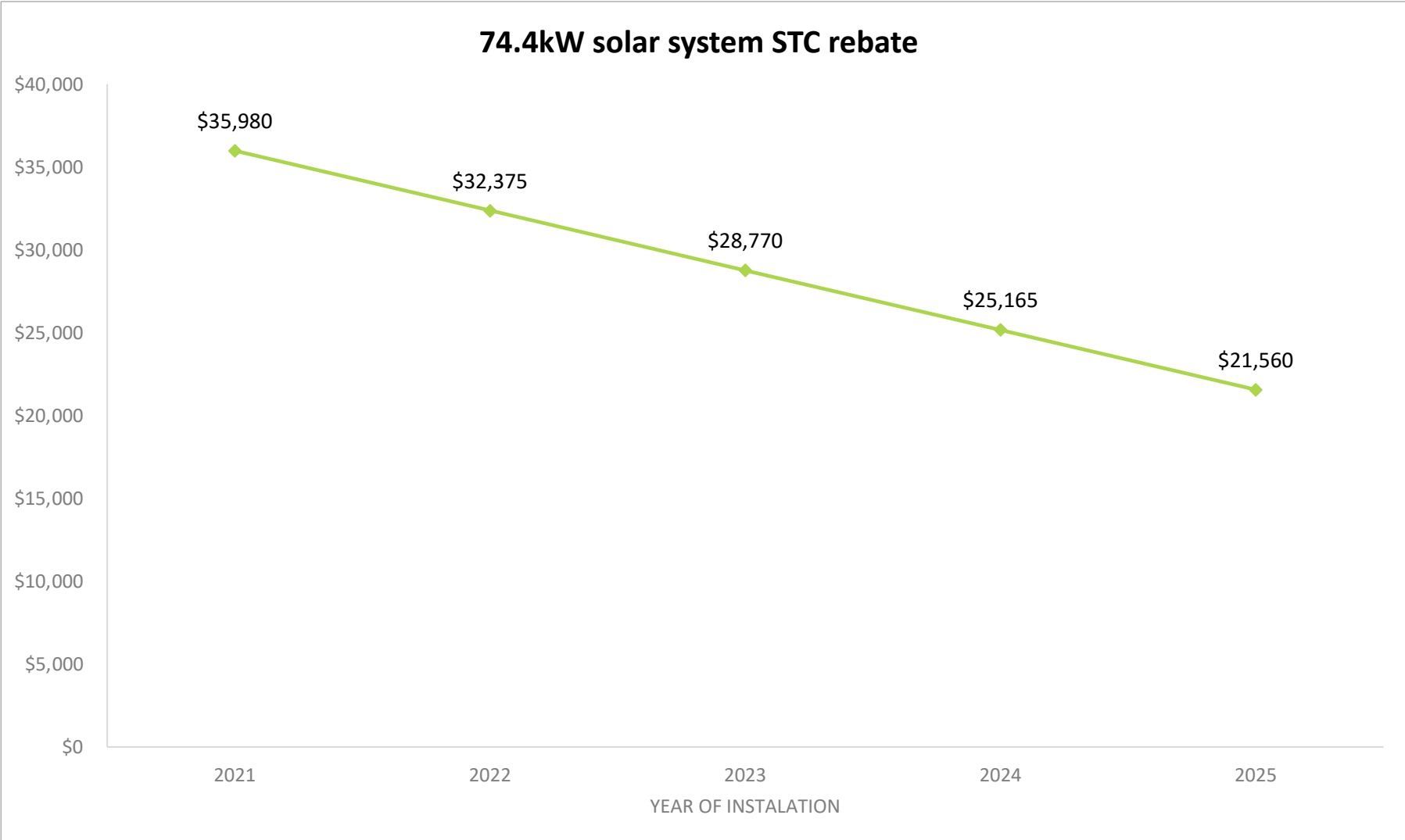
## Small-scale Technology Certificates (STC's)

- Applies to solar systems under 100kW in size
- Depends on size of system, location & installer
- Included in quoted capex price to customer from Clean Energy Council accredited solar installer
- ~\$3,300 on a 6.6kW solar system

## Large Scale Generation Certificate (LGC's)

- Applies to solar systems over 100kW in size
- Full price capex price paid upfront on system
- Rebate is paid out on a schedule over 10 years
- Makes installing solar systems over 200kW attractive

# Install solar sooner to maximize rebates



\*Assumed \$35 / STC

# Waterproofing

- Solar panel lifespan is 25 years which is longer than the lifespan of typical rooftop waterproofing
- Below is an example of a three layer waterproofing solution which cost ~\$100k

**Before**



**After**



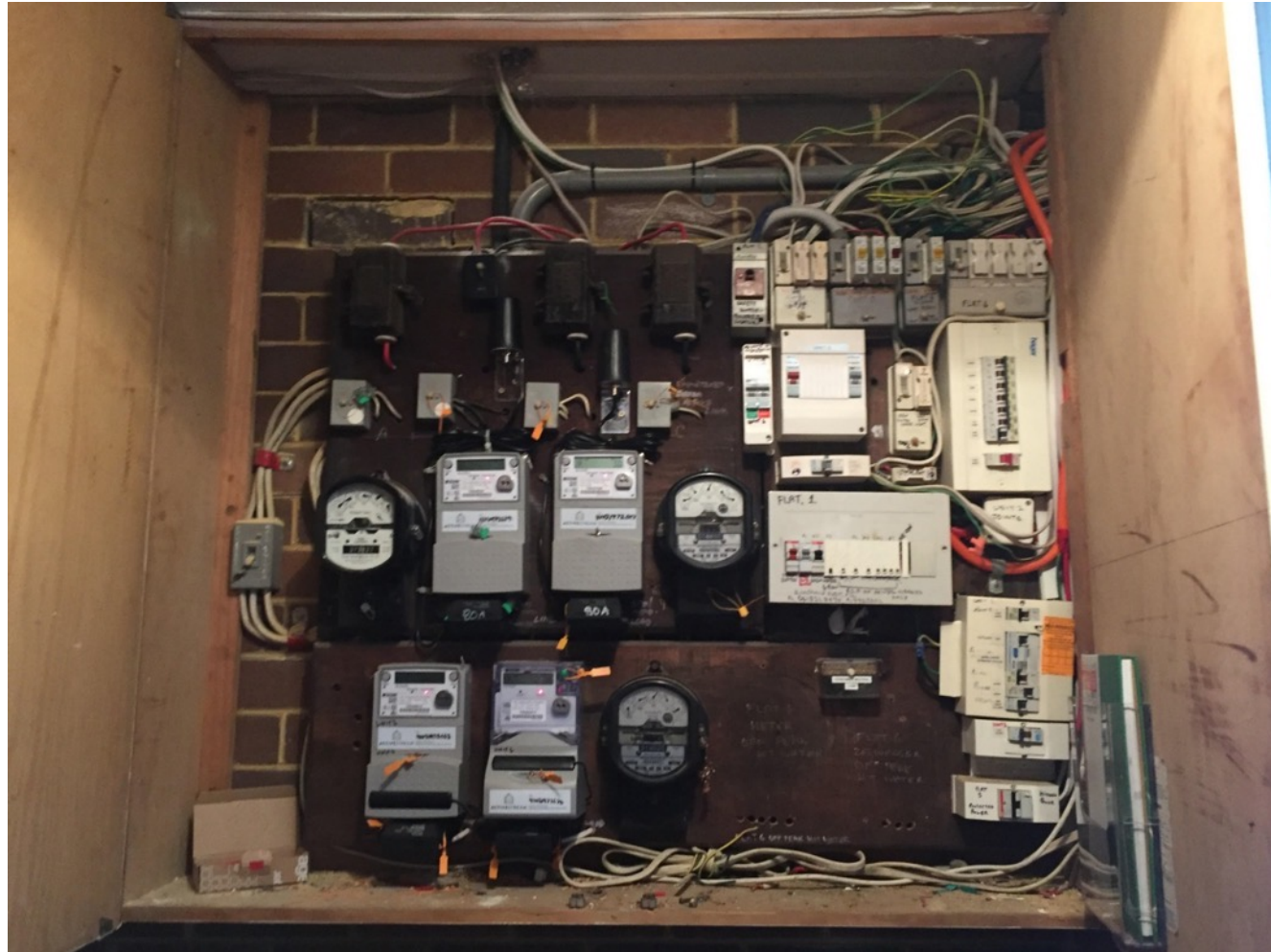
# Ballast vs Anchoring of Solar System

- It's possible to ballast mount the racking for a solar system, using concrete blocks
- Benefit is that you do not have to penetrate waterproofing or the slab but it costs far more than anchoring the racking into the slab. For example, one third more for the same size solar system



# Switchboard and meterboard upgrades

- AS3000 is the Australian Standard. The following meterboard/switchboard is NOT compliant.



# Getting panels to the roof

- If you do not have stairway access to the roof level, then additional cost is involved in getting the panels to the roof. It may need local council approval to close the street, put tiger tails on overhead electricity wires and hire traffic control.

**Crane**



**Solar lift electrical hoist**

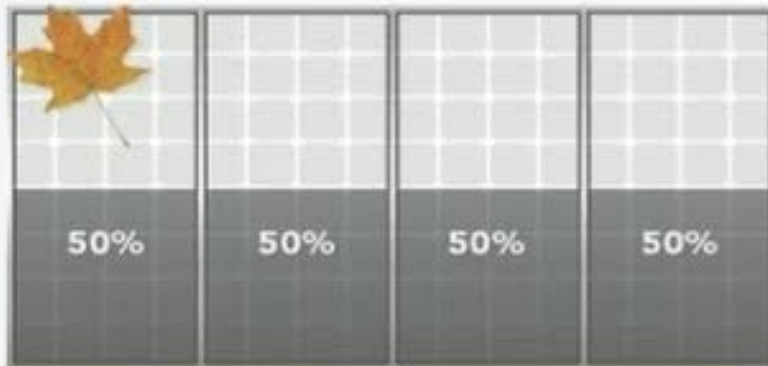


# Inverters and shading of panels

- String inverters are not appropriate if trees shade the roof during part of the day. To get the best performance from roof area which is sometimes shaded, use microinverters or DC optimisers.

## String inverter

### PERFORMANCE



- » Entire system affected by one module
- » Susceptible to soiling, shading and module defects

## Microinverter or DC Optimiser

### PERFORMANCE

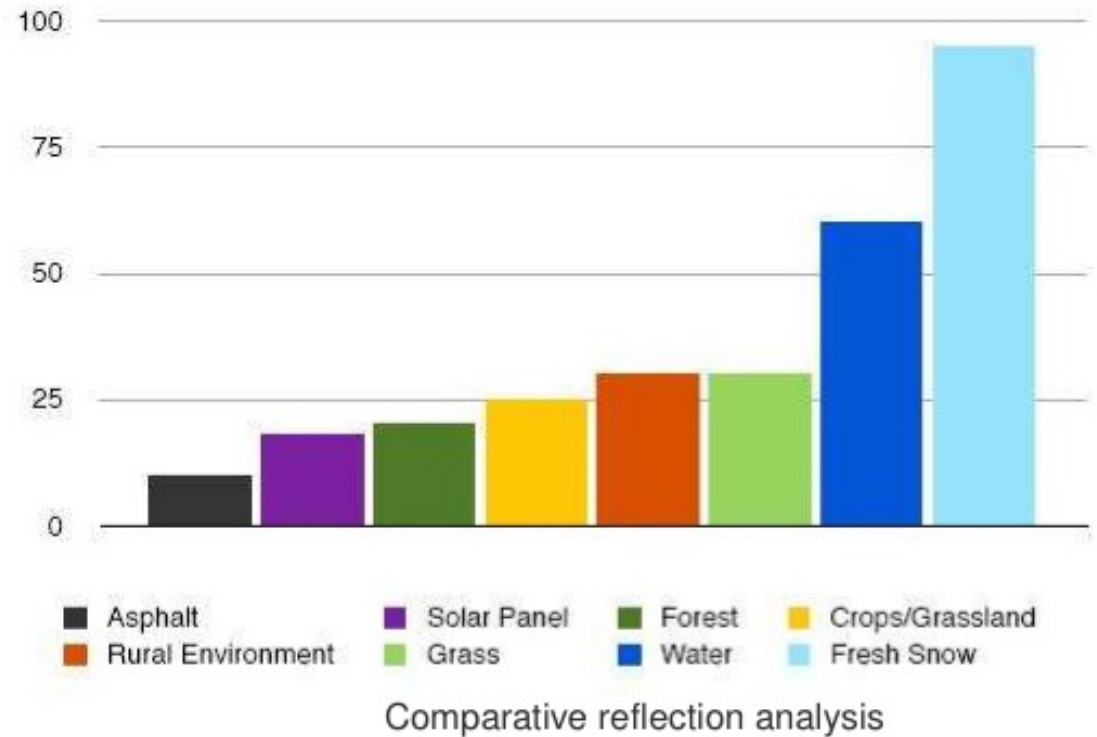


- » All modules controlled independently
- » Resilient to environmental factors



# Reflectivity of solar panels

- Solar panels are designed to absorb more light
- Research has shown that they reflect less light than water, trees or grass
- An Anti-Reflection (AR) coating is applied to the surface of each solar panel



## Case Study – Flexible solar skin – Docklands

- Sunman solar skin is 1/3<sup>rd</sup> weight of traditional solar panels and can be installed vertically or flat



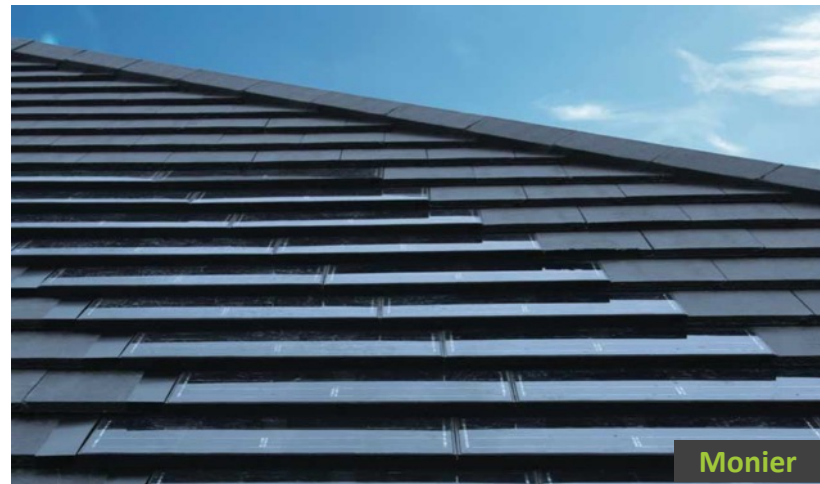
# Case Study – Solar glass balustrades - Northcote

- Solar glass is a construction material on the balconies of this building in Northcote, Melbourne



# Solar Tiles – local suppliers + Tesla

- Solar efficiency in the range of 16-22% versus 22% for traditional solar. Approximately 3x the cost.



Source: CHOICE

# NSW govt made solar on strata easier in Feb 2021

## Strata rule changes pave way for more solar apartments

By Sophie Vorrath

February 22, 2021 Battery/Storage, Electric Vehicles, Energy Efficiency, Policy, Solar 1



New South Wales has taken steps to make it easier for strata dwellers to share the benefits of rooftop solar and other renewable energy technologies under the state's strata title laws.

## Green light for more solar in strata

Published: 17 February 2021

Released by: Minister for Better Regulation and Innovation

Share this page:    

The NSW Government has delivered on its promise to drive clean, reliable and affordable energy in NSW through the passage of new amendments in Parliament today that make it easier to install renewable energy into strata buildings.

Minister for Better Regulation and Innovation, Kevin Anderson said the changes to the Strata Schemes Management Act make it easier than ever for strata committees to install sustainability infrastructure, such as solar panels, battery storage and electric vehicle charging points.

## NSW looks to make solar simple for strata-titled buildings

Owners of property in strata-titled buildings in New South Wales will soon find it easier to make the switch to renewable energy with the State Government ushering in changes to laws in a bid to pave the way for easier installation of solar PV, renewable energy storage systems and electric vehicle (EV) charging stations.

FEBRUARY 18, 2021 DAVID CARROLL

INSTALLATIONS RESIDENTIAL PV AUSTRALIA NEW SOUTH WALES



The NSW Government has simplified the process for those looking to install solar in strata-titled buildings.

# NSW Sustainability Amendment to Strata Act

The recent Sustainability Infrastructure amendment to the NSW Strata Schemes Management Act in February 2021, only requires passing of sustainability infrastructure resolution (similar to an ordinary resolution with a 50% threshold). Your Strata Manager can assist you with preparing motions and resolution for voting at your next Annual General Meeting (AGM) or EGM.

For the purposes of this amendment, sustainability infrastructure means changes to part of the common property (which includes the installation, removal, modification or replacement of anything on or forming part of that property) for any one or more of the following purposes—

- a. to reduce the consumption of energy or water or to increase the efficiency of its consumption,
- b. to reduce or prevent pollution,
- c. to reduce the amount of waste sent to landfill,
- d. to increase the recovery or recycling of materials,
- e. to reduce greenhouse gas emissions,
- f. to facilitate the use of sustainable forms of transport, Note. For example, installing electric vehicle charging stations.
- g. a purpose prescribed by the regulations.

Sustainability infrastructure resolution means a resolution to do any one or more of the following that is specified to be a sustainability infrastructure resolution—

- a. to finance sustainability infrastructure,
- b. to add to the common property, alter the common property or erect a new structure on common property for the purpose of installing sustainability infrastructure,
- c. to change the by-laws of the strata scheme for the purposes of the installation or use (or both) of sustainability infrastructure.

# Difference between special and sustainability resolution

The NSW Government changed the strata law so that only a **sustainability infrastructure resolution** of all unit Owners in a strata scheme is required, making any solar project easier to get approval for in strata.

Special Resolution	Sustainability Infrastructure Resolution
75% Unit entitlements threshold	50% Unit entitlements threshold

# Strata committee archetypes needed for solar

For a strata committee to successfully pass a sustainability project, it needs at least one, if not two of the following **archetypes** on the committee to invest the time in research and educating the other strata committee members and Owners.

## Bean counter



### “Most important skill”

The energy savings from solar panels, if converted to an interest rate might be up to 14% p.a., compared with a capital works fund of 0.45% p.a. Also, financing solar is fine as long as return outpaces the lending interest rate e.g. 7% p.a.

## Engineer



### Procurement assistance

The engineer on the strata committee can understand the technical detail of quotations from different vendors and provide a view of the value offered by competing quotations.

## Sustainability Champion



### Carbon emissions

The environmentalist provides the willpower to keep going when the solar project seems too hard. They know they are playing a small, but significant part, at a local level in providing a better place for their children and their children's children.



# Solar + Batteries approved – Camperdown (April)

An apartment block in Camperdown uses NSW Sustainability Infrastructure amendment to approve solar + batteries

## Challenges

- Owners Corporation voted under the new NSW Sustainability Infrastructure Amendment to the Strata Schemes Management act and funding allocation for solar & batteries on common area approved in April 2021
- Raising a special levy to pay for the solar + battery system

## Solution



Inner West Council Go Solar for Strata Round 1 provided a solar feasibility study for the Owners Corporation



**38.9kWp**  
Solar system  
**26.6kWh**  
Batteries



**~\$65,300**  
Capital Cost

## Benefits



**~63%**  
Common area electricity bill reduction



**~6.8 years**  
Est. payback



**52 tonnes**  
CO2 reduced per year



# Criteria for joining Inner West Go Solar for Strata

There are a number of criteria that will impact the suitability and financial viability of rooftop solar for your apartment building.

1

## Building age

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Properties under ten years of age will have modern electrical switchboards

2

## Roof type and aspect

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COLORBOND® or steel roofs are ideal, terracotta or concrete tiles and concrete roofs are more complicated.

3

## Location

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The site's orientation will determine the quality of solar access including shading from neighbouring properties or trees

4

## Apartment block size

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Lower rise properties of up to five stories with a larger usable roof area are ideal over tall towers

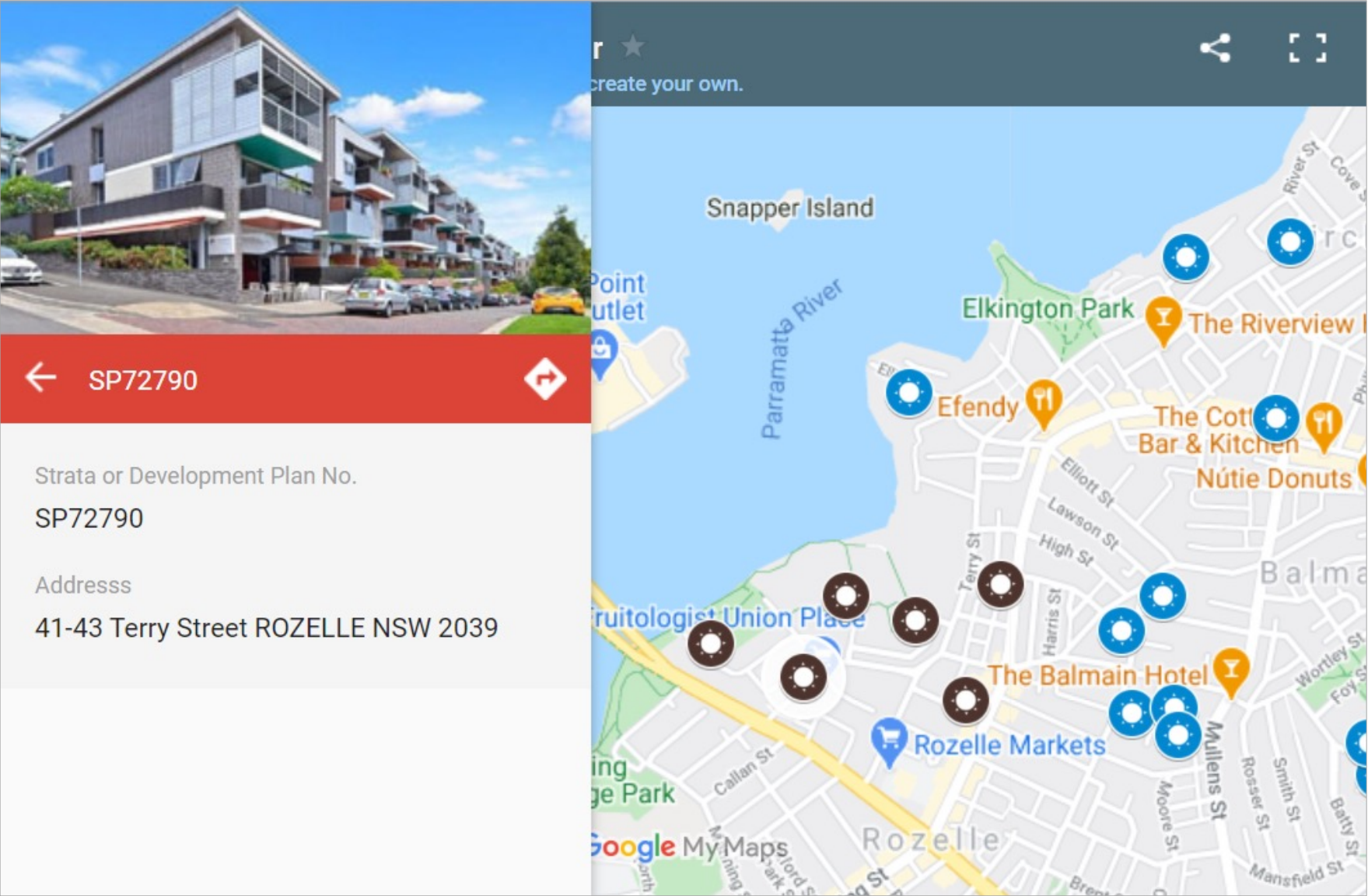
5

## Building profile

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The amount of electricity consumed by the common area for services including air conditioned foyers, lighting, swimming pools, lifts, carpark ventilation



# Go Solar for Strata – 200+ Priority Candidates





The image is a screenshot of a mobile application interface. On the left, there is a photograph of a modern multi-story strata building. Below the photo is a red navigation bar with a back arrow, the text 'SP72790', and a home icon. Underneath the bar, the text 'Strata or Development Plan No. SP72790' and 'Address 41-43 Terry Street ROZELLE NSW 2039' is displayed. On the right, a map shows the area around the strata building, with several blue and black circular markers indicating priority candidates for solar. The map includes labels for 'Snapper Island', 'Parramatta River', 'Elkington Park', 'The Riverview', 'Efendy', 'The Cott Bar & Kitchen', 'Nútie Donuts', 'The Balmain Hotel', 'Rozelle Markets', and 'Mullens St'. The Google My Maps logo is visible at the bottom of the map.

<https://www.innerwest.nsw.gov.au/live/environment-and-sustainability/at-home/climate-solar-and-energy/go-solar/go-solar-for-strata>

# Register online for Go Solar for Strata

Skip to main content   Contact    Online self-service    Select

   Select ...    Start searching...

Explore   **Live**   Work   Contribute

## Solar for strata round 2 registration form

Please register the details of your apartment building below for Council's solar for strata program

Address line 1

Address line 2

Suburb

Postcode

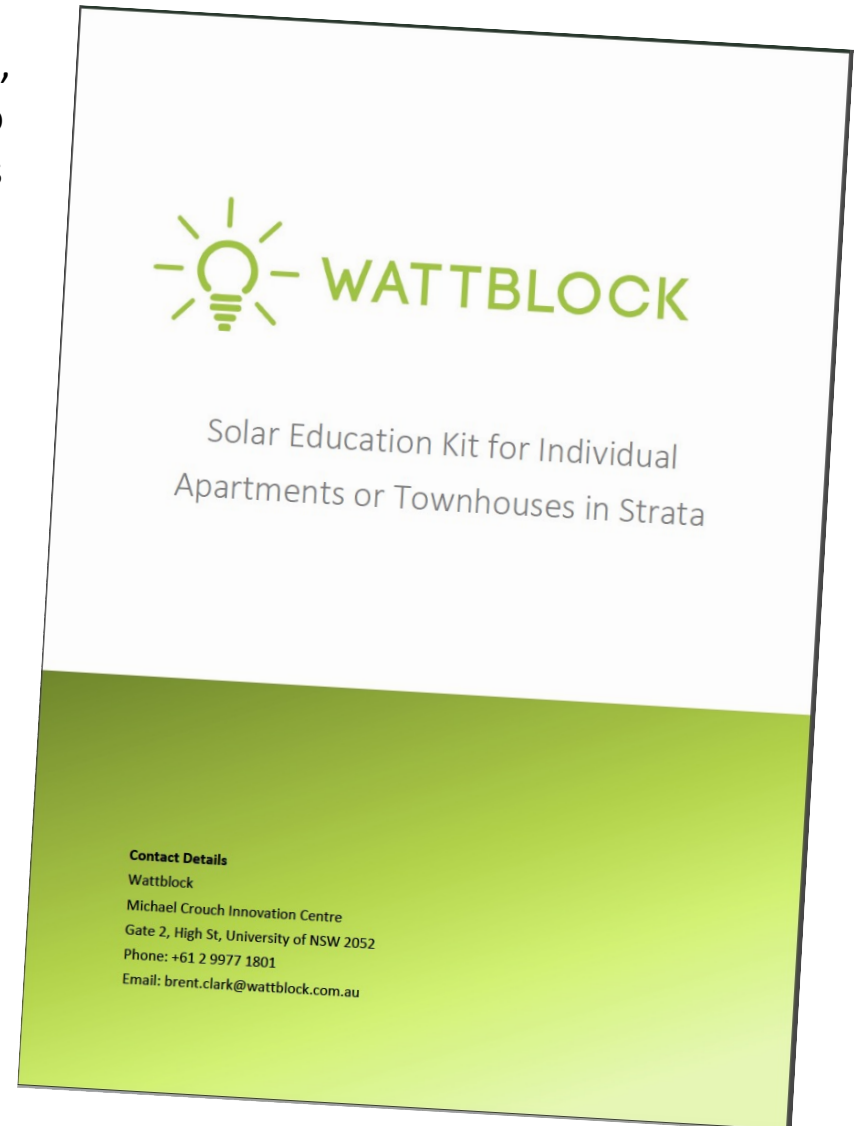
Strata Plan Number eg SP23456

# Individual Townhouses or Apartments in Strata

For those of you who live in a townhouse strata development, you will need to make an application to your strata scheme to request permission to use the roof above your townhouse, as that is actually common property.

Similarly, some low-rise apartment buildings of 3 storeys or below might have an individual apartment which might be interested in installing an individual solar system.

Download the “Solar Education Kit for Individual Apartments or Townhouses in Strata” from the Inner West Go Solar for Strata webpage to help you prepare your application to your Owners Corporation.



# Questions



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