strata community association® QLD

the power of now

Smart Cities – Beyond the Buzzword

2017 Winner ANN SHEVILL ESSAY AWARD
2016 Winner INNOVATION OF THE YEAR
2015 Finalist COMMUNITY SUPPORT
2014 Finalist ENERGY & SUSTAINABILITY CHALLENGE CUP 1776

the power of now

strata community association QLD

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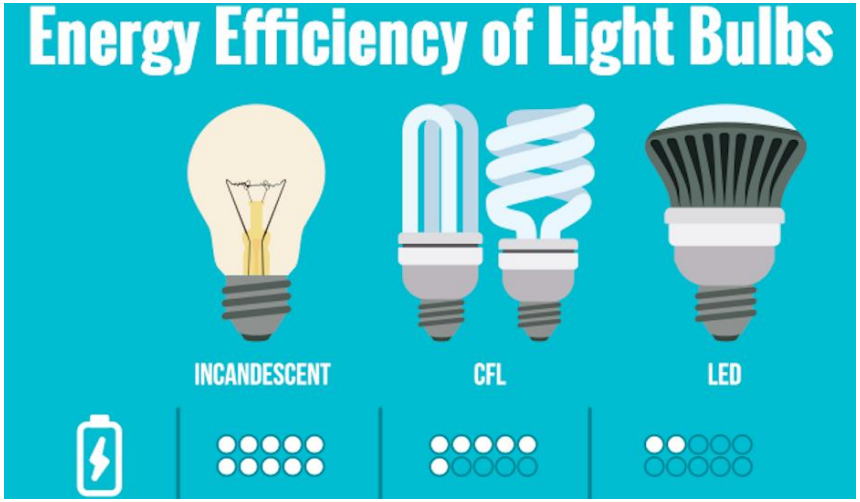
"**Smart cities** use **data and technology to create efficiencies**, **improve sustainability**, create economic development, and enhance quality of life factors for people living and working in the city.

It **also means that the city has a smarter energy infrastructure."**

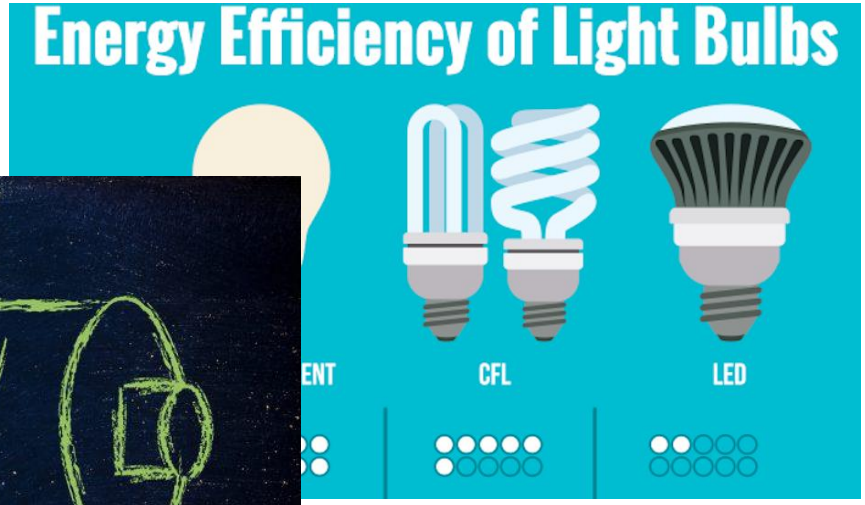
https://en.wikipedia.org/wiki/Smart_city

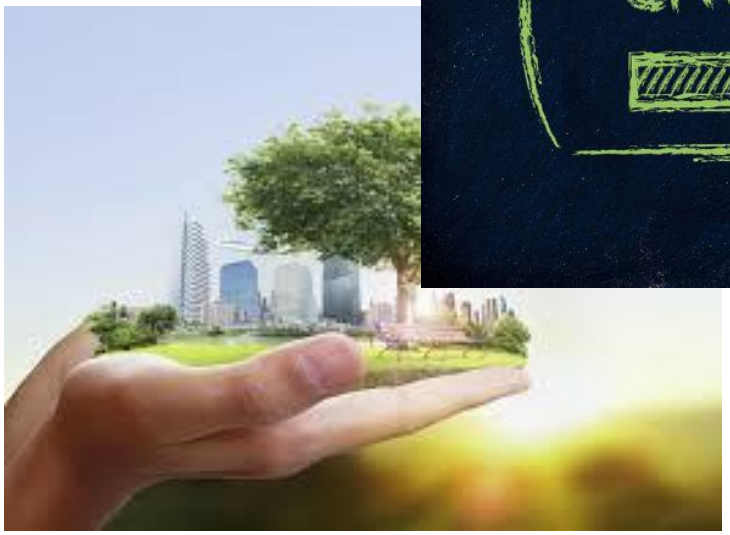
Smart Buildings



Pics:
https://www.euruni.edu/
https://www.infoworld.com/
http://www.gctrades.com.au/
https://www.griffith.edu.au/

Smart Buildings





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https://www.infoworld.com/
http://www.gctrades.com.au/
https://www.griffith.edu.au/

Now..

Sustainability in Strata:

- Energy Efficiency
- Solar for Strata
- NABERS for Strata

Internet of Things (IOT) for Strata

Electric Vehicles (EV) in Strata

What is happening NOW!

What is happening NOW!

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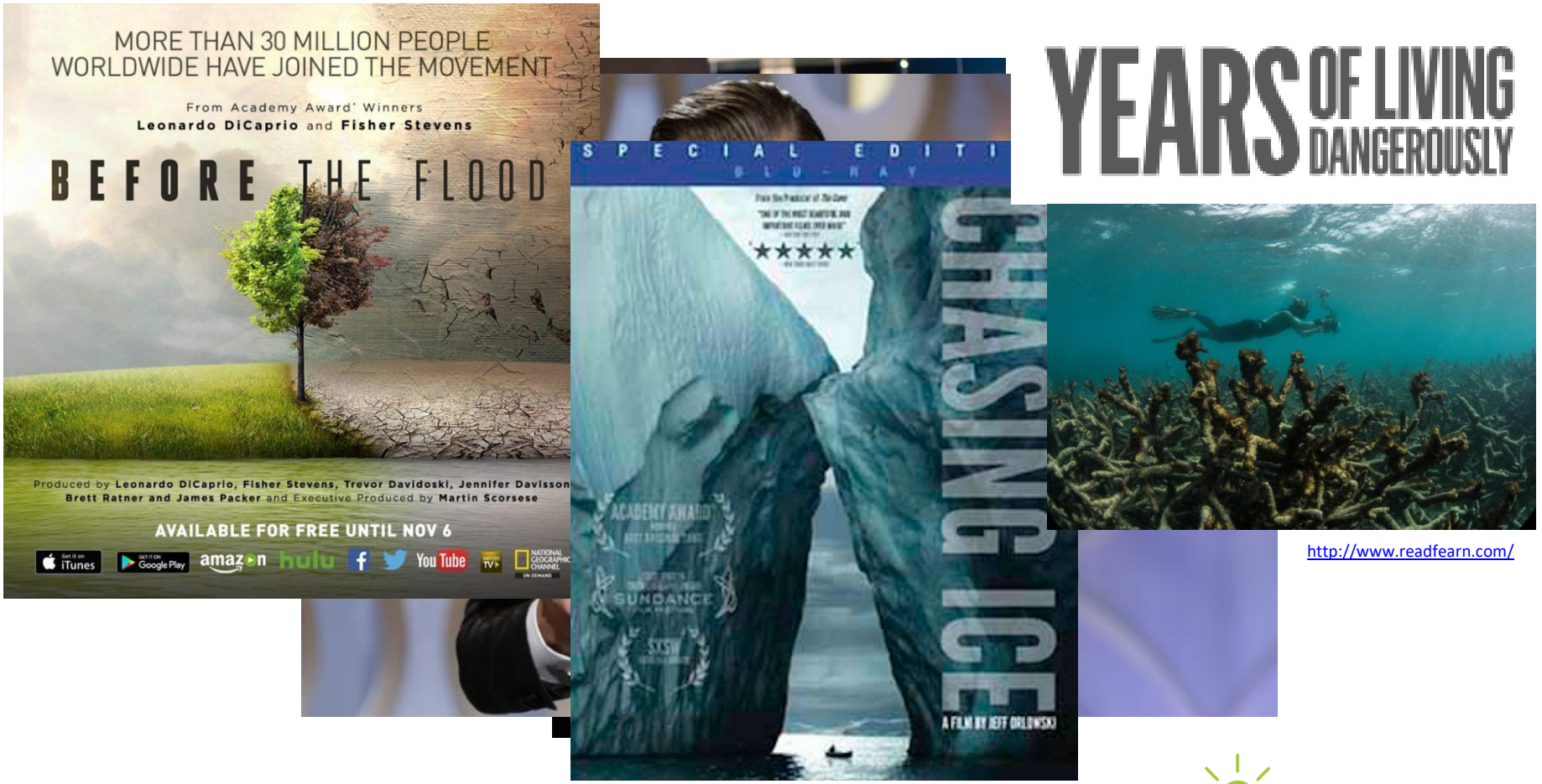

http://www.readfearn.com/

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How much Energy & CO2 is under the management of this room?

How much Energy & CO2 is under the management of this room?

Think whole portfolio.

Automation

Sustainability and Efficiency

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Energy Efficiency

- LED with sensors
- CO sensors
- Variable Speed Drive
- Heat Pumps
- Power Factor Correction
- Solar & Batteries

Energy Efficiency

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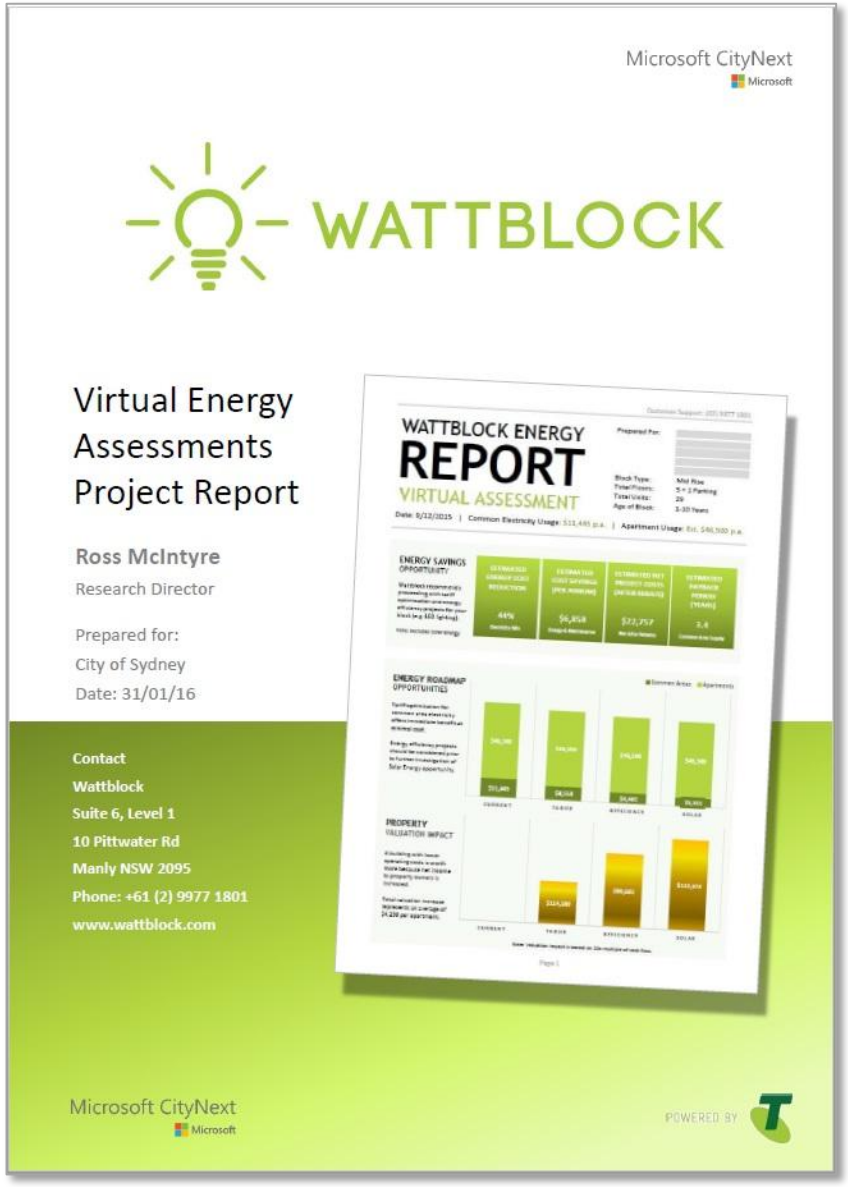
	Projects	Description	Est. Savings	Est. Cost	Est. Payback
1	Carpark Lighting	Replace fluoro tubes in basement carpark with LED.	$3,848	$7,274	1.9 Years
2	Carpark Exhaust	Retrofit carbon monoxide detectors to the carpark exhaust system.	$2,258	$8,580	3.8 Years
3	Power Factor Correction	Install a power factor correction unit to improve the efficiency of power usage.	$3,972	$7,150	1.8 Years
4	Solar Energy	Install a 25 kW solar energy system on your roof.	$6,862	$30,000	4.1 Years
	TOTAL		**$16,939**	**$53,004**	**3.1 Years**
>	**Pay By Savings**	**Best Plan: $0 Upfront, 5 Year Term**	**$14,460**	**Annual Payments**	
		Est. Net Savings	**$2,480**	**Annual Savings**	

- **45% savings possible with 3.6 year payback** across tariff and energy efficiency
- **70% carbon emission reduction** can be achieved in existing residential buildings, retrofitting existing solutions



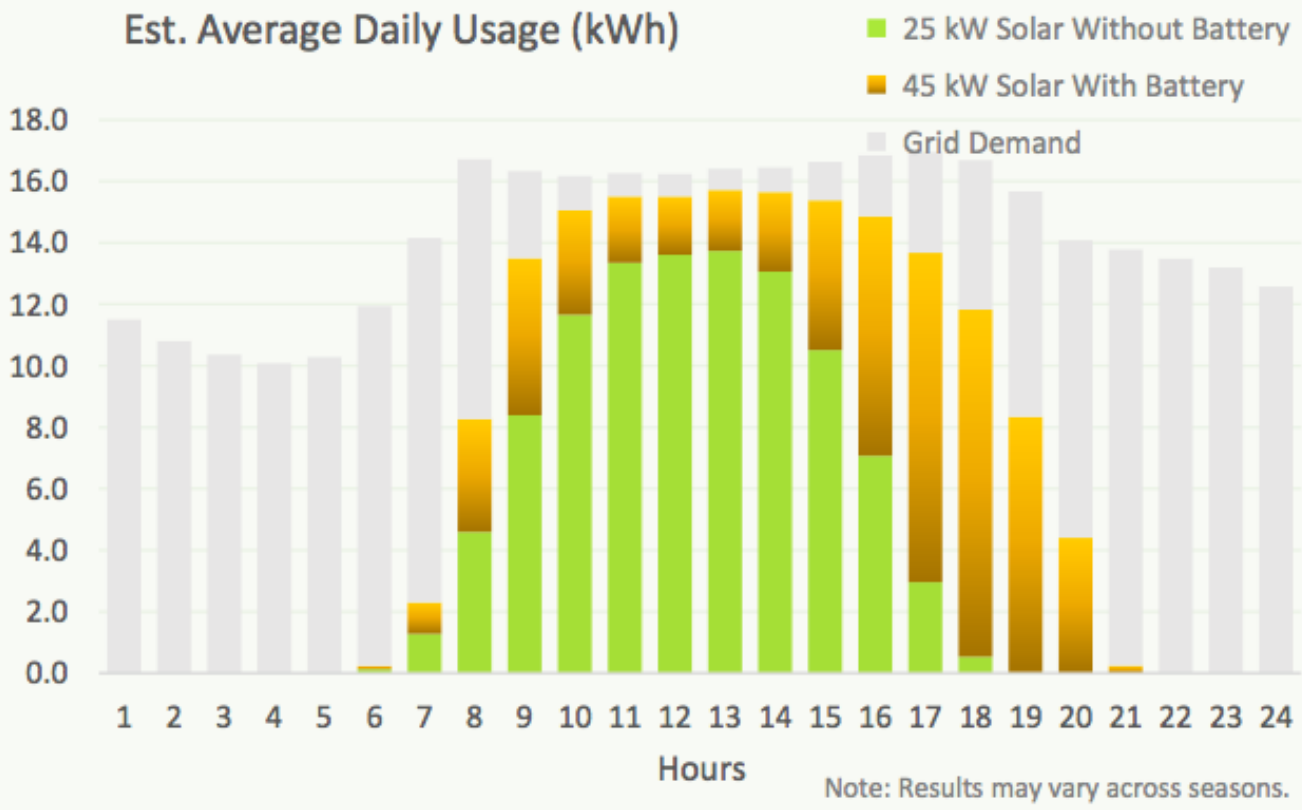
Solar for Strata

LOAD PROFILE ASSESSMENT

Taking into account the available roof space and your common area energy usage, a 25 kW solar energy system is possible.

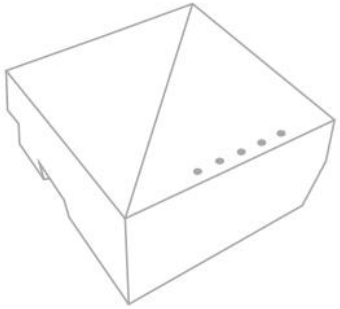
This can be increased to a 45 kW system with 56 kWh of batteries.

With solar a further 8 electric vehicle chargers can be accomodated. Adding batteries allow for an additional 3 chargers.

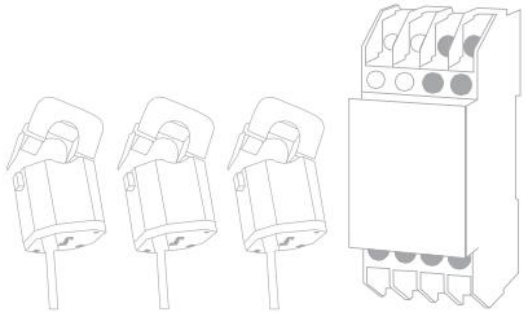


Solar for Strata

Digital Solar

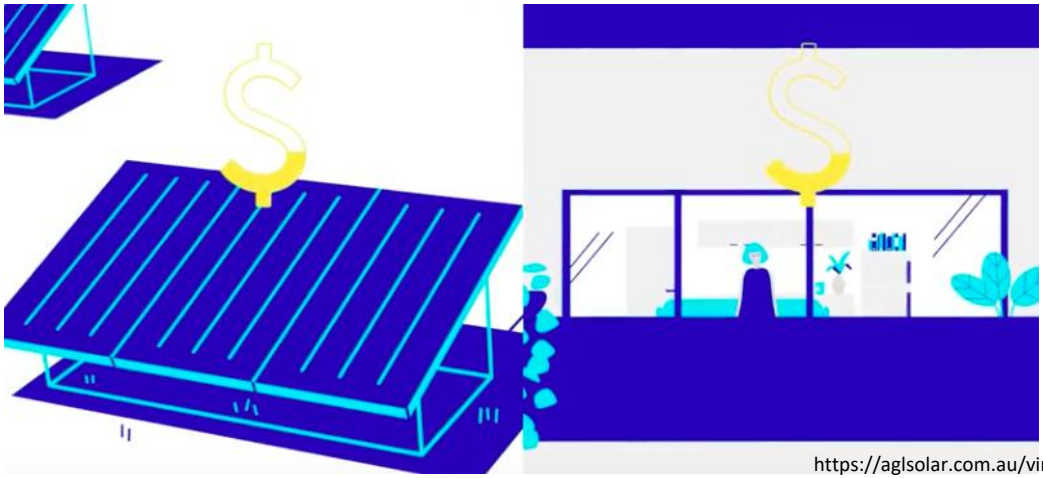


Digital Solar Gateway
(Data collector & communications hub)



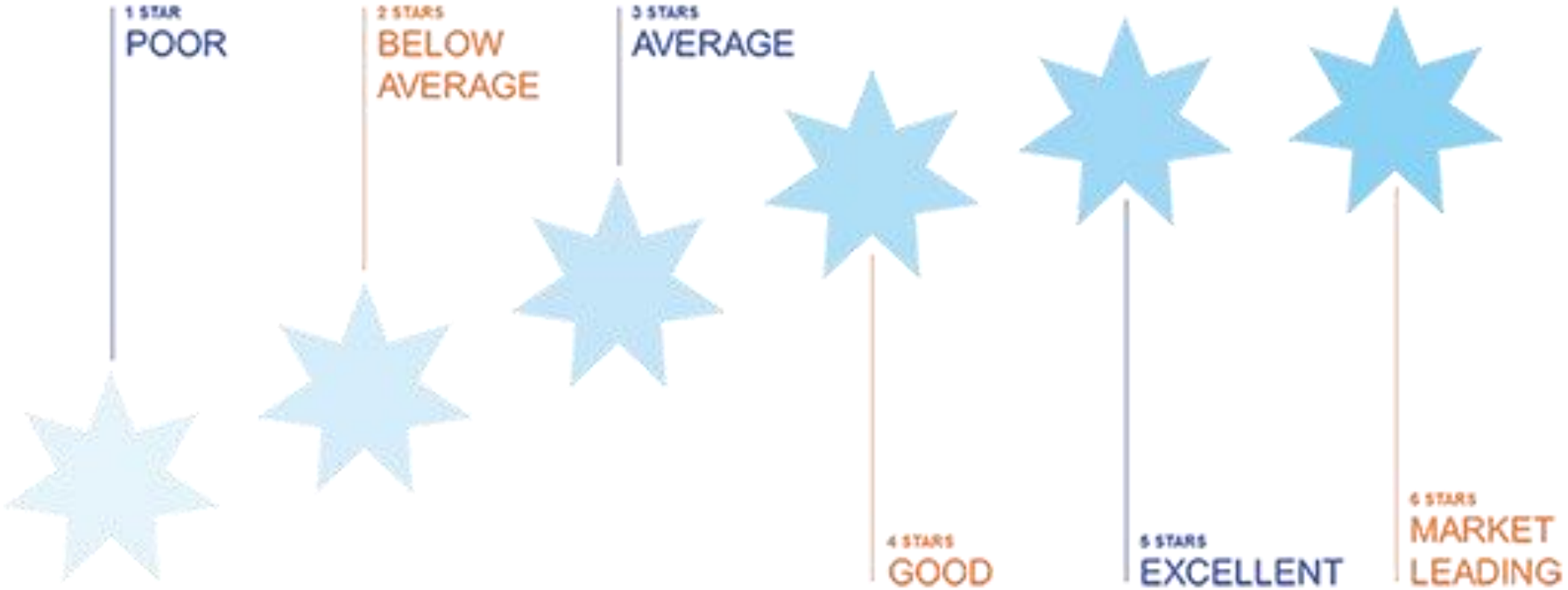
Wireless Mini-CT Meter
(120A CT, 60A CT, 60A CT)

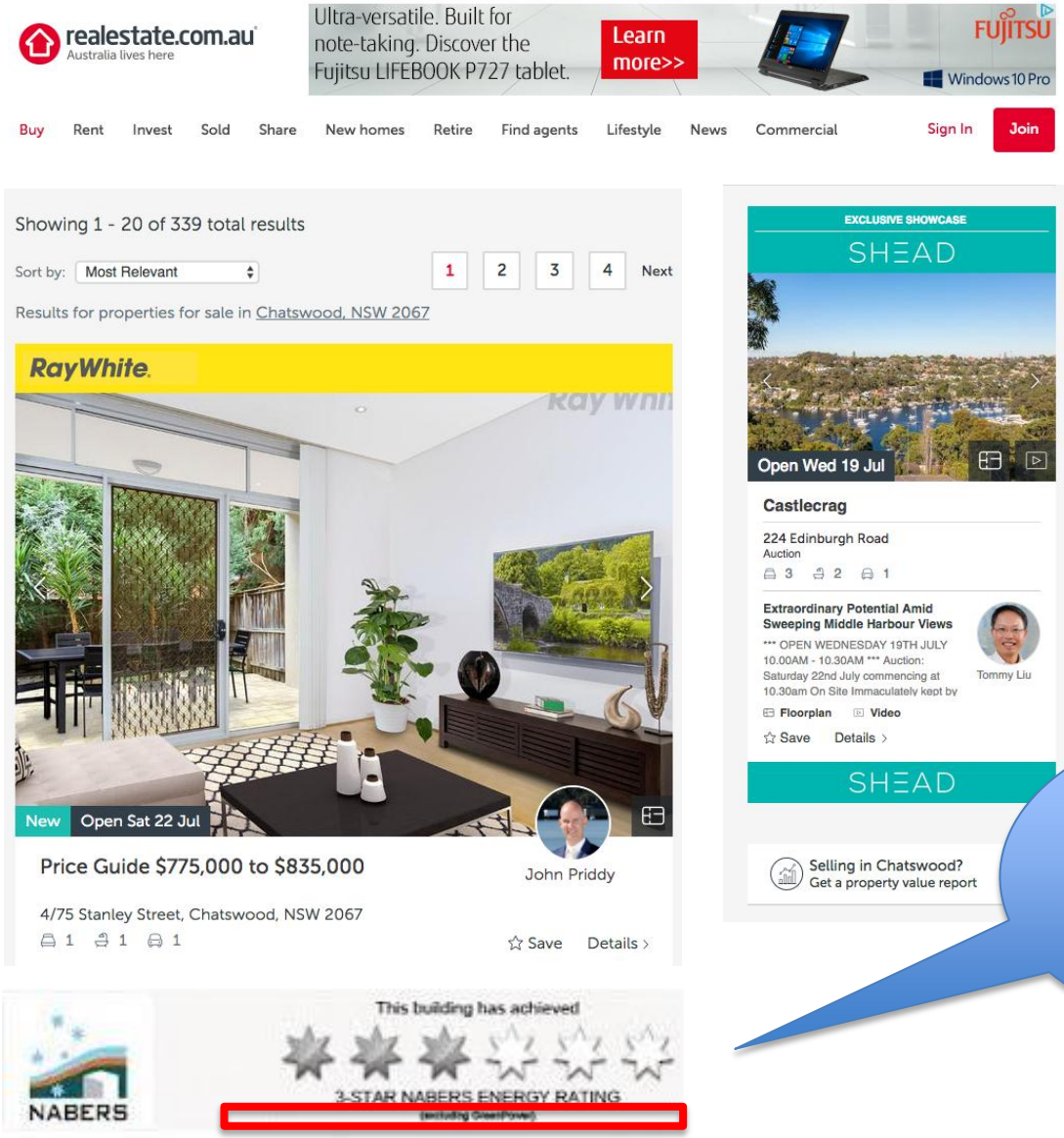
Virtual Solar



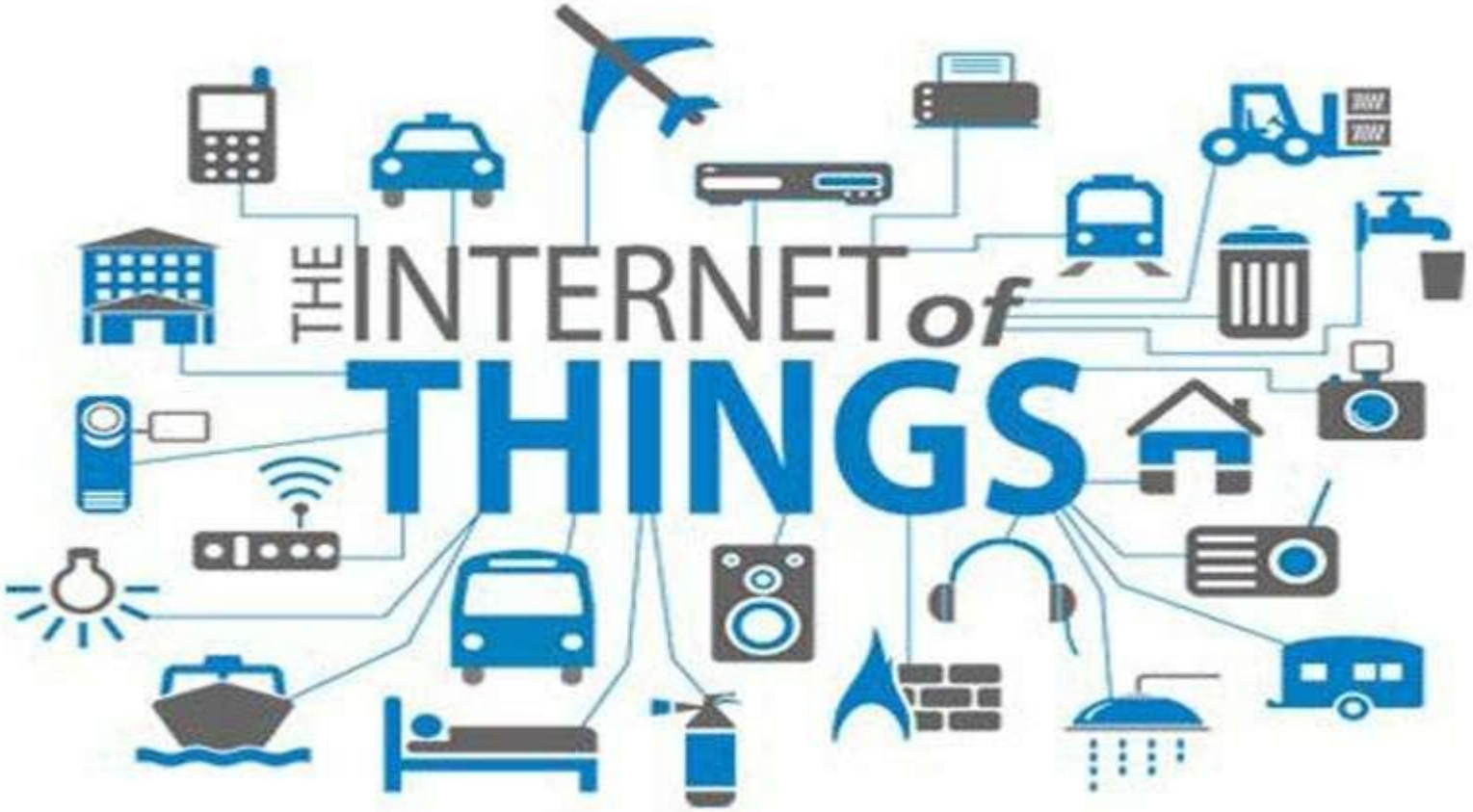
https://aglsolar.com.au/virtualsolar/

THE NABERS RATING SCALE





NABERS ratings will be visible when researching property



www.centrinity.com

How can **Remote Monitoring** help

Generally we are trying to achieve 1 of 3 things

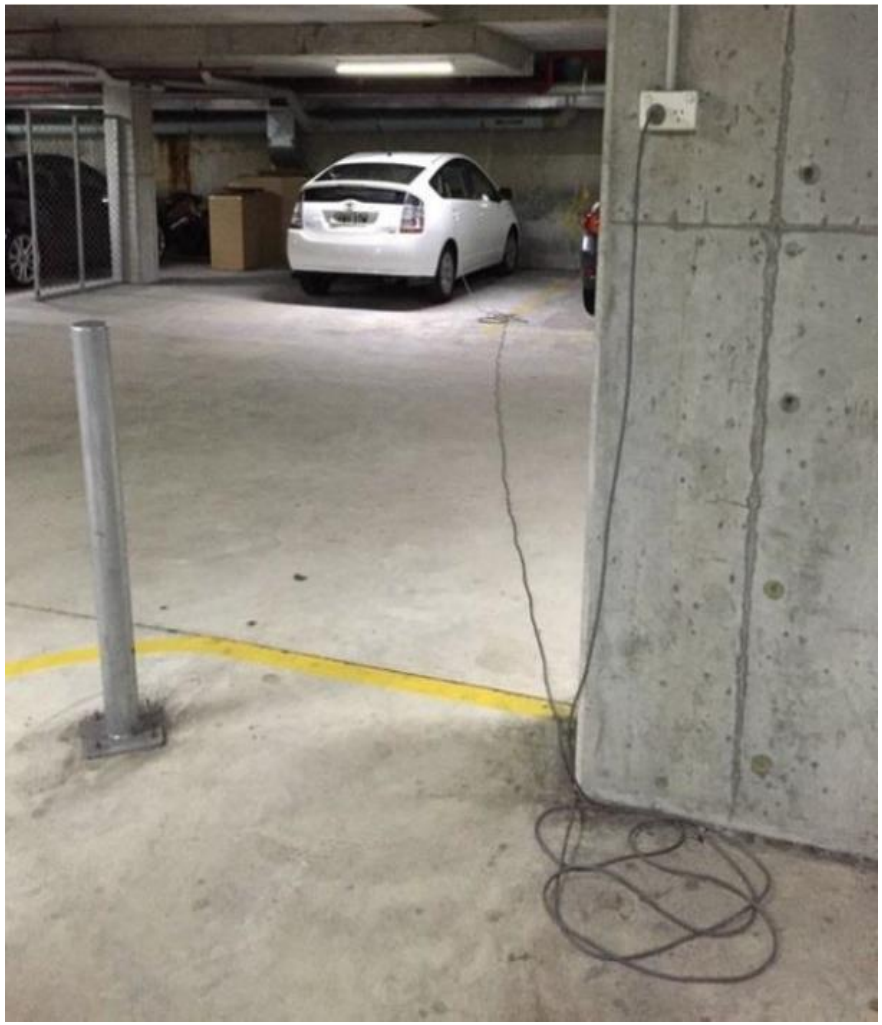
Respond to emergencies faster

Reduce the cost of people onsite

Optimise building performance

EV in Strata

EV in Strata reality?



QLD & NSW EV Studies

Types of Electric Vehicles

HEV = Hybrid Electric Vehicle
e.g. Toyota Prius
more than 2m sold worldwide

PHEV = Plug-in Hybrid Electric Vehicles
e.g. Mitsubishi Outlander

EV = Electric Vehicle
e.g. Tesla Model

Recent EV Headlines

India to sell only electric cars by 2030

CNN tech

by Jackie Wattles @jackiewattles

France to ban sales of petrol and diesel cars by 2040

theguardian

Britain to ban sale of all diesel and petrol cars and vans from 2040

Norway powers ahead (electrically): over half new car sales now electric or hybrid

REUTERS

GENERAL MOTORS IS GOING ALL ELECTRIC

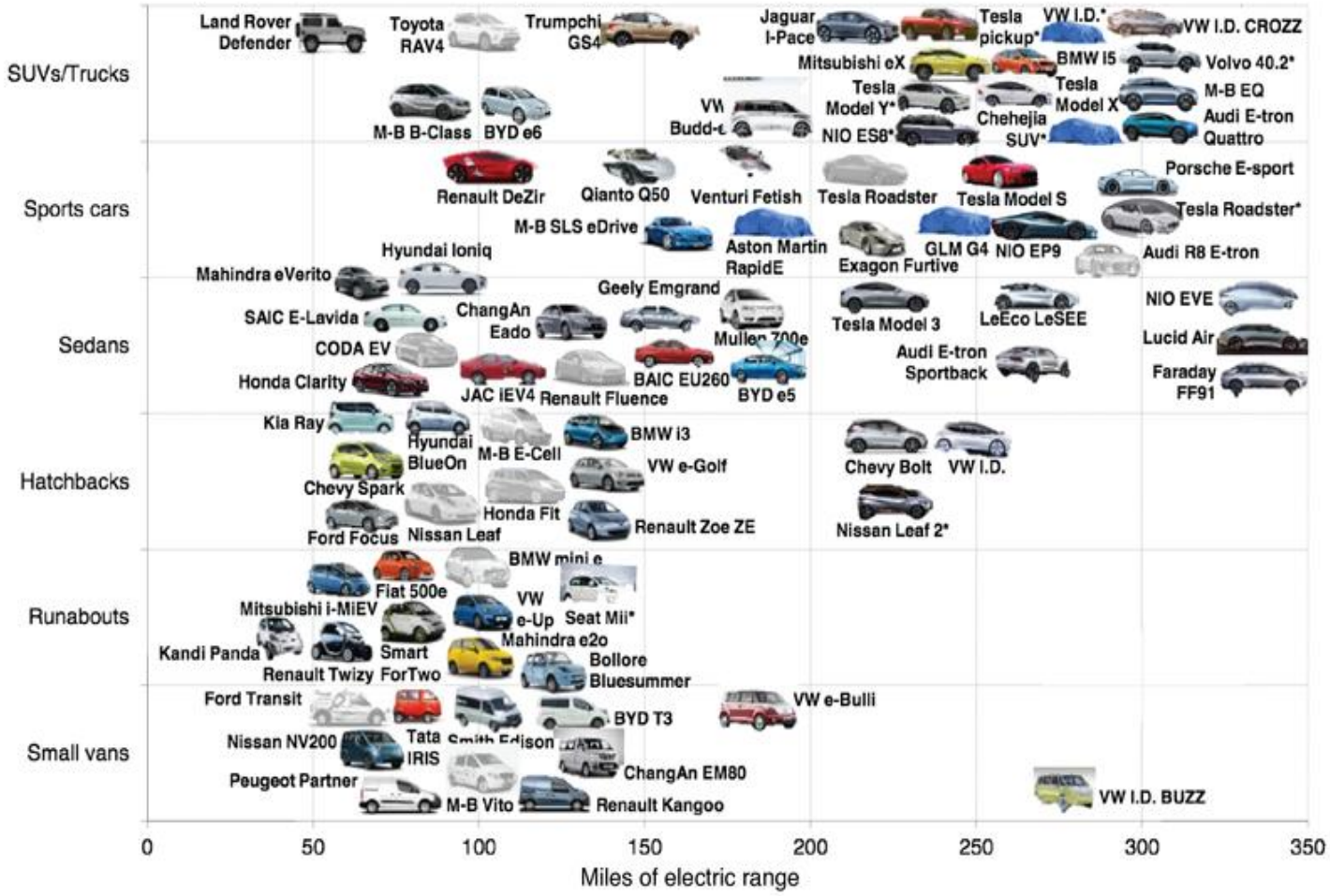
WIRED

Current Popular EV's

	Battery Range	EV Type	Upfront Cost	Seats	Body Type
Tesla Model S	407km	Pure Electric	$118,600+	5	Sedan
Tesla Model 3	345km	Pure Electric	$55,000+	5	Sedan
BMWi3	300km	Pure Electric	$63,900	5	Hatch Back
Nissan Leaf	175km	Pure Electric	$39,990	5	Hatch Back
Chevrolet Volt	65km	Pure Electric	$60,000	4	Sedan
Mitsubishi Outlander	53km	Hybrid	$50,490	5	Wagon

Electric-Car Boom

Models by style and range available through 2020



GM is selling a $5,000 electric car in China.

GM is selling a $5,000 electric car in China

General Motors will start selling a tiny electric car in China this week that will cost about $5,300 after China's national and local electric vehicle incentives, according to GM.

MONEY.CNN.COM

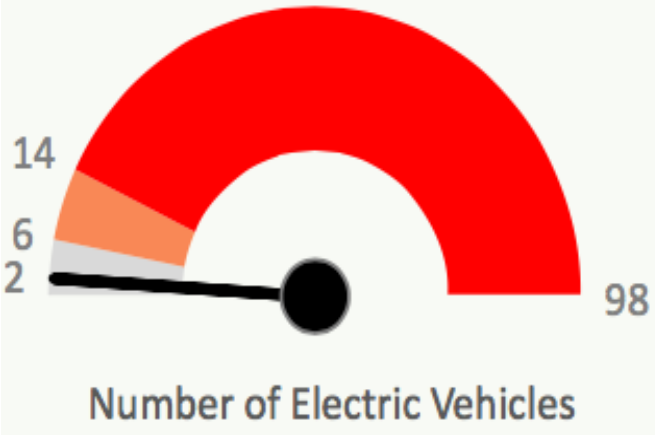
iPhone marks 10 years but what does future hold?

This week marks the 10th anniversary of the iPhone's first sale.

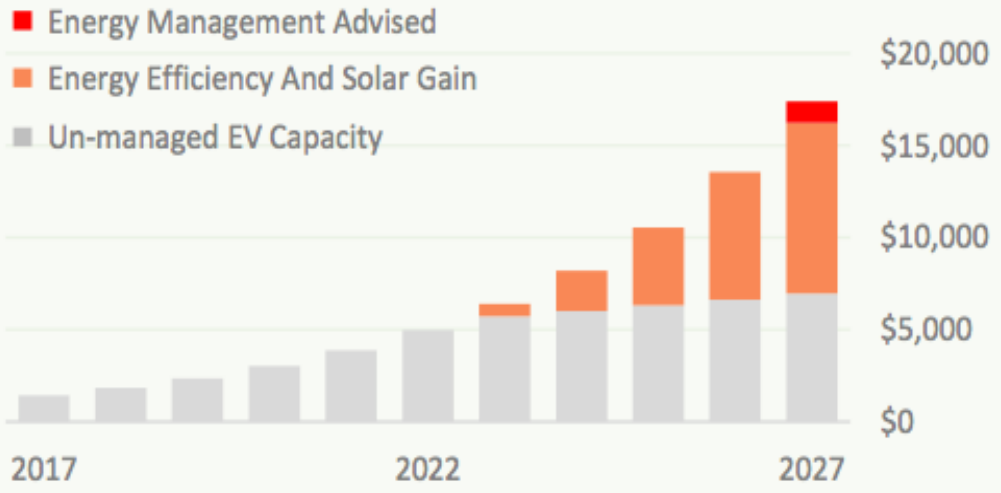
Typical Findings - Capacity (Eg. 82 Units)

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.



Number of Electric Vehicles



Annual Charging Costs

The building has an estimated 2 electric vehicles today, growing to 15 by 2027 with a charging cost of $17,397 p.a. Based on similar buildings, your common energy supply can support an estimated 6 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.

Increase EV Capacity

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PREPARE FOR EV RECHARGE

Common area power allows for an estimated 6 electric vehicle chargers today. Increase capacity to 14 by running energy efficiency and solar projects.

ESTIMATED EXTRA CAPACITY	ESTIMATED ANNUAL SAVINGS	ESTIMATED PROJECT COSTS (AFTER REBATE)	ESTIMATED PAYBACK
133%	$16,722	$34,295	2.1 Years

Note: All figures are GST inclusive.

	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, floors, fire escapes and garden with LED.	$8,162	$19,370	2.4 Years
3	Ventilation Fans	Install timers for ventilation fans in garbage room and foyer.	$741	$502	0.7 Years
4	Power Factor Correction	Install a power factor correction unit to improve the efficiency of power usage.	$3,972	$7,150	1.8 Years
	TOTAL		**$16,722**	**$34,295**	**2.1 Years**
>	**Pay By Savings**	**Best Plan: $0 Upfront, 5 Year Term**	**$9,382**	**Annual Payments**	
		Est. Net Savings	**$7,340**	**Annual Savings**	

3 Different Approaches to recharging today

Hazard Warning

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.

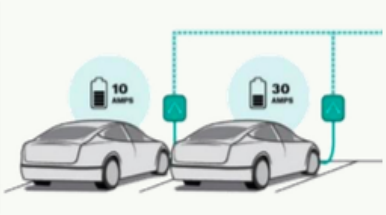
WHO PAYS
STRATA

SET-UP COST
$0
Per Electric Vehicle

OPERATING COST
$712 p.a.
Based on 15,500 km p.a.

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
$819 p.a.
Based on 15,500 km p.a. + billing fees

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.

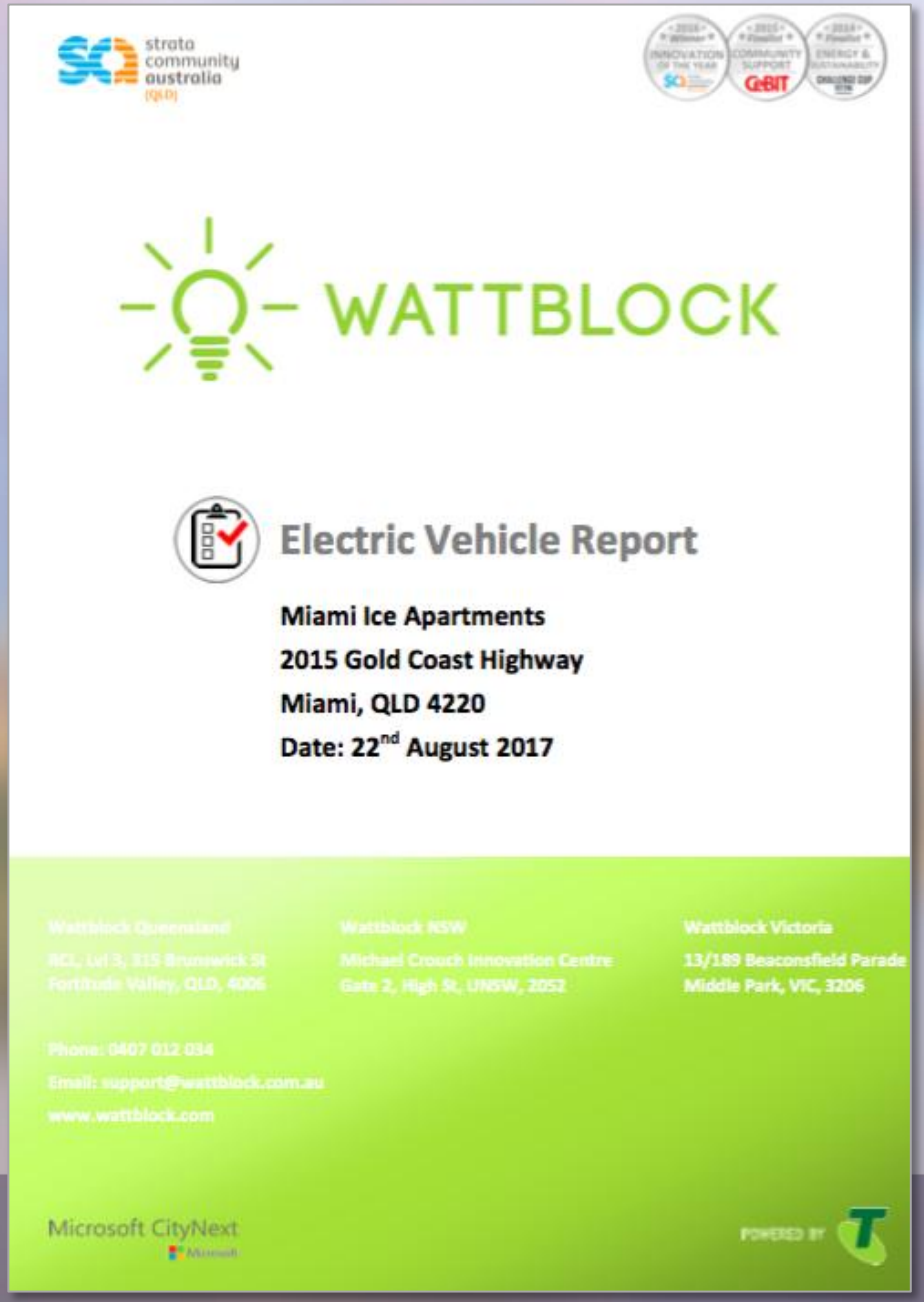
WHO PAYS
OWNER

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

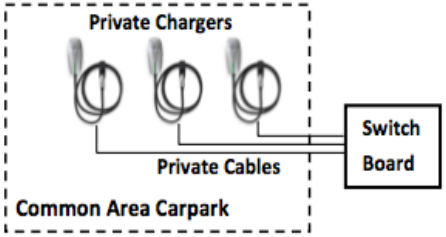
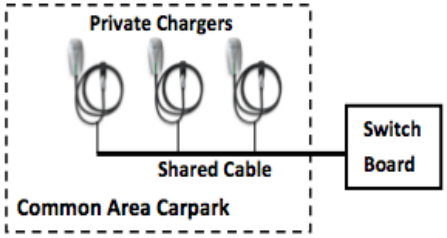
OPERATING COST
$956 p.a.
Based on 15,500 km p.a.

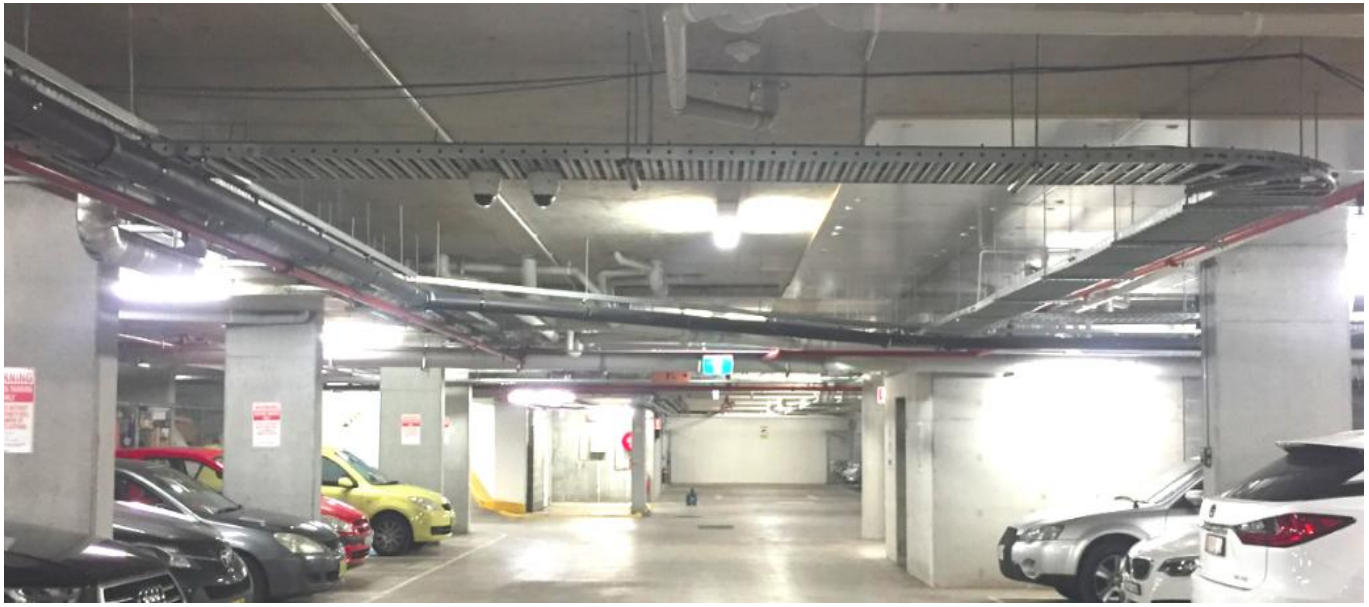
EV Report

- Roadmap to assist the strata scheme on its journey to becoming electric-vehicle ready
- New Developers to market as EV Ready



Private vs Shared Cable Connection

Common Area Power Socket	Private Charger With Private Cable Connection	Private Charger With Shared Cable Connection
		



Smart Cities – Beyond the Buzzword

Questions?

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