SOZO GLOBAL ENERGY

SOZO GLOBAL ENERGY INFORMATION MEMORANDUM

The Next Level in Demand Response Management
Smart Electrical Environments (Without Internet Access)

CONTENTS

SOZO
GLOBAL ENERGY

Sozo Global Energy (SGE) has developed smart devices for energy retailers to manage and monitor demand of electricity in real time.

SGE enables electricity providers to manage demand at the device level across suburbs, cities and countries.

More than just Demand Response, SGM switches create smart accessible energy ecosystems in any environment where internet access is not available.

PURPOSE

Sozo Global Energy is embarking on a growth journey, as demand management capability becomes key for energy retailers in Australia and globally.

This information memorandum supports Sozo Global Energy 's value with the right investment to scale the product offering.

MARKET DRIVERS

SGM is embarking on a growth journey, as demand management capability becomes key for energy retailers in Australia and globally.

This information memorandum supports SGM's value with the right investment to scale the product offering.

It is incumbent on Energy retailers to pursue an optimisation approach to manage peak energy demand. Managing electricity usage (shifting, balancing and reducing load) instead of building more infrastructures required to handle peak demand.

This has been driven by critical facts:

- Over the past 10 years it was necessary to add around $8 billion of network investment and 2,600 MW of capacity to the National Electricity Market (NEM).
- Around 15% of total capacity of the National Electricity Market is only needed for four days of the year to meet high demand on hot days.
- Around $11 billion worth of network equipment has been built to meet demand for just 100 hours a year.
- Peak demand during summer increases year on year and continues to place a strain on energy grids in Australia and globally.
- Energy retailers continue to demand more automated solutions to control and monitor the devices of business and consumers.
- Switching technology that provides real solutions to both the energy retailer, the consumer and businesses will lead the way over the next decade.

BACKGROUND

SGE has been in the R&D phase since 2013, developing technologies associated with switch automation.

In 2014 SGE filed and has now obtained a granted patent in a system and method for the control of electrical power in various countries.

This work has been further commercialised in Australia for demand response management with a second patent filed in 2017 specific to transient energy supplies.

The aim is to create an aggregation platform that will enable the integration of an array or power services making for a more sustainable decentralised utility grade smart ecosystem across multiple market segments.

TECHNOLOGY ADVANTAGE

SGE's products offer a cost effective decentralised mesh network solution to optimise demand over the energy network at the per device level, remotely and in real time.

Embedded software and a purposebuilt management HTPP based dashboard provide a turnkey automated solution for energy retailers to achieve and maximise a return from demand response management programs.

In Australia, the release of AS/NSZ 3000:2018 wiring rules provides a further opportunity. The SGE product is by far the best solution for the legally required replacement of devices in residential and commercial industries. For example, its mandated by the wiring standards where an electrician must install IP66 (weatherproof) rated products, like SGE's Isolator's in every new AC split system, pool pump, EV charger, hot water units and other appliances.

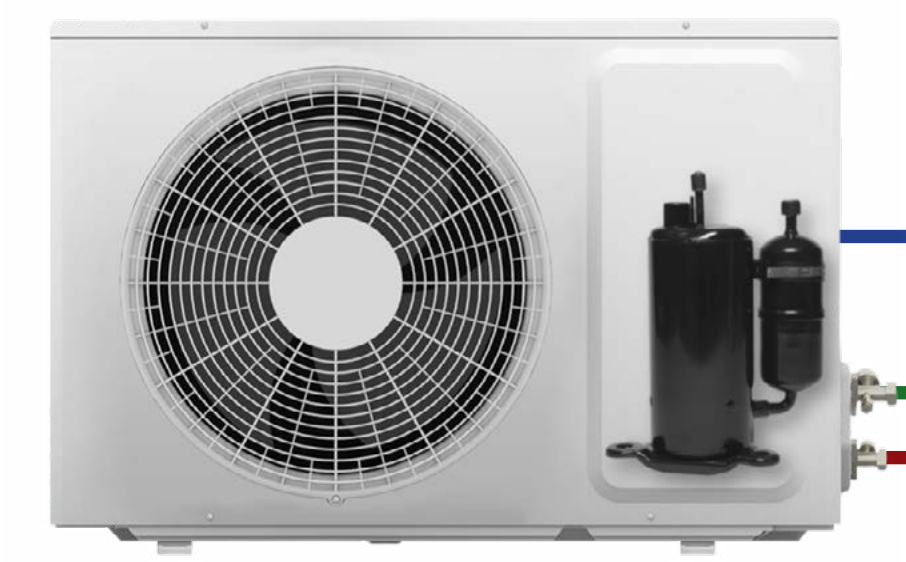
The SGE product is the only one currently available with IoT based technologies and provides real time access and immediate management capabilities to energy retailers.

PRODUCT ECOSYSTEM

Product connective self diagnostic process by protocol ranking method

1.	Bluetooth	Commissioning the device
2.	Wi Fi	End user network
3.	sigfox Make Things Come Alive LoRaWAN	Long distance Coverage and private network protocol
4.		Compatible with the latest (4G GSM) Telco protocols

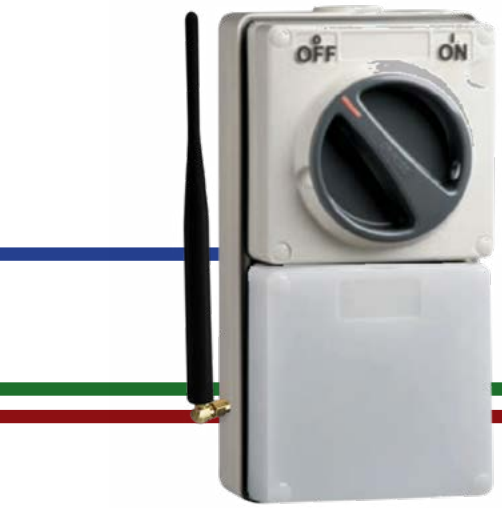
OUTDOOR CONDENSER



DRM control with RJ45

COMPRESSOR
The isolator purpose is switch on and off the AC unit air compressor

Australian Patent number: 2015306067/2017905075

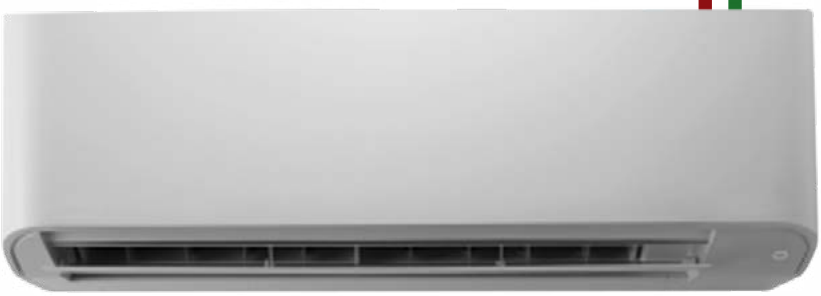


1.

Replace old isolator with the new smart Sozo Global Energy isolator

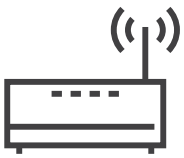
Refrigerant

INDOOR EVAPORATIVE UNIT



Remote DRM control

2.



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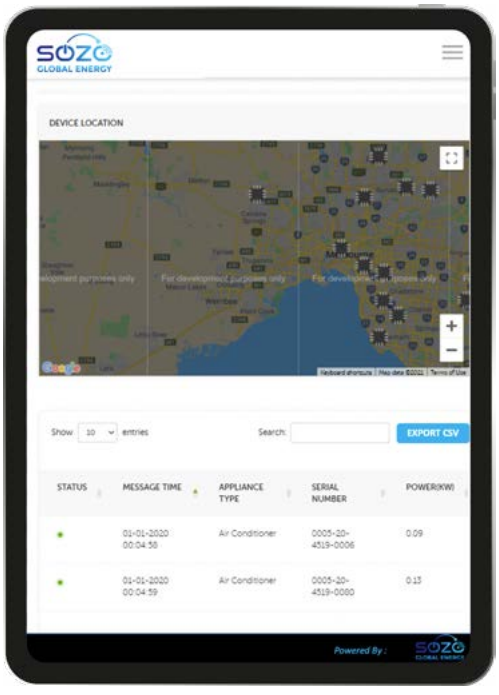
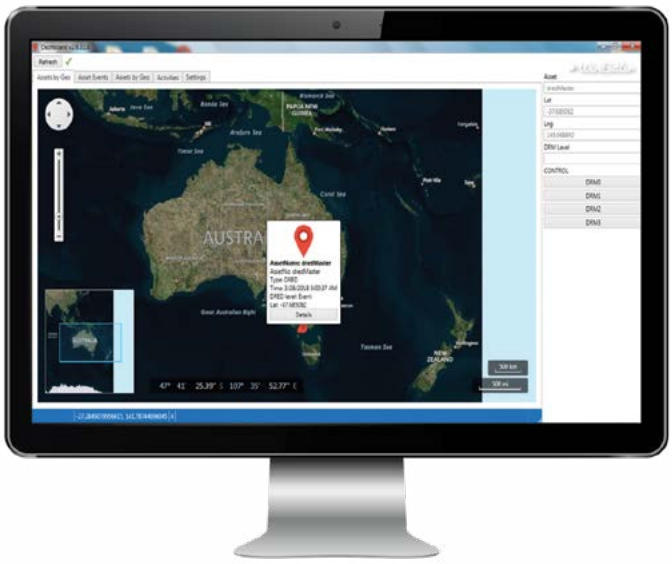


DASHBOARD

The dashboard doesn't need to connect to the end users router.

4.



THE SOZO GLOBAL ENERGY ECOSYSTEM -

Architecture diagram of a master future proof VPP platform.

SOFTWARE

The Sozo Global Energy software is provided in three versions

Customisable for 3rd parties
Provided under software license agreement

HARDWARE

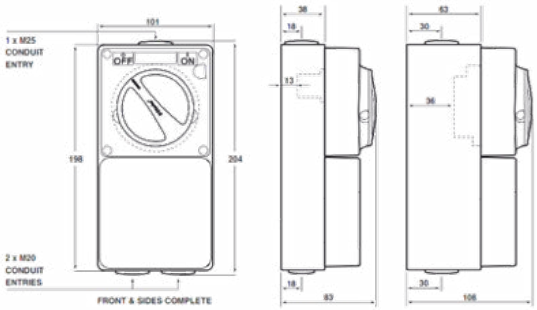
SOZO GLOBAL ENERGY DRMS DASHBOARD

The Sozo Global Energy open API dashboard is designed to be the main Aggregation platform that other smart IoT 3rd party devices can connect and integrate with.

Sozo Global Energy is currently securing exclusivity with a couple of leading brands that offer products specifically designed for Demand Response in alternative market segments (see right).

This enables Sozo Global Energy to quickly grow its controllable asset portfolio and provide its partner the Energy Retailer with the capability to control Mw of switchable load at its finger tips with only 20 mins notice.

Product Specs



TYPE	VALUE
Brand name	Sozo Global Energy
Wiring System	2-pole switch
Method of operation	Rotary control
Communications protocol	Wi-Fi, Bluetooth, LoraWan, SigFox
Demand Response Modes	1-3
Remote control (Open API)	Yes, Dashboard & Commissioning App
Installation	Quick retrofit
Mounting method	Surface mounted
Fastening type	Mounting with screw
Material	Polycarbonate

TYPE	VALUE
Colour	Matte White
Illumination	Yes, LED
Ingress Protection rating	IP66 – UV resistant
Nominal Voltage	240-500 VAC
Switching Current	20A
Number of Poles	2
Legend	On/Off
Standard	AS/NZS 3123, AS/NZS 3947.3
Safety: Must be Installed by a fully qualified Electrician	
Can also be supplied in an array of other poles and amp variants	

PROPRIETARY RIGHTS

SGE's patents offer proprietary rights in a decentralise mesh network of switches with various capabilities. Switches that communicate and work harmoniously with one another. Using existing power line communications or various wireless technologies the SGE switches become a smart hub of intelligent devices.

MORE THAN JUST DEMAND RESPONSE

The mesh network offers unrivalled strengths in providing a fail-safe system due to there being no central controller to go down. Should one switch fail the others will attempt to restore, capture data and advise of the failure. All other devices will remain online and operational whilst it all securely operates in the cloud.

A highly intelligent mesh network of switches that offers endless solutions for the devices then plugged into them.

SGE has created an open API platform enabling integration with third party technologies and providing further growth capabilities within their smart ecosystem.

The development of a mesh network switching technology that solves various real and complicated problems. However, the existing focus on Demand Response Management solutions is stirred by the political and commercial drivers influencing it.

To date the demand response management solutions being utilised by energy retailers are antiquated. They have generally involved manual processes and the automated solutions are expensive with limited features.

Currently energy retailers around the world and other research companies are in a race to develop an effective demand response management solution.

To date the barriers to entry for energy retailers to offer effective, measurable and cost-effective demand response management solutions has been high. The SGE technology completely removes this barrier to entry. The ability to install a SGE device in every home and business is now a real possibility.

HIGHLIGHTS

The company highlights are represented by:

- A cumulate investment of over $1,000,000.00 by the directors and commercial partners to date.
- Granted and pending patent status internationally, filed in August 2014.
- Filing of a second provisional patent in Australia in December 2017.
- Achieving pre-compliance for 240V single phase isolation switch product.
- Six-month commercial agreement to trial and completed with a tier 1 Australian energy provider (Australia and Hong Kong exclusive).
- Further R&D opportunities for commercialisation of other device types and managing the control and supply of various commodities e.g. three phase solutions and embedded network capabilities
- Product compliance and Australian standards

Currently different switch models have been created for different devices specific to their demand response management needs. However, the switches may be installed and fully utilised for any electrical device or appliance. The more switches that are installed in a home or SME the greater the mesh network becomes and processing power it provides. Perfect for Telco's! Sozo Global Energy switching technology can turn any device into a smart device, giving it IoT connectivity and making it remotely controllable from anywhere on the globe.

A newly constructed building or a building retrofitted with Sozo Global Energy switching technology offers the ultimate solution for both building automation and demand response management combined.

INSTALLATIONS AND COMMISSIONING APP

1. Remove old isolator

2. Connect ANE wire to terminals

3. Close casing by screwing and securing the fascia

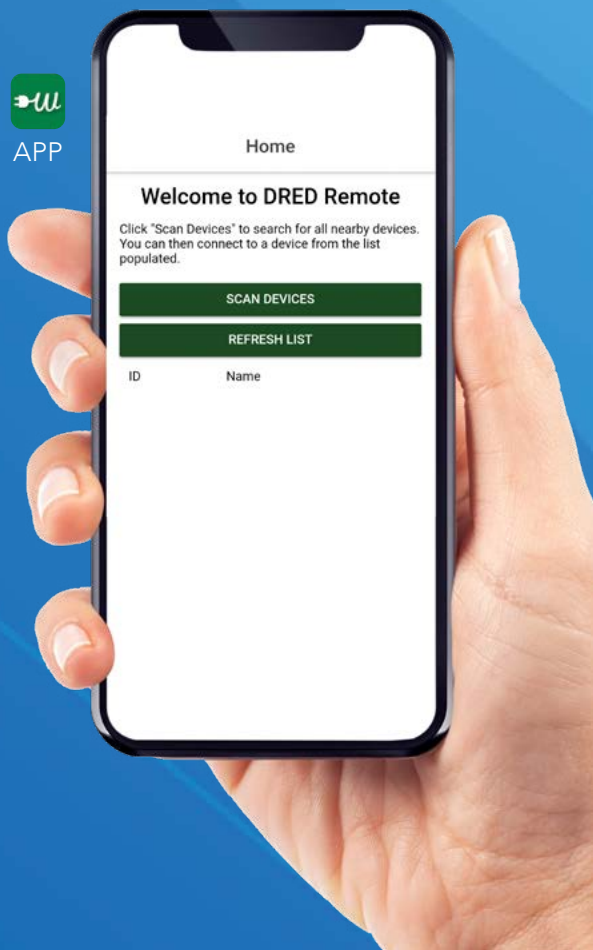
4. Mount you new smart isolator onto the wall

5. Use the App to commission the device via

Bluetooth™

Used by installer - Electricians

APP



Soon available on

Download on the App Store

GET IT ON Google Play

Beta version released on Google Play store

OTHER APPLICATIONS INCLUDE

Hot Water units

Pool/Spa pumps

Electric Vehicles

Photovoltaics

Inverters

Capability to connect with other IoT products

TEAM

Garry Ganis, has a technical engineering background with experience in development and management of prototypes through to production. Garry has worked closely with various leading organisations including large energy retailers.

Terry Portelli, Director has been involved in the new homes and land sector for over twenty years. Managing Director of Red23.

Harry Iliopoulos, Director has been the Director of various Security and Assets Management businesses for over 25 years.

Mark Harbert, Solicitor and Certified Practising Marketer advises companies on commercialisation and growth strategies.

Innovation Experts: We consult with a team of IoT specialists and business consultants that have successfully commercialised an array of smart products on a Global scale.

AUSTRALIAN POTENTIAL

In Australia, the Department of Energy and Environments 'Finkel review;' positioned demand management as critical in managing potential disruptions.[1]

The review spurred Australian Renewable Energy Agency (ARENA) and the Australian Energy Market Operator (AEMO) to announce plans to pilot and fund research into demand response initiatives.[2]

Funding was dispersed between the major energy retailers, and one of those contributions was awarded to SGE's strategic partner.[3]

With millions of DRED enabled AC's, hundreds of thousands of pool pumps an upward shift in electrical generated hot water systems the number of SGE units that can be installed is endless.

After completing a Pilot Agreement with its Energy Retailer partner SGE proceeded with Agile Incubation prototype sprints and Business strategy workshops with the aim to identify and test various market segments and Client Value Propositions (CVP's), Some of these include customer demand response participation rebates through the retailers billing platforms, installer incentives and distributor agreements.

Various market models and pricing strategies are available to energy retailers to maximise the effectiveness and return from DRM programs.

SGM have a clear first to market advantage with extensive DRM knowledge and a clear strategy for commercial scalability. SGE know what it will take to make its products a commercial success throughout Australia and overseas.

The most advanced technology. SGE provides an excellent platform for energy retailers to springboard from its development to date for DRM success internationally.

GLOBAL POTENTIAL

The global market for demand management solutions is estimated to be USD 35.9 billion by 2023, with the hardware segment expected to account for over half of the market share by 2025.

In 2015, the U.S. accounted for the largest revenue share. Japan and Canada are expected to emerge as the key markets for the technology by 2025.

The Middle Eastern and Latin American regions are projected to experience the fastest growth rate, which may be attributed to the promotion of Open ADR Alliance, regulations favouring the implementation of Demand Response Management Systems, and the rising awareness of the program among customers.

SGE is incredibly well positioned to capitalise on these opportunities on a global scale. While various players jockey for a leading position in this sector,

SGE offers the most advanced technology and proprietary rights to date.

1 Blueprint for the Future, Commonwealth of Australia, 2017, Dr Alan Finkel AO, Chief Scientist

2 Australian Energy Management Operator, 2017

3 Australian Renewable Energy Agency, Advancing Renewables funding, Demand Response, 2017

INSTALLATIONS

Balwyn,
VIC

Bayswater,
VIC

Mount Waverley,
VIC

Mernda,
VIC

Bundoora,
VIC

COMPETITOR ANALYSIS

Earlier trials of air conditioning load control by SA Power Networks in South Australia, Energex in Queensland and Endeavour Energy in NSW explored customer acceptance and technical solutions prior to the development of the AS4755 standard. These trials indicated that consumers are willing to accept some level of external control of their air conditioner.

A key barrier was the cost of hardware and its installation and risk. Some modifications were not supported by the air conditioner manufacturer potentially voiding warranties. The prohibitive costs and risk demonstrated by these earlier trials indicated that existing technology did not offer a cost-effective demand management solution.

Energex has been the most successful with air conditioner demand response programs reporting over 53,000 customers in their Peak Smart air-conditioner load control programs in their 2016/17 Demand Management Plan.[6] These trials have completely stopped, focused only on AC units and haven't been further commercialised due to expensive hardware and installations costs.

Another expensive product offering is the TMAC DCSR 3G product which has also failed to commercially launch.

Sozo Global Energy 's pricing strategy works because of its market entry price of just $150 RRP per unit for such a technologically advanced product. This makes it only $50 more than a "dumb Isolator" with a customer payback period of only five DR events. The unit price will decrease over time with government subsidies and as manufacturing quantities increase.

COMPLIANCE

Sozo Global Energy software, hardware and digital services have faced rigorous tests and are fully compliant to all applicable Australian Standards. The installation of Wirebitter products will' not \void a manufacturer's warranty,

CUSTOMER BENEFITS

Some of the incentives offered to consumers and businesses from energy Retailers includes:

- embedded networks tariff pricing,
- energy plan incentives
- customer DR cash backs

These programs offer real incentives for consumers and businesses to actively participate in demand response management. DRM payments are directly credited to a customer's quarterly energy bill for their participation and the end result is a win win situation for all involved. True value throughout all product and service chains. Most importantly.

Sozo Global Energy 's product range has been inclusively designed to address more appliances rather than just AC's. This provides any appliance with DR capabilities and allows an Energy Retailer to quickly grow and develop its DRM program.

PRODUCT DATA SHEETS AND COMPLIANCE

Available only under non-disclosure agreement.

6 Ausgrid Demand Management CoolSaver Interim Report February 2017

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GLOBAL ENERGY

The following diagram provides a conceptual overview of the Wirebutter solution, a system that remotely manages the power consumption of devices. It allows the power consumed by devices to be decreased or increased to help mange periods of high network demand and to reduce consumption when the devices are not required.

Power Generation

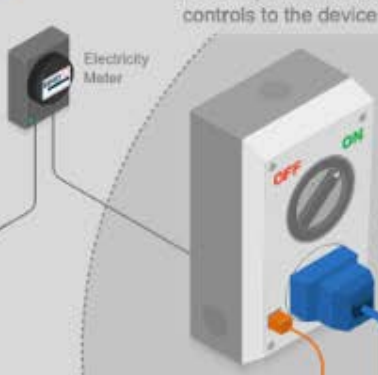
Power Stations generate electricity from sources of primary energy such as coal, gas, hydro, wind and solar.

Demand Spikes

Increasingly power generators are not able to cope with the spikes in demand on hot days. While these events are infrequent, if the power consumption cannot be managed consumers are likely to experience service disruptions.

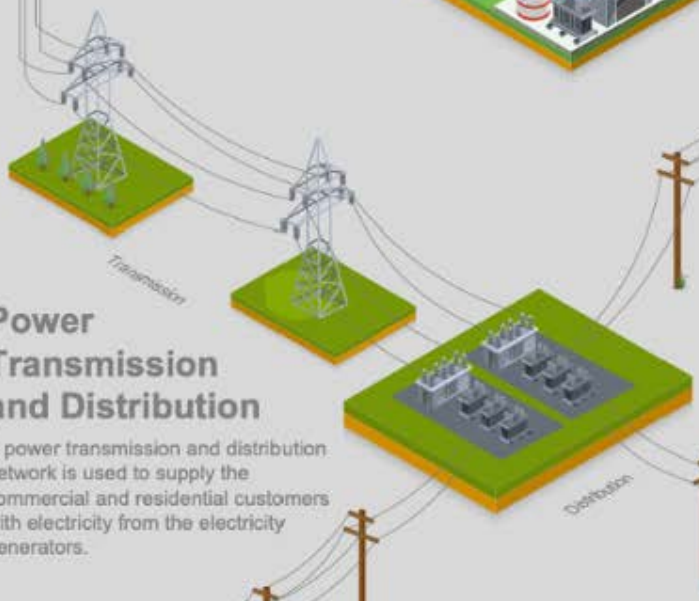
Smart Module

The smart module or switch contains a processor that performs a range of functions including measuring power consumption and sending DRM controls to the device when needed.



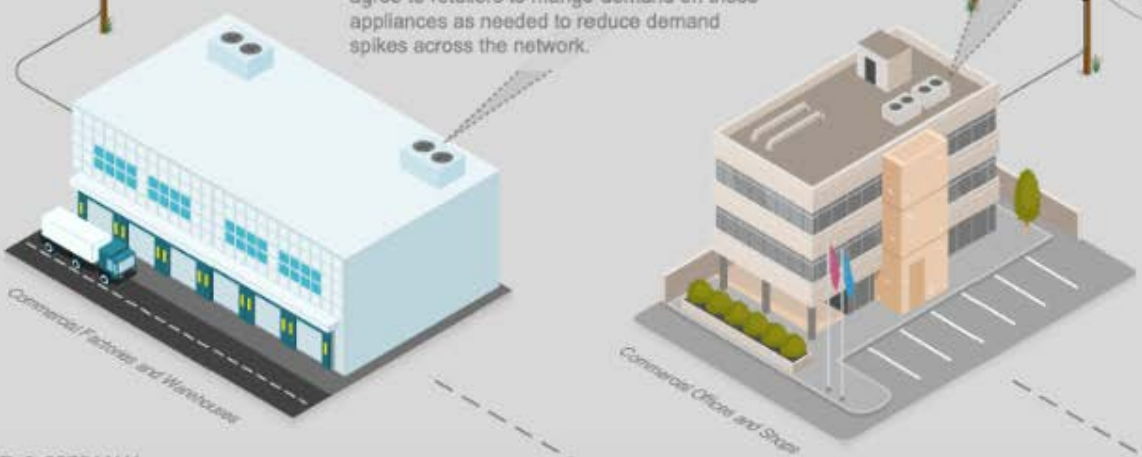
Power Transmission and Distribution

A power transmission and distribution network is used to supply the commercial and residential customers with electricity from the electricity generators.



Customers

Customers install power control units on high demand electrical appliances such as air-conditioners and pool pumps. Customers agree to retailers to mange demand on these appliances as needed to reduce demand spikes across the network.



A3 **MTA Ref:** 32764AU1

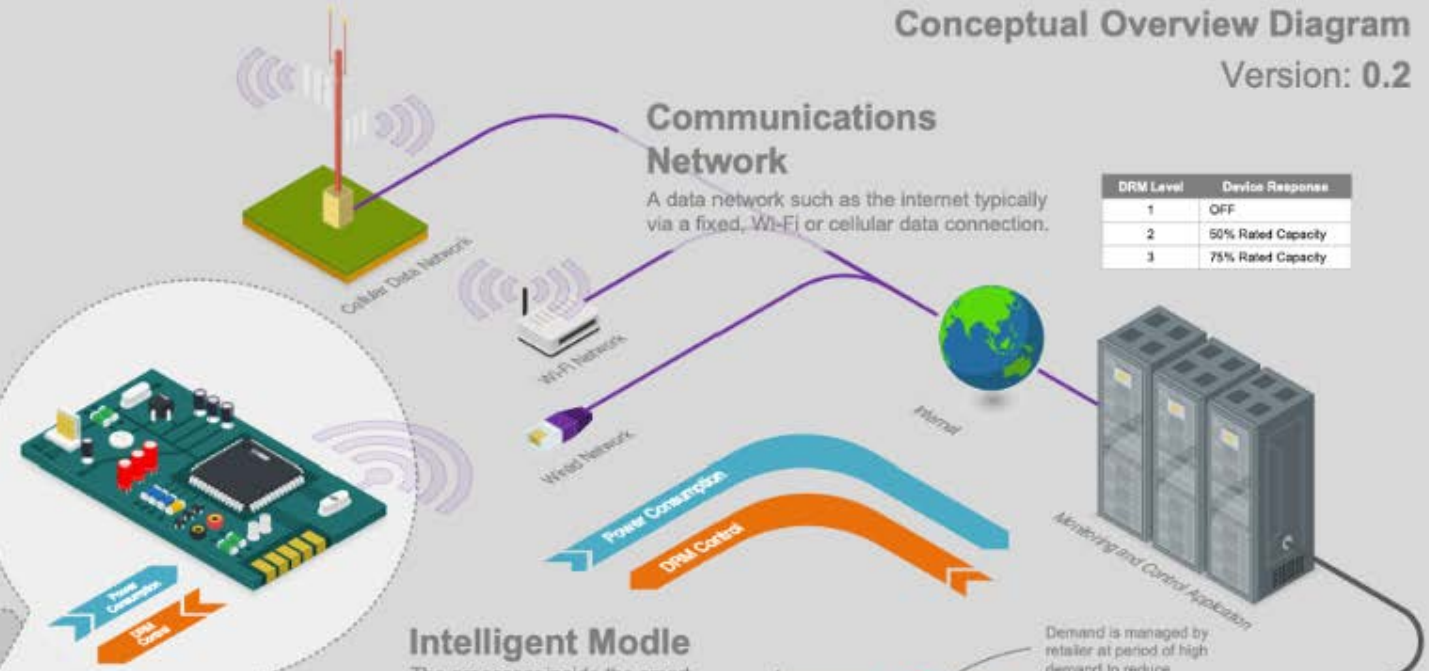
Conceptual Overview Diagram

Version: **0.2**

Communications Network

A data network such as the internet typically via a fixed, Wi-Fi or cellular data connection.

DRM Level	Device Response
1	OFF
2	50% Rated Capacity
3	75% Rated Capacity



Intelligent Modle

The processor inside the smart module connects to the central monitoring and control application. It provides power consumption data and sends DRM control signals to the device when requested.

Demand is managed by retailer at period of high demand to reduce demand spikes.

Demand Response Management

It is now common for electrical appliances, for example such air conditioners, have integrated DRM circuitry that enables the power consumed to be reduced. By sending a signal to the device the power consumption can be limited to 75%, 50% or turned off.

Devices that do not support DRM circuitry can be turned off to reduce consumption.

Electrical Device

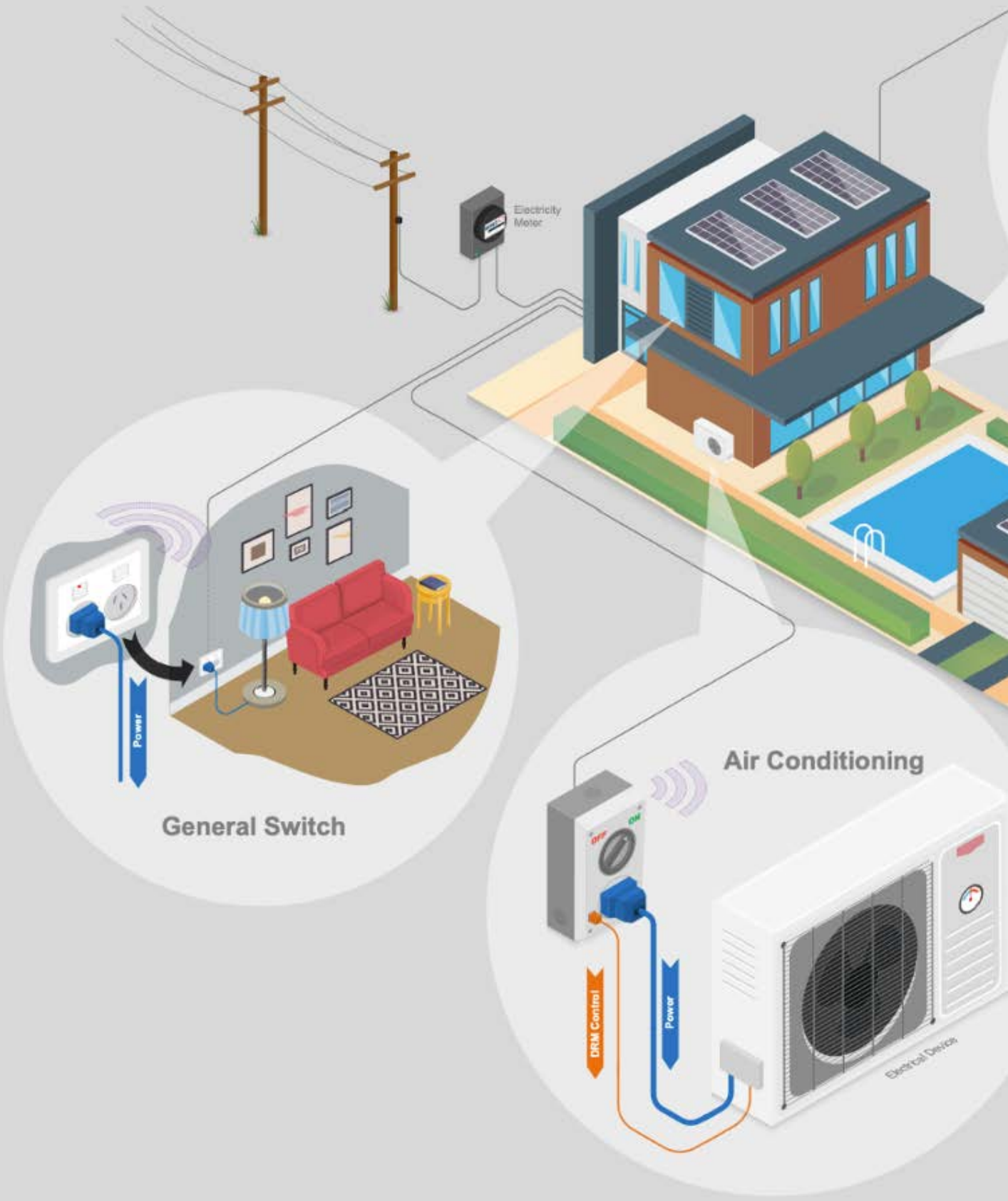
An electrical appliance that is typically non-essential and has significant power consumption such as air-conditioner or pool pump.

Retailer

Electricity retailers sell electricity to consumers. Typically the retailer will enter into a contract with the consumer to supply electricity at a particular rate and service level.

SOZO GLOBAL ENERGY

– Residential Usage Exa



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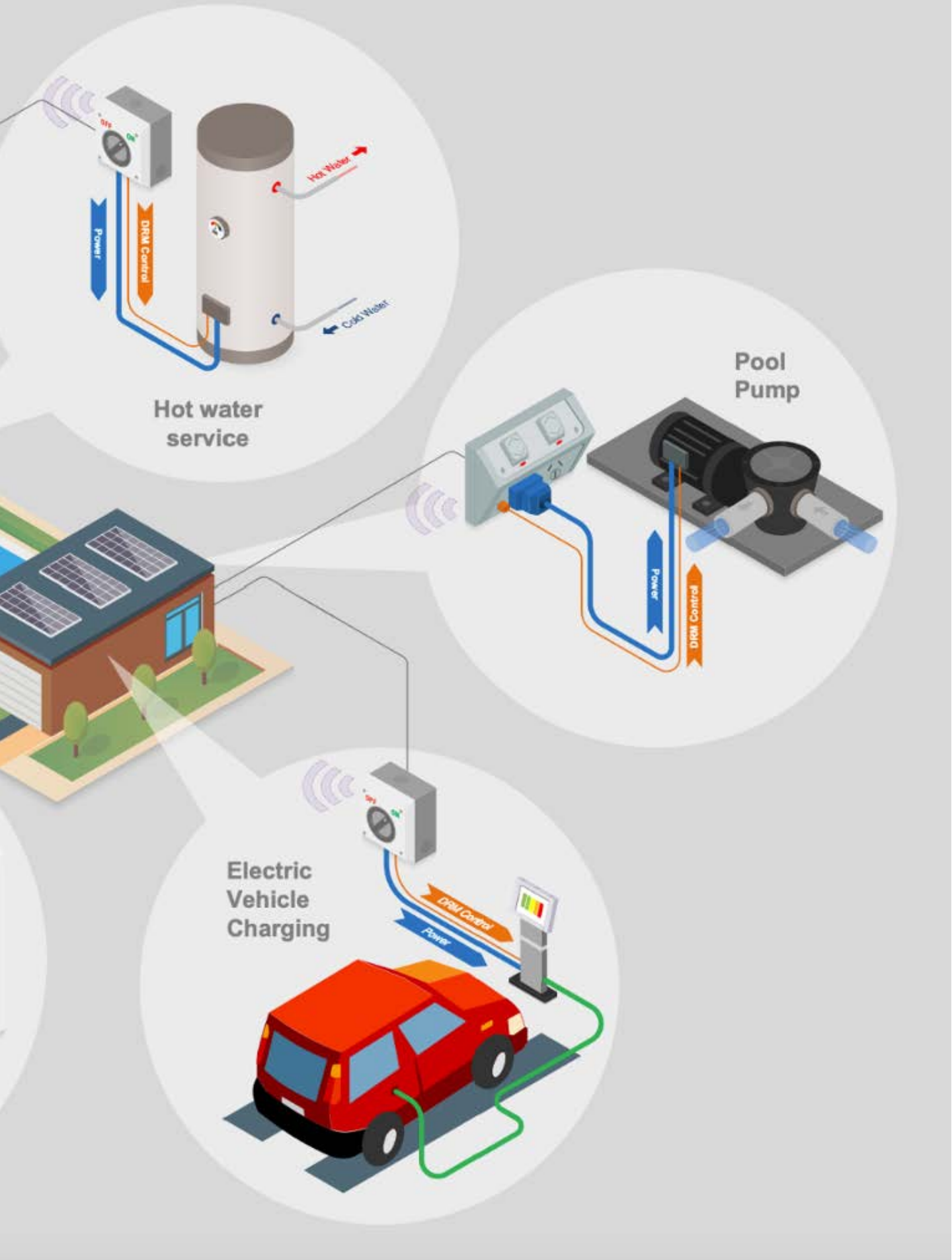
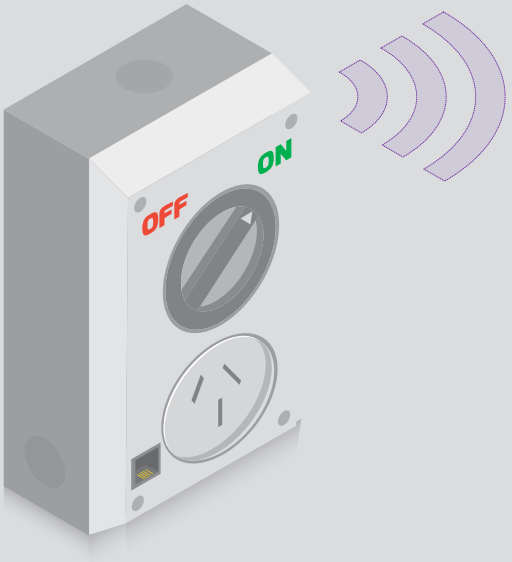
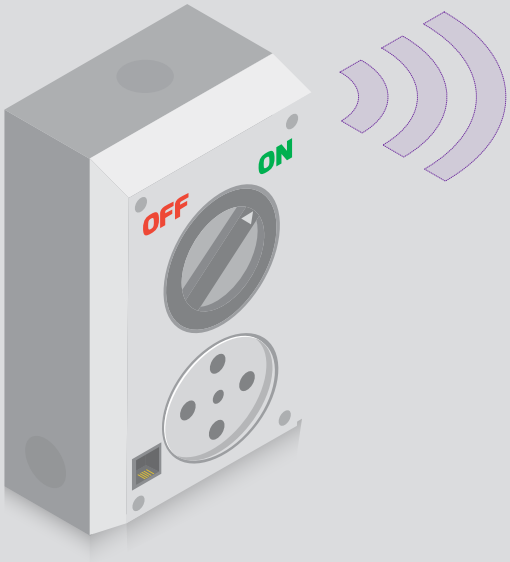


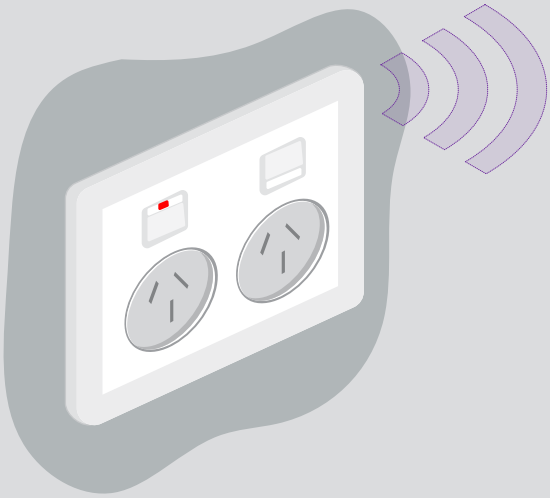
– Form Factor Examples



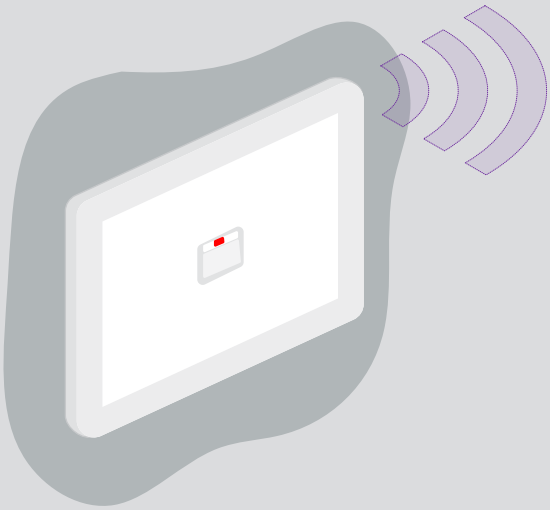
Single Phase
Isolating Outlet



Three Phase
Isolating Outlet



General Power
Outlet (GPO)



Switch

Power Boa

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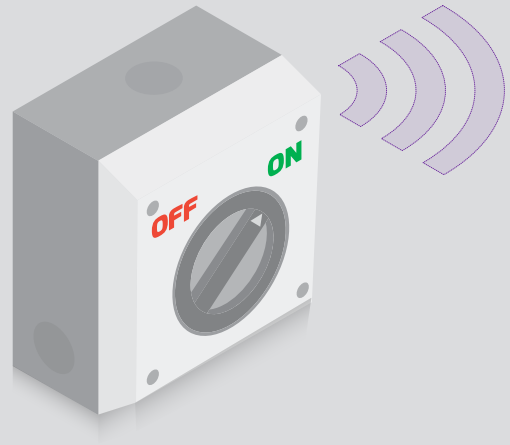
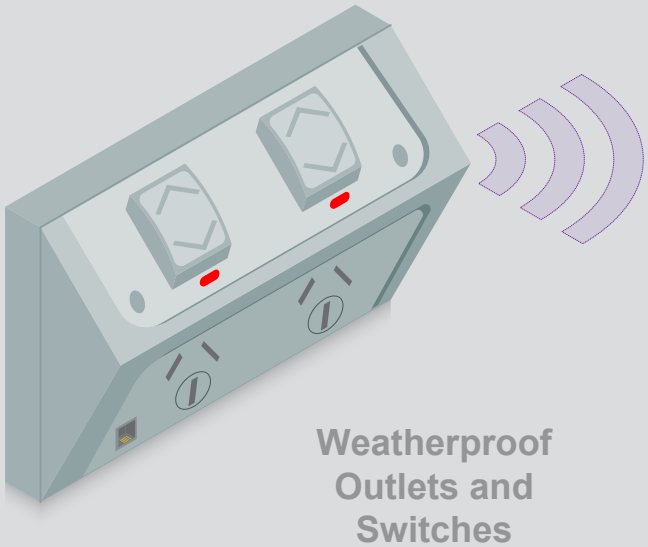
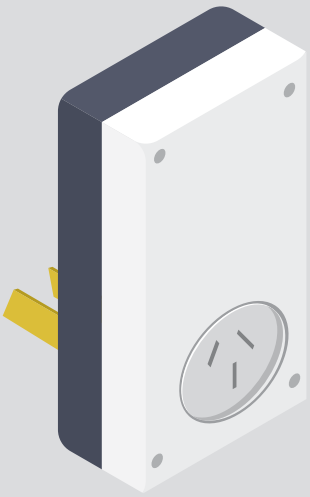
Conceptual Overview Diagram
Version: **0.2**



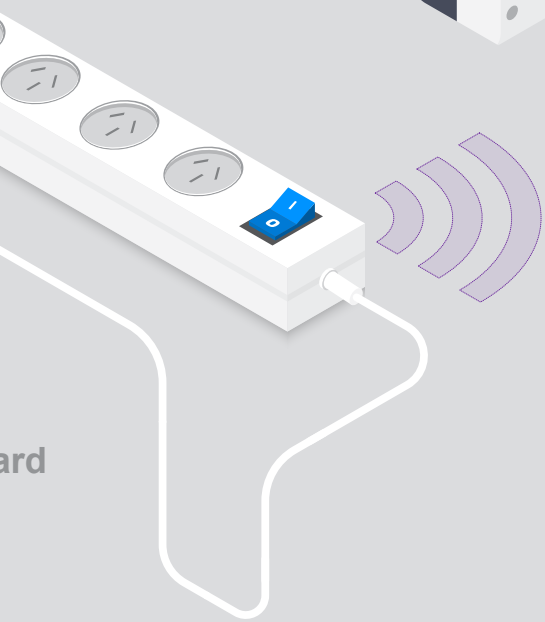
Single or Three Phase Isolating Switch



Weatherproof Outlets and Switches



Smart Plug



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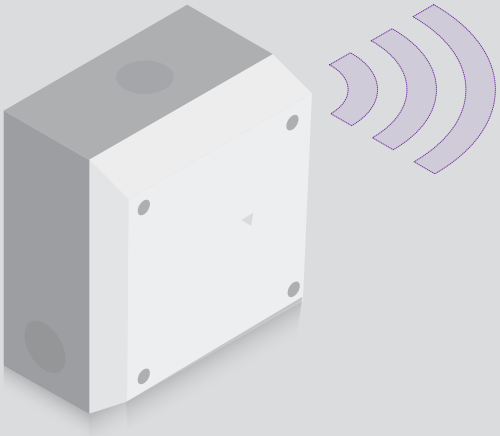

Beacon

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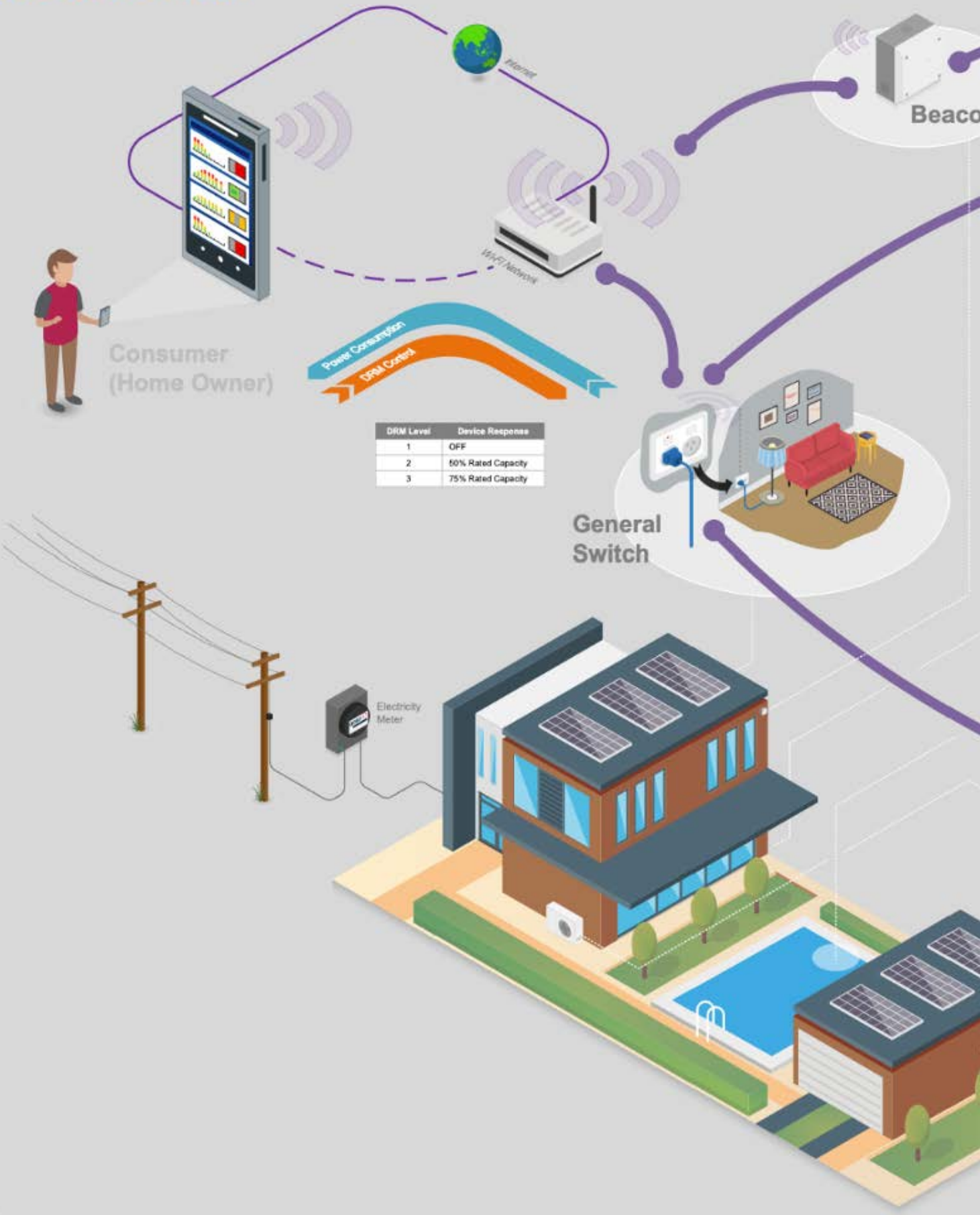
– Mesh Network and Co



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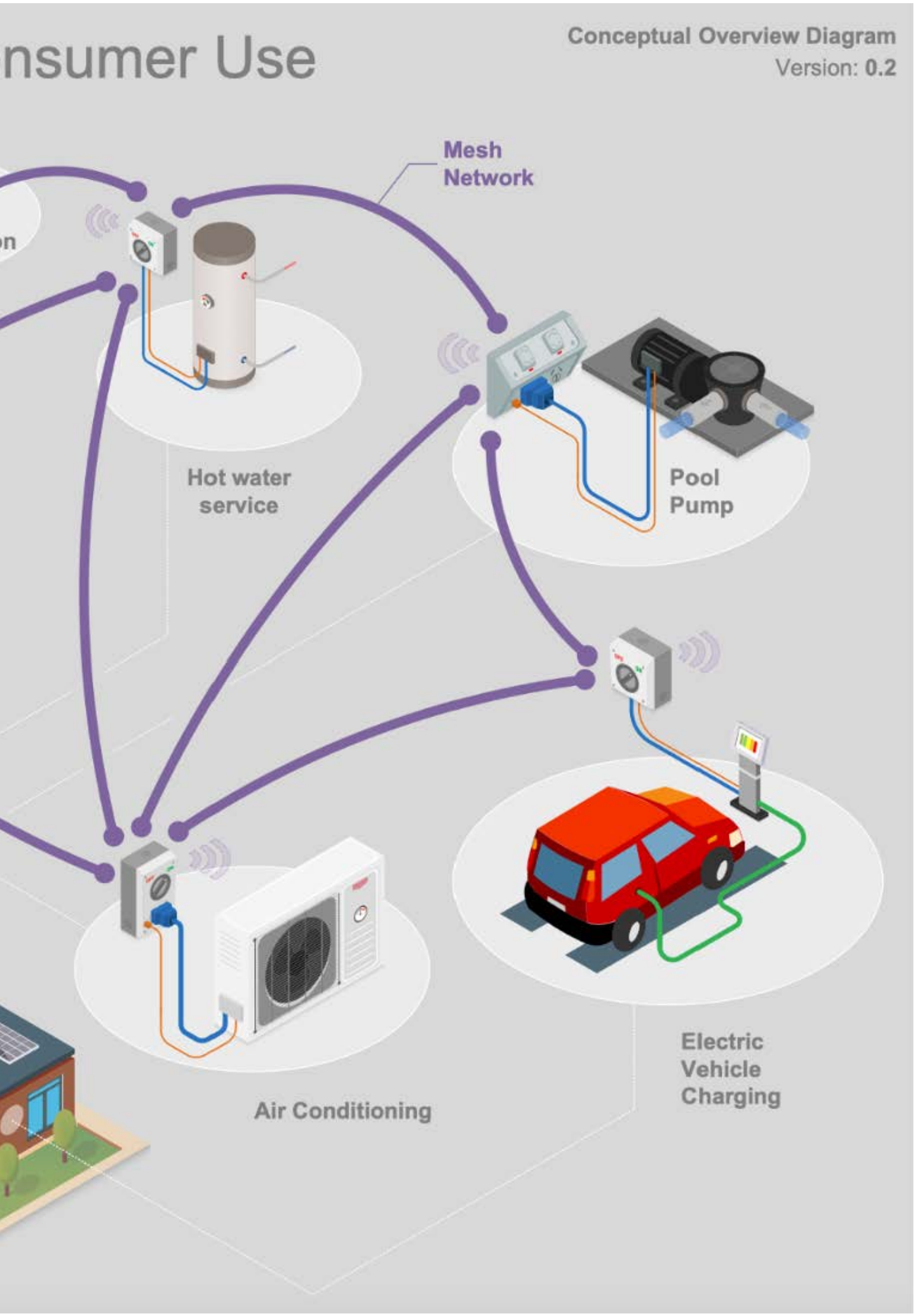
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Conceptual Overview Diagram
Version: 0.2
Mesh
Network
Hot water
service
Pool
Pump
Air Conditioning
Electric
Vehicle
Charging

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