# Faster, cost-effective decarbonisation of electricity grids

**By fixing the voltage problem we allow up to a 13x increase in Distributed Energy Resources (DER) across our networks.**

PLANET ARK Power™

Address to ATBC Conference 29 August 2019

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# Planet Ark Power™

## Leading Australian Renewable Energy Technology Company

- **Founded as GoZERO Energy in 2014 and partnered with Planet Ark™, Australia's most recognised environmental and sustainable brand* in 2017.**
- **Design and deliver comprehensive rooftop solar solutions that slash electricity costs across commercial, industrial and institutional sectors to build a sustainable, clean energy future.**
- **Received $1.8m through Advance QLD Fund & other QLD Government grants and programs.**
- **Developed unique, world-first technologies – *eleXsys* - solving challenging problems facing network operators amid transition to distributed renewable energy networks.**
- **Global energy transition winner at World Energy Council and German Energy Agency - Startup Energy Transition Awards 2019**
- **Currently employ a team of over 35 exceptional technicians, engineers and support staff at our Brisbane headquarters.**

*Living LOHAS 6 Research Report – Modium Group 2019

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# Taiwan's clean energy target

**In 2017, Taiwan Government set a target of 20% of its electricity supply to come from renewable sources by 2025 – up from 5% .**

**To achieve this Taiwan needs to build approx 27GW of new capacity, through a combination of offshore wind and solar power (10GW).**

**According to the International Renewable Energy Agency (IRENA), Taiwan had a cumulative installed PV capacity of 2.61 GW at the end of 2018.**

**Predicts 1.5 GW of additional PV capacity could be deployed in 2019 as a consequence of new efforts by government to push clean energy**

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# Taiwan's clean energy target

**Taiwan's renewable energy targets are welcome and necessary if we are to progressively decarbonise our electricity networks.**

**However, as more distributed energy infrastructure comes on line energy grids built for the one-way flow of energy come under significant pressure from increasing two-way energy flows.**

**This is the significant issue which has emerged in Australia as some states have more than 35% of all residences with rooftop solar exporting surplus energy into local network.**

**Planet Ark Power has developed a world leading solution to this emerging challenge and is now bringing it to market.**

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# Too much DER creates distribution grid voltage problems

- Grid imposes curtailment
- Drives significant capital investment
- Reduces rooftop solar ROI
- Much less rooftop solar can be installed
- Destroys VPP effectiveness
- Stops blockchain P2P
- Makes rooftop solar, VPP & Microgrids non-bankable
- Social inequities across communities

**Rooftop solar panel surge is overloading the electricity grid and could lead to blackouts**

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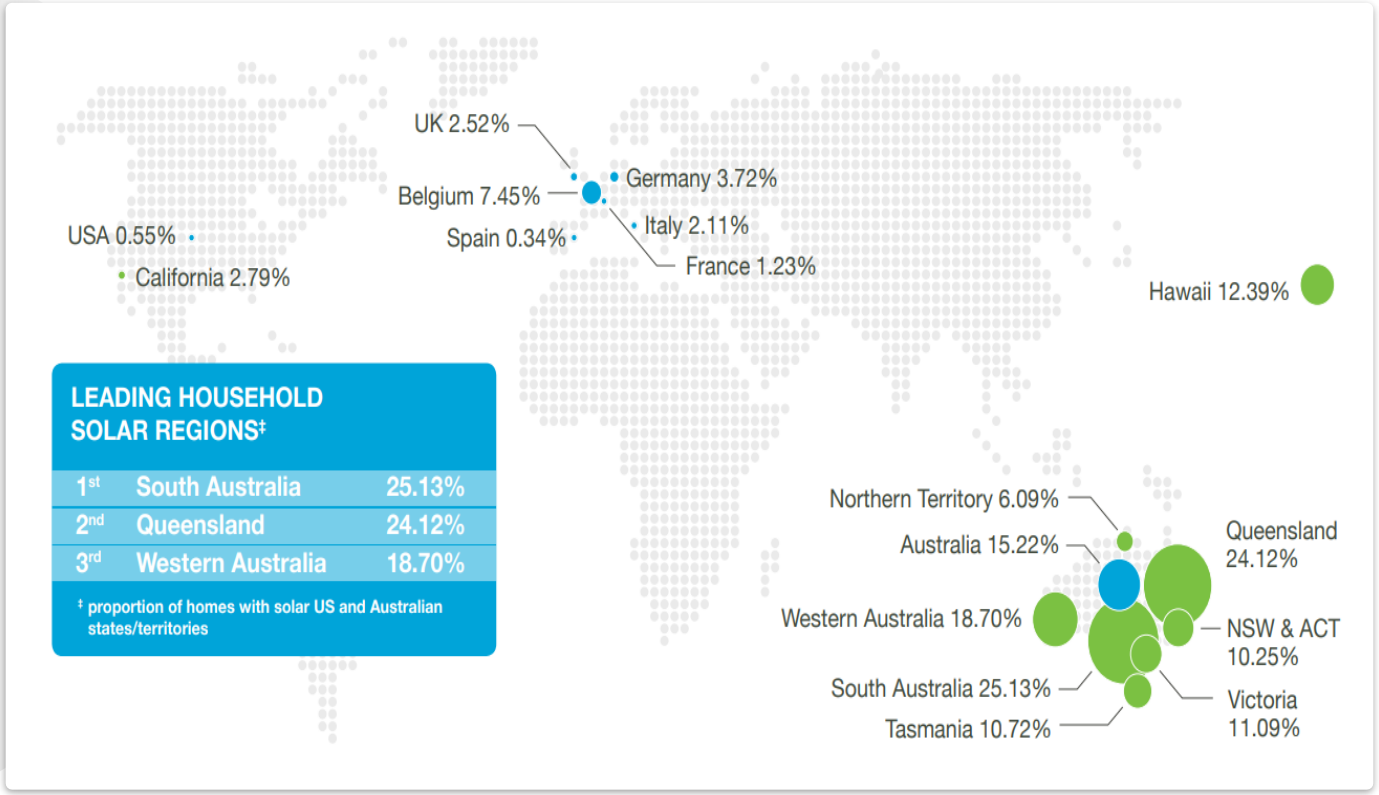
# Too much DER is impacting Hawaii and Australia now – rest of the world to follow.

**Australia global #1 for residential rooftop solar penetration per capita**

**2x** more than Hawaii

**4x** more than Belgium

**8x** more than Germany




**LEADING HOUSEHOLD SOLAR REGIONS‡**

| | | |
|---|---|---|
| 1st | South Australia | 25.13% |
| 2nd | Queensland | 24.12% |
| 3rd | Western Australia | 18.70% |

‡ proportion of homes with solar US and Australian states/territories

# But How?

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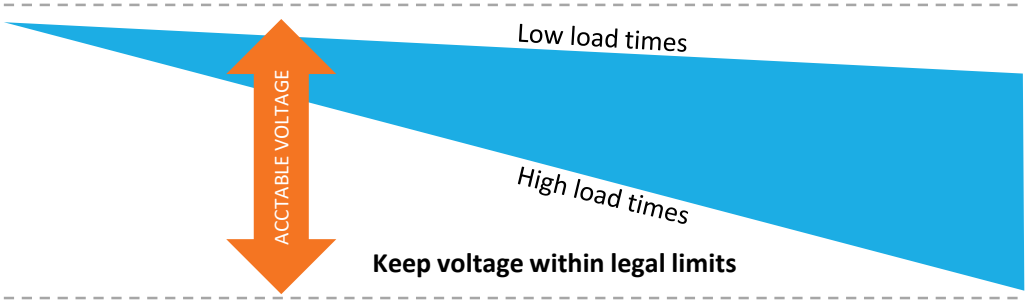
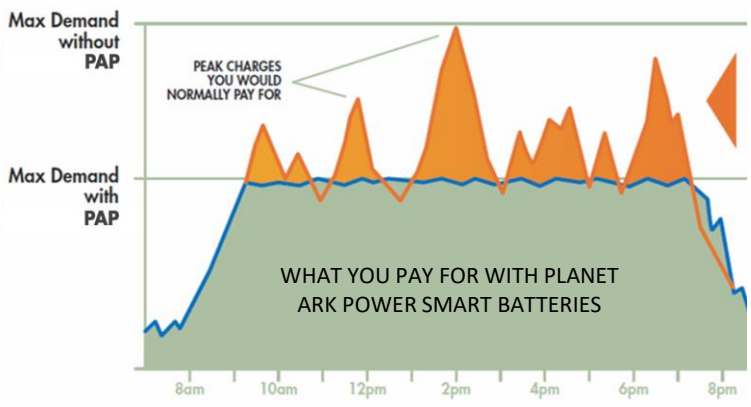
## 1 Digital Device

**Reactive Power**

10 times smaller
and cheaper

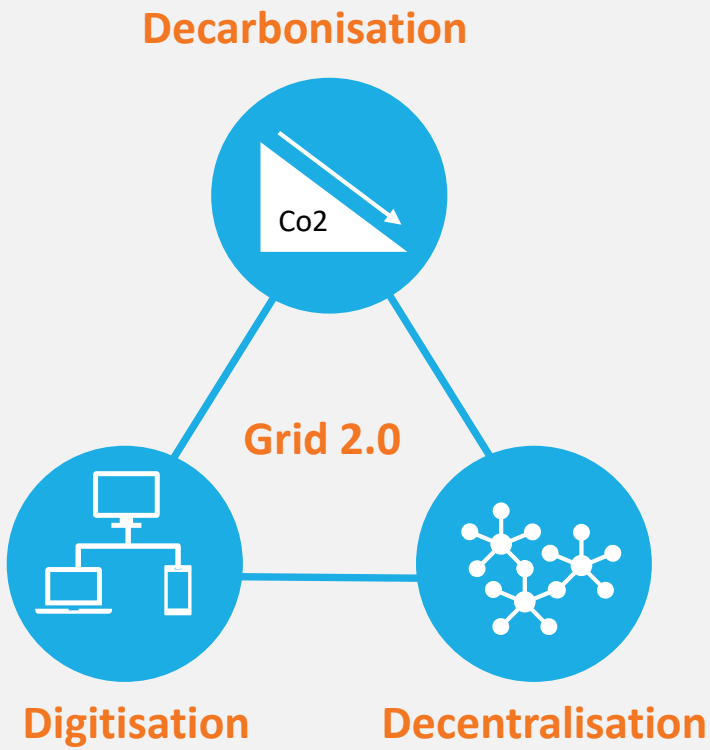
## 2 Multiple Levels of Ai




Discharge Battery to Eliminate Peaks to Save $$$$$

# Decarbonise Networks with DER




## Current approach is solar & wind farms

- x Traditional approach
- x Expensive transmission build
- x Takes many years
- x Limits DER in local suburbs & commercial developments

## Planet Ark Power fixes voltage problems

- = Up to 13x increase in DER in across networks
- = Uses existing infrastructure so ROE improves
- = Cheaper to the end user and to community
- = VPP viable to replace peaking plants
- = Democratises the grid

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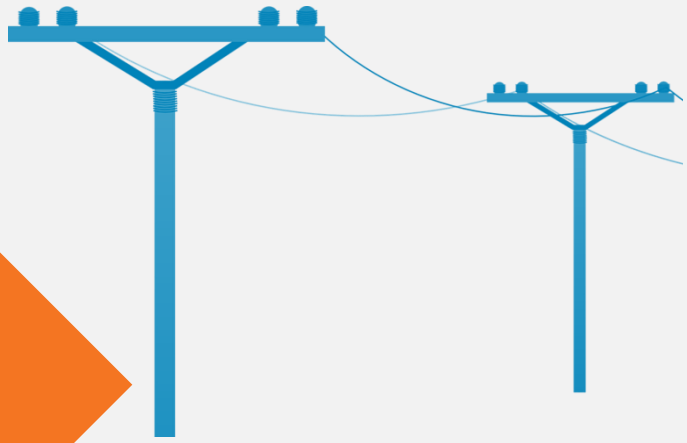
# VMaaS – Voltage Management as a Service

Sell clean energy

Install more solar

+ Large VPP

Cheaper



**Export Excess**

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## Commercialisation

- Minimum Viable Product - YES
- 50 x commercial sites in 2019
  - Rooftop solar + VPP examples
  - 500 KW and 300 KWh
  - 1.5 MW and 3 MWh
  - 3 MW and 3 MWh

## Creating Clean Energy Utilities

- Large Pension Fund = $200 million $AUD
- Large REIT's
  - IP allows Rooftop Solar Farms + VPP
  - Paid % of annual income for our IP

# Industrial Scale PV and Projected Generation

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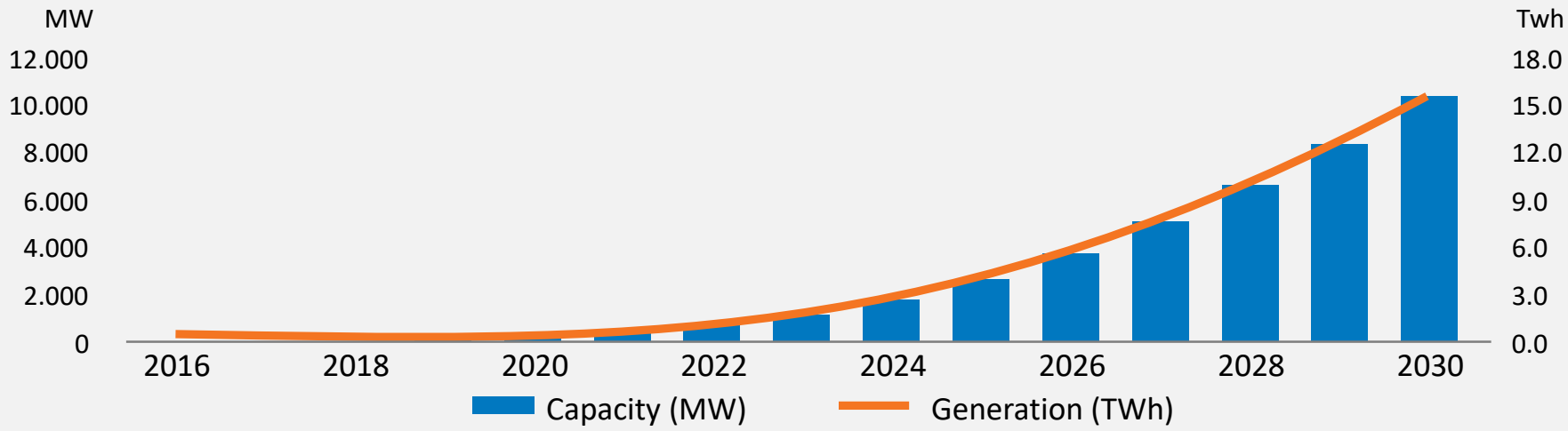


1. Forecast to 2030 =
**$57.2 Billion**

3. VMaaS New $ Generation to 2030 =
**$10 Billion**

**2. VMaaS Creates New CAPEX to 2030 =**
**2 x or extra $57 Billion**

4. VMaaS Revenue Potential to 2030 =
**$2.5 Billion**

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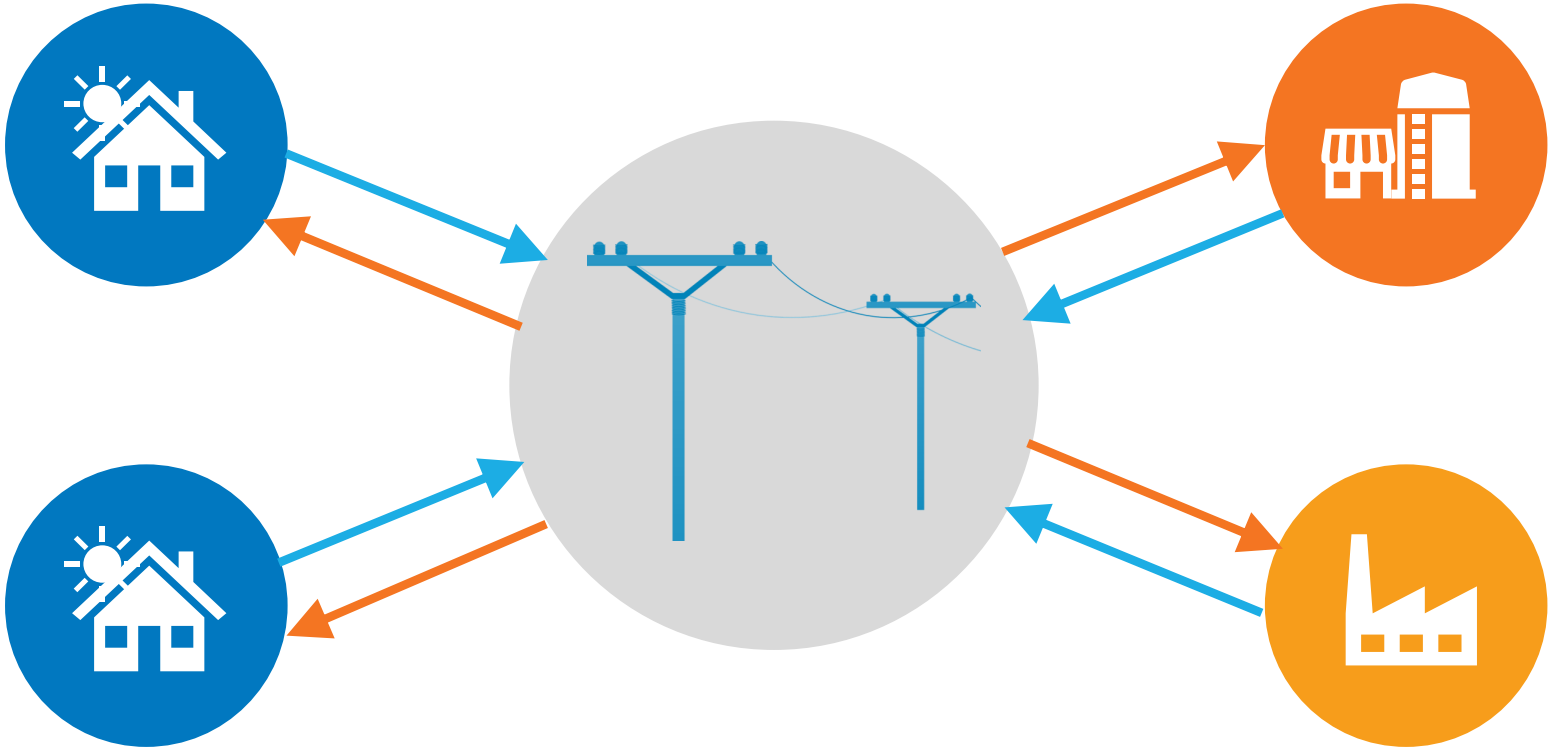
# Decarbonises Energy Grids at Lower Costs

**Solving the voltage problem helps decarbonise energy grids & enables a two-way flow of electricity across existing infrastructure without the need for expensive upgrades that flow onto higher energy prices**



# Planet Ark Power – Global Energy Transition Pioneers

**In April 2019, our grid-transforming technologies won international recognition.**

**Planet Ark Power won the category of '*Intelligent Grids, Platforms and Cyber Security*' at the Startup Energy Transition (SET) Awards in Berlin, hosted by the German Energy Agency (dena) in cooperation with the World Energy Council.**