

# PEER-TO-PEER ENERGY TRADING

A DISTRIBUTED ENERGY MARKET

**POWER**  **LEDGER**

# OVERVIEW

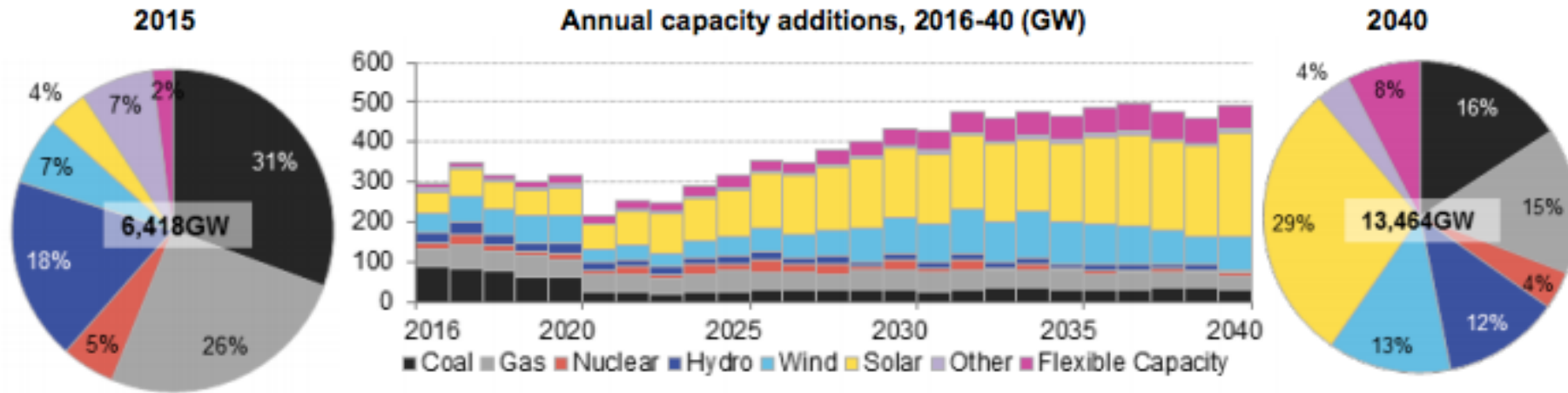
- Context – where the energy model is heading
- Impact on consumers and network businesses
- Blockchain enabled peer-to-peer trading
- Power Ledger



# DISRUPTION

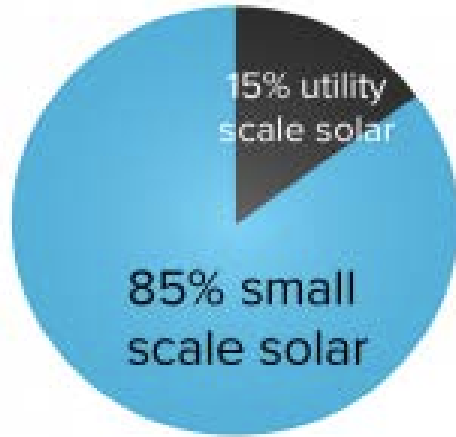
THE FACE OF ENERGY IS CHANGING: SOLAR WILL SOON DOMINATE GLOBALLY

Figure 1: Global installed capacity in 2012 and 2040 and projected capacity additions, by technology (GW)

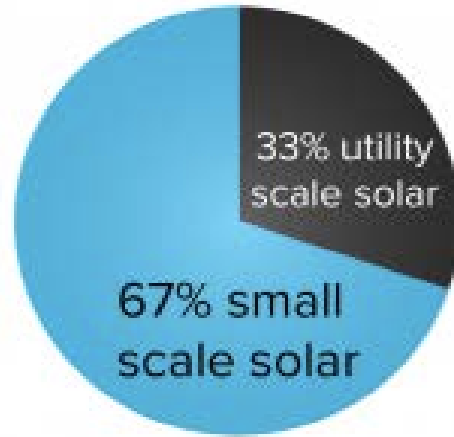


Source: Bloomberg New Energy Finance. Note: Flexible capacity includes power storage, demand response, and other potential resources.

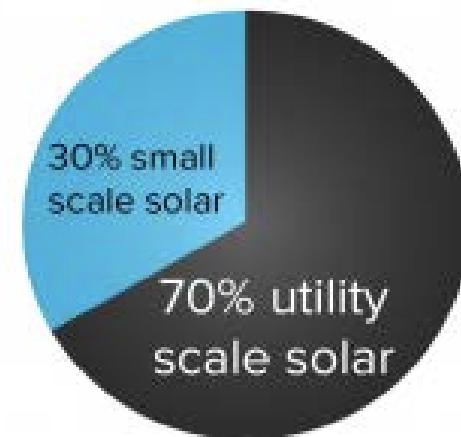
# GLOBAL COMPARISON



**AUSTRALIA**



**EUROPE**



**UNITED STATES**

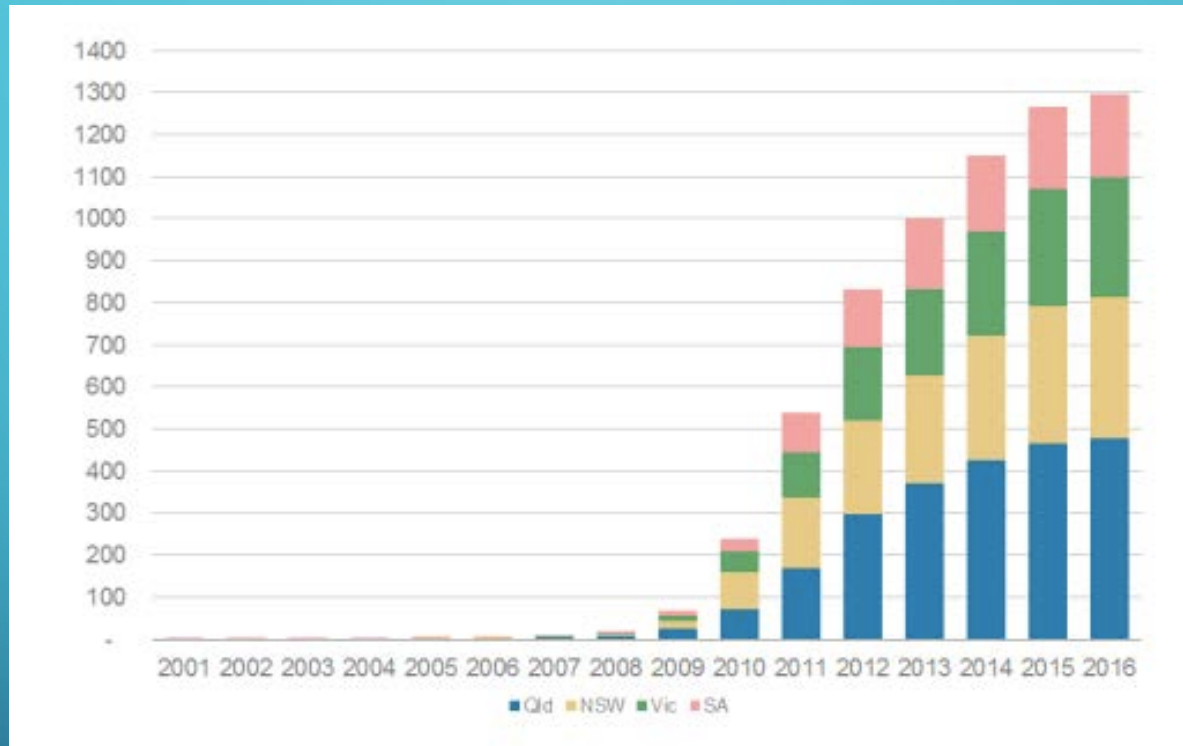
Bloomberg New Energy Finance

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# SOLAR ON AUSTRALIAN HOMES



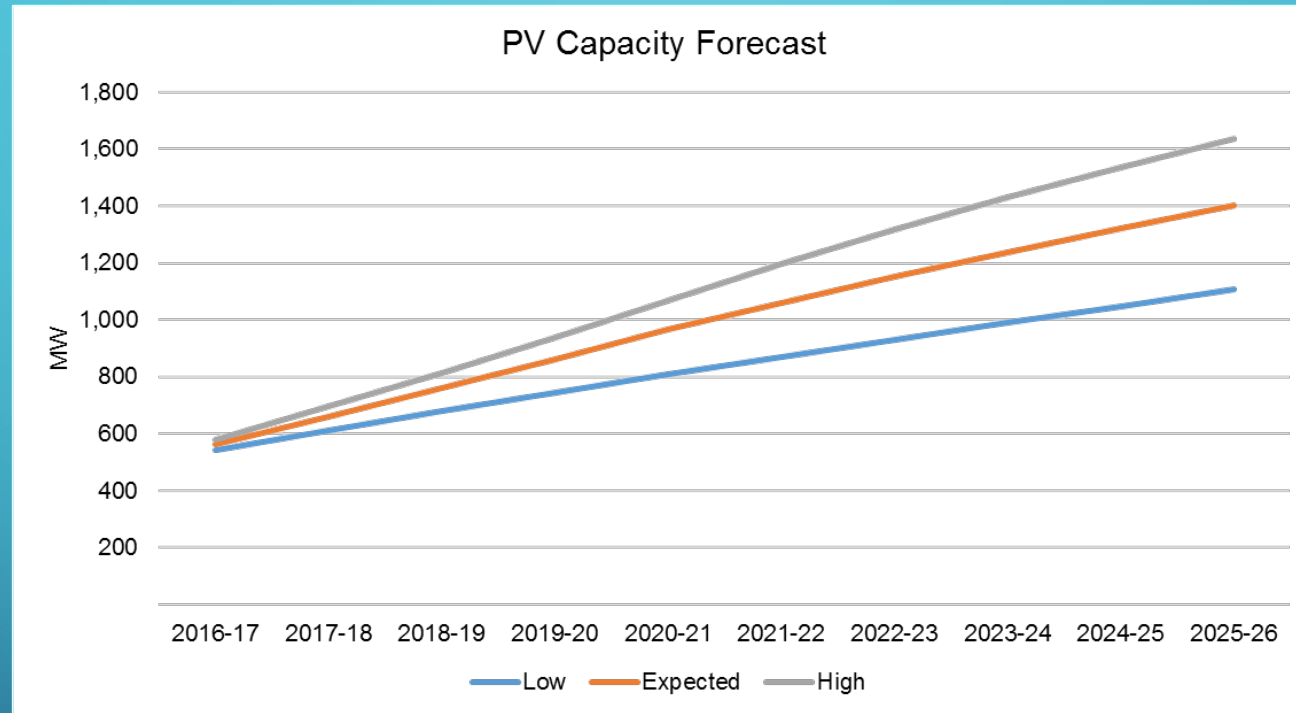
From Australian Clean Energy Regulator

**POWER**



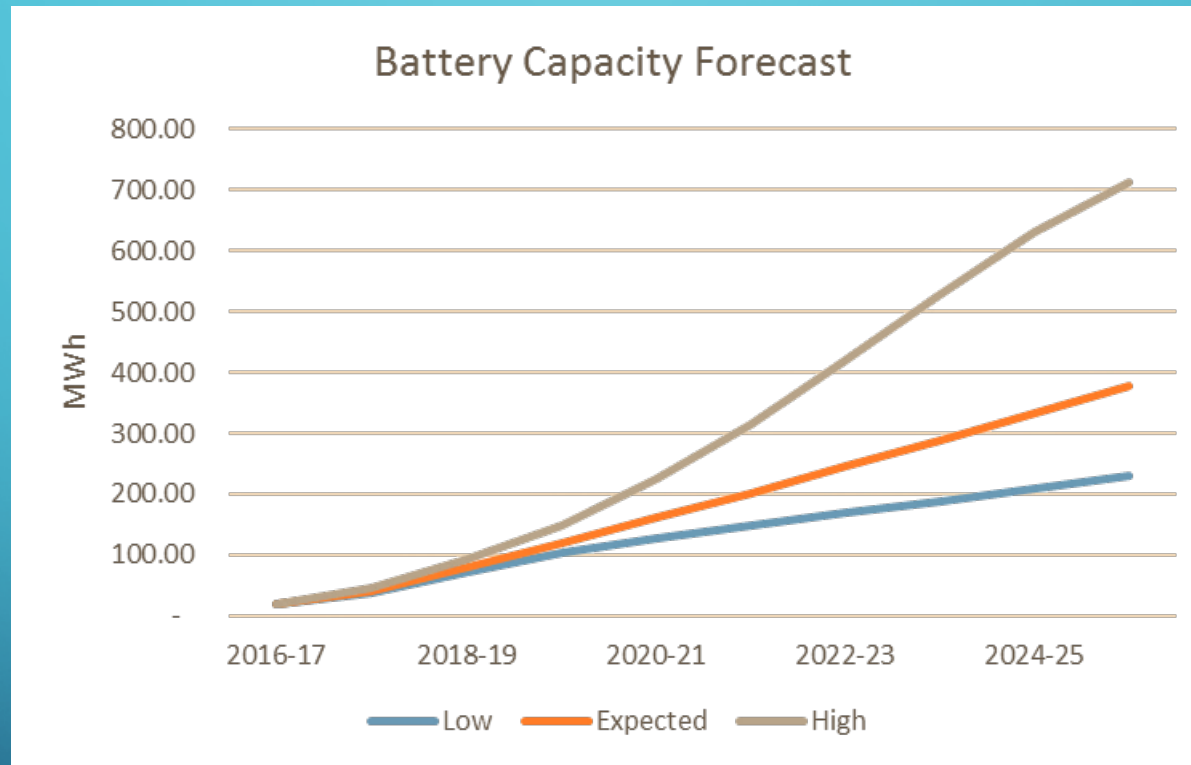
**LEDGER**

# AEMO FORECASTS FOR SWIS



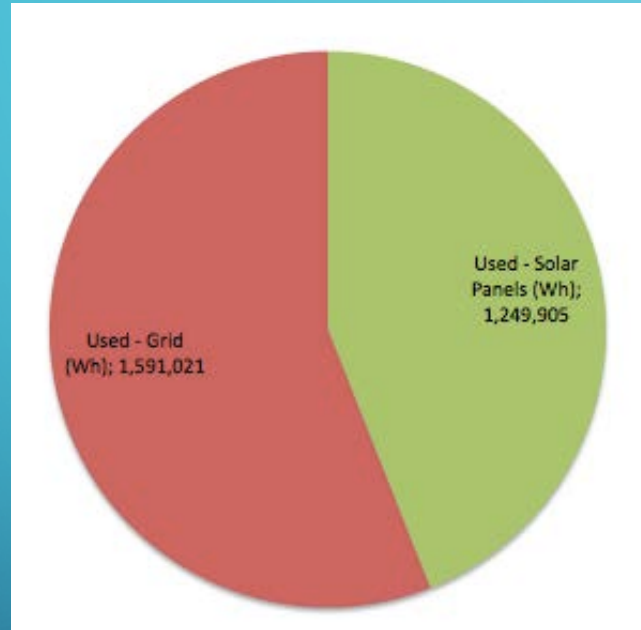
From AEMO's ESOO 2016

# AEMO FORECASTS FOR SWIS

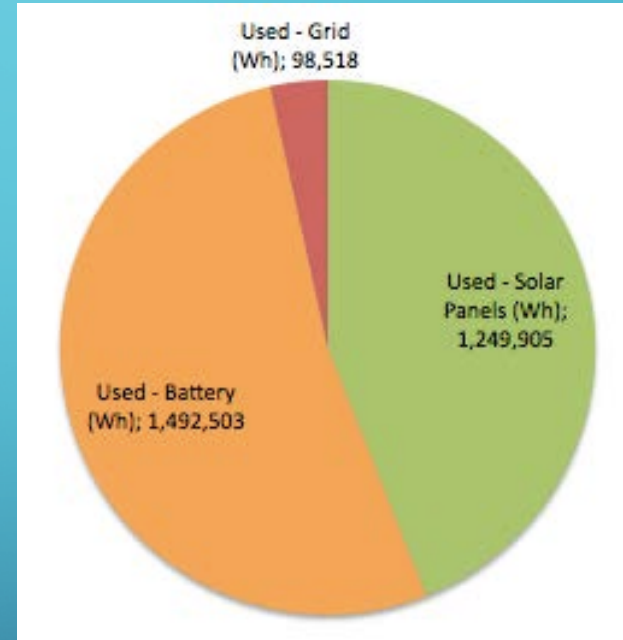


From AEMO's ESOO 2016

# LOAD DEFECTION: SOLAR AND BATTERIES



45% load deflection



97% load deflection

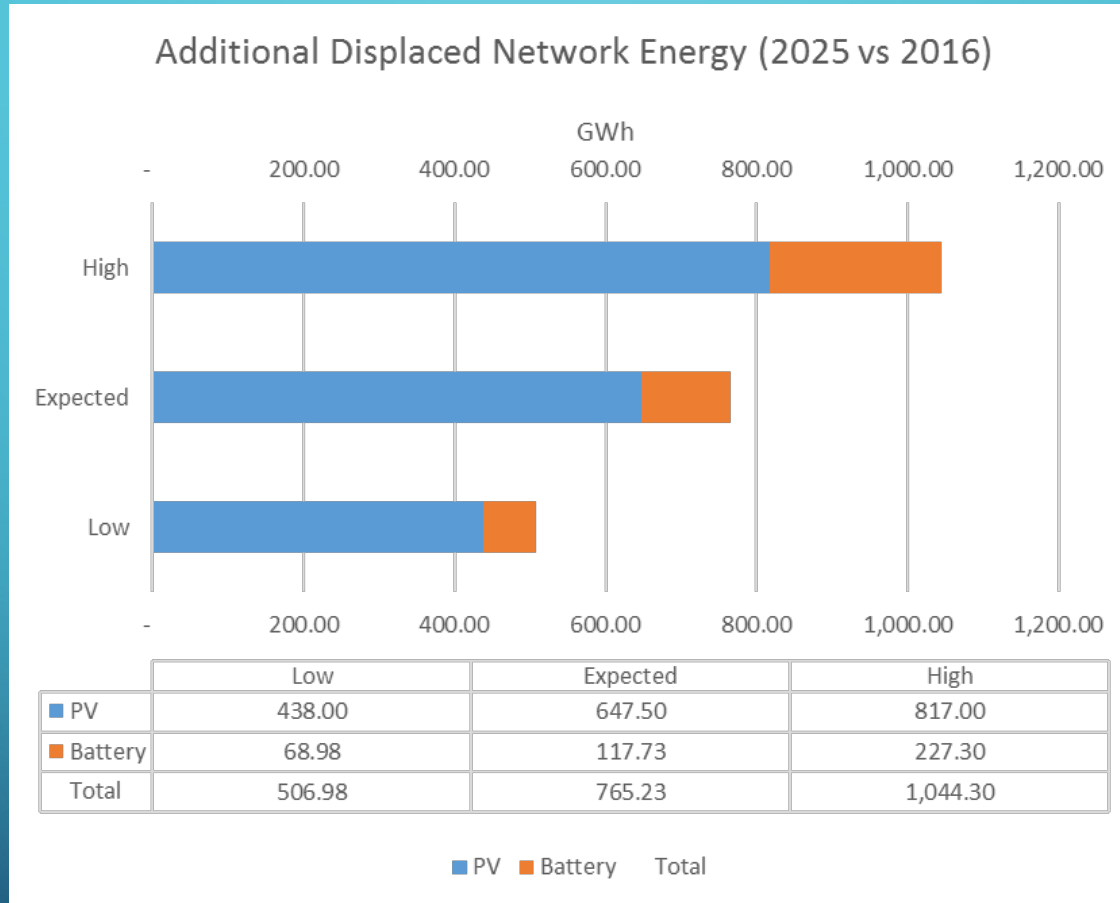
**POWER**



LEDGER



# IMPACT ON NETWORK UTILISATION



**POWER**



**LEDGER**

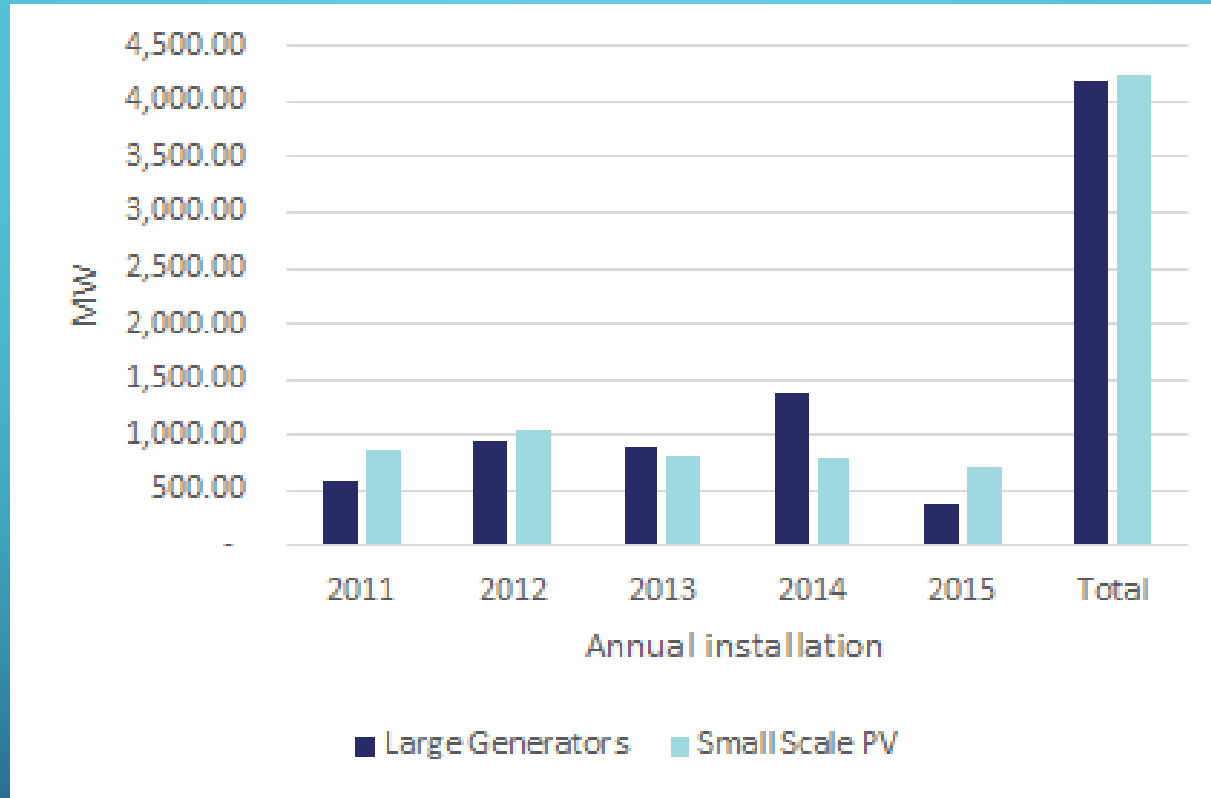
# CAN P2P TRADING FACILITATE DISRUPTION WITHOUT VALUE DESTRUCTION?

# THE PHYSICAL VALUE CHAIN... AS IT WAS



Courtesy of Western Power

# NEW GENERATION IN AUSTRALIA



**POWER**



LEDGER

# AN ENERGY REVOLUTION IS LOOMING.....

- ❖ Energy industry facing revolutionary change – from and the rooftops of everyday consumers
- ❖ Industry continues to be managed by a centralised market – a source of truth
- ❖ PV cost reductions and falling buy-back rates driving the economics for change

**Consumers want to take the power back...**

**POWER**  **LEDGER**

# THE PROBLEM

- ❖ The value of consumer investment is being eroded
- ❖ Strata-titled developments don't invest in roof-top PV
- ❖ Community-scaled renewable generators don't always have the scale or sophistication to deal with energy markets
- ❖ There is no distributed platform that allows prosumers and generators to confidently transact individual units of energy creating savings and incentives for new distributed renewables investment.

# THE SOLUTION

- ❖ User-friendly consumer-focused P2P trading platform that settles trades at predetermined intervals.
- ❖ A blockchain as the trusted public ledger, which permits P2P energy trading.
- ❖ The economic benefit to consumers will actively encourage new PV up-take, reduce consumers' power bills and reduce emissions.

# POWER LEDGER

- ❖ Built Australia's first blockchain-enabled power meter 08/2016.
- ❖ Australia's first blockchain-enabled peer-to-peer trading trial – active now since early September 2016
- ❖ Signed MoU with Vector, NZ's largest distribution network, for a 500-customer P2P market in Auckland – September 2016.
- ❖ Already signed with 9 national and international utilities, distribution businesses and PV retailers.





# KEY TAKEAWAYS

- P2P trading is a sensible response to the changing physical nature of the energy value chain.
- The blockchain provides the source of trust that until now only came from the market.
- Innovation that maintains the utilisation and value (to the extent possible) of existing network assets allows for the broadest societal benefit from DER and reduces the risk of power poverty.