

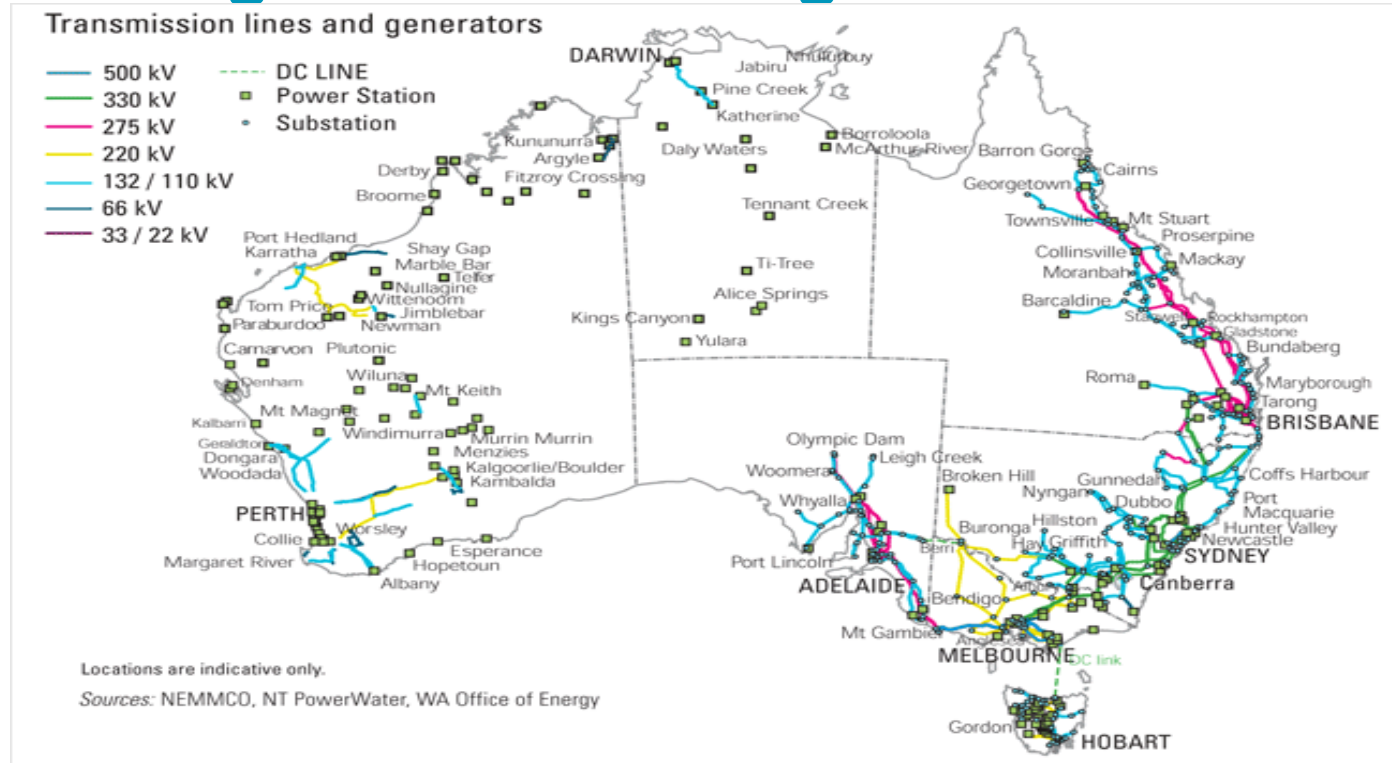
# ELECTRICITY NETWORK TRANSFORMATION ROADMAP

2015-25

## Navigating the critical decade of change



# Powering the world's largest island...



# The Disruption Generation...



**NETFLIX**

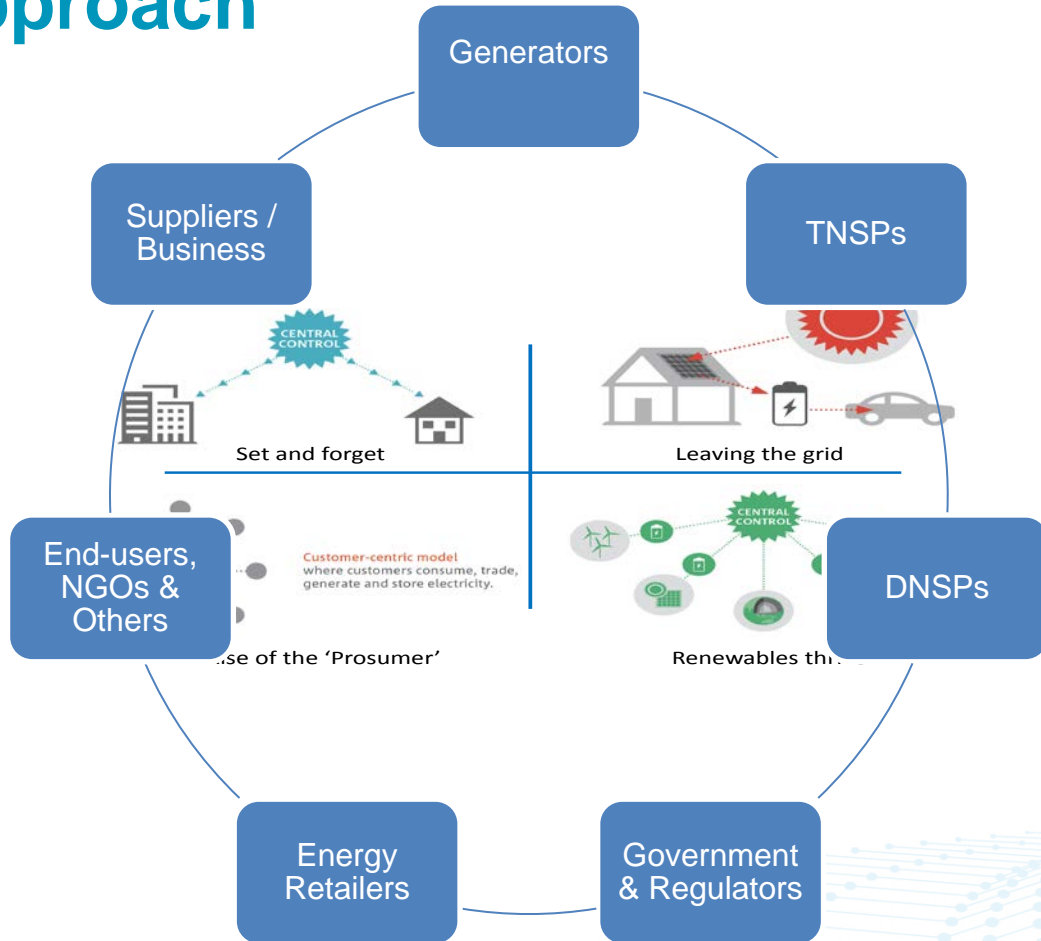


# Australia's Global Differentiation...



**The world's future electricity 'sandbox'**

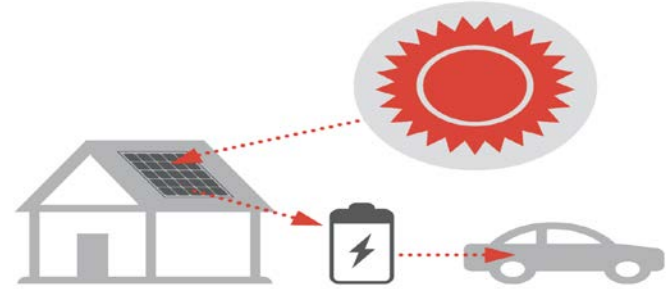
# Forum Approach



# Four 2050 scenarios



Set and forget



Leaving the grid



**Customer-centric model**  
where customers consume, trade,  
generate and store electricity.

Rise of the 'Prosumer'



Renewables thrive

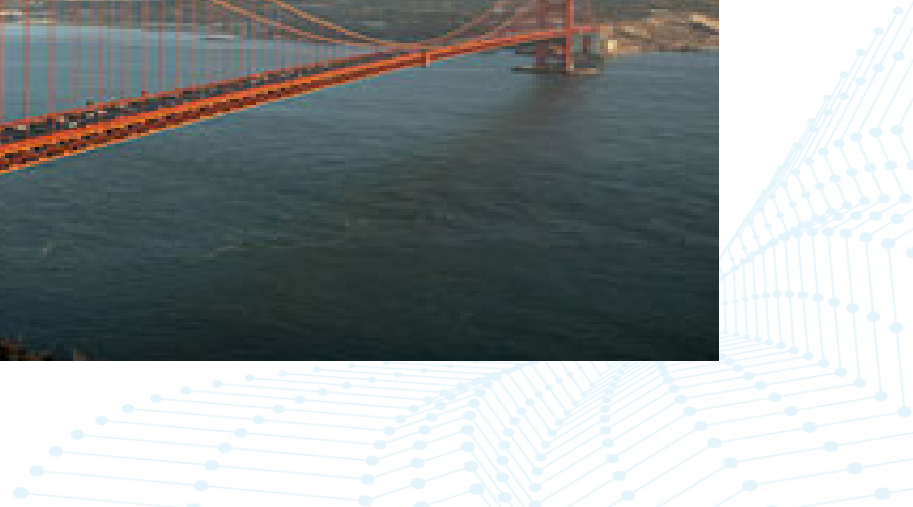


# Seven universal observations about Australia's electricity transformation...



1. Network-centric → Customer-centric
2. Centralised → Decentralised/Hybrid
3. Fossil fuels → Continued decarbonisation
4. Regulated natural monopoly → Increasing exposure to competition
5. **Up to 50% of the nation's electricity generated locally by 2050!**
6. **Grid continues to play a critical (but highly evolved) role in 2050**
7. **This next decade will be a period of profound transition**

# Bridging the next critical decade of change...

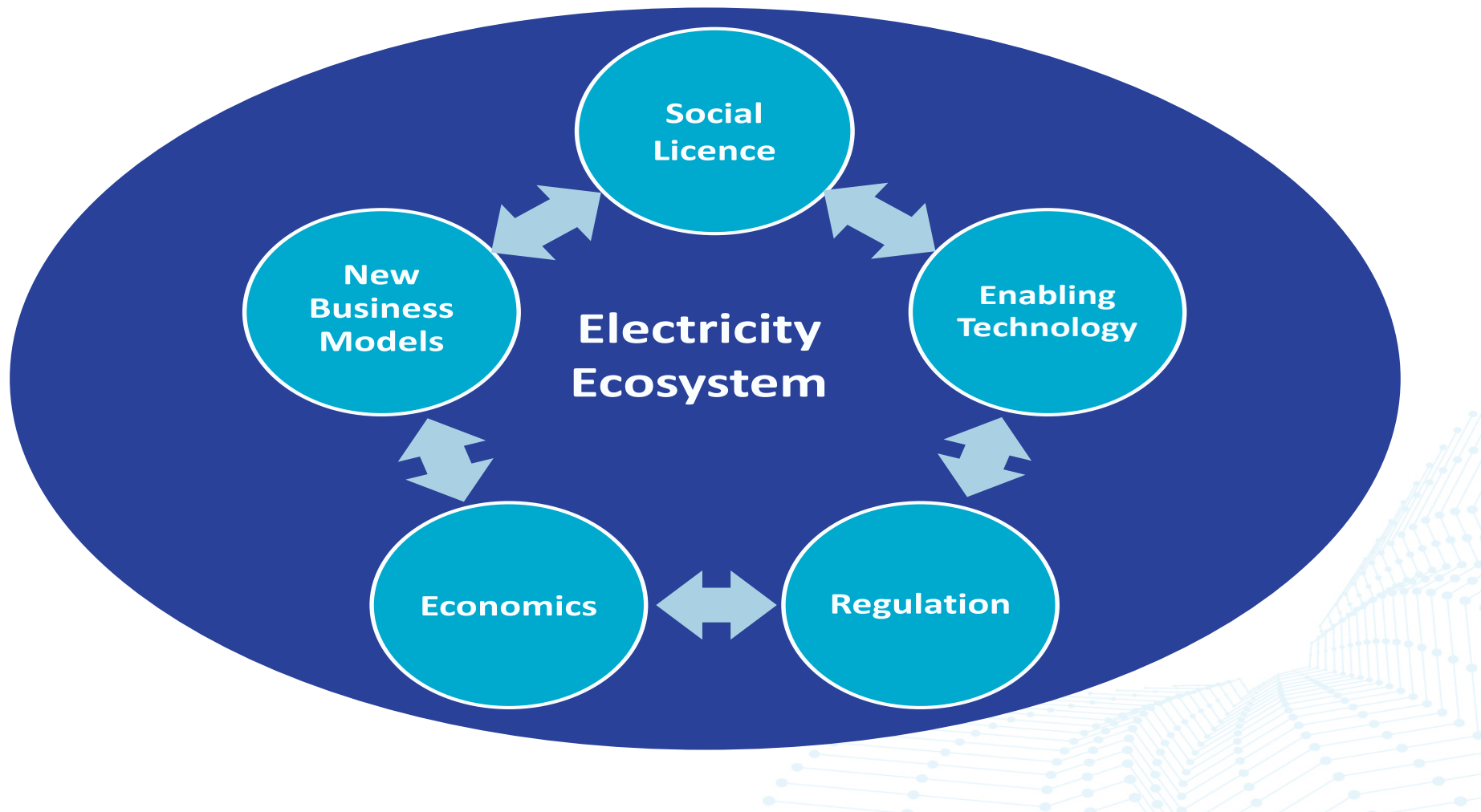




The ultimate *whole-of-industry* collaboration  
applied science project

# Electricity Network Transformation Roadmap





# Whole-of-system

(And not just technological systems)

**Collaboration &**

**Co-design**

**Human-centred**

**Design**



BETTER  
OUTCOMES  
FOR  
AUSTRALIAN  
CONSUMERS



# Developing a Network Transformation Roadmap

## KEY PRINCIPLES

ENHANCING  
LONG TERM  
ASSET  
PRODUCTIVITY

CREATING  
NEW CUSTOMER  
VALUE

COLLABORATION

INFORMING  
POLICY &  
REGULATORY  
EVOLUTION

EQUIPPING  
NETWORKS FOR  
INNOVATION

## TRANSFORMATION DRIVERS



STRUCTURAL ENERGY  
EFFICIENCY



ENGAGED CONSUMERS,  
HOME AUTOMATION,  
THE INTERNET OF  
THINGS



MICRO-GRIDS



GHG ABATEMENT



RENEWABLES POLICY



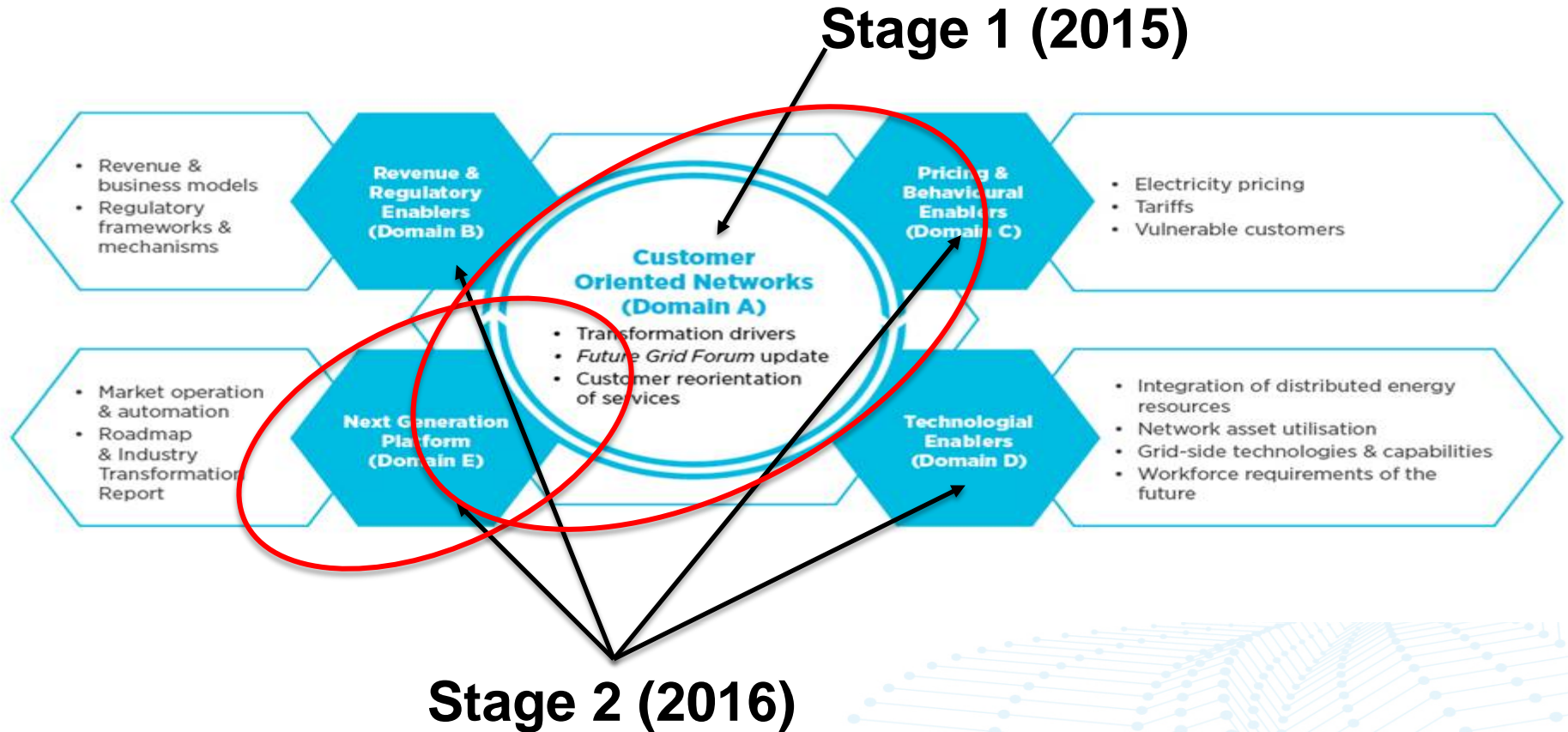
FALLING TECHNOLOGY  
COSTS

- Embedded Generation
- Storage
- Electric Vehicles



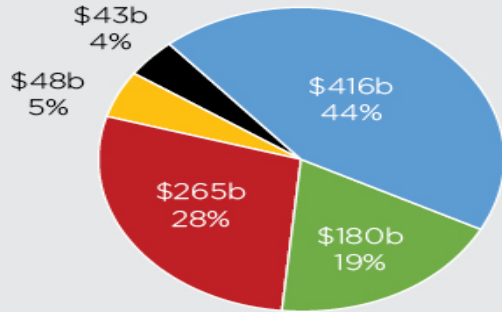
PRO-SUMERS AND  
DISTRIBUTED  
ENERGY RESOURCES

# Navigating the 'Electricity Ecosystem'

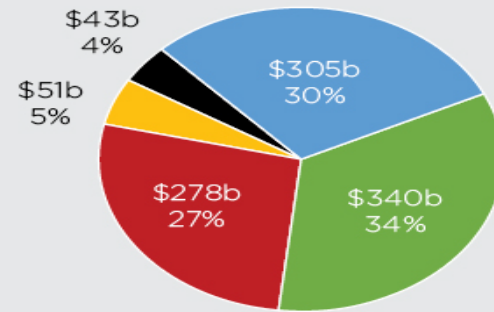


# What if you spent \$1,000-million badly...?

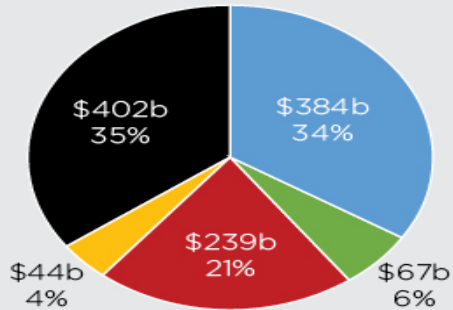
**Scenario 1: 'Set and forget', \$954 billion**



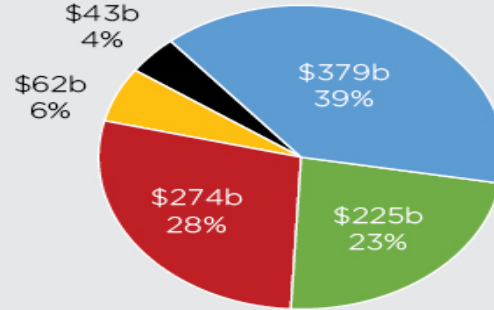
**Scenario 2: 'Rise of the prosumer', \$1,017 billion**



**Scenario 3: 'Leaving the grid', \$1,136 billion**



**Scenario 4: 'Renewables thrive', \$984 billion**

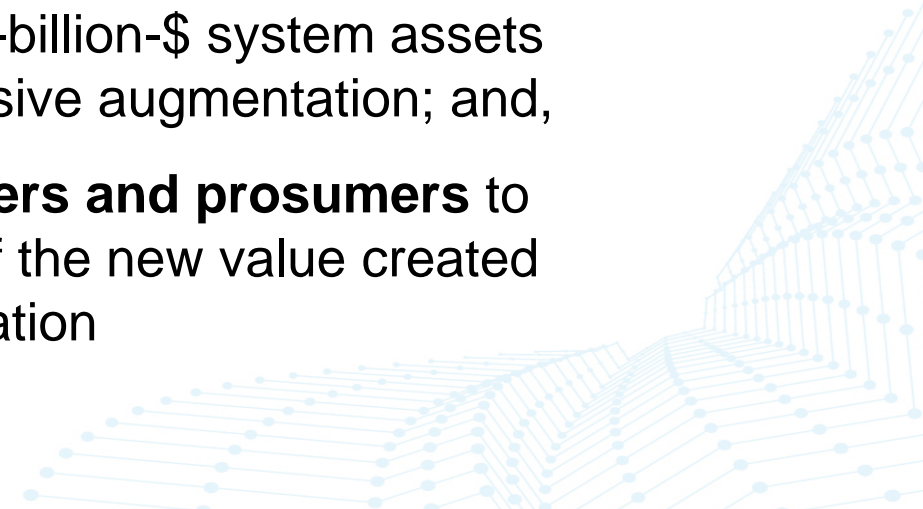




# The missing link...?

## Distributed Energy Markets

Australia needs new market platforms and architectures that:

- **Instantaneously balance** dynamic demand requirements with supply from millions of generation and storage sources;
  - **Optimise the utilisation** of multi-billion-\$ system assets and minimise the need for expensive augmentation; and,
  - **Incentivise millions of consumers and prosumers** to participate and receive a share of the new value created through whole-of-system optimisation
- 

# Australia's Global Differentiation...



**Fine-tune the gameplan...?**

**Re-invent the game!**