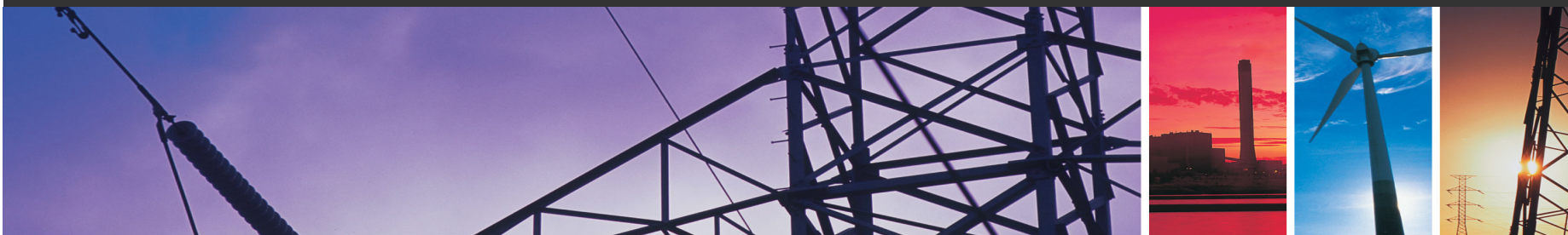


Regulatory change to integrate energy storage

UTS:ISF Summer Study on Energy Productivity 25 February 2016

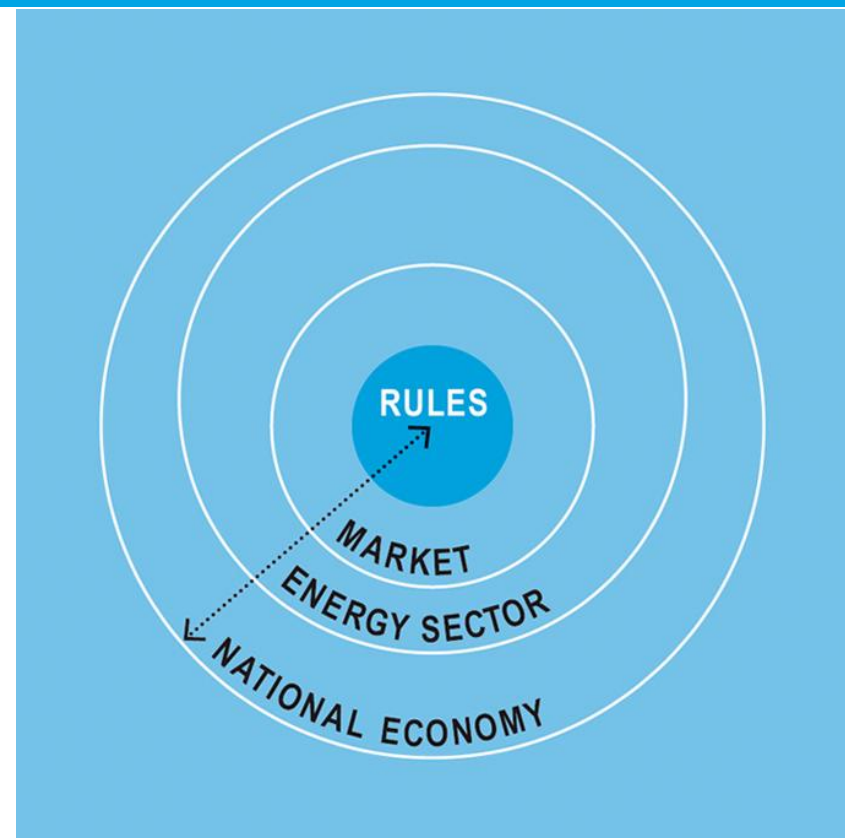


STUART SLACK
SENIOR ECONOMIST
AUSTRALIAN ENERGY MARKET COMMISSION

THE AEMC IS THE RULE MAKER FOR AUSTRALIA'S ENERGY MARKETS

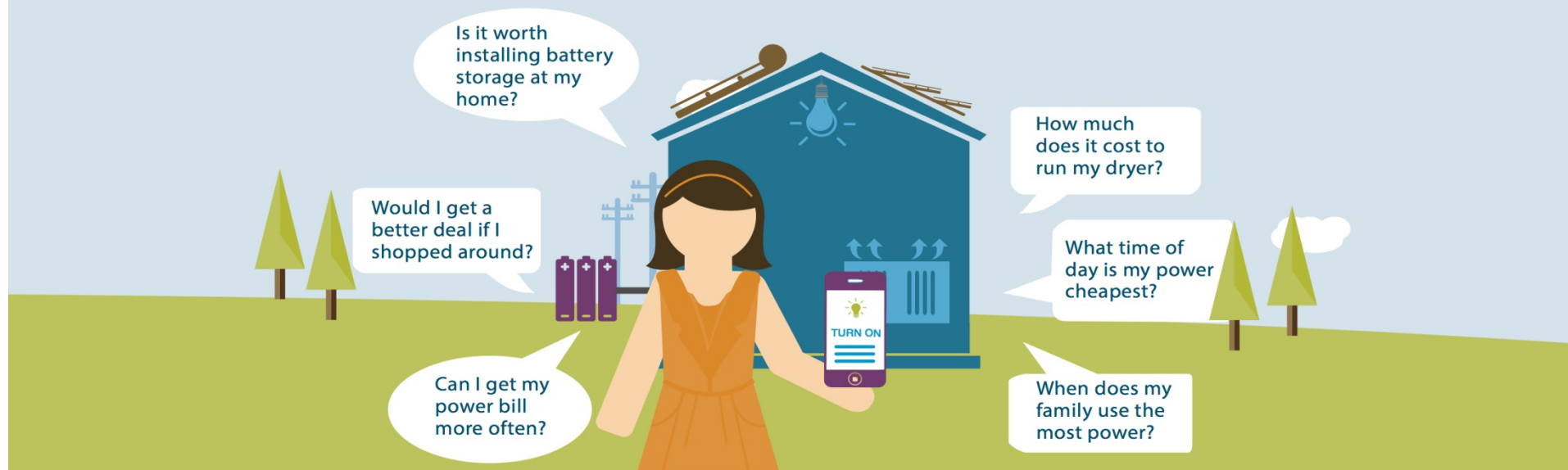
- Energy market development and advice to Australia's energy ministers
 - We make and amend electricity, gas and energy retail rules
 - We undertake market reviews either requested by the energy ministers or initiated by us
- Strong relationship between our core business as rule maker and our role as a source of expert, independent advice to governments
- Rules are not isolated from developments in the domestic energy sector and beyond to the national economy

AEMC



THE POWER OF CHOICE

We are giving consumers more opportunities to access a wider range of energy services with new ways to monitor, manage and adjust their electricity consumption



SERVICES MADE POSSIBLE BY ADVANCED METERS



See what you use in real time



Compare retailers easily and switch faster



Better management of energy use



Time of use pricing for new ways to save



Easy access to detailed usage data

FUTURE SAVINGS



Consumers benefit from more efficient network investment decisions; lower cost automated meter reading; remote connections/disconnections; and faster response to outages.

AEMC'S TECHNOLOGY-FOCUSED WORK PROGRAM



The AEMC is undertaking a **technology-focused** work program to identify:

The AEMC needs to have a strong understanding of this **new market dynamic** and its likely impacts on consumer **costs and behaviours**, as well as the incentives and **business models** of market participants

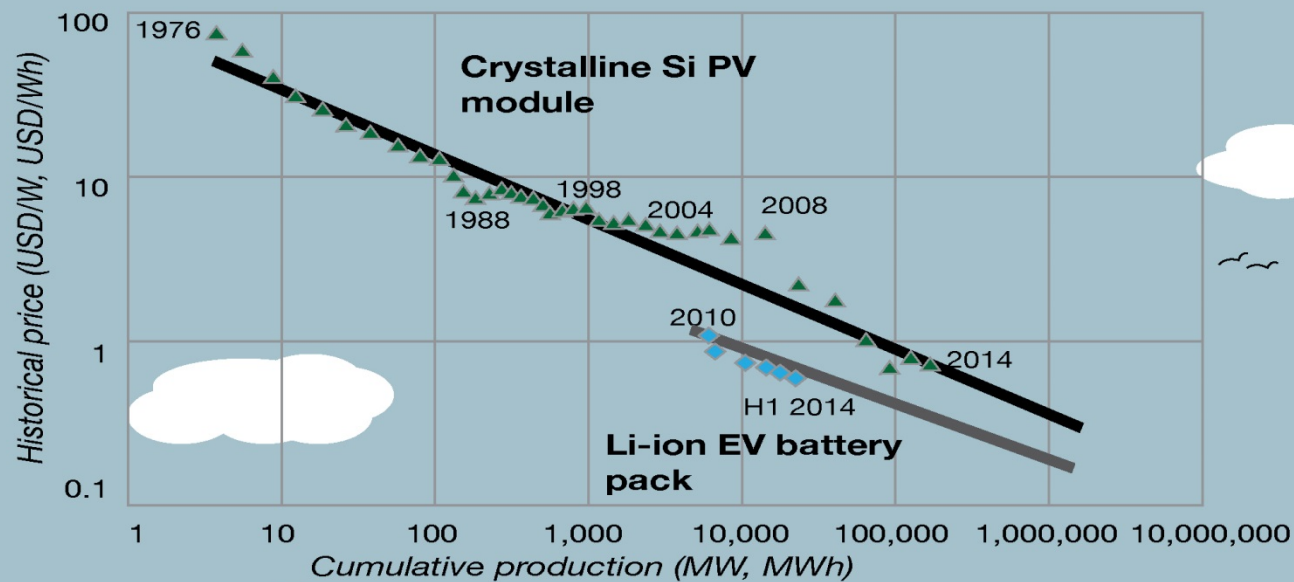
Energy policy and the associated regulatory framework must be able to **adapt** to these changes to allow a dynamic market response

Changes in technology, as well as the **pace of those changes**, have the potential to fundamentally alter Australia's energy markets

1 Possible barriers to the deployment of new technologies by new or existing market players

2 Whether the consumer protection framework remains fit for purpose

3 Incentives or disincentives for business model evolution



Source: Bloomberg New Energy Finance.

Generation

- Ramping
- Spinning reserve
- Wind farm integration
- Frequency control
- Black start

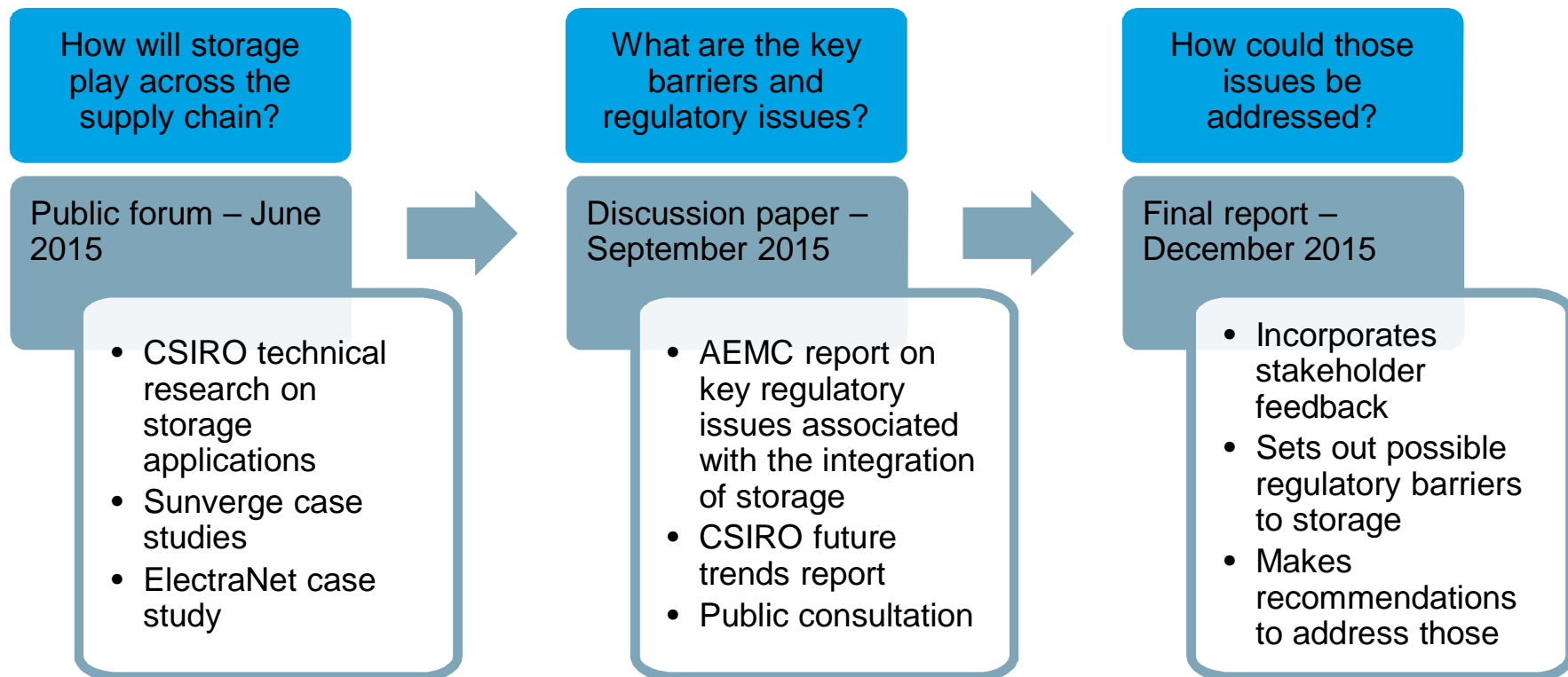
Transmission & distribution

- Reduces T&D congestion
- Substation overloading
- Power quality and outages
- Reduces conductor upgrades
- Support distribution generation

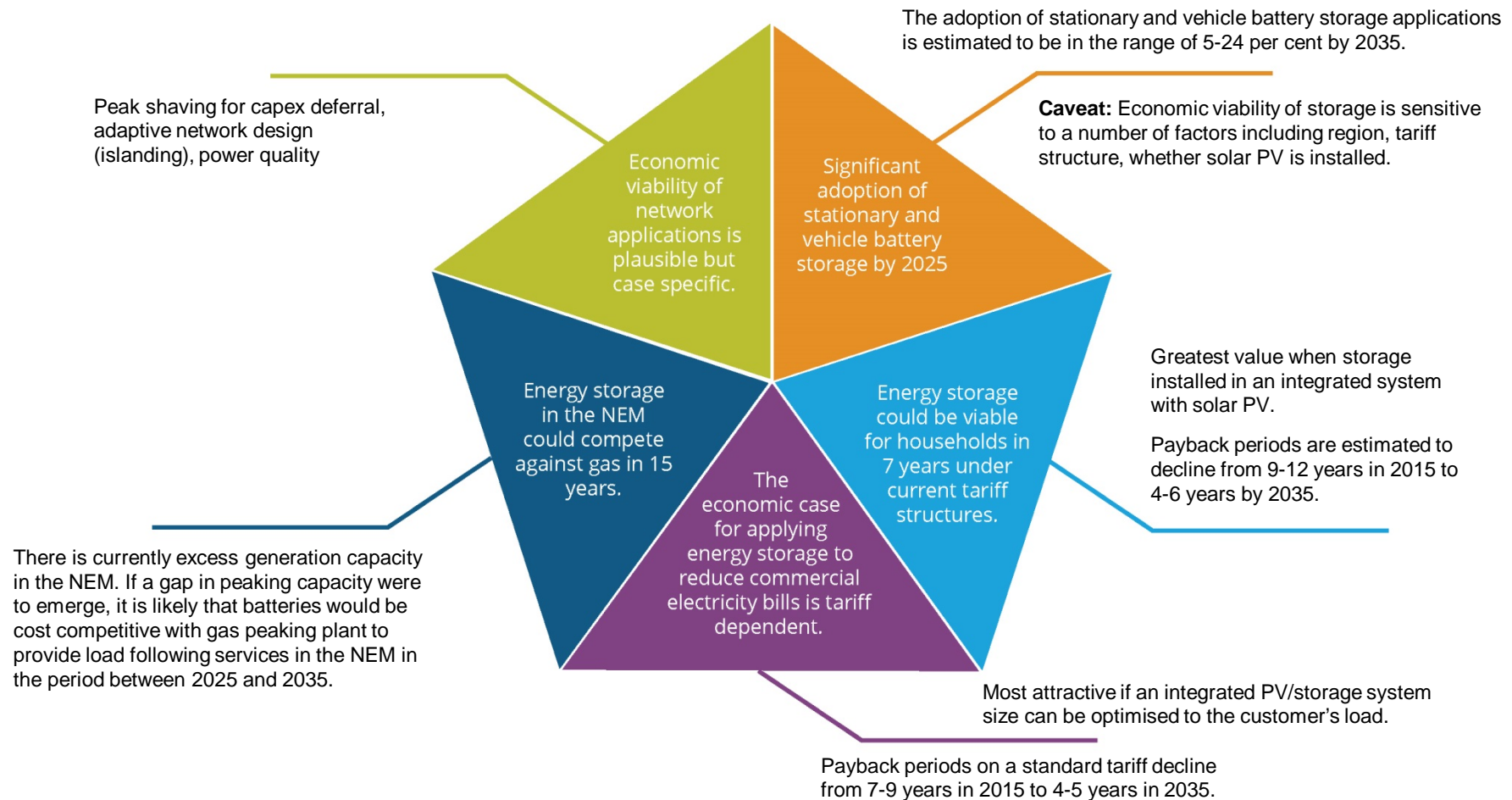
Consumers

- Leverage TOU pricing
- Demand charge reduction
- Demand response
- Firms distributed solar
- Critical load support

AEMC INTEGRATION OF STORAGE PROJECT



KEY FINDINGS FROM CSIRO FUTURE TRENDS REVIEW



AEMC RECOMMENDATIONS: REGULATION AND COMPETITIVE NEUTRALITY

Findings

Network businesses shouldn't extend their regulated activities '**behind the meter**' – use of their regulated revenues or information could confer an unfair advantage

Instead, **consumer preferences and competition** should drive the development of storage and other energy services in this space

Storage on the network may offer **network benefits** but may also offer **contestable value streams** (wholesale energy, reduced losses, ancillary services like frequency control)

The current **service classification framework** is not **clear** with regard to these activities and ring fencing guidelines need to be updated

Recommendations

Storage 'behind the meter' should be considered a **contestable activity**

Network businesses should only provide these services through an **effectively ring-fenced affiliate**, separate from the provision of regulated services

The AER's **ring fencing guidelines** are being revised and will need clear requirements for arms-length transactions with rigorous compliance and enforcement

The AEMC should identify how to **clarify the boundary** between **regulated network activities** and **contestable energy services**

AEMC RECOMMENDATIONS: PARTICIPATION IN COMPETITIVE MARKETS

Findings

The functions performed by **storage devices** are not different to other technologies and **can be accommodated within existing regulatory frameworks**

Storage devices in many cases can be treated as a generator of the same size in a similar commercial context – but there is some uncertainty around the current definition of ‘generating unit’

No new category of registered participant is required – existing generator and customer registrations should suffice, depending on the use of the device

Parties should be able to **aggregate the combined capabilities of distributed storage**, but it isn’t clear whether the existing category of small generation aggregator is suitable

Recommendations

A **rule change** could be considered to address the perceived ambiguity in **the definition of a ‘generating unit’**

AEMO should conduct a **review** of the **small generation aggregator registration category** to check its suitability for the aggregation of distributed storage for participation in the NEM

AEMO should conduct an **assessment** of whether there are technical limitations to **small generation aggregators offering FCAS**, eg through the aggregation of the distributed storage

AEMO, through PSITAG, is investigating the **effects of an increased penetration of distributed energy resources** on system security and operations

AEMC RECOMMENDATIONS: CONNECTION AND CONTROL

Findings

Where there are multiple value streams from energy storage, the value generated will depend partly on **who has control of the device** – whose benefit is being maximised?

For consumer choices to drive the development of energy markets, it is important that network businesses **do not distort investment** cases by imposing **onerous connection regimes** or requiring control of the device

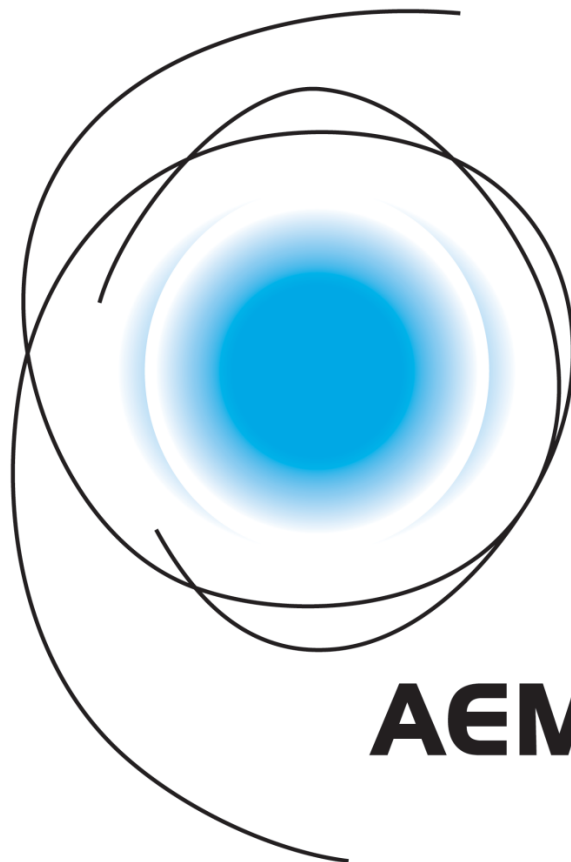
The installation, connection, optimisation and control of storage devices should be determined through **market-based signals**, except for system security and safety reasons

Recommendations

The AER should **review existing distribution networks' connection offerings** for micro-embedded generation to ensure they articulate their applicability to storage

The AEMC will **review technical standards** in the energy rules to assess their applicability to storage devices (as **load or generating system**), including performance standards, the standards negotiation process and timeframes

The AEMC will **review technical requirements** that apply to **micro-embedded generation connections** to assess their appropriateness for storage, the potential for standardisation, & how these requirements affect distribution businesses' ability to control what is connected to their network



AEMC