Regulatory DEIP Dive

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AEMC

ARENA

Australian Government

Australian Renewable Energy Agency

6 June 2019

1.WELCOME, GOALS & SCOPE

Craig Chambers, , Senior Consultant, ARENA
Charles Popple, Commissioner, AEMC

DEIP's purpose
Craig Chambers, ARENA

"To collaborate to maximise the value of customers' DER to the Australian energy system for the benefit of all energy users."

Secretariat

Steering Group

Energy Security Board

COAG Energy Council

DEIP at a glance

Information exchange and collaboration

Past DEIP Dives

Identify knowledge gaps

Today's DEIP Dive

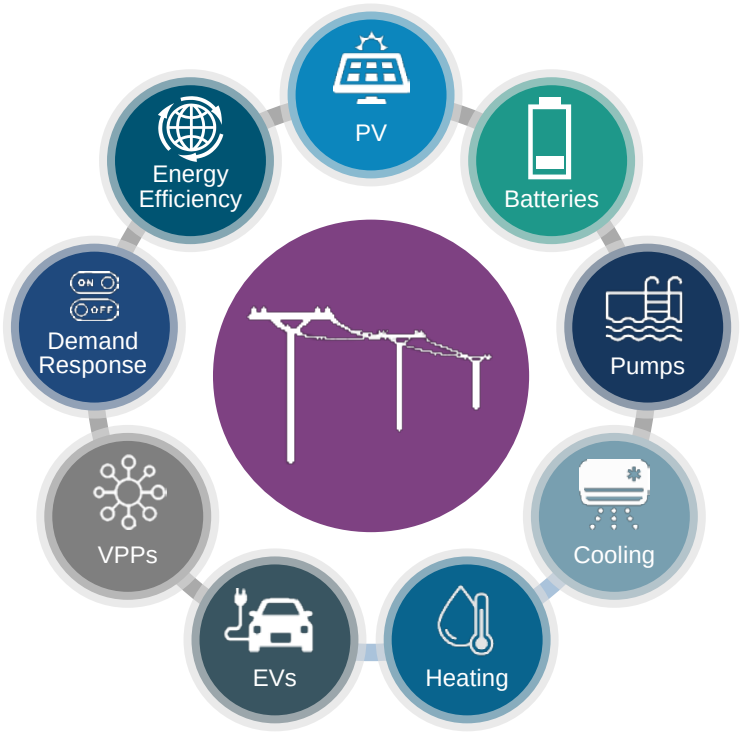
Define priorities

Today will inform into ARENA's funding considerations.

Today's goal

Charles Popple, AEMC Commissioner

"Formulate a vision for how network regulation can support the efficient integration of DER"



- Impact of high DER on DNSPs' operation and regulation
- Role of DNSPs is the focus, as they can be a key enabler for maximising the value of DER
- Complements current work by DEIP members and others
- Today will feed into AEMC's 2019 Electricity Network Economic Frameworks Review.

SCENE SETTING

Richard Owens, Executive General Manager, AEMC

What are we taking as read?

DER

- Is behind the meter – PV, EVs, demand response and batteries
- There will be high DER penetration in the future
- Varying by location, pace, and type
- Issue is not whether to encourage higher DER, it's how we integrate it in a way that maximises the benefits for all consumers

What does success look like?

- Judged from perspective of all consumers
- Lowest total system cost while maintaining reliability and security
- How regulation of DNSPs can drive lowest total system cost.

What are we taking as read?

Regulation

- Range of regulatory options available
- On a spectrum from ‘light touch’ to ‘heavy-handed’
- Typically light touch is preferred
- Regulation of any monopoly infrastructure is a special case
- Incentive regulation is used in Australia.

DNSPs’ role

- Will still transport electricity
- Will still operate networks safely and reliably
- What may change is aspects of:
  - how they operate
  - how they are regulated.

What we will explore

Two key questions about a future with high DER:

How can the **regulatory framework** deliver an **optimal** amount of distribution **network** investment and **non-network** enabling expenditure, at the **right time**, to **maximize net benefits to consumers**?

How should distribution **network capacity** be **allocated** when there are **competing users**, and how should it be **paid for**?

Question 1 – Optimal investment (previously ‘capacity’)

How can the **regulatory framework** deliver an **optimal** amount of distribution **network** investment and **non-network** enabling expenditure, at the **right time**, to **maximize net benefits to consumers**?

- This topic is about regulating monopoly infrastructure to achieve the optimal amount of:
  - network capacity (i.e. investment)
  - network monitoring & data
  - other options (e.g. phase balancing, tap changes, demand management?)

  at any point in time

Question 1 – Optimal investment

- Topics include:
  - what are DNSPs current security, quality and reliability obligations, how is DER impacting those obligations, and what strategies are DNSPs adopting to address those impacts?
  - How much do DNSPs currently know about their LV networks, their DER hosting capacity and extent of constraints and other issues. How much more will they need to know in a high-DER future? What are the options to fill those information gaps?
  - How should DNSPs determine what to invest in, and when to make investments to best take advantage of DER?

Question 2 - Allocation

How should distribution network **capacity** be **allocated** when there are **competing users**, and how should it be **paid** for?

- About allocating a scare resource
- About charging for its use
- Conceptually follows Question 1
  - once optimal investment determined & achieved at any point in time
  - apply an approach to allocating that capacity (a scarce resource) and paying for it.
- In reality the two questions are linked, eg how you charge for capacity will affect how much capacity consumers demand
- Topics to include – technical standards, tariffs, access and connection arrangements.

Overview of today's approach

- Aim of the day is to get people thinking about these bigger picture questions and agree on what the key issues are, so as to inform future work by the AEMC, other DEIP participants and ARENA funding
- Aim is not to agree on answers to all of these questions
- Three scenarios we will use through the day:
    a. Passive PV, active consumers
    b. Stored and aggregated
    c. Urban charging EVs.

Run of the day

Jackie Biro, Director, AEMC

Morning session – optimal investment (Q 1)

a. Current mechanisms
   - Overview presentation
   - DNSP and Q&As (Morning tea)

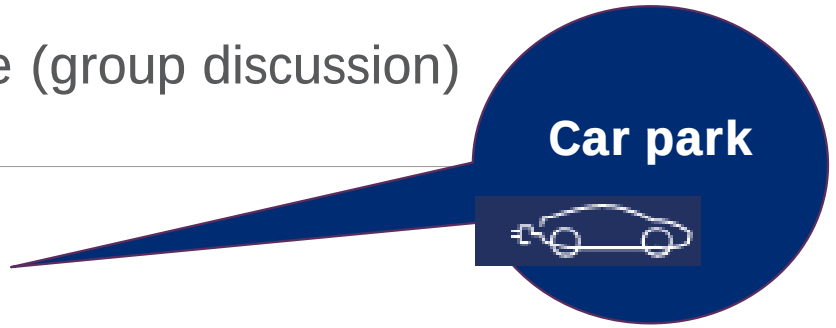
b. What needs to change in the future (group discussion)

Afternoon session – allocation aspects of network capacity (Q 2)

a. Current mechanisms:
   - Overview
   - Panel and Q&As

b. What needs to change in the future (group discussion)

Report back and next steps



2. OPTIMAL INVESTMENT

CURRENT MECHANISMS - OVERVIEW

John Mackay, Senior Specialist Consultant, AEMC

The question we are considering in this session

- In a high DER world, how do we get the right amount of investment in network capacity, at the right time, to deliver the lowest possible electricity prices while maintaining security and reliability?
    - Export constraints reduce the amount of energy for sale, impacting energy costs. Investing to address those constraints impacts network charges. How do we get the balance right?
- Aspects of network capacity investment we are considering today:
    - incentives & revenue determinations
    - information transparency
    - degree of urgency
    - who pays?

How can **regulation** facilitate an **optimal** amount of **expenditure** at the **right time**, to **maximize net benefits to consumers**?

How is it done now?

Funding

- Revenue determination process
  - efficient costs of meeting expenditure objectives –principally quality, reliability or security of supply (6.5.7)
  - RIT-D provides for cost/benefit assessment
  - Once allocated, revenue is not tied to projects or constraint outcomes

Incentives

- Financial incentives through the CESS and EBSS
- Service target performance incentives for reliability
- DMIS for network support
- No explicit incentives around export constraints
- Obligation to connect, but no export obligation

Are current arrangements suitable for a high DER future?

- This is what we are here to discuss ...
- Some things to consider:
  - What would be the consequence for DNSPs right now if they just did nothing? What would be the consequences for consumers?
  - What is the right investment trade off? What's the test?
  - How do we get there? What's missing in the current framework?
  - What information would be needed to apply the test? Is it available?
  - Are current reliability and quality obligations appropriate in a high-DER world? Are new operating methods needed to meet those obligations?
  - What benefits could DER provide to networks (or other network users)? Do batteries change everything?
  - How could helpful DER investments and behaviour be encouraged, and unhelpful DER investments and behaviour dissuaded?
  - How is constraint related investment dealt with in the current framework? - Endeavour Energy, SAPN

CURRENT MECHANISMS – DNSPS' PERSPECTIVES

Endeavour Energy: Ty Christopher

SA Power Networks: Mark Vincent

WHAT MIGHT NEED TO CHANGE IN THE FUTURE - TABLE DISCUSSION

Optimal investment questions - what might need to change in the future

Reflect back on the core question: How can the regulatory framework deliver an optimal amount of distribution network investment and non-network enabling expenditure, at the right time, to maximize net benefits to consumers?

1. **Goals**
   - How might DNSPs' network operation and investment decisions need to change in a high-DER future?
   - What does optimal expenditure, at the right time, look like in a high-DER future?
2. **Regulatory mechanisms** to achieve the goals
   - List the aspects of the current regulatory framework that you would retain and those you would reform.
   - Looking at this list, then rank the top 3 mechanisms and outline why each would achieve better investment decisions.
3. **Fill gaps** - list the current data, knowledge and skill gaps, and outline a study/trial that could fill each gap.

3. ALLOCATION

CURRENT MECHANISMS - OVERVIEW

Ed Chan, Director, AEMC

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The question we are considering in this session

- Distribution network capacity is likely to remain scarce in the future
    - It is unlikely to be in the interest of consumers to ‘build out’ the distribution network to accommodate all import and export requirements
- Aspects of network capacity allocation we are considering today:
    - Access and connection arrangements
    - Tariffs and charging mechanisms
    - Other optimisation platform such as DSO

How should distribution network **capacity** be **allocated** when there are **competing users,** and how should it be **paid** for?”

How is it done now?

Access and connection

- Open access, connection agreements and service installation rules
- Framework designed around meeting reliability standards for consumers, not producers
- DNSPs must connect DER but have no obligation to enable export
- For producers, it is a ‘first come, first serve’ and ‘one size fits all’ approach
- DNSPs have limited visibility of LV network constraints so limited practical ability to implement more dynamic approaches

Tariff and charging mechanisms

- Consumption charging only
- Limited set of ‘network services’, based around meeting the needs of consumption

Are current arrangements suitable for a high DER future?

- This is what we are here to discuss ...
- Some food for thought:
  - Geography and time-of-day is likely to matter more in the future
  - What role should connection requirements and technical standards (e.g inverters) play?
  - If networks become a platform for a range of services, how should they charge for those services? Who should they charge?
  - How should scare capacity be rationed, eg constraints that apply equally to all consumers, pricing signals, different access products with different levels of “firmness”, other tools?
  - What role do DSO platforms play in a high DER future?
  - How important is it for the access framework between distribution and transmission network to be aligned?
  - What additional data would we need to facilitate alternate approaches?
  - We could just do nothing...what would be the benefits and risks?

CURRENT MECHANISMS – PANEL

Ann Whitfield, HoustonKemp
Melanie Koerner, CutlerMerz
Mark Byrne, Total Environmental Centre
Darren Gladman, Clean Energy Council
Anthony Seipolt, AER

WHAT MIGHT NEED TO CHANGE IN THE FUTURE - TABLE DISCUSSION

Allocation questions - what might need to change in the future?

Reflect back on the core question: How should distribution network capacity be allocated when there are competing users, and how should it be paid for?

1. **Goal** – what does efficient allocation of capacity look like, and who should pay for the services DNSPs provide?

2. **Regulatory mechanisms -**

- List the aspects of the current regulatory mechanisms that you would retain and those would you reform.
- Looking at these, rank the top 3 mechanisms & outline why.

3. **Fill gaps** - list the current data, knowledge and skill gaps, and outline a study/trial that could fill each gap.

- Access and connections
- Tariffs and charging
- Technical standards
- DSO platforms

4. REPORT BACK & NEXT STEPS


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