DEIP

DISTRIBUTED ENERGY INTEGRATION PROGRAM

DEIP Dynamic Operating Envelopes Workstream

Final Outcomes Webinar

Wednesday 30 March 2022

Acknowledgement of Country

Craig Chambers, ARENA

Today's agenda

1. Overview of DEIP & DOE Work Program - Craig Chambers, ARENA
2. Recap on DOEs - Andrew Fraser, ANU
3. Importance of social licence - Marie Harrowell, ECA
4. Considerations for the future of DOEs - Ed Chan, AEMC
5. Panel discussion / audience Q&A

DEIP & DOE Work Program

Craig Chambers, ARENA

DEIP member organisations

DEIP overview

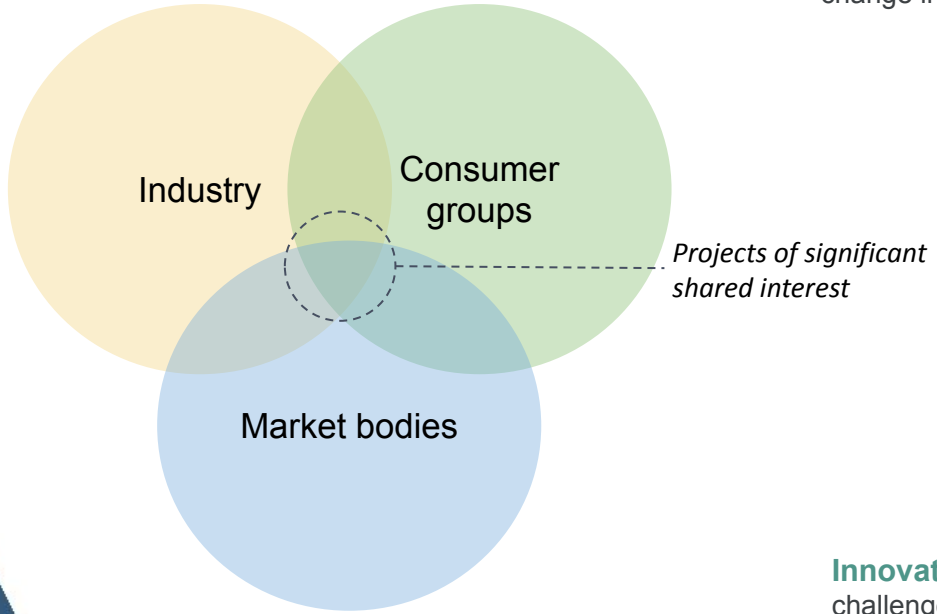
PURPOSE
The Distributed Energy Integration Program (DEIP) is a collaboration of government agencies, market authorities, industry and consumer associations aimed at maximising the value of Distributed Energy Resources (DER) for all energy users.

VISION
DEIP members have a shared interest in supporting our evolution toward a distributed energy system that is secure, reliable, resilient, affordable, and efficiently integrates and ustilises customers' DER.

WHO IS INVOLVED
The DEIP Steering Group involves 13 organisations who communicate regularly and collaborate with a wider cross-section of stakeholders.

Learn more about the DEIP: https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program/

DEIP drives collaboration in areas of shared interest



Collective leadership, DEIP operates on discretionary support and leadership from a variety of stakeholders. No one party can affect systemic change in isolation and DEIP supports consensus building.

Collaboration, an openness to work with others and consideration of alternative perspectives.

Resources, support from member organisations is essential to progress objectives. DEIP will build on existing work, approach challenges flexibly, and select the best suited techniques for each task.

Outcome focused, DER has traditionally not been a high priority for the sector and alignment with policy and customer outcomes needs greater focus. DEIP operates in 1 year sprints.

Innovation, the integration DER and more renewables is likely biggest challenge the energy system will face in our generation and a commitment to ongoing innovation will help this transition.

Learn more about the DEIP: https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program/

Overview of the DEIP DOE Workstream

18 month industry consultation and collaboration

Sept 2020
Workstream Establishment Webinar

> Build a shared understanding of DOEs
> Share insights on approaches currently under investigation

Oct 2020
Consumer Perspectives Workshop

> What is needed to make DOEs a positive consumer experience
> What criteria is needed to ensure for fair and equitable DOE allocations

Nov 2020
National Regulatory & Policy Design Workshop

> Regulation of allocation principles
> Standardisation of customer connection agreements
> Information and market processes
> Monitoring and enforcement

Jul 2021
Allocations Principles Workshop

> Locational scales for DOEs
> Capacity allocation models

Feb 2022
Smarter Homes for Distributed Energy

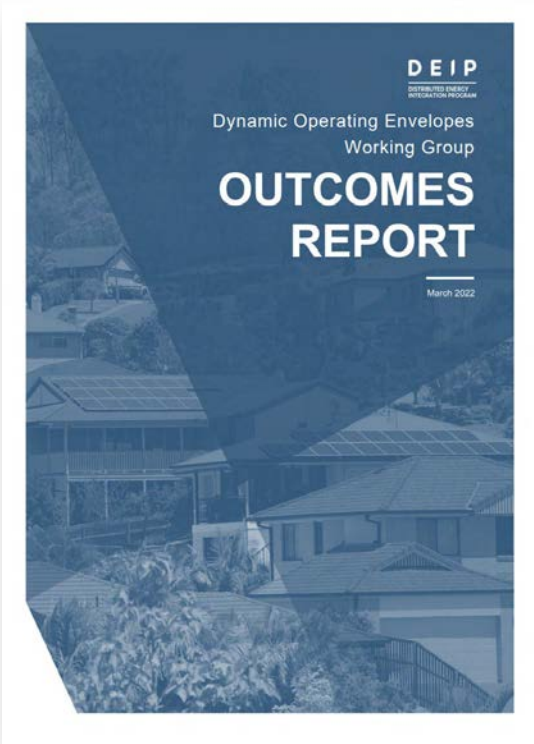
> The study considers the readiness of available HEMS products and services to respond to DOEs
> Market, technical, regulatory and consumer barriers to overcome

Mar 2022
Outcomes Report

> Summary of consultation & findings undertaken by the DEIP DOE Working Program to explore and advance the role of DOEs in Australia's future power system

Learn more about the DEIP DOE Workstream: https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program/dynamic-operating-envelopes-workstream/

DEIP DOE Outcomes Report



What it COVERS

1. Overview of DOEs
   a. What they are
   b. How they work
   c. Benefits for customers
   d. Current state of deployment
2. Building social licence
   a. Approaches for a **customer-centric transition**
   b. Customer protections
3. Policy considerations for ensuring DOEs are in the long-term interest of customers
   a. Steps to ensure **customer needs are at the forefront** of decisions

What is IN scope

This report focused on:

- Initial focus is on **exports only**
  - *Does not* consider imports
- Initial focus is at the **connection point**
- Initial focus is on **local network constraints**
- Recommends actions & approaches that **support customers' interests**
  - *Does not* provide a blueprint for DOE adoption

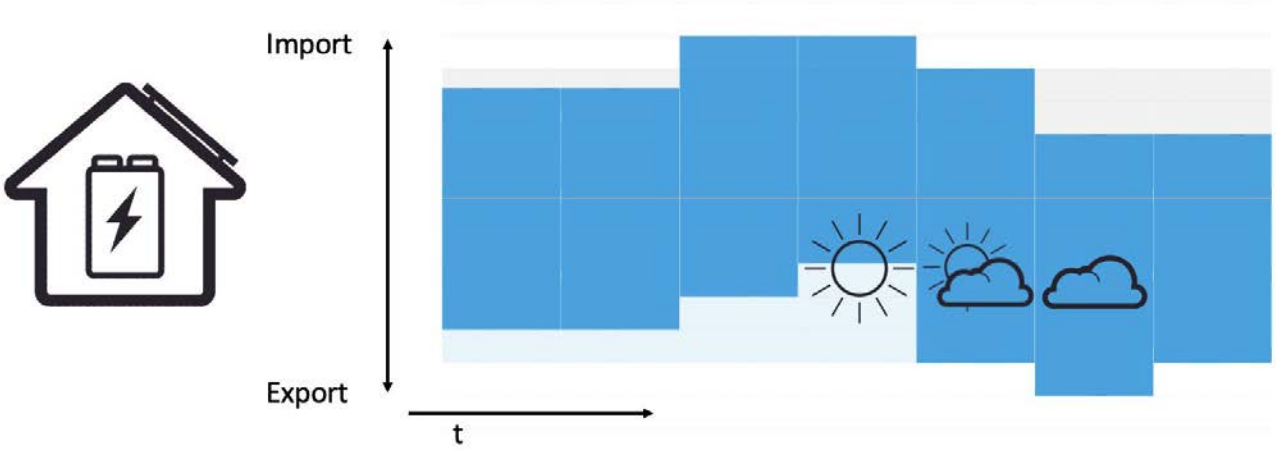
Read the report: https://arena.gov.au/assets/2022/03/dynamic-operating-envelope-working-group-outcomes-report.pdf

Recap on dynamic operating envelopes

Andrew Fraser, ANU

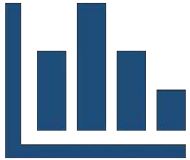
What are DOEs?

DOEs are dynamic connection limits that represent the **guard rails** of the distribution network.



Learn more about DOEs: https://arena.gov.au/assets/2020/10/dynamic-operating-envelopes-webinar-summary.pdf

How DOEs technically work in practice



1. Calculation of envelopes

- Network hosting capacity
- Incorporate system level requirements
- Capacity allocation
- Ongoing monitoring and refinement

2. Communication to customer devices

3. Device responds inside envelope

- Device is free to operate within envelope, network limits are maintained

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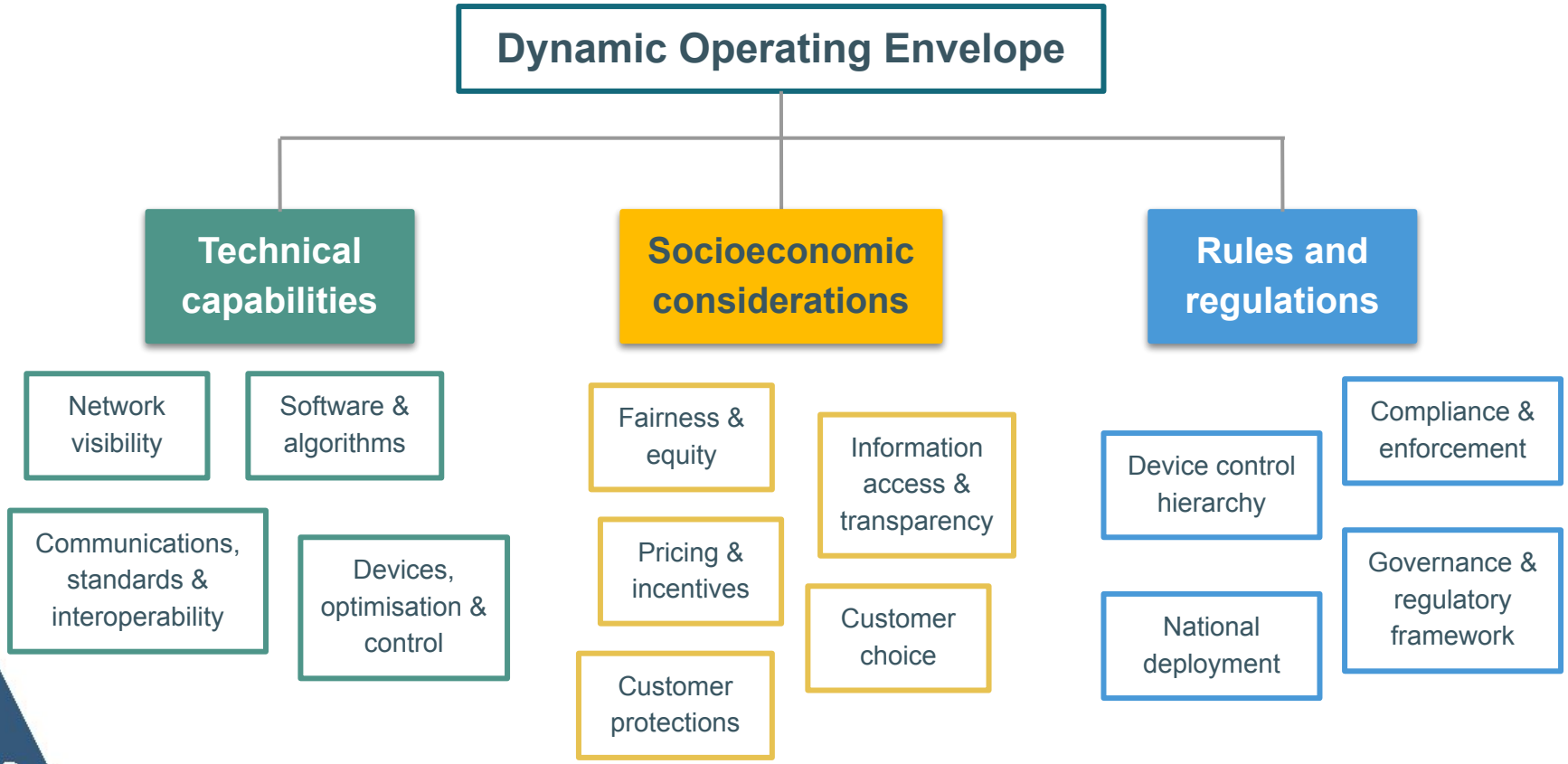
Learn more about DOEs: https://arena.gov.au/assets/2020/10/dynamic-operating-envelopes-webinar-summary.pdf

DOEs are more than just ICT bells & whistles



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Benefits of DOEs for customers

More Solar / Battery Export

DOEs enable more solar customers to connect and export electricity, and for more of the time.

Initial trials of DOEs are supporting a doubling of the average customer connection and the ability to economically connect many more customers than via traditional methods.

Market Efficiency

DOEs enable more embedded generation, like solar and batteries, to get to market which helps to reduce wholesale energy prices for all customers, not just those that have generation themselves.

In particular, opening up greater network capacity in the morning and evening peaks will allow batteries and V2G to capture value from frequency control markets (FCAS) and during high cost 'ramping events'.

Greater Interoperability

DOEs support efficient signals to customers to shift their demand to times of surplus solar energy, reducing the need for networks to invest in costly upgrades resulting in reduced network charges for all customers.

DOEs also future proof the connectivity between customers, the network and the market enabled by a more dynamically connection.

Network Efficiency

Flattening network loads, thereby improving network asset utilisation, reducing volumetric network charges for all customers, enabled by DOEs, provides for a more efficient use of the network.

DOEs also support the future stability of the energy grid during periods of excess generation (i.e. minimum system load conditions) reducing the need for redundancy in the system or additional investments to be made.

Learn more about DOEs: https://arena.gov.au/assets/2020/10/dynamic-operating-envelopes-webinar-summary.pdf

Importance of building social licence

Marie Harrowell, ECA

The importance of building social licence

What is ‘a social licence’?

The **informal permissions** granted by stakeholders for institutions to **make decisions on their behalf** about the operation of their DER system.

Customer choice

DOEs may be a *more efficient* way to operate the network, but the benefits can only be realised if **consumers choose** a DOE over a static limit.

Social licence

As DOEs impose control (perceived or otherwise) over a consumer's private investment - **a successful DOE program relies on social licence.**

Customer perspective

A social licence cannot exist unless the design and solution is from a **consumer outcomes perspective**, and not from the perspective of fixing a ‘system’ problem.

Read more about social licence and DOEs: https://arena.gov.au/assets/2022/03/dynamic-operating-envelope-working-group-outcomes-report.pdf

The importance of building social licence

We need to bring consumers on the journey

Research indicates consumers currently have **very little awareness** of the impact of rooftop solar on grid stability.

Consumers need **information which is clear, transparent and accessible**, giving them the agency to make choices that best suit their needs and values.

Social science tells us that consumers are influenced by information that **aligns with their values,** presented by **sources they trust**.

The **energy industry** needs to take this into consideration when developing **effective communication** to build the trust required for a future affordable, reliable, and clean energy system.

Read more about social licence and DOEs: https://arena.gov.au/assets/2022/03/dynamic-operating-envelope-working-group-outcomes-report.pdf

Considerations for DOE deployment

Ed Chan, AEMC

More work to be done

27 key actions for DOE implementation from the DEIP DOE Outcomes Report

Dynamic Operating Envelopes

Technical capabilities

R2. Build on trial learnings

R19. CSIP-AUS / IEEE2030.5 as a suitable framework

R23. Device fall-back behaviour

R26. Long-range constraints forecasting

R27. Detailed DOE calculation methodology need not be standardised

Socioeconomic considerations

R4. DOE rollout should not be limited to new solar customers only

R5. Establish social licence for DOEs

R8. Customers to opt in/out of DOEs

R13. Information provision

R17. Unlocking full benefits for customers

Rules and regulations

R18. Work towards nationally consistent approaches

R20. DOEs initially allocated at the connection point

R21. Draft principles for allocation

R22. Device control hierarchy

Read the findings: https://arena.gov.au/assets/2022/03/dynamic-operating-envelope-working-group-outcomes-report.pdf

Next steps

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Building social licence is a shared responsibility

ENERGY SECURITY BOARD

- Customer Insights Collaboration
- DOE Delivery Plan & Policy / regulatory framework
- CSIP-AUS pathway (TBA)

ENERGY CONSUMERS AUSTRALIA

- Continue to provide consumer insights to workstreams

AUSTRALIAN ENERGY REGULATOR

- Develop policy criteria to evaluate options for DOE implementation

Energy Networks Australia

- Continue to support DNSP pilots, trials and broader implementation

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Next steps

Ongoing knowledge sharing

ARENA will continue to share knowledge and insight from DOE trials.

- evolve
- Flexible Exports
- Project Symphony
- Project Converge
- Project EDGE
- Project SHIELD

Ongoing funding

Under Investment Priority 1 of ARENA's Investment Plan, there is scope for ARENA to fund further projects that explore DOEs.

Panel discussion / open Q&A

Craig Chambers, ARENA

Thanks for attending

Send us your feedback

https://bit.ly/3wfUcJH