Local Generation Network Credits

Identifying the key issues and establishing criteria to assess the proposed solution

Presentation slides and summary of discussion

First Stakeholder Workshop
The Sebel Hotel, Brisbane
25 February 2016

Agenda

Time	Item
10.00-10.05am	Welcome and about today
10.05-10.30am	About the rule change request
10.30-11.25am	Is there a gap in the National Electricity Rules?
11.25-11.40am	*Morning tea*
11.40-12.35pm	Embedded generation and avoided network costs
12.35-12.45pm	Wrap-up of the morning discussion
12.45-1.25pm	*Lunch break*
1.25-2.15pm	Criteria for assessing the proposal and/or alternative proposals (part 1)
2.15-2.30pm	*Afternoon tea*
2.30-3.20pm	Criteria for assessing the proposal and/or alternative proposals (part 2)
3.20-3.30pm	Wrap-up and close

List of organisations represented

AGL Energy	Energex
APA Group	Energy Networks Association
AusNet Services	Engineroom Infrastructure Consulting
City of Sydney	Ergon Energy
CitiPower and Powercor	Essential Energy
Core Energy	Institute for Sustainable Futures, UTS
Creative Energy Consulting	Jemena Electricity Networks
Department of Energy and Water Supply, QLD	Local Government Infrastructure Services
Department of the Environment, Federal	Sunverge Energy Australia
E3 International	Synergies Economic Consulting
Energeia	United Energy
Energetic Communities	

Recap of rule change request

The rule change request

"[T]he incentives for local generation in the current Rules either **do not provide adequate recognition of the benefits** that local generation can provide, and/or **may not be readily accessible to small-scale local generators** […]

To address these gaps in the current Rules with regard to local generation this paper proposes that a Rule change be made that requires distribution businesses to implement a local generation network credit (LGNC) […]

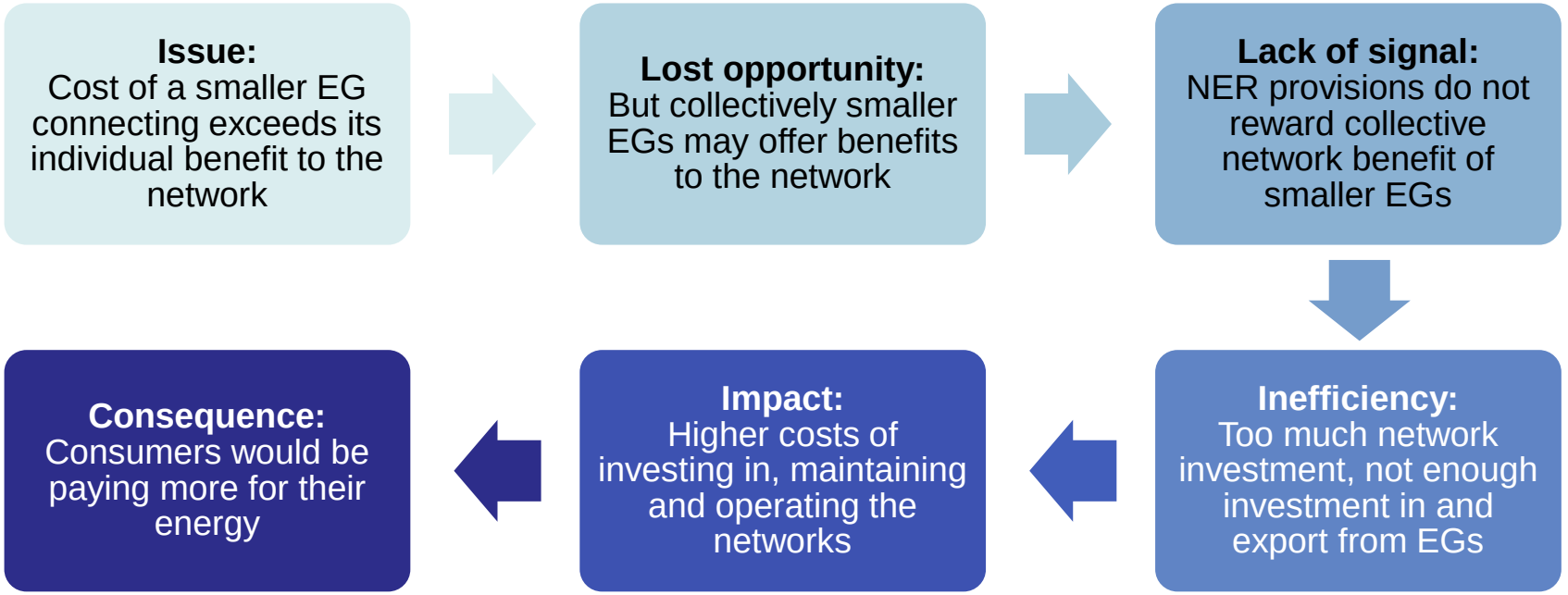
It reflects **the long-term economic benefits** (in the form of capacity support and avoided energy transportation costs) **that the export of energy from a local generator provides to a distribution business**, including reduced or avoided transmission costs that would otherwise be passed through to end users."

- The rule change request, pp.1-2

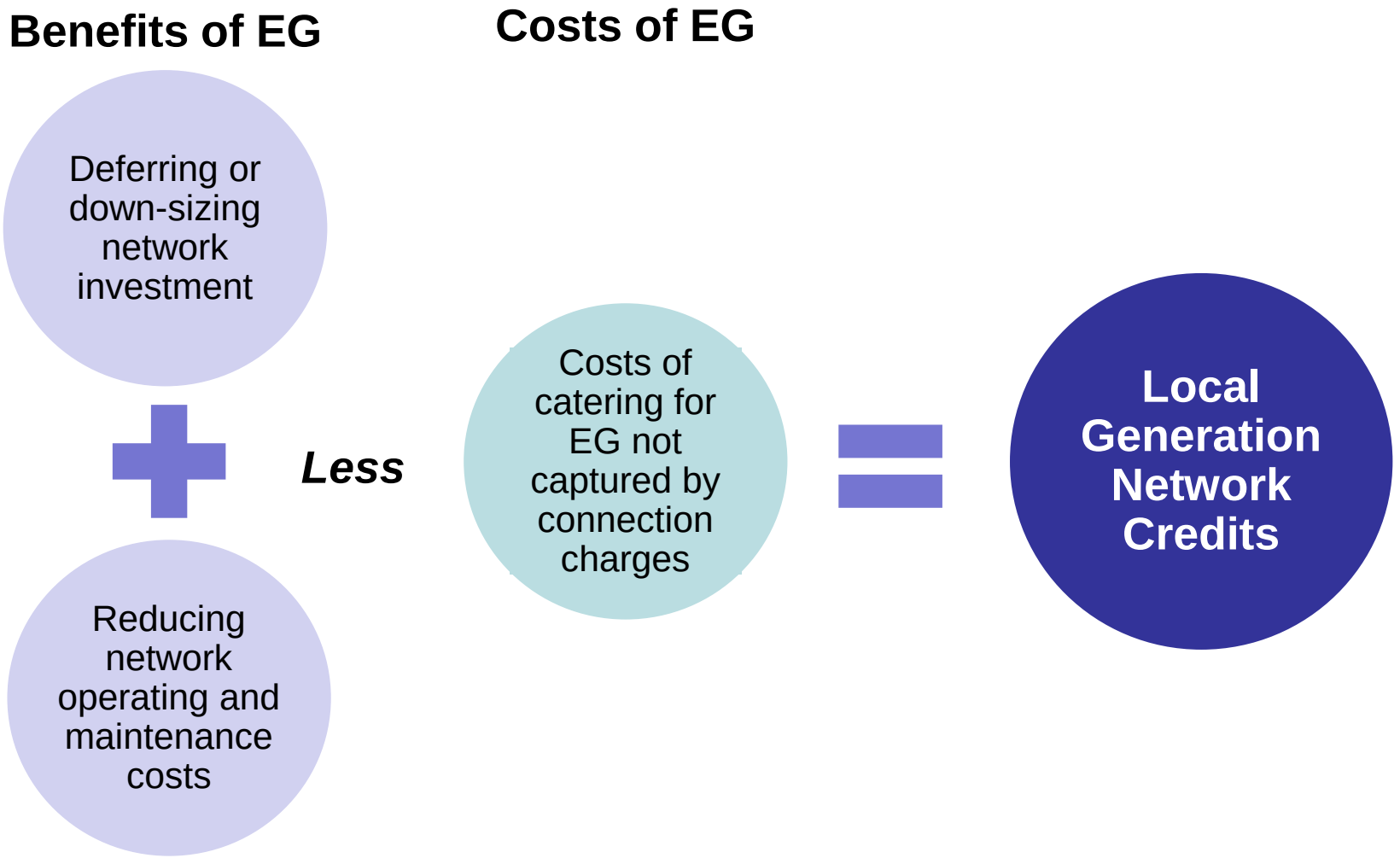
The rule change is about…

The **long-term benefits** provided by embedded generators (EGs) to networks in the form of deferred or down-sized future network investment and/or reduced operating costs

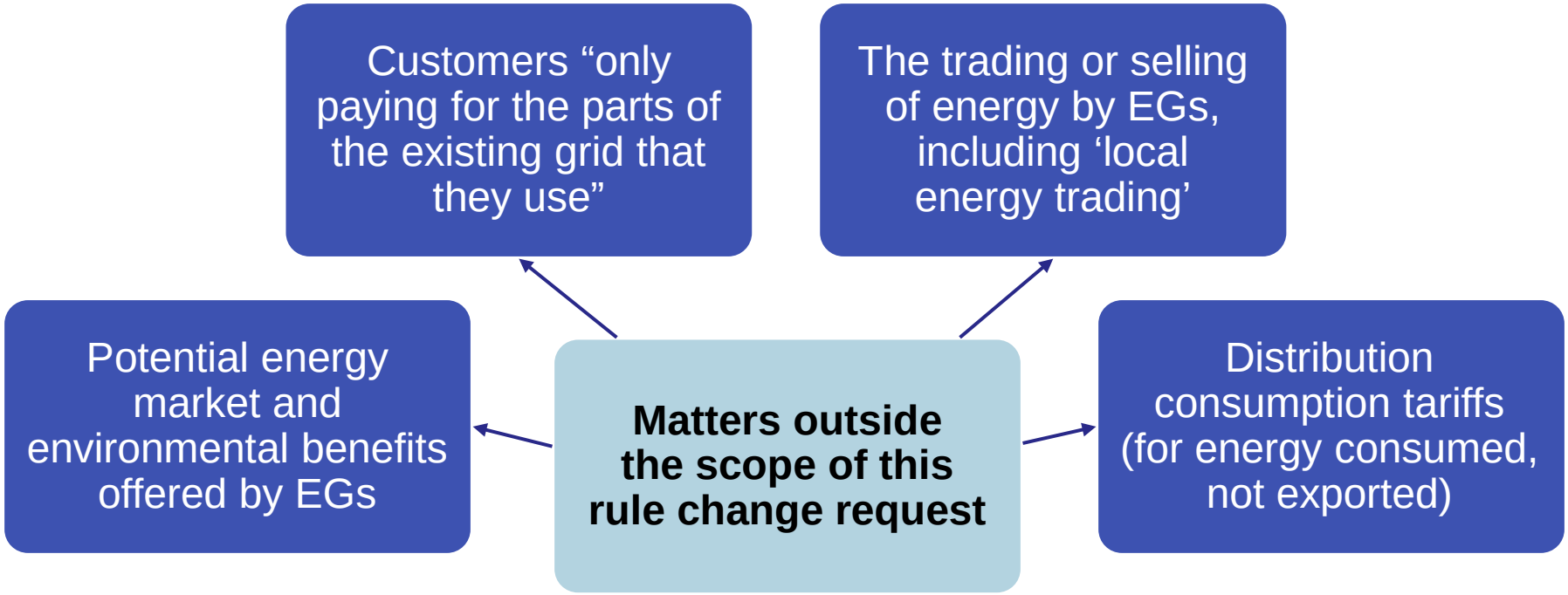
Key question: Are **small EGs** compensated efficiently for any such benefits?



Proposed solution



The rule change is **not** about…



The rule change is only about the **forward-looking benefits** that EG might offer by way of **reduced future network costs**

Only paying for the part of the grid you use?

Generators

Pay to connect, do not pay to **use** the grid → **Clearly not applicable**

Consumers

How to establish that they use locally generated electricity?

↓

Not clear there are overall savings for consumers (ie does it meet the NEO?)

↓

Ultimately an issue for consumption tariffs, not generation credits

Not part of the rule change request

Is there a gap in the NER?

Current provisions in the NER

Network planning

- The distribution network annual planning and expansion framework
- Regulatory Investment Tests for Distribution and Transmission (RIT-D/T)

Remunerating generators

- Network support payments and avoided transmission use of system charges
- Cost-reflective distribution network tariffs

Incentivising network businesses

- Capital Expenditure & Efficiency Benefit Sharing Schemes
- Demand Management Incentive Scheme & Innovation Allowance

Connection frameworks for embedded generators & small generation aggregators

Questions for discussion

1. Given that many of the Power of Choice reforms are still being implemented is it feasible to determine if there is an issue with the NER **at this time**?
2. What are **stakeholders' experiences** with using the existing NER mechanisms, especially those relating to network support payments?
3. Are there any impediments to **larger EGs** (eg >5MW) being compensated for the network benefits they offer?
4. Can **smaller EGs** provide long-term benefits to networks? If so, can those benefits be obtained through **small generation aggregators**?
5. Does the **network planning framework** provide suppliers of non-network solutions with enough information on potential opportunities? If not, what more is needed?
6. Do the current **RIT-D** and/or **RIT-T** thresholds mean that they are not useful tools for small-scale EGs?

Summary of discussion

There was general agreement that the NER work reasonably well for larger EGs (eg EGs over 5-10MW) and that there are no issues for very large EGs like large wind and solar projects

Experience engaging with DNSPs:

- Some participants noted that, due to reliability requirements placed on them, DNSPs are not keen to engage embedded generators for network support and prefer to build to alleviate network constraints
- It was argued that a barrier to paying network support payments to embedded generators is the cost to the DNSP of running a team to administer them

Network support payments and avoided TUoS payments:

- Several network businesses provided data on the number and size of avoided TUoS payments and network support payments that they have made to embedded generators. For example, several DNSPs were each currently making total avoided TUoS payments of $500,000-1million a year
- Some participants commented that avoided TUoS payments were only made to larger embedded generators (typically >10MW). Some participants commented that network support payments were usually only made in situations where the RIT-D/T thresholds were met
- It was noted that the annual variability of avoided TUoS payments made it difficult to rely on them to get a business case for investment in embedded generation off the ground

Summary of discussion (cont.)

Network planning framework:

- Annual Planning Reports were seen by some participants not to disclose sufficient information to third parties that would enable them to offer non-network solutions to alleviate network constraints
- Non-network solutions were seen as an alternative to both network augmentation and network replacement, but the RIT-D/T currently only apply to the former
- Some participants considered that there is a lack of incentive for DNSPs to seek non-network solutions. However, representatives of network businesses argued that the CESS and EBSS do provide a strong incentive to look for non-network solutions, and that the introduction of the CESS enhanced the incentives faced by network businesses

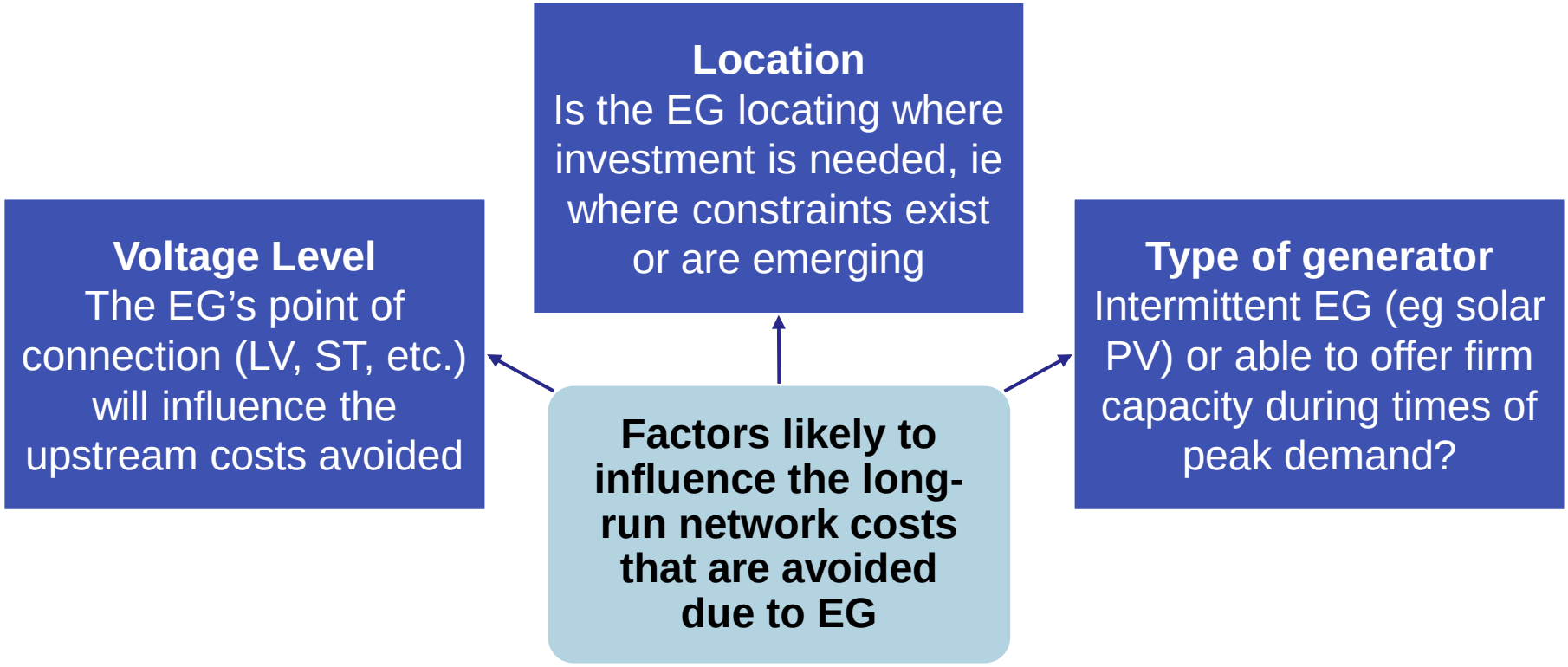
The role of small generation aggregators:

- It was agreed that aggregators play a useful role and some DNSPs noted they are currently working with them, but the use of aggregators was relatively new

Embedded generation and avoided network costs

AEMC

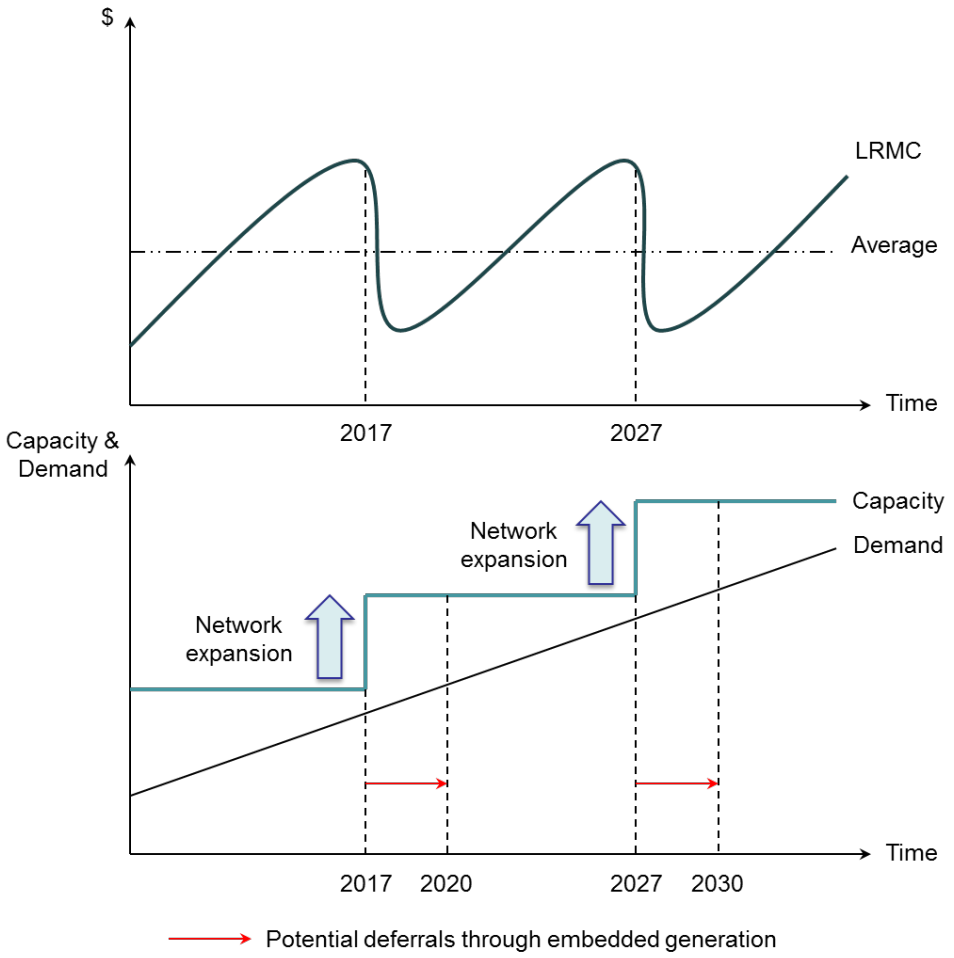
The location and type of EG



To avoid network costs, EG must be in the **right location,** and **large enough,** and **reliable enough** to defer a network investment

The benefits of EG will change over time

- The value of network cost savings from an EG investment **today** depends on when costs would otherwise have been incurred:
  - pushing back to 2020 an investment that would have happened in 2017 may involve a large saving; but
  - deferring to 2030 an investment that would have happened in 2027 would involve a smaller saving
- Once the network investment is made (albeit after a deferral) the benefits from EG **decrease**



Questions for discussion

1. Do any potential cost savings arising from EG depend upon **location**, **voltage** and the **type** of EG? Any other factors?

2. In what circumstances do the **costs** of catering for EG outweigh the value of **future savings**?

3. Can '**portfolio effects**' overcome the need for EGs (or small generation aggregators) to offer firm capacity? If so, under what circumstances?

4. Can EG materially reduce DNSPs' ongoing **operating and maintenance expenditure**? If so, what factors influence these savings?

5. Can **existing EGs** contribute to **further** long-term network capital or operating cost savings (for example, by exporting more)?

6. If DNSPs already factor EG and other non-network solutions into their **planning** (ie when determining what network assets to build), can there be **further** network cost saving?

Summary of discussion

There was general consensus that the value of embedded generation in reducing the need to investment in the network is very specific to the circumstances

Factors that affect the value of embedded generation:

- There was a general view that the key factor was “availability”, which was a combination of the AEMC’s factors
- In addition to factors identified by the AEMC, participants noted that the ability to control when an embedded generator exports was important to determining its value to the network. This was due to both the ability to meet peak demand, but also to do with any safety implications of working on potentially live wires
- It was noted that new standards for inverters mean there is greater ability to control voltage from small-scale embedded generators (eg household rooftop solar), and that this can increase their value to the network

Value of embedded generation in reducing operating and maintenance costs:

- Some participants considered that any potential benefits from embedded generation in terms of operating and maintenance costs may only occur over a long time period
- On the other hand, it was mentioned that, for some distribution networks, solar generation midday peak means that equipment such as transformers has less time to cool off during the day, potentially increasing maintenance costs

Additional comments:

- It was noted that networks plan for diversity of load, so should similarly be able to plan for a diversity of generation

Criteria for assessing the proposal and/or alternative proposals

What is the appropriate degree of specificity?

The nature of any solution depends upon whether the issue in question is…

Broad-based
Relating to all/most types of EG in all/most locations/circumstances

A **'broad-based'** solution (such as a highly averaged export tariff) may be quite simple and send the right price/investment signals

Key Issue:
Submissions on the Consultation Paper largely agree that the value of EG varies widely by location, timing and type

Very specific
Relating to only certain types of EG in certain locations/circumstances

A **targeted** solution (eg multiple export tariffs) may be needed to send the right signals and avoid inefficient investment

Key Issue:
The relationship with existing network consumption tariffs (which are highly averaged)

Technology neutrality

Any solution should, ideally, be as technologically neutral as possible

Neutrality across different forms of different EG

Different types of EG that offer the same long-term networks benefits should, ideally, be treated the same way under any potential change to the NER

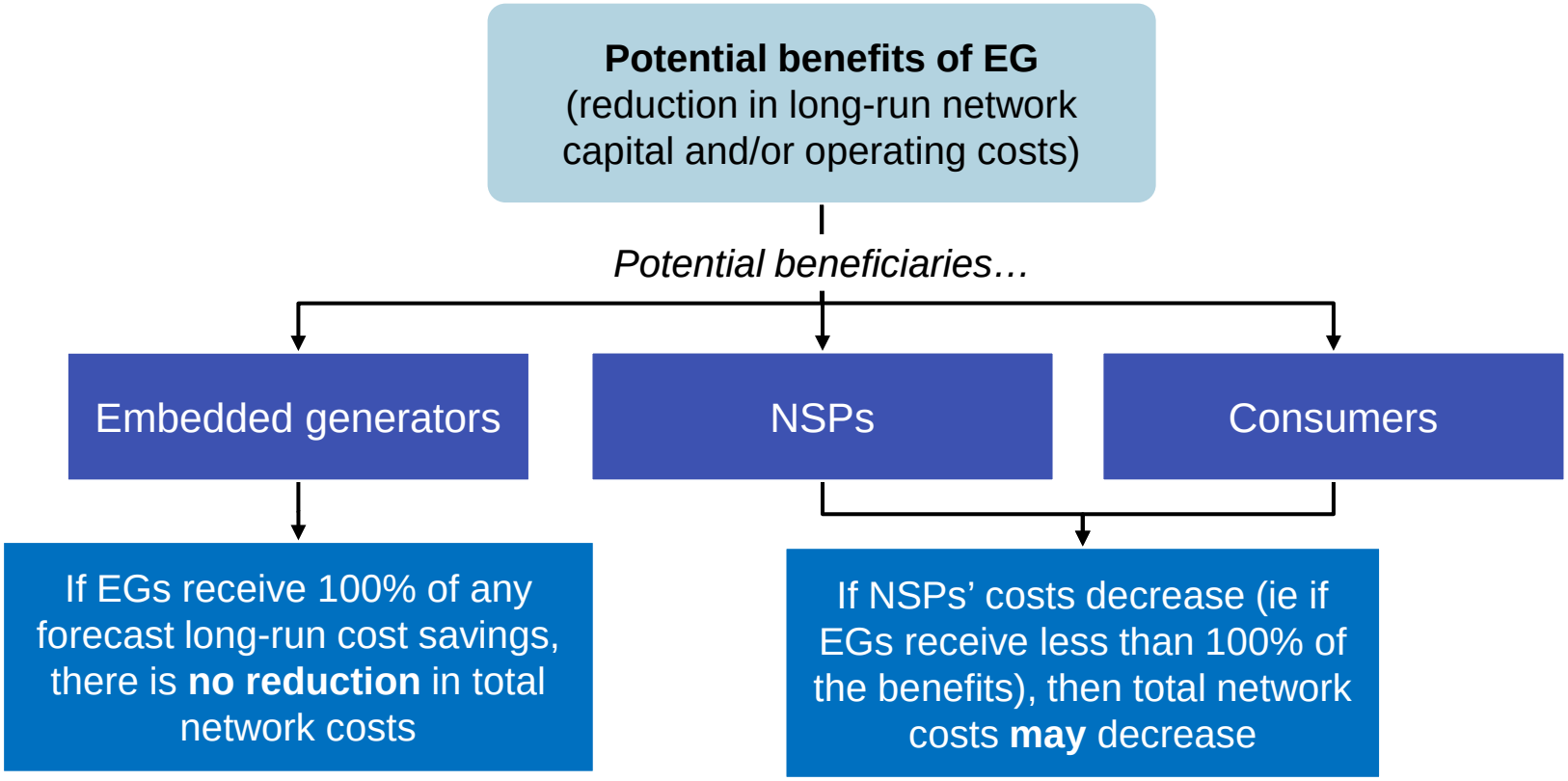
Key Issue:
Different forms of EG likely to offer different levels of network benefits, so how should any solution reflect that?

Neutrality across different forms of non-network solutions

Different types of non-network solutions that offer the same long-run network cost savings should also, ideally, be treated the same way under any Rule change

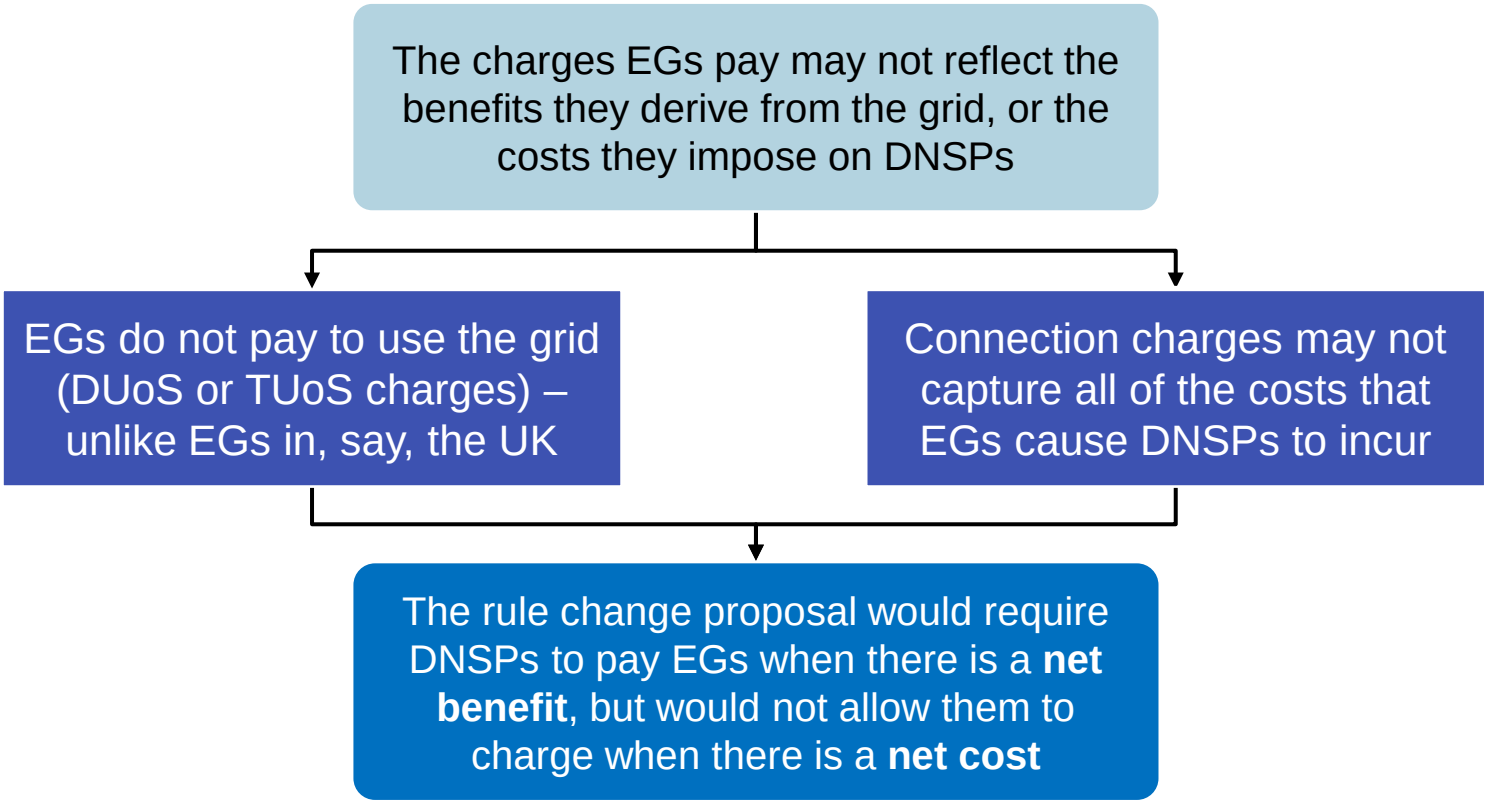
Key Issue:
Options that favour one type of technology can lead to inefficient investment

Allocation of benefits



Allocating 100% of forecast benefits to EGs is unlikely to result in overall savings for consumers – so what would be an appropriate allocation?

How important is symmetry?



Should any solution be symmetric – ie both reward EGs for benefits offered and penalise them for costs incurred by DNSPs?

Questions for discussion

1. Assuming that the potential benefits of EG depend upon location, time and, potentially, the type of EG, **can a 'broad-based' solution** – eg an export tariff that mirrors the consumption tariff – **promote efficient outcomes**?
2. To what extent does any solution depend on how the recent rule changes relating to **cost-reflective distribution charges** for consumption are implemented?
3. Since non-network solutions – such as controlled load – can offer potentially equivalent benefits to EGs, how best to address the issue in the rule change request without undermining the **technology neutrality** of the NER?
4. What is the appropriate allocation of long-term network cost savings between **NSPs** (both distribution and transmission), **providers of non-network solutions** (including EGs) and **consumers**?
5. Do **connection charges** allow DNSPs to recover all of the costs that EGs can potentially impose, eg those arising from bi-directional flows?
6. Would the proposed **discretion** for generators to **opt in** to LGNCs result in a potential asymmetric outcomes?
7. Should any solution be **symmetric** – ie ensure that providers of non-network solutions also face **higher charges** if they cause higher network costs?

Summary of discussion

Specificity:

- Some participants supported a broad-based LGNC calculation as incentivising *some* embedded generation in the right places
- Other participants considered a locational element critical to getting the right signal. That could be either varying payment by location or only paying credits to embedded generators in particular locations
- With regard to which generators would be eligible to receive LGNC, in addition to considering a potential 'upper limit' (eg 5MW) some participants considered that LGNCs should not be paid to embedded generators below a certain size. This was on the assumption that the value of the LGNC would be small and any payment would not affect the decision to investment in small-scale embedded generation

Technology neutrality:

- There was some recognition that, from a network management perspective, the principles that apply to increasing generation are the same as for curtailing consumption, so the two should be treated the same way

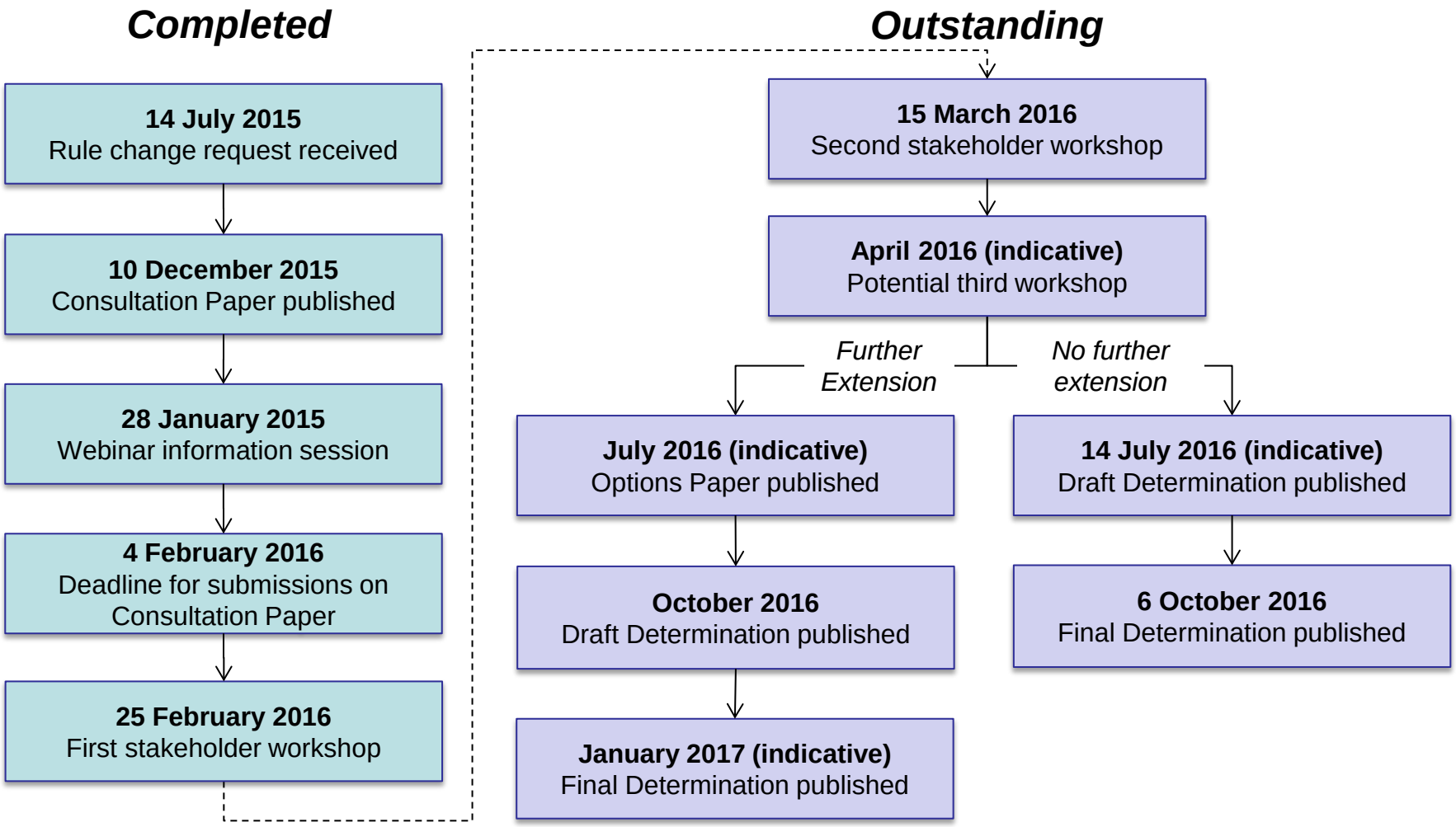
Summary of discussion (cont.)

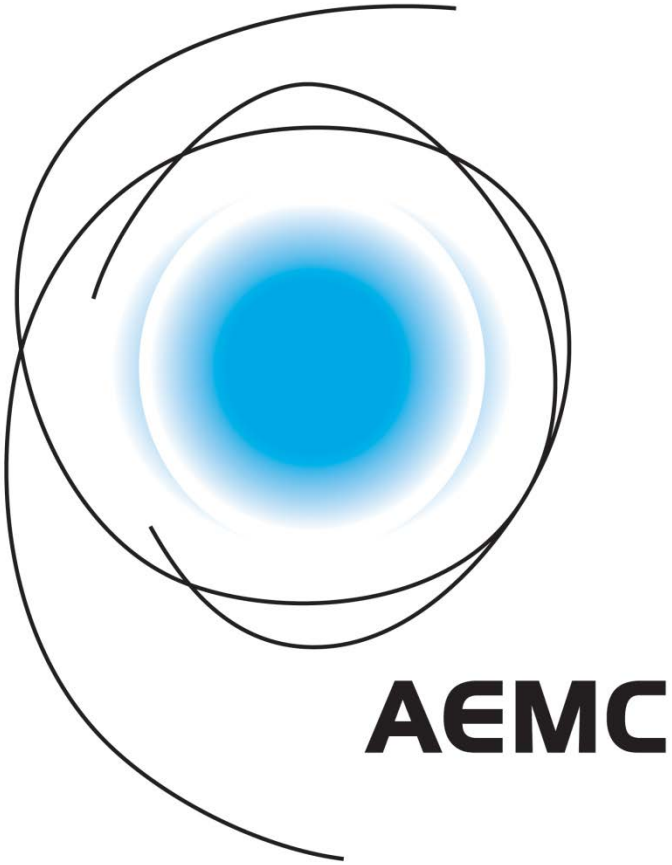
Allocation of benefits and costs:

- Some participants considered the proposed LGNC scheme to represent a cross-subsidy from the broad consumer base to embedded generators. This is on top of what is seen as a cross-subsidy under current distribution pricing arrangements. This was seen to be inconsistent with the NEO
- Some participants considered that vulnerable consumers would be less likely to own embedded generation and could be disproportionately impacted by the LGNC that smear net costs across all consumers
- Several DNSPs noted that their ability to recover additional costs caused by EGs (for example costs due to the impact on power quality) is limited under the connections regulatory regime: they are generally unable to recover any of those costs from small EG such as household PV but can recover some from larger EGs
- It was noted that a symmetric LGNC could potentially result in existing embedded generators being charged for network costs they impose, even though their investment decision may have been based on not being charged

What's next?

The rule change process




AEMC