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FUTURE REGULATORY OPTIONS FOR ELECTRICITY NETWORKS

Policy Summary August 2016

ELECTRICITY NETWORK TRANSFORMATION ROADMAP

ena energy networks association

CSIRO

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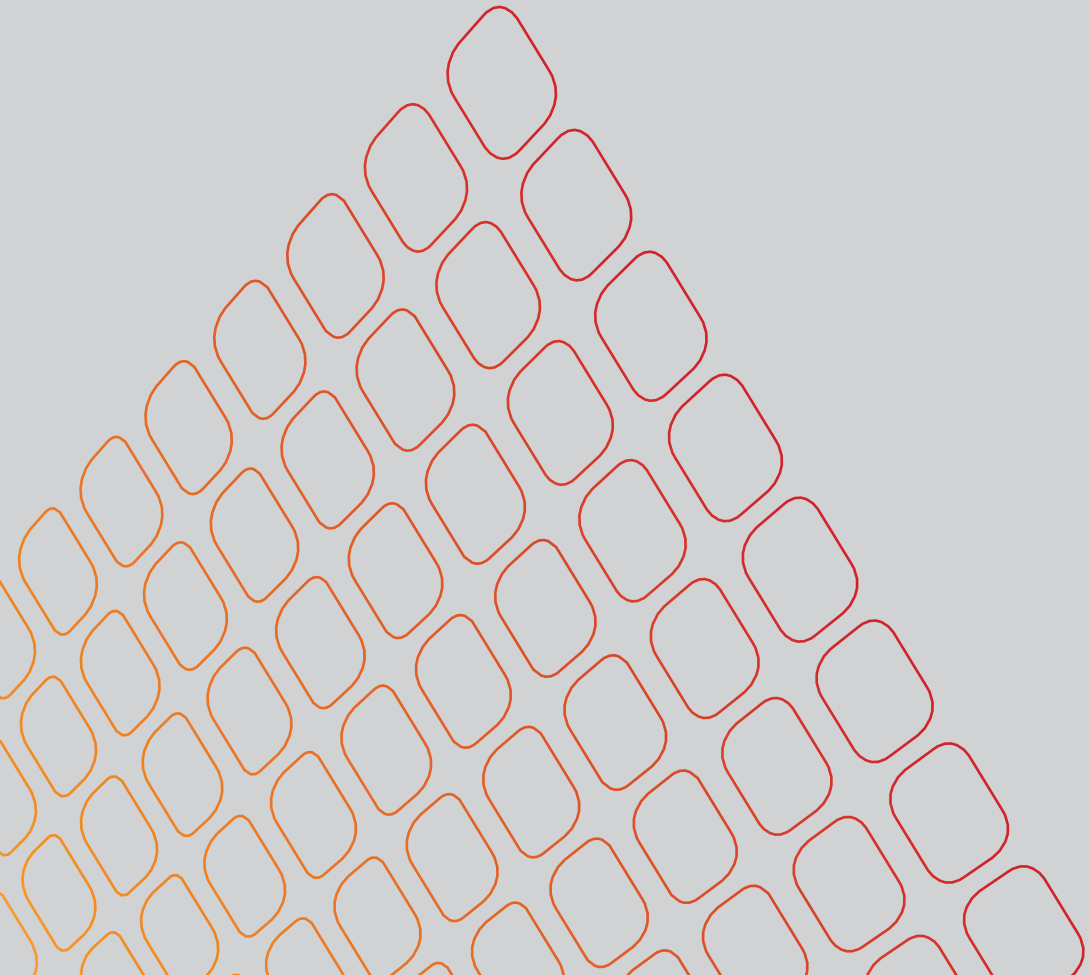


FUTURE REGULATORY OPTIONS FOR ELECTRICITY NETWORKS

Executive Summary

Technological change - including the rapid integration of distributed energy resources - is transforming the electricity industry, the way that electricity networks are used, and potentially the economics of these networks.

This change creates the opportunity for the regulatory framework to evolve from a regulator-driven approach to more customer-led or lighter touch 'information disclosure' approaches. Cambridge Economic Policy Associates has reviewed possible future approaches and proposes a range of measures that could better incentivise electricity networks in the short-term and provide a pathway to transition to a lighter touch framework in the longer term.

Electricity markets, consumer technologies, network business models and energy resources are changing. The ENA and CSIRO are exploring the implications of these changes through the *Electricity Network Transformation Roadmap* (*the Roadmap*) in order to develop pathways for navigating critical change in Australia's electricity networks during 2017-2027.

ENA and CSIRO asked CEPA to review developments in other jurisdictions, and to consider and provide recommendations on regulatory options and pathways for Australian electricity networks based on a range of future energy market scenarios.

This work benefitted from discussions with industry and stakeholders through workshops and direct engagement, as well as guidance, input and review by internationally-recognised regulatory and energy market experts, Professors David Newbery and Stephen Littlechild.

Lessons from international experience

Many jurisdictions are considering how their regulatory frameworks should evolve to accommodate the transformation occurring in the electricity sector. We reviewed four regimes – Australia, California, New York and Great Britain's – where detailed consideration is being given to these issues. There are also a number of alternative regimes and innovative approaches being used in other sectors which we investigated. Some key lessons we have drawn from the review of the regimes are set out in the box below.

1. The electricity regulatory framework visions of other jurisdictions reflect the existing structure – vertically separated networks in Great Britain and Australia, and vertically integrated in California and New York, but separate or potentially separate system operators (at transmission level and/or at the distribution level) – therefore approaches and mechanisms need to be considered in the Australian context of the clear separation of networks from electricity generation and retailing.
2. Most regulators are taking a cautious but flexible approach to allowing networks to offer services that may become contestable – they are allowing distributed energy resources (DER) (particularly storage) to be directly owned by the regulated firm in a limited way – and encouraging networks to source these services from third parties.
3. There has been a push to ensure networks have balanced incentives for alternative solutions to poles-and-wires, which would require achieving returns through 'opex' . Incentivisation could occur through project-based measures (eg. New York and proposed for California) or total expenditure (eg. Great Britain).
4. The regimes are getting more complex as the industry transforms. While there is some significant 'refocusing' of regulatory frameworks, some of the added complexity appears to be the result of layering new arrangements on top of the existing frameworks. This should be avoided where possible.

The transformation has the potential to lead to a new regulatory framework

Under the current Australian incentive-based regulatory 'building blocks' process, there is a **regulatory-driven settlement** – i.e., the regulator makes the majority of decisions around services and prices on behalf of consumers. As customer access to information and new technologies increases, including in some cases expanding cost-effective and sufficiently reliable off-grid options, the opportunity exists to move towards **customer-led settlements**.

Under these types of approaches customers or their agents engage and negotiate directly with energy network businesses. Even lighter touch frameworks may become feasible over time, such as **information disclosure** oversight models that place a greater emphasis on lower cost monitoring approaches.

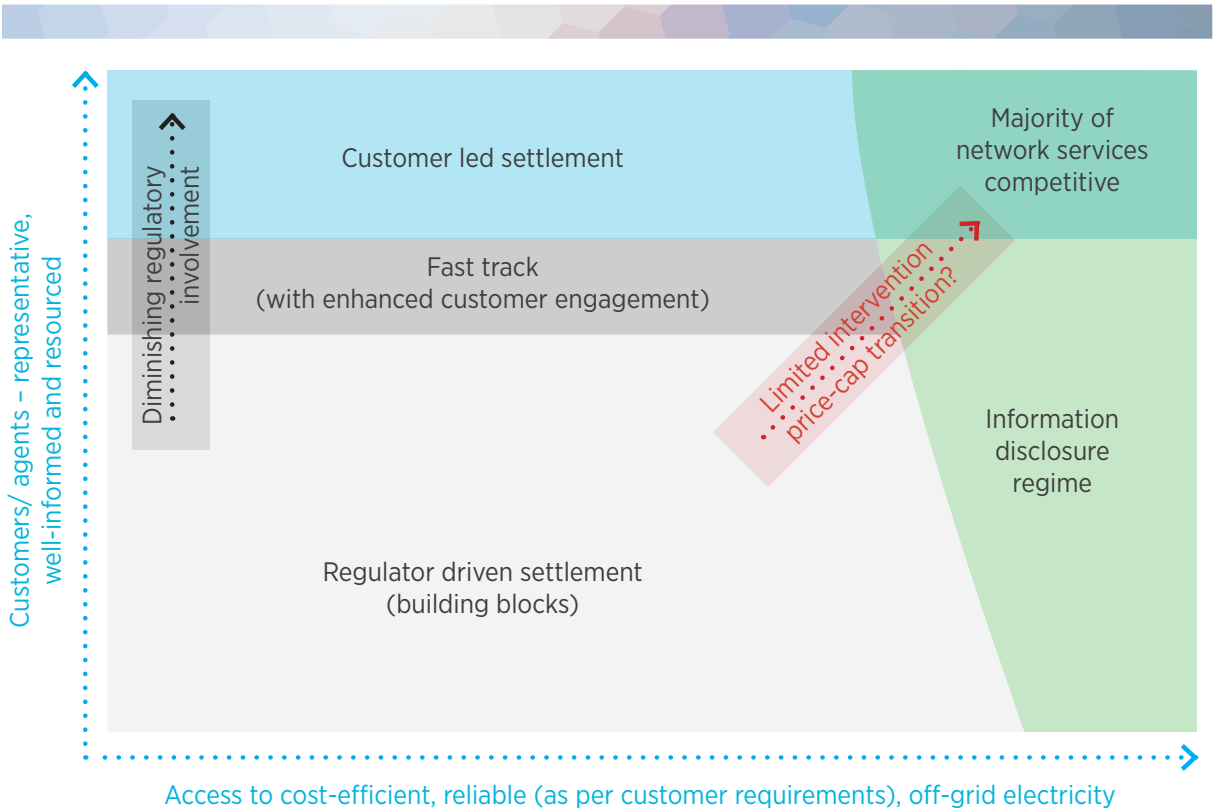
This change, driven by increased customer choice and engagement and potential access to non-grid alternatives, is illustrated in Figure 1.

With robust **consumer protection** mechanisms in place, these customer-led settlement options offer potential improvement over the current framework. This is because the services that customers most value are directly taken into account, and the framework is likely to be more flexible for the evolution of services and to be nimbler, allowing it to change over time to meet emerging customer needs.

The evolution of service obligations and consumer protections will be a critical part of the pathways to and eventual scenario reached in 2027. In our view the transformation requires networks to have greater flexibility in their service obligations, such as:

- offering flexible connection choices (e.g. limited capacity, options to disconnect at peak times);
- potentially having a different role as provider of last resort (as cost effective off-grid supply becomes more widely available); and
- ensuring that those going 'off-grid' are offered information/ education and, potentially, a way to reconnect.

Figure 1: Framework evolution driven by customers and off-grid options



Reaching the right risk allocation for the future

Under all regulatory frameworks there are aspects of risk allocation which need to be managed. How risks are allocated between customers and energy networks are a critical part of a future regulatory framework.

The significant changes to energy markets means it is timely for the community to consider risk allocation models of the future that will allocate risks between those best able to manage them and deliver efficient future investment decisions while minimising financing costs.

Critically, while different allocations of risk are possible, all involve trade-offs and costs have to be borne somewhere in the system. The appropriate risk allocation will also flow from community expectations of what the 'grid' is, and what it is expected to deliver as a shared national asset.

Options for risk allocation include:

- varying the incentive rates on efficiency sharing schemes;
- introducing more output incentive arrangements (to align with customers' values);
- changing the balance of risks borne by current and future users, for example, by changes to asset depreciation profiles;
- introducing longer-term connection contracts (for covering sunk costs); or
- changing the profile and allocation of risk for new investments.

Scope for change by 2027

Reaching the frameworks towards the top-right of Figure 1 requires substantial change in the sector which may not be reached by 2027. Therefore, an evolved form of incentive-based regulation may still be needed in 2027, but with a greater range of incentives, and embedded tests to provide a smooth process for more services to become competitive (or move to an information disclosure regime) and greater customer involvement in any price/revenue control process.

At present, there is provision for the classification of network-related services to change when they become contestable. However, the regulatory framework in Australia needs a clear and logical system and test to determine and manage this issue. Networks could provide these contestable services subject to specific conditions including a cost-benefit test demonstrating if this is in the interest of consumers. A cost-benefit test could either be included in the regulatory framework, or networks could themselves make proposals on business structures and mechanisms.

We note that the Australian regulatory framework is already evolving to include some of the above mechanisms.

Measures that may help transition to lighter (regulator) touch frameworks, include:

- increasing the incentive on networks to treat alternative (and innovative) solutions equally – we suggest that the total expenditure (totex) is a promising way of achieving this;
- increasing the opportunities for networks to propose outputs/ incentives which align with the services that customers value;
- allowing different network structures to reflect their changing functions and ability to offer services customers value; and
- increasing the role of customers in the regulator driven settlement process and offering ways to reduce regulatory burden where not necessary – i.e., the regulator can 'fast track' business plans that demonstrate a clear regard to the long-term interests of consumers.

Our review of international experience provides examples of successful implementation of some of these ideas.

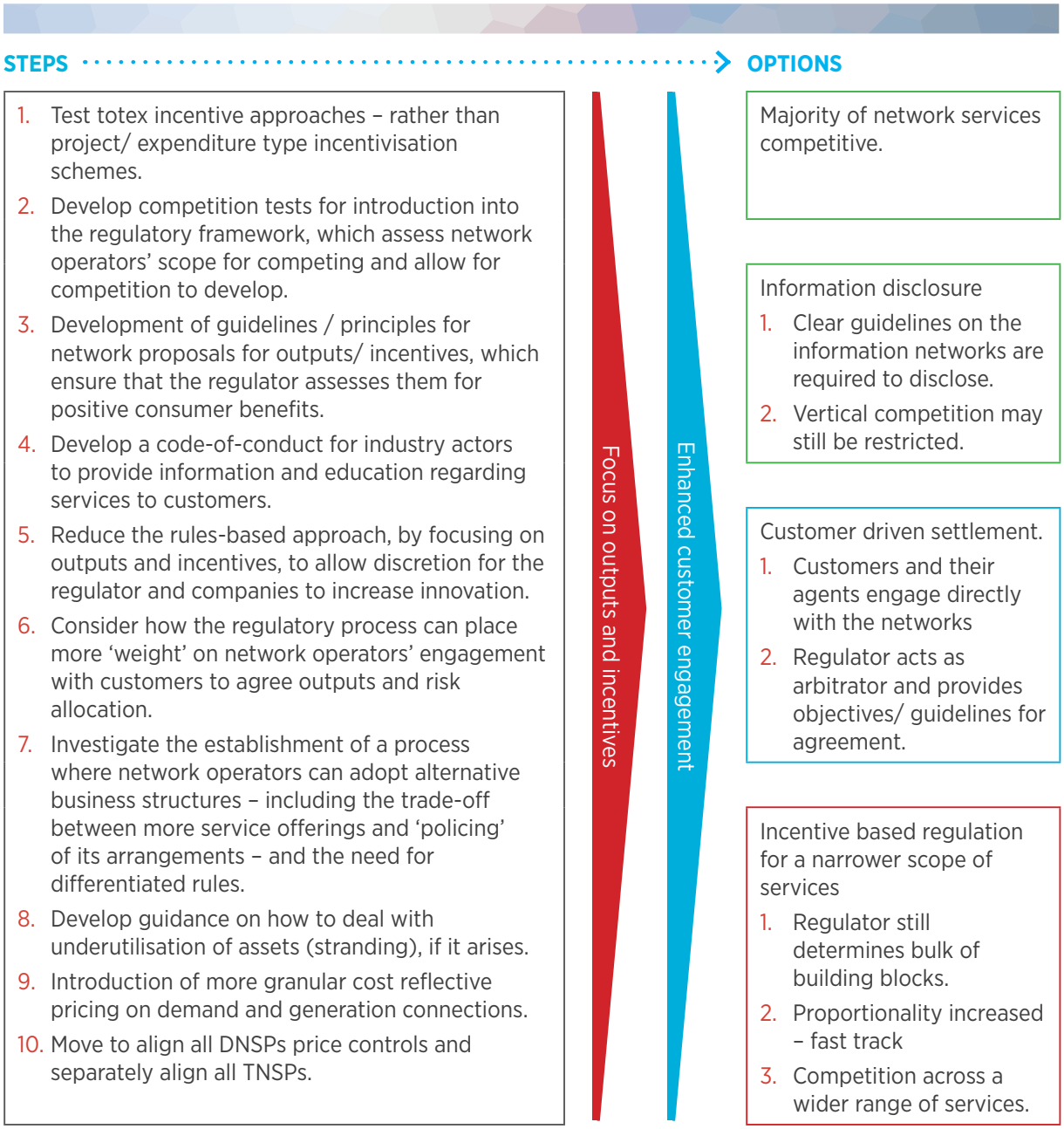
Transitional arrangements

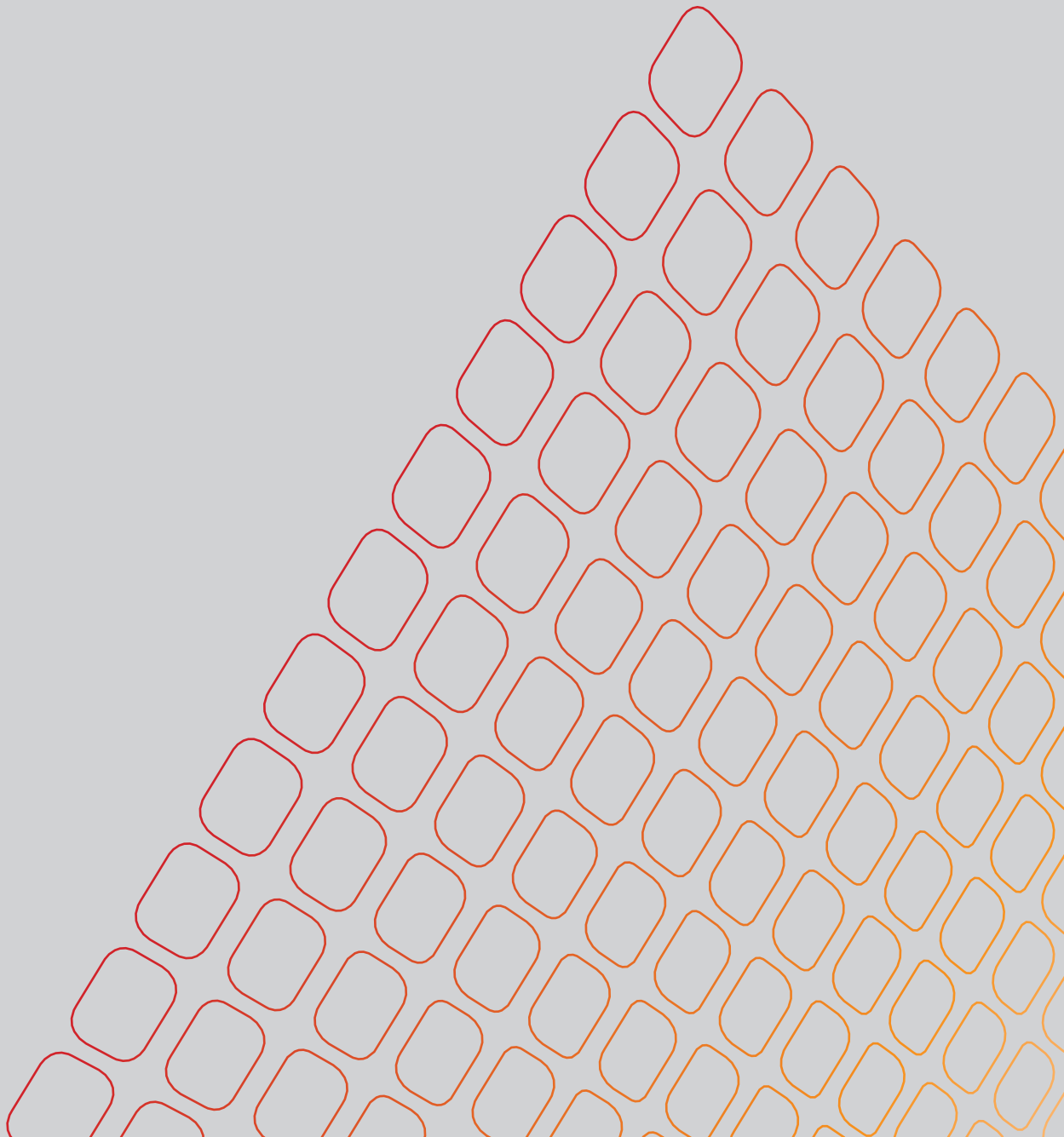
As competition for core network services develops, one possible transitional approach is to move towards a price-cap regime where the regulatory involvement in setting ongoing prices is more limited and focuses on only using external measures such as productivity measures (including so-called total factor productivity index approaches) to adjust future prices.

The pathway for regulation should accommodate the uncertainty to 2027

Next steps for regulatory development should reflect the range of possible regulatory models that may be appropriate. However, there are a range of steps illustrated in Figure 2 that can be taken that would accommodate all these models, meet best practice regulatory design principles, and at the same time enhance the regulatory process better to meet the needs of customers.

Figure 2: Pathways for regulation





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