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Promoting efficient investment in the grid of the future

The 2018 Electricity networks economic regulatory framework review

The Commission has published the final report for the 2018 *Economic regulatory framework review* (2018 Review). The Commission has a standing terms of reference from the COAG Energy Council to monitor market developments on an annual basis and consider whether the economic regulatory framework for electricity networks is sufficiently robust and flexible to continue to support the long term interest of consumers in a future environment of increased decentralised energy supply.

The 2018 Review also implements the recommendation of the Independent Review into Future Security of the National Electricity Market (Finkel Review) that the Commission 'undertakes financial modelling of the incentives for investments by distribution network businesses, to test if there is a preference for capital investments in network assets over operational expenditure on demand-side measures.'

Key findings from the 2018 Review

The Commission finds that incentive regulation remains the appropriate fundamental principle of the economic regulatory framework for electricity networks and that the framework currently provides sufficient flexibility to support the evolving role of network service providers (NSPs) in the context of the electricity sector's transformation. The Commission notes that recent changes such as the removal of limited merits review and the COAG Energy Council's decision to amend the national energy laws to make rate of return guidelines binding are designed to help to address affordability concerns.

The need to review financial incentives for NSPs in light of their changing role

In implementing the Finkel recommendation to test for a preference for capital investments in network assets over operational expenditure on demand-side measures, the Commission's modelling and analysis shows that while the regulatory framework does not create systematic bias for either capital or operating expenditure, the financial incentives for NSPs are nevertheless not aligned as they vary depending on the circumstances.

The Commission's view is that the in the current environment where interest rates and regulated cost of capital are low, and where the most viable solutions to many network problems may still require capital investment, the potential for bias is low and the current regulatory framework provides appropriate incentives for efficient investment decisions. However, the Australian electricity system is likely to be more decentralised in the future and distributed energy resources (DER) are increasingly likely to be able to provide alternatives to traditional network solutions. The Commission is concerned that the potential for bias would be greater under such a scenario, especially when combined with a high interest rate environment.

The issue of expenditure bias is due largely to the current method of separate assessment and remuneration opex and capex. In a future with high DER uptake and increased availability of non-network solutions using new technologies, the separate assessment and remuneration of capex and opex is not likely to lead to the most efficient outcome. The framework also creates incentives to inappropriately classifying opex as capex.

As the Review's market monitoring indicates that the penetration of DER is likely to continue to increase in the future, the Commission considers it is appropriate to conduct a holistic review of the method of expenditure assessment and remuneration. As part of the 2019 Economic regulatory framework review, the Commission will commence consultation

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on changes required to the expenditure assessment and remuneration systems to enable the economic regulatory framework to continue to support the electricity sector's transformation. The Commission will commence this work immediately following the publication of this 2018 Review report.

The role of electricity distribution networks in optimising the value provided by DER

The increasing penetration of DER on the grid also presents opportunities for the power system, as a whole, to become more efficient as DER can be capable of providing an array of services to a range of parties. The role of NSPs will become more complex and the operation of the grid will need to be more sophisticated to efficiently integrate DER and to manage challenges to avoid network and system security issues.

The Commission considers a more sophisticated and dynamic approach, which could take the location of DER and time into account, would be better suited to managing the increasing penetration of DER, rather than augmenting networks or applying static export limits. A number of approaches could potentially be taken to managing and optimising DER within both within both transmission and distribution network limits.

The identification of the preferred approach to overall system operation and the assessment of benefits of alternative models is likely to take considerable work and time. In the meantime, there are a number of first steps that distribution NSPs can take now to facilitate the integration of DER and to prepare for potential future operating models.

The key first steps involve distribution network service providers building a better understanding of the impacts of connecting higher levels of DER to their networks and the network constraints that may emerge as a result. In the past, distribution networks have not needed a detailed understanding of flows of energy across their low voltage networks, with most of their modelling and monitoring capability focussed on their high voltage networks. As a result, they have very limited information regarding the ability of their low voltage networks to manage DER export and the constraints in their networks that will lead to high levels of DER causing them to breach their technical obligations in relation to matters such as voltage limits.

The Commission considers the current economic regulatory framework can support distribution NSPs in making efficient investments to improve their low voltage network data, modelling and monitoring capacity as it provides distribution businesses and the AER with appropriate levels of discretion and flexibility in determining network expenditure and revenue requirements.

The need to continue network pricing reform

The Commission continues to emphasise the important role that cost reflective network prices play in supporting electricity network transformation as well as delivering long term affordable energy prices.

Cost reflective network pricing will support the transformation of the network by providing a foundation for efficient usage and investment decisions by consumers. In particular, network tariff reform will provide investment signals to DER providers and help unlock the DER value stack by assisting consumers to optimise their energy usage. This is forecast to lead to long term reductions in network costs and average network charges paid by consumers.

The Commission is of the view that it is not necessary for retailers to structure their prices in a way that matches network prices. Network prices are not paid directly by customers, and are instead charged by distribution NSPs to retailers. If network prices are cost reflective, this will incentivise retailers and other energy service providers to offer innovative solutions to help consumers manage their demand and costs.

The requirement for NSPs to develop cost reflective network prices was introduced by the Commission's Distribution network pricing arrangement rule change in 2014. The rule change also requires NSPs to develop a tariff structure statement (TSS) that outlines the price structures that they will apply for the next regulatory period.

The Commission has observed that that for the upcoming TSS period, many NSPs have started to shift from 'opt-in' to 'opt-out' or mandatory assignment policies. This is a positive development and the Commission encourages market participants, governments, consumer groups and the AER to continue to progress implementation of network tariff reforms.

Areas of focus for future reviews

As the role of NSPs continues to evolve in response to the electricity sector's transformation, other reforms may be needed so that the economic regulatory framework continues to serve the long term interest of electricity consumers. In addition to consulting on changes the expenditure assessment and remuneration systems, other issues that have been raised by stakeholders that the Commission intends to consider in the 2019 Economic regulatory framework review include:

- Enhanced consumer engagement, in particular any changes as a result of the NewReg project currently being undertaken by the AER, ENA, and Energy Consumers Australia
- Increased use of output or performance based regulation
- Potential changes to how risks are shared between NSPs and consumers, including consideration of extending the AER's power to conduct ex-post reviews of the efficiency of capital expenditure incurred in the previous regulatory period
- Whether there is need for more formal arrangements for regulatory sandboxes to enable innovation.

Context for the 2018 Review

Technological change and changing consumer preferences have transformed the landscape in which electricity network service providers operate. The role of NSPs is changing in response to this broader transformation of the sector. The last decade has seen a significant increase in the uptake of new technologies such has rooftop solar photovoltaic systems, battery storage and 'smart' energy management systems at the distribution level.

While DER can provide a range of benefits, an increasing penetration is likely to lead to an electricity grid (especially at the distribution level) that is more complex and sophisticated. The role of NSPs will need to evolve from a simple conveyer of electricity in one direction to providing a platform to facilitate transactions between end customers, the efficient integration and operation of DER, and competitive third party energy services.

Networks will face new technical and operational challenges in managing this future grid, and will need to undertake different types of investments to maintain quality and reliability and operate the network within safe limits. They will also have access to a greater range of investment options, including a likely increased ability to use operating expenditure solutions involving contracts with third party providers.

The terms of reference for this review direct the Commission to examine the impact on the economic regulatory framework as a result of increasing penetration of DER. In this 2018 Review, the Commission has focused its analysis on areas of the economic regulatory framework that are important to support the evolving role of NSPs and support the efficient integration of DER now and into the future.

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