10.04.02 Connections Investment Case

Overview

Essential Energy currently contributes about $1.5M per year to Connections projects, where the typical contribution is $5,000 to $20,000 per project. The remaining project cost is customer-funded through capital contributions.

There is an opportunity for Essential Energy to fund a greater proportion of connections projects in order to facilitate efficient network outcomes. Essential Energy are proposing clarifications to the Connections Policy to allow increased flexibility to support these efficient outcomes.

We are obligated to make prudent & efficient investments in the long-term interests of customers (NER 6.5.7 capital objectives). We believe that our proposal for managing Connections is that of a prudent & efficient distribution network operator operating in the long-term interests of customers.

Background

With the existing connection policy, the expansion of the distribution network and additional capacity is typically driven by customer funded contestable works projects. The configuration and subsequent application of the connection policy is an opportunity to increase regional and community growth, particularly for new Commercial/Industrial connections and individual rural customers.

Whilst this has historically endeavoured to drive down electricity prices and costs for the customer base that is already connected to the distribution network, it also means that as capacity is exhausted in certain areas a new connection may be the single connection that moves the network outside the allowable limits and the associated cost is then covered by a single customer connection with the only facility to offset costs being a pioneer scheme.

Application of the current connection policy does not consider that the existing capacity of a Zone Substation or a distribution feeder will eventually become exhausted and the only way to resolve this issue for a customer is to make a financial commitment to funding augmentation of Zone Substation infrastructure. This can mean that a small developer who is creating a subdivision of land may need to fund upgrades of shared network assets which are ultimately utilised to supply a number of customer connections and not just dedicated to a single customer connection.

The customer funded approach to these system assets has seen a restriction in regional and community growth. Many of the large developments across the Essential Energy footprint have occurred within a regulatory period or have been initiated quite quickly by federal or state government initiatives which does not allow Essential Energy to include these types of developments in forecasting or strategic planning analysis. The large volume of these types of developments which is currently being seen across the state within the Essential Energy footprint means that quite significant amounts of the Essential Energy network needs to be augmented to facilitate the projects. Essential Energy contributions to Zone Substation and distribution feeder bays would be an enabler for many of these projects which are benefitting a large portion of the community and does improve shared network capacity.

Regulators and reconductoring of backbone network is another area which has not seen a positive impact on customer connections due to the cost associated with a single customer funding the augmentation. Regulator sites and backbone network are assets which can be utilised to support many customer connections. What is being seen in the customer connections space is an increase in rural connections and the capacity required for these connections, an increase in the amount of people working from home or moving their business to their home has also seen the load requests increase in volume and capacity requirement. The rural network was not configured for this and reconductoring of shared backbone network or installation of regulators improves the capacity of the network and can facilitate a number of new connections. The pioneer scheme is not able to be easily applied in these types of circumstances. This is an area where Essential Energy funding would produce better network outcomes, facilitate regional growth and improve reliability of supply for all network users. It would be appropriate that Essential Energy is able to fund this type of augmentation where assessed as appropriate.

Forecasting Approach

We expect the number of LV customer connection applications, including load and embedded generation, to remain steady at 46,800 per annum.

This is in line with the forecasts provided by Frontier Economics, which totalled approximately 7,100 additional customers per annum. This differs from the number of connection applications as:

- many applications are for adding embedded generation to an existing connection
- not all connection applications reach completion; and
- a small number of customers would likely leave the network each year.

We also forecast a steady application of generators >5 MW capacity, and an increasing number of applications for generators < 5MW.

Major Connection Projects

Examples of connections projects (commercial in confidence) where Essential Energy has or proposes to fund part of the project include:

If a new customer would cause an asset rating being exceeded and the distribution transformer requiring an upgrade, Essential Energy proposes to fund an agreed portion of the upgrade of the asset.

Another example is a mine and solar farm seeking to be connected in the same vicinity, and both require significant network infrastructure. Through efficient connection planning, the construction of multiple duplicate assets can be avoided.

These changes to network connection contributions will result in additional augmentation capex to zone substations and sub-transmission, HV regulators, distribution transformers, and reconductor of shared network.

Options considered for Connections Policy

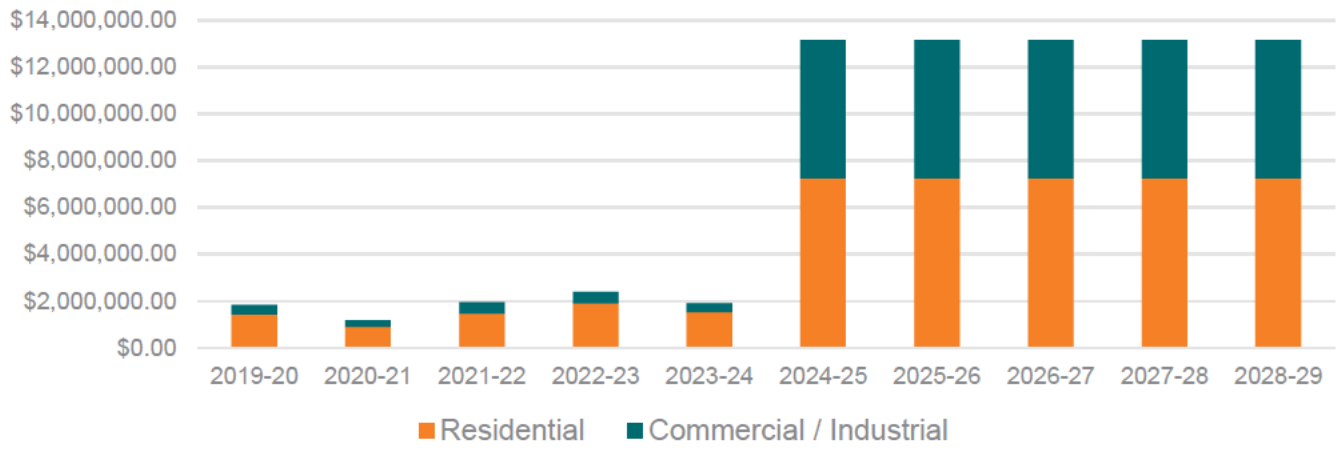
#	Option for change	Option description	Implications	Outcome
1	**Essential Energy funds shared network augmentation as a standard control service**	• Connections that trigger shared network augmentation and benefit broader customer base with improved supply or improved service are funded by Essential Energy as a standard control service and recovered from across the customer base – e.g. zone substations	• Potential increase in volume of RIT-Ds. • Pricing Impacts • Increase to Augex and connection capex and capital contributions	• Connection Policy updated to provide clarity what is shared network augmentation and the types of work that may be considered shared network augmentation. • Updated to clarify what is considered a contestable service and what should be funded by the customer • The Policy specifies that Essential Energy will fund shared network augmentation that is below the threshold of 100amps (urban) and 63amps (rural).
2	**Include unitised shared network augmentation rates**	• Capital contributions are collected where Essential Energy may be required to undertake a standard control service eg shared network augmentation and the expected revenue from tariffs will not cover the costs.	• Capital contributions can be used to send a pricing signal for more inefficient network connections (eg a connection where future SAPs likely and where revenue is not likely to recover costs) • Need to determine the average cost of shared network augmentation expressed as $/kVA for each network component • May improve efficiency of connection process in certain circumstances	• Not adopted as capital contributions are not collected for shared network augmentation below the threshold (100amps urban and 63 amps rural) and customers connecting above these thresholds must fully fund any shared network augmentation.
3	**Review shared network augmentation charge threshold**	• Essential Energy has a lower threshold than other DNSPs for rural customers and no SWER threshold.	• If the threshold is increased (e g., for rural and SWER), then Essential Energy will fund more shared network augmentation	• Decided to not introduce a SWER threshold as unlikely to be an issue.
4	**Introduce a clause for static zero export limits**	• Include the circumstances where it may impose export limits for small generation connections	• The Connection Policy will need to align with AER Guidelines which will be updated to reflect the new regulatory requirements.	• Included as a compliance requirement based on the draft wording provided by the AER.
5	**Review connection offer types**	**Review the types of standard connection offers to capture common connections and future technologies – for example** • **Streetlighting** • **NBN/ Telcos** • **Unmetered supply** • **EV Charging Stations** • **Battery Storage**	• **Development of additional Standard Connection Offers and Model Standing Offers – these will require AER approval** • **Facilitates efficient and streamlined connection processes**	• **Considered outside of scope and as part of the Better Connect review**

6	**Replacement of assets at reduced maximum capacity**	Including a clause in the connection policy, similar to Ausgrid, to manage change in capacity of gifted connection assets that need replacing.
		Ausgrid's Connection Policy allows the network to reduce maximum capacity of a connection asset where the measured demand has remained less than the agreed maximum capacity for at least the two years preceding.
			• Transitional arrangements and difference in treatment from existing customers to new customers need to be considered
			• May reduce the need for future augmentation
				• Adopted, the wording provides that Essential Energy may reduce the agreed maximum capacity and renegotiate a connection agreement for a connection if:
				  • The customer's demand has remained less than the agreed maximum capacity for the previous two years; and
				  • Essential Energy requires the unused network capacity to relieve a forecast network constraint; and
				  • The customer does not have a current negotiated connection agreement with Essential Energy to reserve this capacity.

7	**Real Estate Developers and Equalisation Scheme**	Essential Energy may wish to consider including an equalisation scheme for real estate developers as an alternative to a pioneer scheme. Essential Energy would contribute towards the costs of asset within the development that would subsequently be used by other customers.	• Essential Energy would need greater certainty over future load growth and funding • It may encourage regional development. • Application of an equalisation scheme will require documentation and ongoing management.	• Not accepted and pioneer scheme will continue to not apply to real estate developments

Forecast Expenditure

We are forecasting a step increase in capital expenditure to approximately $13.1M per annum, $65.8M for the 2024-29 regulatory period.



Note: All values are in middle of the year 2023-24 real dollar terms.

This is expected to involve expenditure in the following categories:

	Expenditure ($M)
Subtrans / ZS Regional Growth	$8.36
Shared Distribution Transformer	$1.34
Shared HV Regulators	$0.67
Shared Reconductor	$2.79

Proposed Changes

A summary of the clarifications to the Connections Policy:

- Making customer-friendly changes to increase the simplicity of the document
- Clarifying shared network augmentation, and when a customer is required to fund connection works
- Clearly articulating and defining the different types of connections
- Including a section detailing when a small embedded generator may be offered a static zero export limit
- Enabling an ability to renegotiate or release capacity if a connection exceeds or does not meet agreed maximum demand

Justification

The primary advantage of the proposed approach is to connect customers, both load and generation, to the network efficiently. If some of the major connections proposed went forward individually, there would be significant network augmentation required that could have been avoided.

During customer engagement, 71% of participants agreed that Essential Energy should fund a suitable portion of network upgrades related to new connections, where it will increase revenue or improve network utilisation (**Attachment 4.02 How engagement informed our Proposal**).

This investment proposal is aligned with the corporate strategy pillar **Drive Connections & Load**. This will improve the ability of Essential Energy to support the connection of generation such as wind & solar farms, as well as loads such as mines.

This is also aligned with the Asset Management Objectives **Make it easier for our customers to connect to our network** and to **Seek opportunities to maximise revenue from our network**.

It also aligns with the National Electricity Objective to **Promote efficient investment in…electricity services for the long term interests of consumers**.