

# Demand Management Plan

April 2024

START >



Part of Energy Queensland

## Acknowledgement

We acknowledge the Traditional Custodians of the land on which our distribution networks are located, and we recognise their continuing connection to land, waters, and community.

We pay our respects to Elders past and present for they hold the memories, the traditions, the culture and hopes of Aboriginal and Torres Strait Islander peoples in Queensland.

We extend that respect to all Aboriginal and Torres Strait Islander people today.

We are committed to continuing to work in partnership with First Nations people to ensure we deliver clean, reliable and smart energy supply to communities in Queensland in the most affordable way.



# Message from our Executive

**The energy ecosystem is undergoing complex, rapid and profound transition with the proliferation of Consumer Energy Resources (CER) and newly electrified loads driving significant changes in how customers produce and consume energy.**

This has led to and will continue to drive a dramatic change to how the distribution networks are operated. The increase of CER and electrification of loads provides a substantial opportunity to not only support decarbonisation but to actively enable it, delivering on the Queensland Energy and Jobs Plan (QEJP) commitment to net zero emissions, and the emissions reduction target of 75% below 2005 levels by 2035.

The energy transition is not without challenges for distribution networks like Energex and Ergon Energy Network (Ergon Energy). The increased variability in the supply demand balance requires new ways of thinking, planning and operating our networks. It also requires a rethink of how we engage with our customers and the market. It is critical that we focus on customer centric outcomes and continue to build on our social licence. We will continue to identify prudent and efficient investment in the poles and wires network that underpin the transfer of energy. We will also identify ways to store energy that we haven't done before. This will be complemented by leveraging the existing and growing additional demand flexibility capability.

Our Demand Management (DM) Plan supports the achievement QEJP renewable energy targets and net zero electricity emissions across Queensland. The DM Plan outlines the strategies and activities required to drive innovation and progress in demand flexibility, reducing the total cost of the renewable energy transition and improving affordability for our customers. Demand flexibility in this context includes dynamic connections, network load control and customer demand response and energy efficiency programs. Demand flexibility supports efficiencies through our network connected battery program by securing commercial contracts with market partners that reduce costs to deliver and establish provision for network

support. This capability allows us to ensure that customers benefit from the most prudent and efficient network investments.

We are a leader in delivering demand flexibility capabilities. Our existing demand flexibility programs are mature with over one million participating customers, providing a cost-effective and efficient way to reduce peak demand and fill the trough during periods of minimum demand. We will continue to make the most of these existing systems by optimising our Audio Frequency Load Control (AFLC) assets to maintain high levels of performance. AFLC offers a cyber secure and cost-effective communications channel to flex demand on some customer assets. Enhancing our network management capabilities is an essential enabler to give confidence in scalable market orchestration activities.

We plan to address the challenges of the future by actively exploring modern communication channels to deliver new services that support CER. This includes supporting the uptake of dynamic connections and the deployment of dynamic Electric Vehicle Supply Equipment (EVSE) charging to address the growth in CER connections. We expect these new communication and control options can operate in series with our AFLC control to enable markets and also support system security.

Customer centricity and support for vulnerable customers in the energy transition has not been forgotten. Our DM Plan emphasises this need with a specific pillar and suite of engagement activities associated with customer enablement. By working with community organisations and our industry partners we can provide the information, tools and capability for customers to unlock opportunities to be flexible with their CER and be rewarded. This includes customers in remote and isolated areas of Queensland. Energy efficiency programs in remote and isolated areas are critical to enabling a timely and cost-effective transition away from diesel generation.

We look forward to working with our customers and industry partners during 2024-25 and beyond.

**Peter Price**  
Chief Engineer





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## Introduction

Each year, Energex and Ergon Energy Network (Ergon Energy) publish a Demand Management (DM) Plan. This plan sets out:

- who we are
- the challenges and opportunities in our changing energy landscape that may influence our Demand Flexibility Strategy (see [Challenges and Opportunities](#))
- our long-term Demand Flexibility Strategy (see [Demand Flexibility Strategy](#)), including the principles, pillars and capabilities we'll use to achieve our demand flexibility ambition (see [Our Principles](#))
- provide information about planned DM activities for 2024-25 (see [Our Activities](#)) including forecast costs and performance targets (see [DM Initiative Budget and Targets](#))

Submission of an annual Demand Management Plan is required to meet our regulatory requirements under section 127C of the *Queensland Electricity Regulation 2006*.



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# About us: Our networks

Energex and Ergon Energy are part of Energy Queensland, Australia's largest, wholly government-owned electricity company. Energex and Ergon Energy are the poles and wires businesses that deliver electricity to homes and businesses across Queensland.

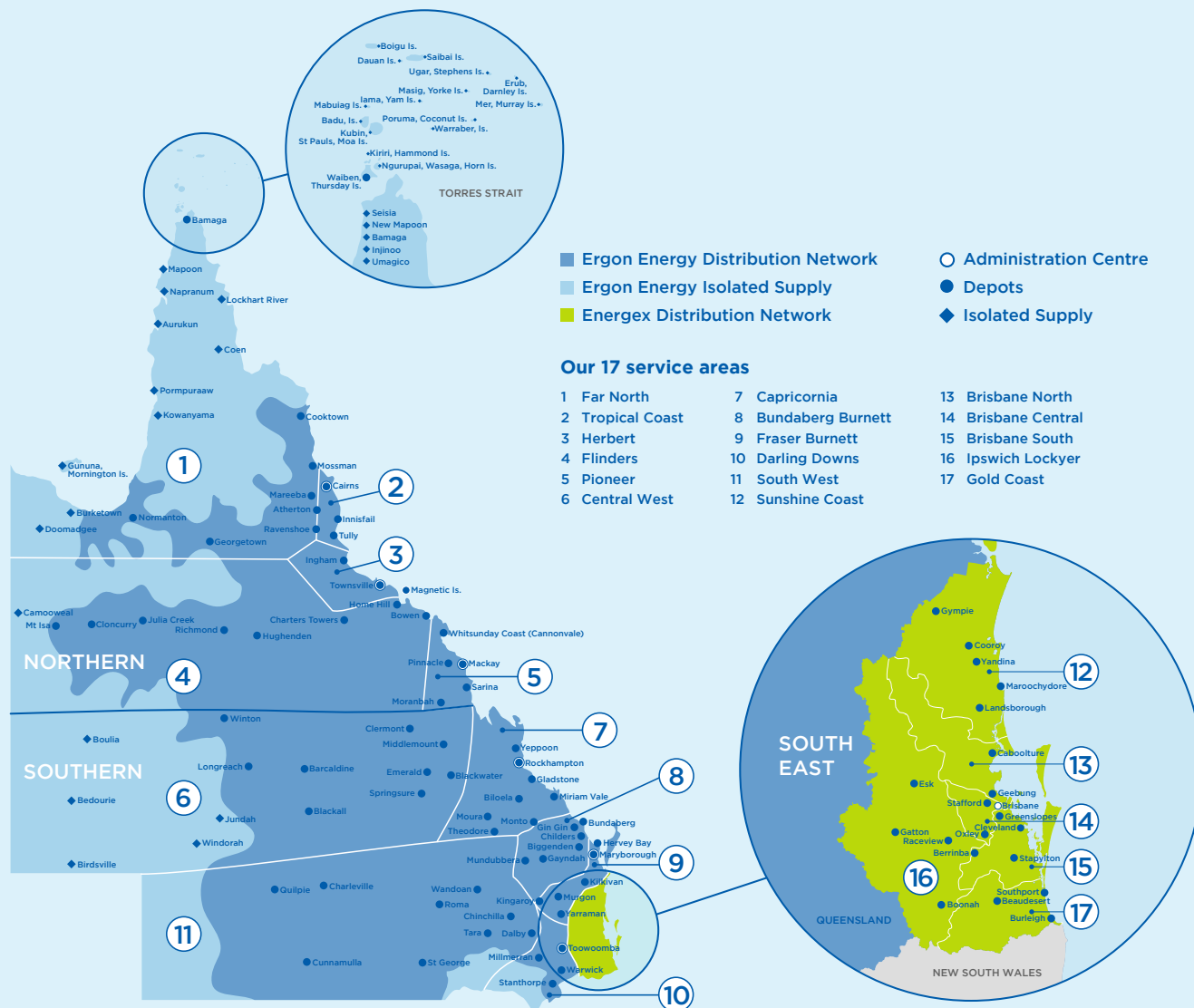
Energex's distribution network supplies electricity to Southeast Queensland, servicing high density population areas, including Brisbane Central Business District, the Gold Coast and Sunshine Coast areas, as well as the South East's extensive urban and rural areas.

Ergon Energy's distribution network supplies North, Central and Southern Queensland. Around 70% of Ergon Energy runs through rural Queensland, across a vast service area, by far the largest and with the second lowest customer density per network kilometre in the National Electricity Market (NEM). It has a proportionately high investment in sub-transmission assets, compared to the more urban networks, and one of the largest Single Wire Earth Return networks in the world.

## Our service area

The Energex and Ergon Energy distribution networks form of the NEM, this includes our Fringe of Grid. Our customers and our networks are showcased more on [page 6](#).

Ergon Energy has 33 isolated power stations and 34 isolated networks that collectively form our isolated systems. They supply 39 communities with approx. 8,700 connections supporting 21,000 people. These isolated systems support a diverse range of communities in the Torres Strait, Gulf of Carpentaria, Cape York, Palm Island and western Queensland. They are not connected to the NEM.



Abbreviations



## Our Networks



Ergon Energy network-wide peak demand



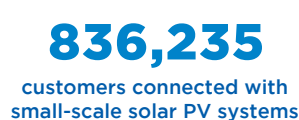
Ergon Energy network-wide minimum demand



Energex network-wide peak demand



Energex network-wide minimum demand



Our Network data as at February 2024

## Our Isolated Network



### RENEWABLE ENERGY SUPPLY



Annual energy delivered (smallest/largest sites)



Maximum demand (smallest/largest sites)



Our Isolated Network data as at February 2024

# Challenges and opportunities in our changing energy landscape: Renewable energy

The energy transition towards renewables and electrification is driving a whole-of-system transformation. We are operating in a time of change and uncertainty. We have prepared our [Demand Flexibility Strategy](#) and DM Plan at a time when the challenges and opportunities have never been greater or more complex.

Figure 1 sets out the challenges and opportunities identified through our Regulatory Proposal for 2025-30. In addition, we continue to assess the December 2023 announcement of a 75% emissions reductions target based on 2005 levels by 2035. We will continue to assess ways that our Demand Flexibility Strategy and our DM Plans can help meet this target.

We have explored further in this section, those challenges and opportunities that will have the greatest influence on our strategic approach to demand flexibility.

## Growth in uptake of Consumer Energy Resources

The amount of [CER](#) (Solar Photovoltaic (PV), electric vehicles (EVs) and battery energy storage systems) in the network is growing rapidly and is changing the way customers use electricity and what they expect of the electricity network (see Figure 2). The growth and scale of solar PV installations is changing the shape of the load profile - when and how much energy is being drawn from the distribution network. This is leading to 60% of zone substations experiencing reverse power flows and potential thermal constraints. Renewable energy by its very nature fluctuates depending on the weather and the time-of-day - this variability, can increase the challenges of managing security, quality of supply, voltage and reliability on the network.










 <p><b>ENERGY AFFORDABILITY</b> We understand cost of living and cost of business are key priorities for our customers both of which have been impacted/driven by elevated inflation and interest rates.</p>	 <p><b>ELECTRIFICATION OF EVERYTHING</b> New loads entering the network are contributing to our forecast average growth in system peak demand of 0.4% per year during 2025-30.</p>	 <p><b>BRISBANE 2032 OLYMPIC AND PARALYMPIC GAMES</b> Brisbane 2032 is likely to stimulate significant infrastructure and economic growth.</p>
 <p><b>DECREASING DAYTIME MINIMUM DEMAND</b> The current trend towards high penetration of renewable, decentralised generation has the potential to cause network reliability and security issues and require additional investment to address them.</p>	 <p><b>GROWTH IN THE UPTAKE OF DISTRIBUTED ENERGY RESOURCES</b> The potential for rooftop solar to grow by up to 8% annually will provide challenges in managing demand on the network, although managed charging of batteries, including electric vehicles, can offer opportunities for customers and the network.</p>	 <p><b>INCREASED DIGITALISATION OF ELECTRICITY</b> Increased digitalisation (e.g. smart meters and smart energy management devices) will provide more information about our network and enable demand response, but we must also ensure the security of our critical infrastructure.</p>
 <p><b>QUEENSLAND'S GROWING ECONOMY</b> We are expecting industry, population and jobs growth in South East Queensland to result in an average growth in new connections to the network of 2.3% per year, and concerns over labour and skills shortages and supply chain issues.</p>	 <p><b>CLIMATE CHANGE AND THE ENVIRONMENT</b> Increasing frequency and intensity of weather and climate-related events impacts on the life of our assets and infrastructure, and highlights the importance of having a resilient network and strong disaster response capability.</p>	 <p><b>ONGOING REGULATORY AND POLICY CHANGE</b> As the energy transformation gathers pace there are new rules and changes to the way we operate and manage our network to enable greater integration of distributed energy resources (e.g. rooftop solar), flexible demand and customer choice.</p>

Figure 1: Our challenges and opportunities

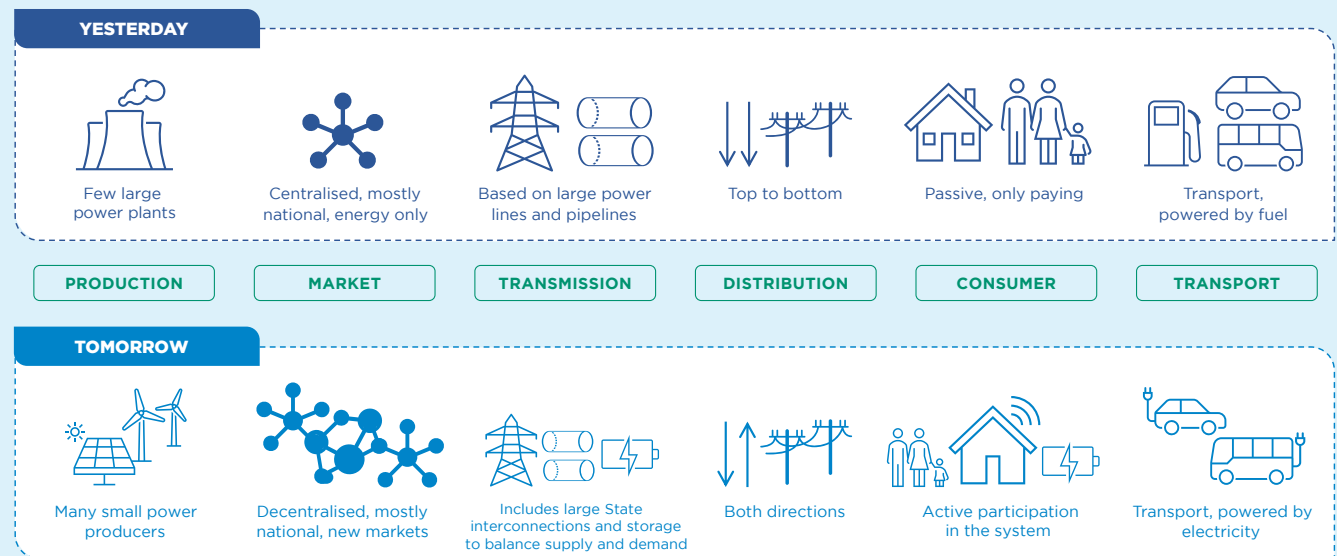


Figure 2: The energy transition



# Challenges and opportunities in our changing energy landscape: Renewable energy

Growth in CER is expected to continue (refer Table 1, below). Customer appetite for solar PV is increasing and the uptake of EVs is exceeding forecasts.

The QEJP target of 50% renewable energy by 2030, increasing to 70% by 2032 and 80% by 2035, will further accelerate the connection of CER to our networks. This acceleration is matched by the Government's commitment to decarbonisation of remote and First Nations communities connected to our isolated systems.

The growing prevalence of CER means it will have an increasingly important role in how the energy system performs and transforms. This is because CER can change how energy in households, businesses, communities, and the wider system is generated, stored, and consumed.

	2024*	2025	2030	2035
Electric vehicles	43,823	80,600	561,000	1,700,000
Solar (small-scale only)	5,108MVA	6.2GW	9.3GW	11.5GW
Batteries	0.25GWh	0.4GWh	1.5GWh	2.7GWh

\* Actuals as at February 2024

Reference: Energy Queensland (EQL) Distributed Energy Resources Forecast, medium uptake scenario (most likely)

Table 1: Forecast uptake of EVs, solar PV and batteries

## Electrification of everything

The move towards 'electrification of everything' will result in greater demand for and reliance on electricity to power households and businesses. While it is predicted that households will be more energy efficient and draw considerably from batteries and rooftop solar, they will also need more electricity for appliances and especially for EVs. Some forecasts indicate that businesses and industry will double their electricity consumption to serve a growing, decarbonising economy, and for green energy products such as hydrogen.

# Challenges and opportunities in our changing energy landscape: Climate change

## Climate change and the environment

Climate change is increasing the frequency and intensity of extreme weather events. The 2023-24 summer saw heatwave conditions across Queensland. Multiple hot humid days and nights caused a significant increase in customers' air conditioning usage. This underlying demand was observed on a day of intermittent cloud cover when less energy was generated by rooftop solar PV. Under these extreme conditions, customers are less likely to respond to tariff signals as they are placing comfort over cost. This highlights the importance of demand flexibility in managing loads on the network. Implementing our demand flexibility capability through our PeakSmart and Hot Water Load Control programs helps to reduce demand during the peak periods.

2023 and 2024 saw records broken for maximum and minimum system demand on our networks. Demand flexibility is an important function to help address the growing demand volatility caused by extreme weather events and growing penetrations of CER. Demand flexibility also assists in managing the rapidly accelerating daily ramp rate between the daytime minimum demand and early evening peak demand, see Figure 3.

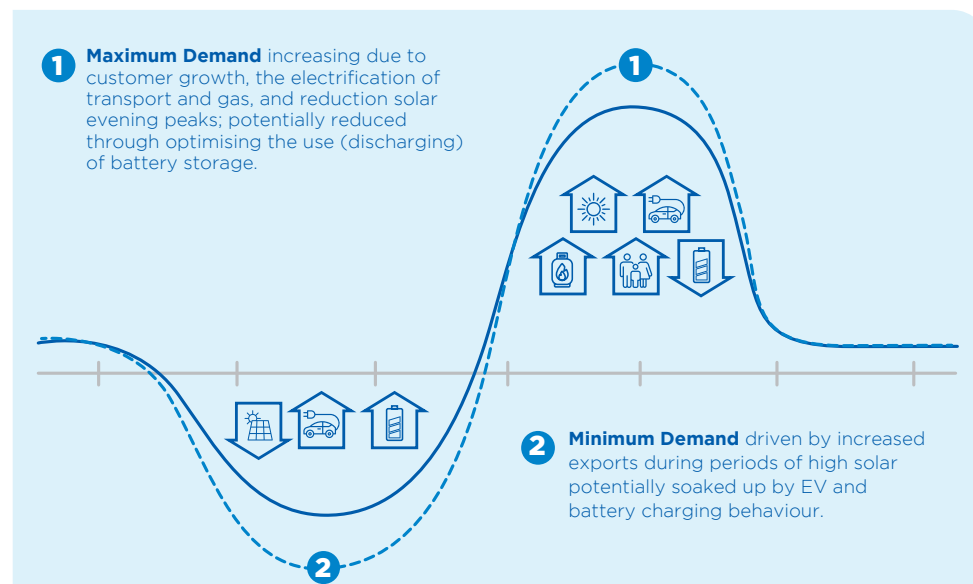


Figure 3: Maximum and minimum demand





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# Challenges and opportunities in our changing energy landscape:

## Changing customer expectations

Our customers are at the centre of everything we do. In formulating our Demand Flexibility Strategy and DM Plan, we have placed a strong emphasis on a customer centric approach, ensuring our customers are at the forefront of our program and future planning.

Over the last year we have engaged with customers and industry partners, these collaborations have been crucial in shaping our approach. We have built on our proven business as usual customer and stakeholder engagement and undertaken additional specific research to gain further understanding of our customers' views, needs and wants when it comes to demand flexibility. This has included understanding under what conditions will customers participate and support the flexing of their CER. We recognise that building trust and social licence with our customers is critical to the effective and efficient uptake of our programs.

In 2023 we also formed a dedicated stakeholder forum, the Demand Flexibility and Innovation Working Group (DFIWG) to gain insights and feedback from key industry leaders, customer advocates and technology innovators. The Group discusses topics and issues that are specific to demand flexibility and innovation in the electricity industry. We held workshops with the Group to inform our DM Plan and Demand Flexibility Strategy. See our Talking Energy [webpage](#) for more information.

All these collaborations have been crucial in shaping our approach to our Demand Flexibility Strategy and DM Plan. Here is a snapshot of [what we've heard](#) from our customers and industry partners and from our DFIWG.

We will continue to listen to our customers and stakeholders to ensure our programs are customer centric.

### Incorporating what we've heard

During 2023, we interviewed solar installers on the topic of dynamic connections. The insights gained from that research has been used to develop improved web content for customers and installers, and in response to feedback, we've also developed a factsheet on dynamic connection. This factsheet will assist installers to help explain the dynamic connection option to their customers. We'll continue development of other resources to assist the understanding and take up of [dynamic connections](#), for example, a search tool that will allow installers to identify areas of high solar penetration that maybe suitable for a dynamic connection.



## What we've heard from our customers and industry partners:

<p><b>HOT WATER</b></p> <ul style="list-style-type: none"> <li>• Customers are increasingly choosing electric hot water systems</li> <li>• Many are disconnecting from control load tariffs when installing rooftop solar PV</li> <li>• Simple timers are commonly used to control heating times to align with rooftop solar PV times.</li> </ul>	<p><b>CONNECTING MORE CER</b></p> <ul style="list-style-type: none"> <li>• CER such as electric vehicles and residential batteries are seen by customers as key to securing network reliability and energy affordability</li> <li>• Owners of Commercial and Industrial (C&amp;I) CER have different drivers to residential customers with CER.</li> </ul>	<p><b>ELECTRIC VEHICLES</b></p> <ul style="list-style-type: none"> <li>• Customers want options to charge their EV to suit their individual circumstances</li> <li>• They want to use their solar PV to charge</li> <li>• Customers are confused about charging options and are unsure on who is the trusted advisor.</li> </ul>	<p><b>DEMAND FLEXIBILITY</b></p> <ul style="list-style-type: none"> <li>• When it comes to flexing their loads, customers don't like the idea of giving up comfort or convenience</li> <li>• Customers want financial incentives to participate</li> <li>• They are concerned about giving others control of their CER</li> <li>• They don't understand demand flexibility only applies to non-essential appliances</li> <li>• Are familiar and comfortable with control of hot water.</li> </ul>	<p><b>AFFORDABLE</b></p> <ul style="list-style-type: none"> <li>• Customers are interested in ways to reduce their energy costs.</li> </ul> <p><b>FAIR AND EQUITABLE</b></p> <ul style="list-style-type: none"> <li>• Customers highlighted the inequitable access to CER and new technologies - with renters and those living in apartments often missing out on demand flex opportunities.</li> </ul>	<p><b>PEAKSMART AIR CONDITIONING</b></p> <ul style="list-style-type: none"> <li>• Most customers were not aware of events and didn't notice a change to comfort levels</li> <li>• Installers would like the claim and application process to be easier</li> <li>• Renters are often unaware their air conditioner is enrolled in the program and aren't rewarded for participation.</li> </ul>
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## What we've heard from our Demand Flexibility and Innovation Working Group:

<p><b>COLLABORATE WITH GOVERNMENT</b></p> <p>On the design and implementation of energy efficiency and demand flexibility schemes; to create longevity of programs and get industry on board.</p>	<p><b>PARTNER AND COLLABORATE</b></p> <p>With retailers, industry, aggregators and installers to educate and communicate with customers about demand flexibility and energy efficiency.</p>	<p><b>A NATIONAL APPROACH</b></p> <p>To demand flexibility and energy efficiency is needed with incentives to facilitate the market and innovation.</p>	<p><b>INTEROPERABILITY</b></p> <p>Between customer devices is important and there is urgency for standards that optimise the value of CER and enable more active CER to participate in the market.</p>	<p><b>ACCELERATE MASS UPTAKE OF DYNAMIC CONNECTIONS</b></p> <p>Deliver more education and communications through industry partners on the benefits of these connections.</p>
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# Challenges and opportunities in our changing energy landscape:

## Energy transition and the value of demand flexibility

### Value of demand flexibility

Transitioning the energy system to a higher penetration of renewables and greater electrification requires a shift in how we fundamentally use and manage the distribution networks.

Key to this transition is demand flexibility. Demand flexibility encourages and rewards customers for reducing, shifting or increasing their energy use at specific times. By actively supporting customers to flex their demand, and in collaboration with increasing energy storage, we can all benefit by minimising the amount of network investment required to successfully navigate this transition.

Customer trust plays a key role in this transition, and it is our responsibility to enable customer participation, while keeping costs to a minimum and ensuring network reliability for all Queenslanders.

The value of demand flexibility for customers and networks is shown in Figure 4.



### Customer value



Return on CER investment



Rewarded for behaviour that supports the energy system



Trusted and valued partner in the energy eco-system



Lower bills over time



Increased choice and decreasing cost of technology

### Network value



Balance needs of the grid - reliability



Reduced need for network investment



Trusted and valued partner in the energy eco-system



Enable more CER



Support the transition to net zero

Figure 4: Value provided by demand flexibility

# Our long-term Demand Flexibility Strategy: Benefits

## The benefits of building demand flexibility

Building flexibility is one of our strategic responses to the growing penetration of renewables and electrification of our networks.

Demand flexibility is:

- The capability to vary customer load or generation in response to network signals (explicit signals such as event payments or implicit signals via variable tariffs)
- The portion of load or generation that can be reduced, increased or shifted at a specific time and duration
- Incorporated into long-term investment decisions and improves utilisation of networks.

This is shown in Figure 5 below.

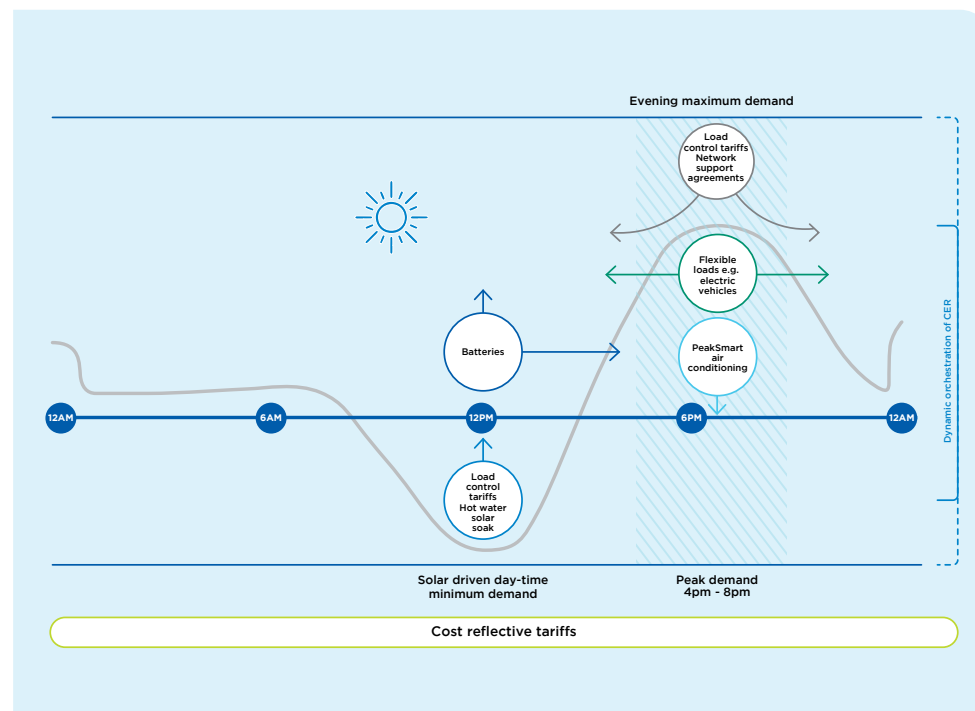


Figure 5: Demand flexibility

Customers generally have flexible resources (such as solar PV, batteries, hot water systems, EVs, pool pumps and water pumping/irrigation equipment) and inflexible resources (such as lighting). The energy demand or operating times of flexible resources can be varied while still meeting the customer needs.

Demand flexibility helps to maintain a high level of network utilisation, which is a key driver to delivering customer value. Higher network utilisation means more electricity is being provided by existing network assets and limits unnecessary network augmentation. This lowers the average cost of electricity for all customers. By flexing demand on the network, we can deliver a wide range of benefits for both customers and network. See Figure 6 below.

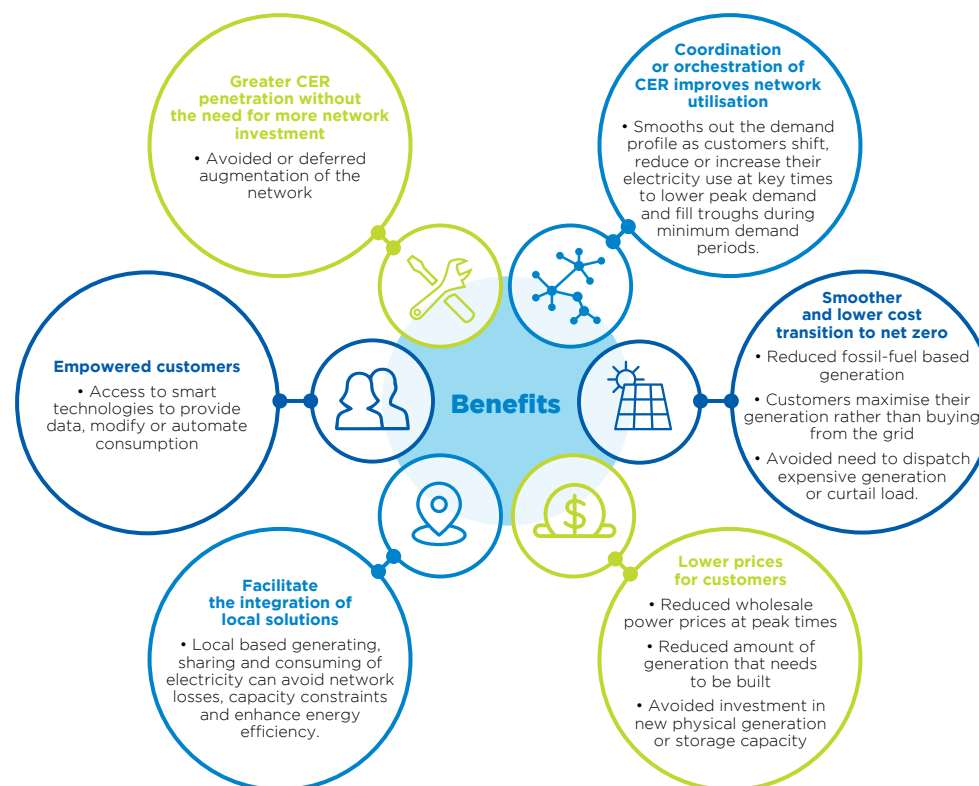


Figure 6: Benefits of demand flexibility

# Our long-term Demand Flexibility Strategy: The Future Grid Roadmap

It's clear that there is no one solution to meeting the [challenge](#) of net zero emissions. The full capabilities of a smart distribution network must be harnessed to accommodate more decarbonised energy.

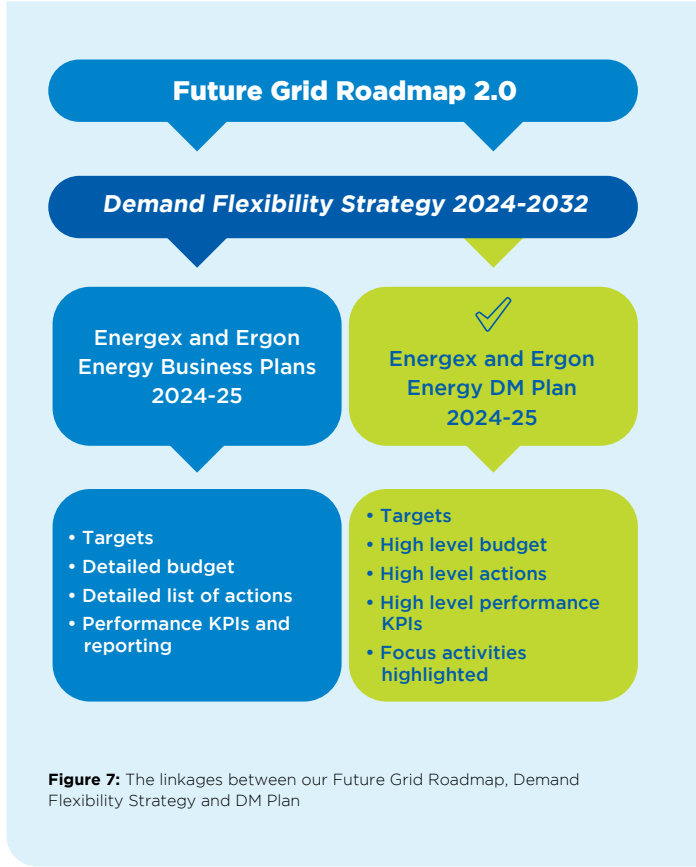
Our distribution networks, enabled by new technology are the platform for sharing solar PV, stored energy (batteries) and enabling the electrification of transport.

Our Demand Flexibility Strategy aligns with the Strategic Areas of Focus outlined in the new EQL Strategic Plan 2032 and our Future Grid Roadmap 2.0. Specifically, the Roadmap outlines our strategies to develop a smart, safe and secure energy system to support the energy transition. A transition to a future where:

- Customers can safely and simply connect CER
- Once connected, customers can maximise the utilisation of their assets; and
- The network creates an ecosystem that enables orchestration at various levels to deliver benefits to all customers.

Our Future Grid Roadmap supports the delivery of the QEJP. Our Tariff Structure Statement and Regulatory Proposal 2025-30 have been submitted to the Australian Energy Regulator (AER). More information can be found on our Talking Energy website.

The linkage between the Future Grid Roadmap 2.0, our Demand Flexibility Strategy and our annual DM Plan is outlined in Figure 7.



**Figure 7:** The linkages between our Future Grid Roadmap, Demand Flexibility Strategy and DM Plan





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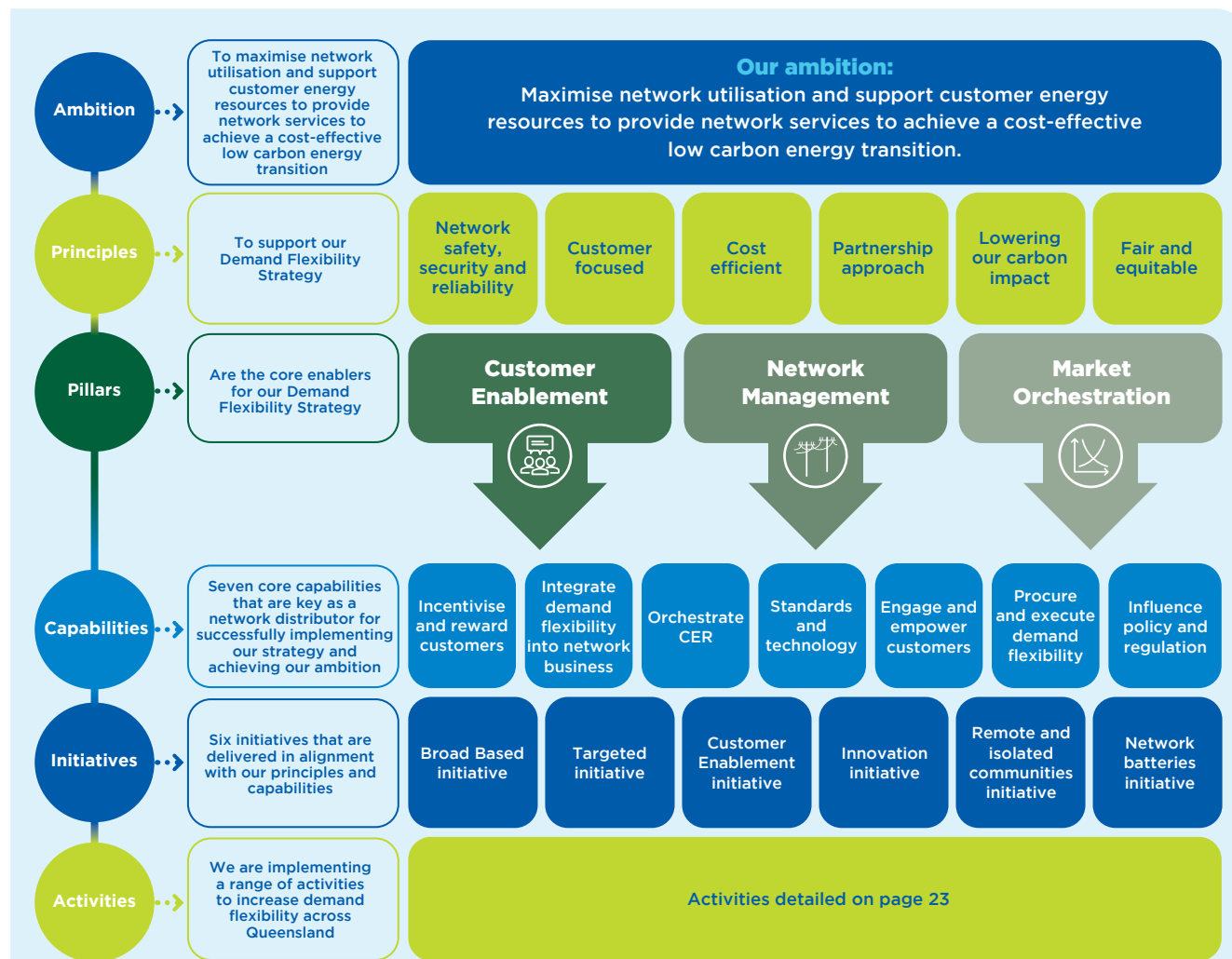
Abbreviations



# Our long-term Demand Flexibility Strategy:

## The structure of our Demand Flexibility Strategy

Our demand flexibility ambition is to maximise network utilisation, enabling customer CER, and facilitating third parties to provide market services to help achieve a cost-effective low carbon energy transition. Our strategic principles, pillars, capabilities, initiatives and activities all support this ambition. See Figure 8 below.



# Our long-term Demand Flexibility Strategy: Principles

In this time of transformation our Demand Flexibility Strategy responds to the [challenges and opportunities](#) faced by our networks and customers. It supports the [QEJP](#) and is guided by our principles.

## Our principles

### Improve and maintain network safety, security and reliability

- Orchestrate network and customer resources to work together and providing network safeguards to accelerate market solutions.

### Customer focused

- Understand our customers' needs, build their capability and support their energy choices.

### Cost efficient

- Support mass uptake of dynamic connections; and only procure cost efficient demand flexibility when and where it is needed.

### Partnership approach

- Work together in partnership with retailers, industry, and community groups to deliver demand flexibility, optimising the value for all.

### Lowering our carbon impact

- Enable connection of CER into the network and leverage all market participants to manage the technical challenges of achieving the target of net zero by 2050.

### Fair and equitable

- Share the benefits of demand flexibility with all customers, not just those with direct access to CER.

Figure 8: The structure of our Demand Flexibility Strategy



# Our long-term Demand Flexibility Strategy: Pillars

## Our strategic pillars

Our three strategic pillars are the core enablers for our Demand Flexibility Strategy. They guide how we are going to achieve our ambition and align our activities.

We will implement *Customer enablement* and *Network management* activities as no regret preventative enablers. They are the foundations of our Demand Flexibility Strategy. Ensuring customers are empowered to manage their demand and realise the value of their CER, while providing a reliable and secure network for customers to connect to and access market opportunities. *Network management* works in unison with *Market orchestration*, providing safeguards for accelerated flexible demand solutions.



## Customer enablement

*Customer enablement* is a prerequisite for success for any demand flexibility solution and establishes understanding, behaviours, trust and social licence.

This activity enables customers to understand energy and demand and empowers them to manage their own demand and realise the value of their CER. Customer enablement will be achieved through engaging directly with end use customers and industry partners such as aggregators, retailers, installers, as well as community groups, customer representative bodies and other key industry bodies.



## Network management

*Network management* future proofs and safeguards the network, works in unison with growth in market solutions, provides security and reliable network load management, and gives cyber secure backup providing confidence for accelerated flexible market solutions.

*Network management* includes a focus on dynamic connections, dynamic EVSE connections, utilising existing demand flexibility products and optimising network support from network connected batteries.

Our *Network management* activities will provide a reliable and secure network for customers to connect to. Enabling more dynamic connections and offering dynamic limits that are more generous than static limits, will increase our flexible demand capability.

The successful implementation of *Customer enablement* and *Network management* will help drive down peak demand and fill the trough of minimum demand. This in turn will reduce the need for demand flexibility sourced from market orchestration.



## Market orchestration

*Market orchestration* is a cost-efficient supply of flexible load and generation that can be called upon from market partners to improve network utilisation. It is provided at the right place, at the right time. It is triggered by events, relies on customer participation and benefit sharing, and works in unison with *network management*.

Our Distributed Energy Resource Management System (DERMS) will coordinate and manage the dispatch of network support requests based on network performance and constraints.



# Our long-term Demand Flexibility Strategy: Maturing our capabilities

We have identified the proposed evolution for the key capabilities underpinning our Demand Flexibility Strategy. This evolution highlights the changes to our capabilities required to be delivered between now and 2032 in order to achieve our demand flexibility ambition (see Figure 9). Activities in our 2024-25 DM Plan are no-regrets next steps actions along that evolutionary pathway.

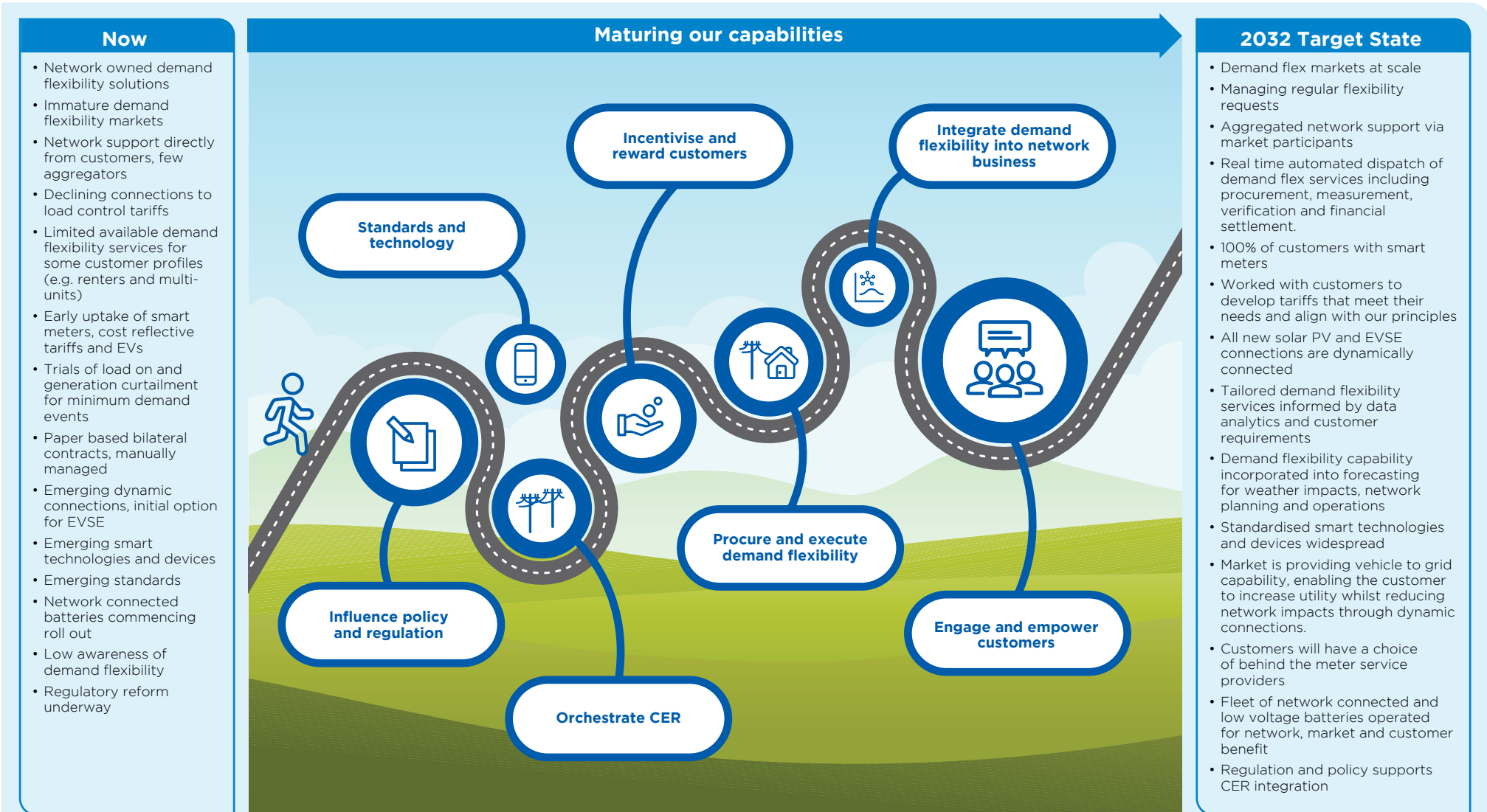


Figure 9: Maturing our capabilities towards 2032



# Our long-term Demand Flexibility Strategy: Capabilities

To successfully deliver our Demand Flexibility Strategy via our three pillars, we will need to build capability across the supply chain by improving existing capabilities as well as acquiring new capabilities for managing high levels of CER. We have identified seven core capabilities that are key as a network distributor for successfully implementing our Demand Flexibility Strategy and achieving our ambition. These capabilities are at varying levels of maturity. Through our DM Plan activities, we will build and deliver at the right time, so they evolve at the right speed between now and 2032.



## Incentivise and reward customers



Providing efficient signals and incentives to reward customers for flexing their demand - this is achieved via upfront rewards, and capacity/availability and event payments; price signals via tariffs and dynamic connection agreements. Incentives are broader than financial and include environmental, community, convenience, control, comfort and energy efficiency.

## Integrate demand flexibility into network business



Demand flexibility is integrated into end-to-end network business operations. From forecasting of network constraints, capital investment programs, asset management and network operation. Potential non-network demand flexibility options are considered and integrated into business-as-usual processes.

## Orchestrate CER



Flexible demand portfolio (load/generation) is orchestrated and provides network support through functionality of load control system and DERMs. DERMs is a Flexibility Services Platform that interfaces with aggregators, retailers and all types of customers (residential, large business and commercial and industrial (C&I)). Demand flexibility events are automated, geographically deployed, with services sourced from a catalogue of contracted network support agreements and direct load control, dispatched, measured and verified. Short term network load and generation predictions identify emerging network constraints, which are addressed to achieve mutually beneficial outcomes to network and service providers.

## Standards and technology



Demand flexibility is underpinned by standardised services and technologies. Technical standards optimise the value of CER and enable more active CER with the capacity for demand flexibility, including EVs, batteries, electric hot water heaters and other smart appliances in a cyber secure manner. Standards enable demand responsive appliances (AS4755), dynamic participation by large customers and C&I, and vehicle to grid - bidirectional charging. They drive common interoperability across behind the meter devices and EV chargers. Compliance against standards guarantees flexibility performance.

## Engage and empower customers



Providing tools, resources, information and communications to improve customer understanding and empower them to make their own choices, manage, and if they choose share their demand flexibility. This can be achieved directly with customers or via industry partners. Customer research and engagement informs demand flexibility program design, delivery and review; and builds social licence and trust for demand flexibility with customers.

## Procure and execute demand flexibility



Regulatory Investment Test for Distribution (RIT-D) and requests for flexible demand proposals to procure market solutions are published regularly for network constraints. Commercial contracts for demand flexibility services provide network support at a lower cost than building network. Systems and processes support market engagement, contract management and payment to customers and third parties.

## Influence policy and regulation



Advocate for policy and regulatory reform to enable market and network solutions that support customer choices and harness the power of consumer and distribution-connected resources.



# Our long-term Demand Flexibility Strategy: Initiatives

Our demand flexibility activities are grouped into six initiatives that are delivered in alignment with our [principles](#) and [capabilities](#).

## Broad Based initiative

- This initiative is available across both Energex and Ergon Energy's networks. It provides us with direct control of PeakSmart air conditioners along with appliances connected to load control tariffs.
- We provide incentives to customers who enrol their PeakSmart air conditioners. We also provide incentives to industry partners who install PeakSmart air conditioners.
- We offer load control tariffs that provide a cheaper network tariff rate for connected appliances.
- For information about our incentives, see our web pages about South East Queensland rewards and Regional Queensland rewards.

We expect our Broad Based flexible demand capability to continue, and be complemented by new and emerging initiatives such as dynamic connections, including dynamic EVSE and more network connected batteries as they are added to the suite of demand flexibility products. We expect these initiatives will do the heavy lifting in achieving our targets. See our focus areas on [dynamic EVSE](#) and [dynamic connections](#).

Our activities will be underpinned by our principles to enable customers and work with industry partners to drive the mass adoption of dynamic connections and dynamic EVSE solutions.

## Targeted initiative

- This initiative provides incentives to customers and demand flexibility providers who can deliver demand flexibility in specific areas of the network identified as having future network constraints. This demand-side initiative helps us to defer and/or reduce network costs and to prevent network constraints from arising.
- More information about our Industry Engagement Strategy and register are available on the websites for [Energex](#) and [Ergon Energy](#).
- For more information, read about our Energex and Ergon Energy target areas and current consultations.

## Customer enablement initiative

- This initiative builds customer understanding and empowerment through research, engagement and communication with customers, community groups and industry partners.
- It ensures our activities respond to and provide the capability required to meet the [challenges and opportunities](#) facing our network.

## Innovation initiative

- This initiative trials innovative demand flexibility capabilities and technologies that reduce long-term network costs.
- Funding for trials under this initiative is available through the national Demand Management Innovation Allowance Mechanism (DMIAM). Case studies on our DMIAM trials are available on our [Energex](#) and [Ergon Energy](#) websites.
- Each year, we publish a DMIAM report. For more information, see our latest [Energex DMIAM Report](#) and [Ergon Energy DMIAM Report](#).

## Remote and isolated communities initiative

- This initiative enables residents and businesses to access energy efficiency opportunities through meaningful community-based involvement, education, training and provides tools and incentives to reduce energy use and support decarbonisation.
- It explores further demand flexibility opportunities such as energy efficiency demonstration homes, rebates for energy conservation measures, flexible loads and upskilling of community organisations to provide energy services for communities.
- This initiative supports our [Isolated Networks Strategy 2030](#) and the decarbonisation of these communities as well as the Fringe-of-Grid Transformation Plan.

## Network batteries initiative

- This initiative involves the installation of network connected batteries across Queensland, particularly in areas with high solar penetration.
- The batteries will store excess energy generated by rooftop solar systems during the day, helping to manage minimum demand issues on our network.
- We will manage the market engagement and commercial arrangements with the sourcing and operation of our fleet of batteries for network support.
- The batteries will be a mix of large-scale network connected batteries and local batteries.



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# Our long-term demand flexibility strategy: Broad Based targets

## Our portfolio

Our portfolio currently consists of Broad Based, Targeted, Network Connected Batteries, Remote and Isolated Communities, Customer Enablement and Innovation [initiatives](#) which give us a flexible demand portfolio capable of:

- providing network support during system-wide and localised issues, including when called upon by the Australian Energy Market Operator (AEMO),
- enabling a growing number of CER to connect to our network, and
- supporting the transition to a net zero emissions future.

Given the pace of change happening across our network, we undertook a review of our Broad Based initiative to ensure it is equipped to deliver a sustainable service and sufficient flexible demand capability required to 2032. Specifically, we investigated targets that would ensure our portfolio is right sized to handle maximum and minimum demand events and network constraints. A portfolio that is economically efficient and which optimises the amount of flexibility between now and 2032 to minimise overall augmentation spend.

The appropriate methodology for setting the targets needs to be administratively simple, repeatable, specific, transparent and responsive to changes in the external environment. After looking at the approaches taken by other jurisdictions, and undertaking significant economic modelling, we developed a peak demand reduction target derived from strategic peak demand forecasts also utilised in developing the Regulatory Determination Proposal.

## Peak demand target

Our peak demand reduction target is calculated as ten percent of our forecast one-in-ten-year maximum demand (Probability of Exceedance (10 PoE)), or the difference between the 10 and 50 PoE forecast, whichever is greater, for each year to 2032. This means that by 2032, Ergon Energy should plan to grow its peak demand reduction capabilities from the 222MW currently available, to 359 MW. Correspondingly, Energex should plan to grow its peak

demand reduction capabilities from 450MW to 588MW. Figure 11 depicts the products expected to contribute to that growth. Targets for 2024-25 are found on [page 27](#). It should be noted that peak demand response capability sits on top of any assumptions already embedded within the forecasts, for example assumed incentives or programs that influence the shape of EV charging profiles. The peak demand forecasts will continue to be reviewed to ensure that it appropriately captures the drivers of peak demand in a high CER environment.

## Meeting our peak demand reduction target

In addition to our existing hot water load control and PeakSmart air conditioning programs, we will build our Broad Based portfolio with dynamic EVSE, dynamic connections and network connected batteries. We anticipate that the uptake of dynamic EVSE will help reach

our peak demand target for Energex, while community batteries will provide a significant component of the target for Ergon Energy. We are currently working to calculate the quantum of demand flexibility that these will add to our portfolio. All products that contribute to our peak demand reduction target are in addition to any activity or product already represented in the peak demand forecasts (see Figure 10).

Across Queensland, our customers use their CER differently, accordingly, we account for this diversity in determining the quantity of demand flexibility required to meet our target.

To help us meet peak demand targets, options will be developed through consultation with stakeholders. We seek to maximise the benefits for customers' CER investments, while maintaining system security and reliability across all areas of Queensland.

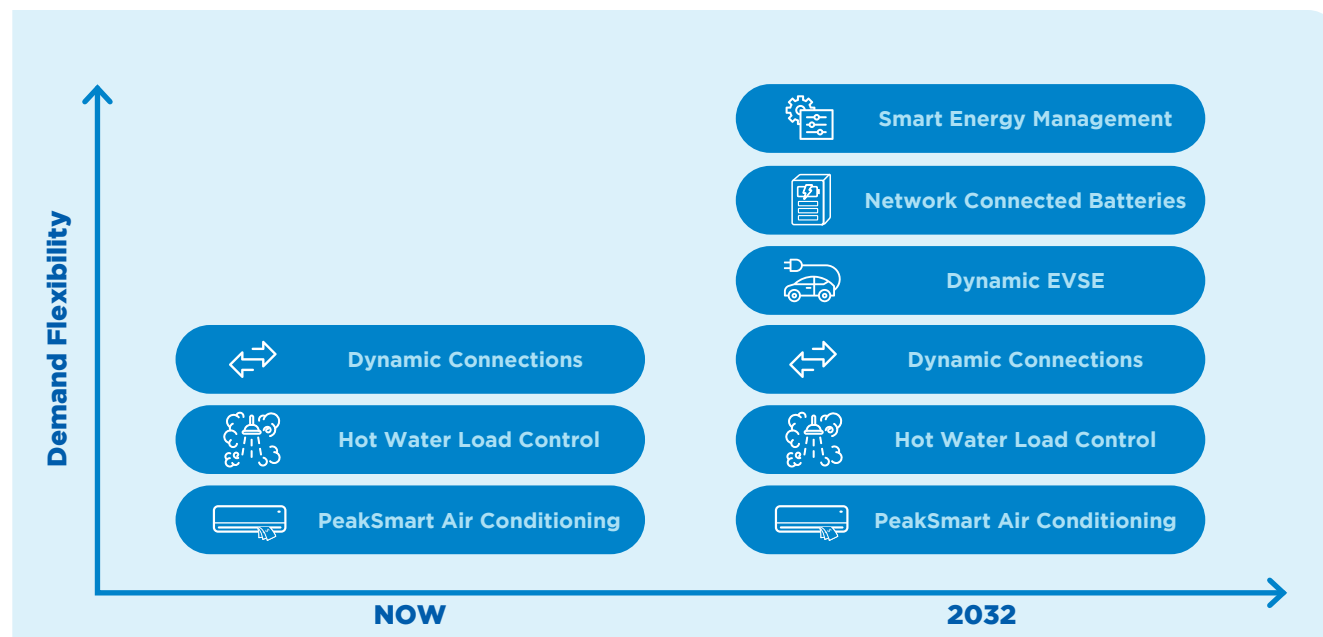
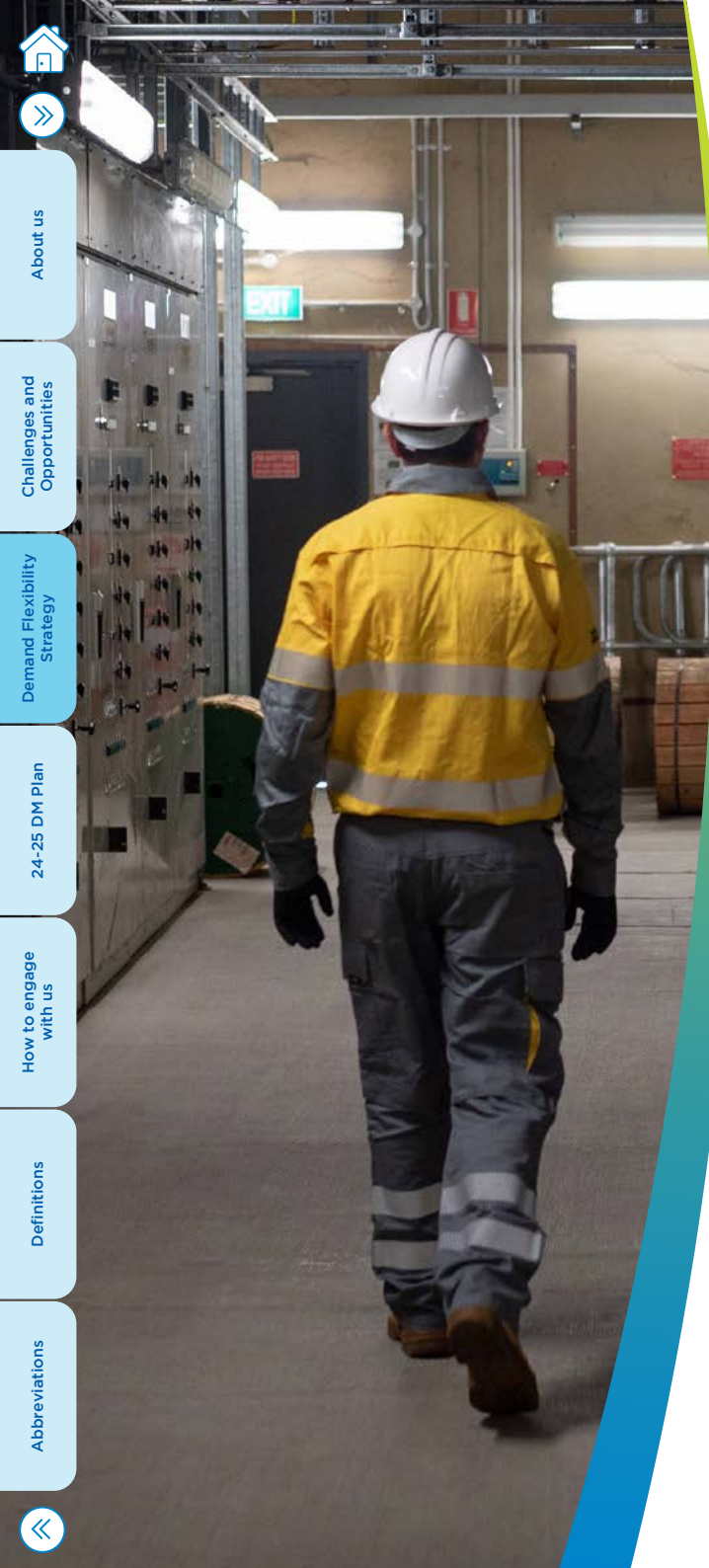


Figure 10: Our demand flexibility products to 2032



# Our long-term Demand Flexibility Strategy: Broad Based targets

## Minimum demand target

Modelling used in the 2025-30 Regulatory submission validates our current network strategy to invest in dynamic connections, in conjunction with the delivery of the network tariff strategy and maintenance of our hot water solar soak program, to reduce minimum-demand driven distribution network augmentation investment. We have deferred target setting associated with minimum demand until the AER's decision on the regulatory submission has been made, and until forecast uptake of dynamic connections is available.

We are aware of system strength issues associated with falling minimum demand at the system level. While targets are being developed, we will continue no-regrets actions to maintain our hot water solar soak program and create focused activities associated with supporting the rapid and widespread adoption of [dynamic connections](#) and activities associated with improving [ALFC signal strength](#).

It is essential that newly electrified loads, including EV charging, are encouraged to present to the network at times in which renewable energy is plentiful. Otherwise, customers will experience increased solar PV curtailment, and additional expenditure in network augmentation will be required.

## Revising our targets

Our peak and minimum demand targets will be updated annually. We anticipate that increasing levels of electrification and solar PV adoption will result in higher targets, and increasing levels of energy efficiency and customer response to retail price signals will result in lower targets (see Figure 11).

Our demand flexibility capabilities are integrated into the annual network forecasting and planning process.

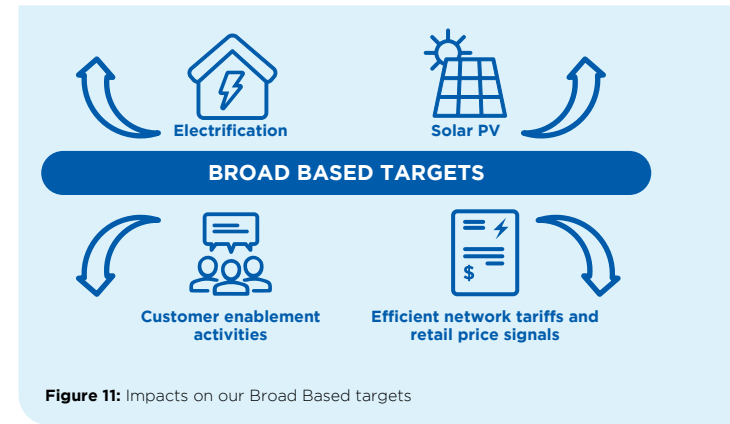


Figure 11: Impacts on our Broad Based targets



# Our long-term Demand Flexibility Strategy:

## Demand flexibility in action

We have implemented a range of activities to increase demand flexibility across Queensland – from the parts of our network connected to the NEM, Fringe of Grid, and to our Remote and Isolated communities. See Figure 12.

Each of these activities have been developed and delivered in line with our principles. Collectively, these activities enable us to improve network utilisation, maximising customer’s CER, lower our carbon impact, and build an affordable and sustainable energy future for all Queensland customers.

- Microgrid**  
Delivering connected microgrid solutions in the Fringe of Grid
- Stand Alone Power Systems**  
Renewables are reducing cost of supply and improving reliability of service
- Solar Pumps**  
Implementing low load customer solutions
- Network Support Agreements**  
Contracted network support where required
- Tariffs**  
Efficient network tariffs and response to retail price signals
- PeakSmart Air Conditioning**  
Providing demand responsive air conditioning across the state
- Community Capacity Building**  
Building capacity for community wide energy efficiency and demand flexibility in isolated and remote areas
- Dynamic Connections**  
Automatically varying import and export limits based on the available capacity of the network
- Load Control Tariffs**  
Providing flexible demand solutions for hot water, pool pump and EV charging loads
- Network Connected Batteries**  
Large scale storage providing network support



Figure 12: Community capacity building in isolated and remote areas





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# 2024-25 Demand Management Plan: Response to feedback

We have listened to our customers, industry partners and our DFIWG members.

Table 2 (right) is a summary of how we are responding to the main [topics](#) identified by our customers and stakeholders. They have shared their views on the challenges they face as customers, installers, industry and customer advocates, retailers and demand flex providers, providing insights that have informed our Demand Flexibility Strategy and DM Plan.

Our three [strategic pillars](#), Customer Enablement, Market Orchestration and Network Management all ensure we are following a pathway which is responsive to our customers' needs.

Our DM Plan activities address the issues raised by our customers and industry partners. The activities deliver a program of work in 2024-25 which moves us towards achieving our 2032 ambition.

We will continue to [listen](#) to our customers and stakeholders to ensure our programs are customer centric.



The feedback we've heard has been grouped into themes below, we demonstrate how we are responding with activities detailed on the next page.

Affordable solutions to help reduce electricity costs	Our customers Our customer research		1, 2, 8, 9, 11, 12, 13, 14, 15, 16, 17
Enabling the connection of more CER	Our customers Our customer research		4, 5, 7, 8, 9, 14
Fair and equitable demand flex programs	Our customers		11, 12, 13, 14
EV charging options	Our customers and installer research		9
Hot water load management	Our installer research		3
Demand flex	Our customers and installer research		8, 9, 10, 14
Accelerate mass take up of dynamic connections	DFI Working Group		8, 9
Partner and collaborate	DFI Working Group		1, 2, 7, 8, 9, 10, 11, 12, 13, 15, 17
Collaborate with government	DFI Working Group		1, 11, 12, 13, 14, 15, 16
PeakSmart air conditioning	Our customers and installer research		3
A national approach to demand flexibility and energy efficiency	DFI Working Group		13
Interoperability between customer devices	DFI Working Group		4, 7, 13

Customer enablement

Network management

Market orchestration

Table 2: How we are responding

# 2024-25 Demand Management Plan:





## Our activities

Our [Demand Flexibility Strategy](#) sets out our three strategic pathways of customer enablement, market orchestration and network management to achieve our ambition for demand flexibility. Our [initiatives](#) group our activities for moving along these pathways. Under each of our [initiatives](#) we have identified the priority activities that need to occur in 2024-25 to build our [capabilities](#) and deliver on our demand flexibility ambition.


### Targeted

1. Review the eligible target areas. Engage with commercial and industrial customers and industry partners in these areas on opportunities to flex demand. Link relevant customers with the Queensland Business Energy Saving and Transformation program as appropriate.  
2. Advertise opportunities to partner with market participants for demand flex while improving our network service agreement framework.  




### Broad Based

3. Continue to deliver efficient PeakSmart and AFLC hot water programs, including the hot water solar soak program. 
4. Support the delivery of the DERMS platform to enable the delivery of current and future demand flexibility programs.  
5. Optimise AFLC performance through signal strength studies and trials. 









### Network connected batteries

6. Facilitate and manage commercial contracts for network connected batteries including: dispatch for solar soak, supporting during evening peak demand, and ensuring appropriate charge state to support AEMO during lack of reserve events. 










### Innovation

7. Manage and govern our DMIAM funds and projects and engage with relevant stakeholders on building a focused roadmap for DMIA trials and expenditure.   

### Customer Enablement

8. Support the rapid uptake of dynamic connections through industry partnerships and customer communications. We will also explore the barriers and identify opportunities for increasing adoption of dynamic connections.  
9. Engage with industry partners to deploy dynamic EVSE charging, using partnerships, customer engagement and incentives where economically efficient to do so.  
10. Continue to hold the DFIWG to enable stakeholder input into our demand flexibility activities. 
11. Deliver the Research and Engagement Plan, including for community groups and not-for-profit organisations delivering community education through the Queensland Government's Enable Grants Program. 
12. Continue to explore research programs and trials that support the enablement of our vulnerable customer groups. 
13. Advocate for policy and regulatory reform for energy efficiency and ensure that demand responsive capabilities are enabled across all customer cohorts. 

### Demand Flexibility in Remote and Isolated Areas

14. Support implementation of energy efficiency solutions and build capacity for demand flexibility in remote and isolated communities.  
15. Support community organisations to deliver education and training for households and business in remote and isolated communities. 
16. Build industry capacity, undertake community demonstrations and showcase energy efficient and demand flex solutions via demonstration homes and training in remote and isolated communities.   
17. Explore incentives for businesses and industry in remote and isolated communities to support decarbonisation through reduced reliance on diesel generation.   

## 2024-25 Demand Management Plan: Optimising our Audio Frequency Load Control asset performance

AFLC assets are used extensively in the Network Management pillar of our [Demand Flexibility Strategy](#). These assets underpin our hot water load control program, our PeakSmart program, and the emergency Backstop program. Optimisation of AFLC assets is required to continue to maintain high levels of performance of these programs. They are also essential in managing network security as the energy industry transforms to accommodate high penetrations of renewables and newly electrified loads.

Modern AFLC injectors exist on most substations in the Energex and Ergon Energy distribution networks. AFLC signal strength is variable, and it depends on multiple factors such as inductive/capacitive loads, network load

conditions. As part of normal asset lifecycle maintenance, we have modernised the AFLC platform by transitioning to digital equipment.

During 2024-25, we will finalise network studies into AFLC signal strength and associated signal strength boost trials. This activity works in partnership with the emergency Backstop program, hot water solar soak program and network connected battery activities, in helping to address the challenge of rapidly falling minimum demand. See [Activity 5](#). We expect these new communication and control options can operate in series with our AFLC control to enable markets and also system security.



Outdoor AFLC equipment in an Ergon Energy substation



Transmitter and controller panel for AFLC.





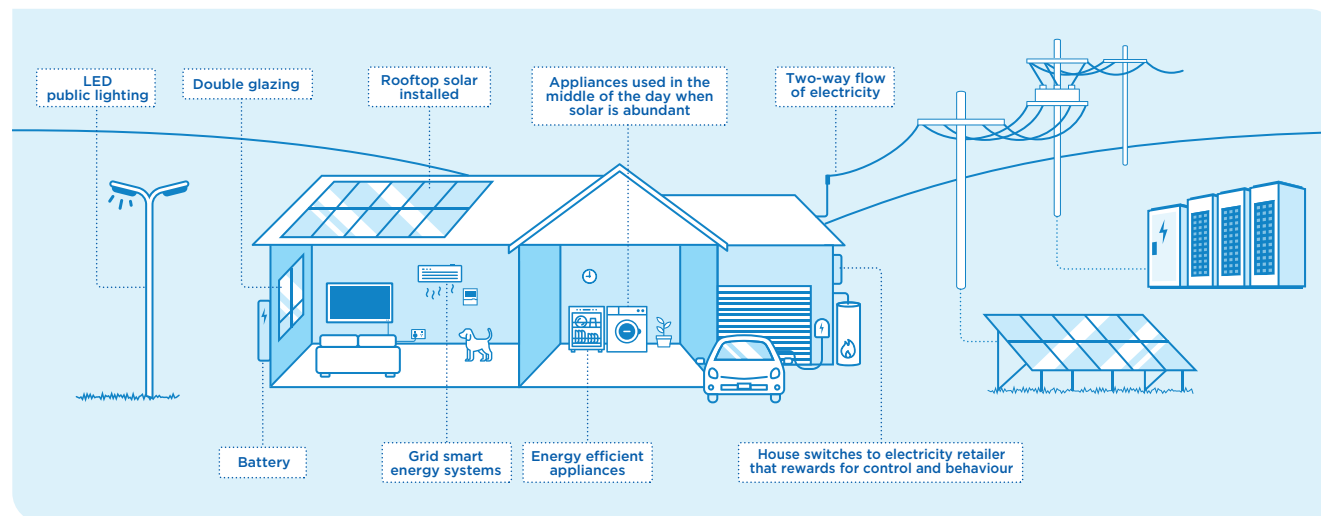
## 2024-25 Demand Management Plan: Enabling Dynamic Connections

Solar PV is part of the solution for decarbonising the energy system. Queensland is leading the way with over 40% of customers having rooftop solar PV systems and many large-scale solar farms. As shown in [Table 1](#) we will see a continued uptake of solar PV and other CER. We want to ensure we can support the growth in solar PV connections to our network. To achieve this, we need a smarter interaction between these devices and our electricity network. This smart solution is a dynamic connection.

Dynamic connections will enable export services, minimise curtailment of customer's CER and minimise network augmentation investment. Our Regulatory Determination 2025-30 modelling shows that a mass uptake of dynamic connections is required to successfully integrate the growing volumes of CER into our networks.

Energex and Ergon Energy use near real time network data and communicate operating envelopes based on the available capacity of the networks. This means that exports can be higher during periods where network assets can provide the capacity and reduced where there are constraints on our networks.

**Energex and Ergon Energy were industry partners participating in Project Edge. Led by AEMO, Project Edge is seeking to create a CER marketplace that enables customers to participate in the energy market. We continue to engage with Project Edge and other international and national projects to apply insights and outcomes of these collaborations to grow our future demand flexibility capabilities ensuring they are fit-for-purpose for Queensland and help us to meet our strategic objectives and QEJP targets.**



The path to dynamic customer connections is supported by our cost efficient and customer focused principles guiding our Demand Flexibility Strategy.

Our Network Management pillar focuses on the technical aspects and interdependencies between dynamic connections, load control and emergency backstop to enable the orchestration of flexible loads and generation on our networks.

Our Customer Enablement pillar empowers customers to make the best choice for their situation. We will work with our industry partners to improve understanding and awareness of dynamic connections and the benefits they deliver for customers now and in the future.

Our Market Orchestration pillar will enable dynamic connections to work alongside market participation. Households and businesses will be able to participate in

new and emerging market opportunities as they become available, up to the threshold of the operating limits. This ensures equitable application of opportunity to maximise market participation without infringing the safe and secure operating limits of the network.

In the future, dynamic connections will be the only type of connection for low voltage customers connecting new solar PV to the network.

We will facilitate this transition and support the rapid adoption of dynamic connections through industry engagement and training, customer communications and exploring potential incentives where it is economically efficient to do so. We will also explore barriers and identify opportunities for increasing adoption of dynamic connections (see [Activity 6](#)).

## 2024-25 Demand Management Plan: Enabling Dynamic EV Supply Equipment (EVSE) Charging

Increasing uptake of EVs with larger battery capacities is driving a greater proportion of vehicle owners to connect fast charging EVSE. While faster charging can reduce average charge time, a 7kW EVSE will substantially increase a household's peak energy demand (see Figure 13). If multiple customers connect EVSE on a transformer or low voltage circuit and are all charging during peak times, there could be significant network constraints. A dynamic EVSE connection can help reduce peak demand when it's needed.

While customers can always charge their car from a 10 amp power point, we are building for a future where EVSE charging is commonplace. We want to offer our customers choice in their charging options while also allowing them to charge off their solar PV systems if they choose. This also aligns with our customer focused principle.

Our first step to enable more EVSE is new connection options for customers with single phase wiring – dynamic EVSE charging. Customers also have the option for an EVSE if they have a three-phase supply.

EVSE that can communicate and respond to our server (SEP2), either directly or via an intermediary, will be eligible. SEP2 is a standard that enables effective information flow and control for CER, including EVSE. This charging option will encourage daytime charging and discourage peak evening charging, resulting in improved network utilisation.

Employing our [principles](#) of taking a partnership approach and being customer centric, we will engage with our stakeholders to deploy and encourage uptake of dynamic EVSE charging. We will do this by:

### Engaging with our partners

We will work with retailers, market providers, installers and electricians and government on:

- how to encourage customer uptake and communicate key information to customers with EVSE
- ensuring efficient dynamic EVSE activation and connection process for installers and customers
- investigating potential incentives to encourage uptake where it is economically efficient to do so
- Ensuring best practice of managing charging of EVSE for customers and network

See [Activity 7](#).

This approach will build and mature our [capabilities](#) needed to deliver dynamic EVSE as part of our Network Management pillar.

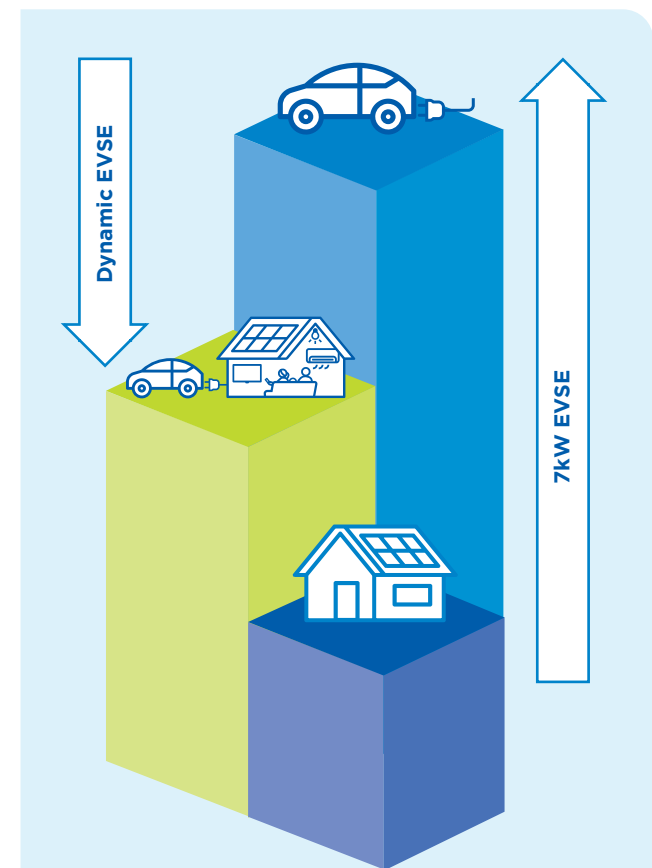


Figure 13: Household peak energy demand

# 2024-25 Demand Management Plan:

## Forecast expenditure and associated targets

Our [Demand Flexibility Strategy](#) guides our [initiatives](#) and activities to ensure they respond to network and customer needs both now and in the future. This section summarises our budget and targets for the 2024-25 financial year.

### Energex forecast expenditure and targets

Energex's forecast expenditure in 2024-25 is \$7.28 million. Table 3 provides a breakdown of expenditure for each initiative within the overall DM Program and an estimate of the associated demand reduction. Future year mega volt ampere (MVA) demand reductions may vary, based on our developing program focus and customer uptake of new technologies. Network connected batteries are contracted to provide 23.4MW/46.8\*MWh in Southeast Queensland.

Initiative	Operating Expenditure (\$,000)	Demand Management (MVA)	\$/kVA/yr
Broad Based	3,399	9.20	36.9
Targeted	954	19.20	49.7
Customer Enablement	2,930	n/a	n/a
<b>Total for DM Program</b>	<b>7,282</b>	<b>28.40</b>	

**Table 3:** Energex direct costs for DM initiatives (excludes overheads)

\*subject to battery install completion

### Ergon Energy forecast expenditure and targets

Ergon Energy's forecast expenditure in 2024-25 is \$5.85 million. Table 4 provides a breakdown of expenditure for each initiative within the overall DM Program and an estimate of the associated demand reduction. Future year MVA demand reductions may vary, based on our developing program focus and customer uptake of new technologies. Network connected batteries are contracted to provide 56.9MW/113.8\*MWh in regional Queensland.

Initiative	Operating Expenditure (\$,000)	Demand Management (MVA)	\$/kVA/yr
Broad Based	726	1.31	55.6
Targeted	2,951	30.20	97.7
Customer Enablement	1,920	n/a	n/a
Remote and Isolated Communities	255		
<b>Total for DM Program</b>	<b>5,851</b>	<b>31.51</b>	<b>n/a</b>

**Table 4:** Ergon Energy direct costs for DM initiatives (excludes overheads)



# 2024-25 Demand Management Plan: Meeting the demand challenges

Our activities for addressing both peak and minimum demand are presented in more detail on [page 23](#).

## Meeting the peak demand challenge

It is essential that our activities help to manage the challenge of peak demand. As we saw on 22 January 2024, peak demand is not yesterday's problem – it is a critical challenge that will remain relevant as more and more loads electrify and present to the distribution network (see Figure 14 below).

The DM Plan addresses this challenge in a number of ways:

The 'dynamic EVSE' focus activity (Activity 7) addresses the challenge of peak demand by minimising the amount of EV charging load that will present to the network at times of peak demand.

Our refinement of the targeted area program, continued operation of our AFLC hot water and PeakSmart programs and network connected battery activities (Activities 1, 3, and 5) directly address the challenge of peak demand in our NEM connected areas.

Activities 10, 11 and 12 address the challenge of peak demand in our remote and isolated communities.

Activities 2, 4, 8, 9 and 13 will assist more broadly in meeting the challenge of peak demand.

## Meeting the minimum demand challenge

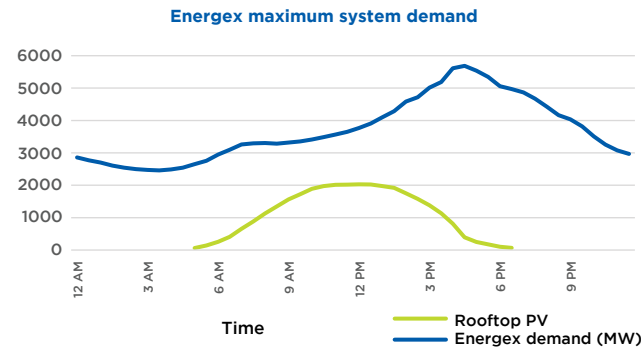
Falling minimum demand is a challenge that will accelerate as more solar PV connects to the distribution networks (see minimum demand in Figure 15 below). We aim to enable this solar PV to connect in a manner that doesn't drive additional augmentation expenditure. The DM Plan meets the challenge of minimum demand in a number of ways.

The 'enabling dynamic connections' focus activity (Activity 6) addresses the challenge of minimum demand by minimising the amount of solar PV export that will present to the network at times of low demand.

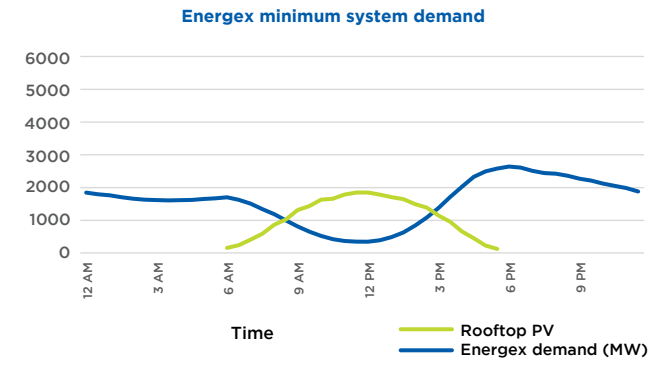
Our AFLC hot water solar soak program, and network connected battery activities (Activities 3 and 5) directly address the challenge of minimum demand in our NEM connected areas.

Activities 10, 11 and 12 address the challenge of minimum demand in our remote and isolated communities.

Activities 2, 4, 8, 9 and 13 will assist more broadly in meeting the challenge of minimum demand.



**Figure 14:** Energen system total demand and rooftop PV generation on 22 January 2024



**Figure 15:** Energen system total demand and rooftop PV generation on 9 April 2023



## 2024-25 Demand Management Plan: Supporting QEJP deliverables

The QEJP lays out the actions needed to transform the State’s energy system and support the renewable energy transition. Our role is to support the delivery of the QEJP actions and deliver an energy system that enables all Queenslanders to benefit regardless of where they are. This DM Plan directly supports the QEJP, as detailed below.

During 2023-24, we expanded our DM Plan and included clean energy for remote and First Nations communities. This ensures our 33 isolated power stations are part of the transformation and decarbonisation of the energy system. We also added a new initiative for remote and isolated

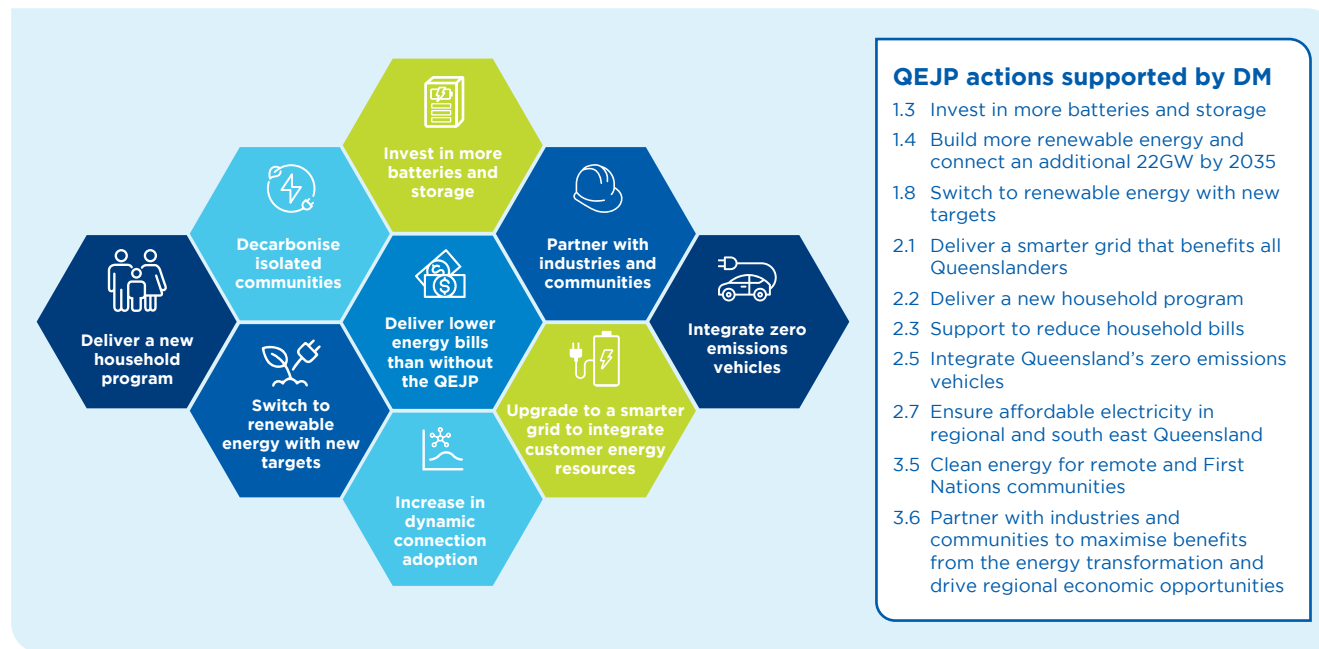
systems to reduce the long-term cost to decarbonise these communities and provide customers options to reduce their electricity bill. This initiative continues in 2024-25. For example, over the next two years Ergon Energy will replace all streetlights in isolated communities to energy efficient light emitting diodes (LEDs). The new energy efficient LED lights offer a 30% reduction in streetlight energy consumption and reduces costs for local councils. We will also support the delivery of energy efficiency initiatives. Our activities 14, 15, 16 and 17 detail our plans for demand flexibility in remote and isolated areas.

The 2023-24 DM Plan also saw the introduction of the Network Connected Battery initiative, to invest more in batteries and storage which continues in 2024-25. Our network connected battery activities are a key part of our approach to enabling a smart distribution network and supporting the QEJP renewable targets, as they provide a local demand flexibility solution that addresses both traditional load peaks and new emerging minimum demand. They provide a local demand solution by balancing storage and supply. [Activity 6](#) is specific to our network connected battery initiative.

During 2023-24, we established new Broad Based targets for peak demand reduction with a focus on switching to renewable energy. These will be reviewed and updated to reflect current demand forecasts each year. We will establish new Broad Based targets for minimum demand trough filling during the next year and these will be published in the 2025-26 DM Plan. Refer to the [section on targets](#).

Our focus activities for 2024-25 involve enabling dynamic connections and dynamic EVSE connections. These will be underpinned by collaboration and engagement with industry and community to ensure maximum benefits are realised, including economic opportunities for regional areas. These are also covered in our activities 8 and 9. Activity 4 will help deliver a smarter grid through our DERMS platform.

We will continue to collaborate with retailers to support Cost of Living announcements to provide benefits to customers, network and generation services and ensure lower cost and better use of renewable resources. We will link customers in Targeted areas to the Government’s [QBEST](#) program ([Activity 1](#)).



## How to engage with us

With the electricity industry undergoing a period of rapid transformation, an open dialogue is critical to enabling diversity of thought, and ultimately better, more sustainable solutions.

We have various methods of listening to customers, and often engage customer research partners to perform consultations on our behalf.

Below are some of the methods through which you can engage with us.

### Talking Energy website

We use the [Talking Energy](#) website to engage with customers and industry, to conduct surveys, and to share insights we've learned.

This website also contains information about our forums and working groups, and major projects, such as our utility scale batteries.

Learn more at [talkingenergy.com.au](http://talkingenergy.com.au)

### Queensland Household Energy Survey (QHES)

Each year we conduct the QHES as a joint venture with Powerlink. The QHES is Queensland's most comprehensive survey capturing household insights and trends in energy behaviours and attitudes.

The QHES provides annual insights into consumers' views of the energy sector, how they are managing household electricity bills and how they use electricity in the home. It also explores consumers' sentiment towards electricity supply, reliability and cost, together with tracking trends in perceptions and attitudes towards new technologies such as solar PV, battery storage, electric vehicles, and their propensity to go off-grid.

Results of our most recent survey are published on the QHES website [qhes.com.au](http://qhes.com.au)

### Expressions of interest – for industry engagement

Our Industry Engagement Register is a list of stakeholders interested in staying up to date about distribution network planning and expansion projects. It's our way of keeping stakeholders informed about how we're investing in the network, and how to be involved in future non-network initiatives.

Companies or individuals who register will receive periodic communications about our research and projects, including notification of forthcoming RIT-D consultations.

[Register here](#) for industry notifications.

### Demand Management Innovation Allowance Mechanism

We can partner with external parties to utilise the Demand Management Innovation Allowance Mechanism (DMIAM) funding.

If you are working on a research or development project with a focus on demand management and would like to explore partnering with us and accessing the DMIAM funding, please email [demandmanagement@energex.com.au](mailto:demandmanagement@energex.com.au)

### Expressions of interest – Feeder limitations

Each year we seek demand response or non-network solutions to help us manage network constraints and/or limitations in target areas. Non-network solutions could comprise one or a combination of embedded generation or battery storage systems, call-off load, load shift or other demand-side load management solutions.

Current feeder limitations for [Energex](#) and for [Ergon Energy](#) are listed on the respective websites.

Applications and/or enquiries for information that will enable you to provide an informed response, should be directed to [demandmanagement@energex.com.au](mailto:demandmanagement@energex.com.au).

### Distribution Annual Planning Report (DAPR)

Each year we release a new DAPR. The current DAPR covers a five-year period from 2023-24 to 2027-28 and outlines our strategies and plans for Queensland.

In particular, the DAPR includes planning for sub-transmission and distribution network growth, asset repair and replacement planning, planning for future demand on the network, capacity and load forecasts by region, and current and future limitations on our sub-transmission and distribution networks.

The latest DAPRs for [Energex](#) and for [Ergon Energy](#) are listed on the respective websites.

### Industry updates

We email all electricians registered with us regular Solar and Electrical Contractor newsletters. These inform of changes to connections rules, updates to best practice for installations, and news on new options available for customers (as examples). As new markets develop (e.g. electric vehicles), so will the opportunity to establish new media to keep them up to date with all things network related.

- [Electrical contractor updates | Energex](#)
- [Electrical contractor updates | Ergon Energy](#)

We also conduct webinars called [Energy Academy](#) for residential electrical contractors across Queensland. Peak industry bodies are asked to suggest topics for each session and we can answer questions either during or after each the session.



## Definitions

### Audio Frequency Load Control (AFLC)

We have AFLC transmitters at various bulk supply and zone substations across our networks. When required, these units send a signal over the power lines to all downstream connected homes. The signal is used to open or close a switch on the circuit these appliances are connected to. When the switch is closed, the appliances can draw the electricity they need; when the switch is open, no electricity is available.

### Emergency Backstop

Emergency backstop involves the installation of a Generation Signalling Device which utilises a demand response enabled device (DRED) connected to an inverter energy system. The DRED is signalled via our AFLC transmitters to activate a response mode causing the inverter to disconnect. This is controlled by the networks only under specific network emergency conditions at the direction of AEMO.

### Consumer energy resources (CER)

CER assets include rooftop solar panels, batteries, home, and business energy management systems, pool pumps, and electric vehicles (and charging), as well as 'newer smart devices' such as hot water systems and traditional controlled hot water. For large customers, these can include heating and air conditioning, on-site refrigeration, and on-site backup generation.

### Demand Management Innovation Allowance Mechanism (DMIAM)

The AER provides distributors such as Energex and Ergon Energy with a research and development allowance. With this, we can implement innovative research and development projects with a focus on demand management, that if successful, help to reduce long-term network costs. Energex and Ergon Energy receive an allowance of around \$1.1 million each per year. For more information on DMIAM, see the [AER Demand Management Scheme and Innovation Allowance](#).

### Dynamic Operating Envelope (DOE)

DOEs vary import and export connection point limits over time and location, based on the available capacity of the local network or power system as a whole. For more information on DOE see the Australian Renewable Energy Agency Dynamic Operating Envelopes Workstream.

### Hot Water Solar Soak Program

Hot water systems on control load tariffs are placed on a daytime 'solar soak' schedule for 9 months of the year. This ensures the hot water systems are heating during the day when rooftop solar PV systems are generating and exporting excess energy to the network. Our solar soak schedule delivers benefits for both peak and minimum demand.

### Flex

The capability of customers to vary their demand in response to generation, network, or market signals. Demand flexibility can operate in real time and can be incorporated into long-term investment decisions.

### Load control (economy) tariffs

Provide cheaper electricity for appliances that don't need to be on all day (for example, hot water systems and pool pumps). Electricity is available to connected appliances for a minimum of 18 hours a day (for Tariff 33) or a minimum of eight hours (for Tariff 31). These network tariffs are designed to reward customers for using electricity outside daily peak demand times (around 4pm - 8pm). Load control tariffs are cheaper than the flat electricity rate and require installation of a meter with a second element and a load control relay.

### Load profile

A load profile is a graph showing energy use over time. Typically, there will be a peak in the afternoon/early evening and a trough during the middle of the day.

### Minimum demand

Minimum demand can best be described as the lowest energy demand across an electricity network at a point in time. For further information see [AEMO factsheet](#).

### Peak demand

Peak demand occurs when the community's electricity use is at its highest. This usually happens between 4pm - 8pm on our hottest, summer days.

### Social licence

Social licence is the informal permissions granted by stakeholders for another party to make decisions on their behalf about the operation of their CER.



# Abbreviations

<b>AEMO</b>	Australian Energy Market Operator
<b>AER</b>	Australian Energy Regulator
<b>AFLC</b>	Audio Frequency Load Control
<b>B2B</b>	Business to Business
<b>C&amp;I</b>	Commercial and Industrial
<b>CER</b>	Consumer Energy Resource
<b>DER</b>	Distributed Energy Resources
<b>DERMS</b>	Distributed Energy Resource Management System
<b>DM</b>	Demand Management
<b>DMIAM</b>	Demand Management Innovation Allowance Mechanism
<b>DOE</b>	Dynamic Operating Envelope
<b>DRED</b>	Demand Response Enabled Device
<b>EV</b>	Electric Vehicle
<b>EVSE</b>	Electric Vehicle Supply Equipment
<b>LED</b>	Light Emitting Diode
<b>MVA</b>	Mega Volt Ampere
<b>NEM</b>	National Electricity Market
<b>PoE</b>	Probability of Exceedance
<b>PV</b>	Photovoltaic
<b>QEJP</b>	Queensland Energy and Jobs Plan
<b>RFP</b>	Request for Proposal
<b>RIC</b>	Remote and Isolated Communities
<b>RIT-D</b>	Regulatory Investment Test - Distribution
<b>SEP2</b>	Smart Energy Profile







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