



AUSTRALIA'S ENERGY TRANSITION

**A snapshot of the changing policy
landscape | Supporting Materials**

Energy Consumers Australia & KPMG

August 2021

Context and purpose of this document

Context for considering the changing energy policy landscape

Energy Consumers Australia (ECA) has partnered with KPMG to deliver a report on 'Australia's Energy Transition' which serves to provide ECA with a better understanding of the recent energy policies, interventions, projects and reforms that have recently been considered or implemented by state and territory jurisdictions.

With respect to the changing policy environment in which states are increasingly implementing state-based interventions in addition or in place of the national framework, understanding the drivers and implications of state jurisdictional energy policy is an increasingly important factor for ECA in fulfilling their mission to be the national voice for residential and small business energy consumers.

Our approach to describing jurisdictional policies in the 'Australia's Energy Transition: A snapshot of the changing policy landscape' report

The report includes a summary of each jurisdiction that covers the challenges and trends emerging in the jurisdiction, a snapshot of key household and market outcomes, the policy outlook and some high-level insights from our analysis. Our analysis of each jurisdiction has been informed by detailed consideration and research of the interventions recently implemented by the respective jurisdictional government. However, the report intends to provide a high-level scan of the current policy environment and capture broader trends in policy-making, and seeks to be accessible for a wide range of readers. Therefore, detailed descriptions of all of the policies considered, and research relating to the energy landscape in each jurisdiction has not been included in the report, and rather included in this supporting materials document.

The purpose of this accompanying supporting materials document

This accompanying document of supporting materials provides a more detailed summary of all of the policies considered in the report, serving to provide additional detail on the interventions that have informed our analysis of the policy outlook and energy landscape in each jurisdiction. This document serves to act as an accompanying resource to the main report, providing specific details of each of the policies considered and key additional information that has informed our summary of each jurisdiction.

The structure of this document

For each state and territory jurisdiction, this document provides a snapshot of household outcomes and the energy supply mix, and analysis of the supply-demand outlook (where sufficient information relating to reliability is publicly available). The focus of the 'Australia's Energy Transition' report is on state and territory jurisdictions, as such this detail is not provided for the Commonwealth – an outline of our approach to the Commonwealth jurisdiction is provided on page 4.

For each jurisdictional policy captured in the main report, a 2-page summary is provided in this document. These summaries provide a description of each policy, consider the scope of each policy's objectives against the 'learning-enabling-solving' framework and outline the policy's expected or historic impact on key consumer outcomes.

Jurisdictional energy policies considered in this report

Learning



Policies designed to improve the level of existing knowledge in a certain aspect of the energy sector and inform future reforms, e.g. trials

New South Wales

- Net Zero Industry and Innovation Program
- Solar for Low Income Households

Victoria

- Neighbourhood Battery Initiative

Note that a number of the 'enabling' policies also have learning objectives they achieve by removing barriers to facilitate the uptake of emerging technologies and progress innovative models.

Similarly, jurisdictions also use a number of other tools, such as grant funding, to support learning activity, however these activities have not been captured as policies in this report.

Enabling



Policies aiming to remove a barrier for the market to solve the issue.

New South Wales

- Energy Savings Scheme
- Regional Community Energy
- Empowering Homes Solar Battery Loan Offer
- Peak Demand Reduction Scheme

Victoria

- Solar Homes Program
- Victorian Energy Upgrades Program

Queensland

- Solar 150
- Renewables 400
- CleanCo
- Wandoan South Battery Energy Storage System

Western Australia

- DER Roadmap

South Australia

- Grid-Scale Storage Fund
- Home Battery Scheme
- Retailer Energy Productivity Scheme

Tasmania

- Renewable Energy Action Plan
- Australian Capital Territory
- Gas Phase-out
- Community Solar
- Next Generation Energy Storage Program
- Energy Efficiency Improvement Scheme

Northern Territory

- Home and Business Battery Scheme

Commonwealth

- National Gas Reservation Scheme
- Underwriting New Generation Investments Program
- Technology Investment Roadmap
- Australian Gas Security Mechanism

Solving



Significant interventions with material market impacts to address a policy concern.

New South Wales

- Energy Infrastructure Roadmap
- Emerging Energy Program

Victoria

- Victorian Default Offer
- Renewable Energy Zones Development Plan

Queensland

- Renewable Energy and Hydrogen Jobs Fund

Western Australia

- Whole of System Plan

South Australia

- Energy and Emissions Reduction Agreement
- Smarter Homes

Northern Territory

- Electricity Market Priority Reform Program

Commonwealth

- 'Big Stick' Legislation
- Snowy 2.0
- Default Market Offer
- Hunter Power Project (Kurri Kurri Power Station)

Our approach to state vs. Commonwealth policy in this report

National responsibilities in energy

Energy market governance occurs within the context of Australia's federal system of government. Currently, states and territories have primary responsibility for energy policy. The Commonwealth has primary responsibility for emissions reduction policy.

The Australian Energy Market Commission is accountable to the Energy Ministers' Meeting which reports to the Energy National Cabinet Reform Committee. This council is chaired by the Commonwealth Energy Minister and its members include all state and territory energy ministers. The Energy Ministers' Meeting coordinates government energy policy.

Because energy policy is in the domain of the states and territories, consistent policy at the Commonwealth requires coordinated effort, for example, changes to the National Electricity Law require agreement among all the participating jurisdictions. The Australian Energy Market Agreement (AEMA) sets out how energy policy will be developed through the jurisdictions.

The Energy Council seeks to optimise long-term economic, social and environmental benefits to the community. It does this by:

1. facilitating national oversight and coordination of governance, policy development and program management to address the opportunities and challenges facing Australia's energy and resources sectors
2. providing national leadership on key strategic issues and effectively integrating these strategic priorities into Government decision-making in relation to the energy and resources sectors
3. enhancing national consistency between regulatory frameworks to reduce costs and improve the operation of the energy and resources sector.

State vs. national approaches to energy policy making

In recent times, the commitment of state jurisdictional governments to the national approach has been tested, as individual state and territory governments have increasingly implemented jurisdiction specific reforms and initiatives. This is a reflection of the fact that different states are facing increasingly different pressures, as the energy landscapes in different states continue to take on different characteristics. In addition to this, state jurisdictions have separate goals for addressing climate change and decarbonisation. These factors have driven states to introduce and rely on their own reforms, in addition to, or in some cases in place of, the national framework.

The scope of this report

The focus of this report is to better understand the recent interventions by state jurisdictions, recognising the factors driving state policy makers and the implications of their decisions for consumers. As such, more detailed analysis has been undertaken for each of the state and territory jurisdictions, as compared to the Commonwealth initiatives.

However, ECA and KPMG recognise the important role that Commonwealth continues to play, particularly in implementing significant 'solving' interventions that impact energy markets in all states and territories. Hence, it is useful to capture some of the recently introduced Commonwealth policies, although additional analysis regarding household outcomes, the energy supply mix and supply-demand outlook as they relate to the entire Australian energy market has not been conducted.

Framework for assessing the policy impact on customers

Energy Consumers Australia is the national voice for residential and small business energy consumers.

ECA's vision is for a future energy system that is consumer-powered, whereby consumer values, expectations and needs are both the instigating factor and central concern of system reform. It is important that consumers are placed at the front of policy-making, such that jurisdictions carefully consider the needs and preferences of consumers when developing policy, provide sufficient and accessible opportunities for consumers to engage in the policy-making process, and ensure that the ultimate impact of a policy is positive for consumers and aligned with the energy market outcomes they value. ECA seeks to have impact at the household, market and system levels, focusing on the three areas of impact outlined below. In assessing state jurisdictional policies, these three key impact statements will frame ECA's approach to prioritising areas to actively influence reforms to contribute to tangible outcomes that benefit households and small businesses.

Strategic impacts prioritised by Energy Consumers Australia

1. Affordable energy for households and small businesses
2. Individualised energy services that give consumers choice and control
3. Modern, flexible and resilient energy system

In order to assess each policy in the context of the role ECA plays in representing consumers, and ECA's vision for the positioning of consumers in the future energy system, we have developed three questions against which to assess the nature of each policy's design and its expected impact on consumers.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

Consumers rely on energy for comfortable homes and competitive businesses, and affordability remains the key for customers. Above all it is important that policies aim to improve bill outcomes for consumers, and mitigate risks of costs being passed on to consumers.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

Households and small businesses have a range of motivations, abilities and opportunities to engage in emerging aspects of the energy system. It is important that policies provide opportunities for consumers to express their needs and preferences, and that policy designs reflect them.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

As the energy system becomes more distributed, where the opportunities for consumers to engage may be available to some consumers more than others, it is important that policies consider their impact on all consumers and incorporate measures to include all consumers.

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An aerial photograph of a large-scale solar farm, showing rows of solar panels stretching across a landscape. The image is overlaid with a semi-transparent map of New South Wales, Australia, which is highlighted in a light blue color. The text 'NEW SOUTH WALES' is written in white, bold, uppercase letters across the map.

NEW SOUTH WALES

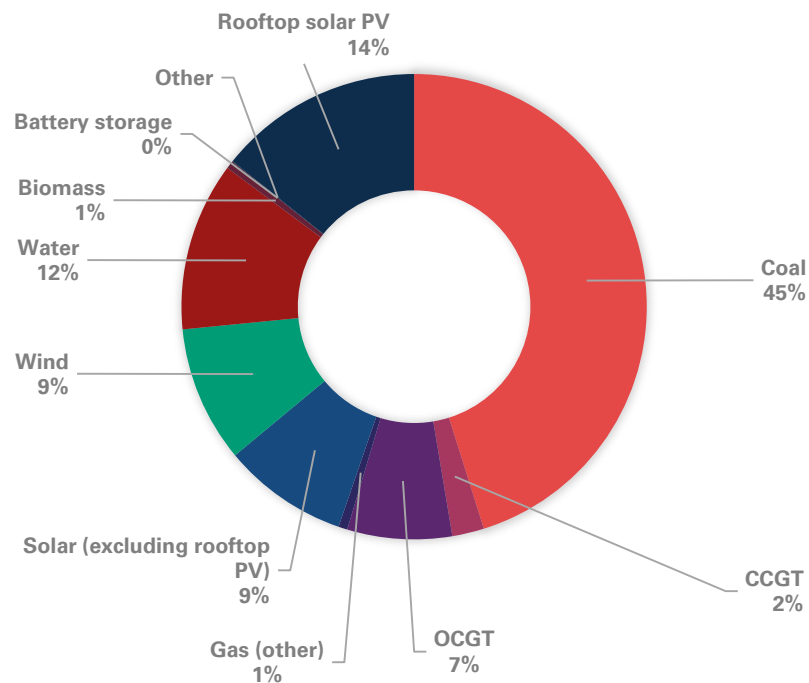
A snapshot of household outcomes in New South Wales

Key category	NSW outcome	Trend
DER penetration and the potential for demand flexibility		
 Percentage of households with solar PV	25%	Increase from 15% in December 2018
 Number of households with battery storage	6,804	Increase from 3,486 in 2017
 Total capacity of installed rooftop PV (0 – 100 kW)	3,514 MW	Increase from 1,491 MW in 2017 (incl. ACT)
 Total capacity of installed behind the meter storage	61,578 kVAh	Increase from 30,408 kVAh in 2017
 Electric vehicle sales (2019 – excluding Tesla*)	832	As compared to less than 2,000 total sales 2011 – 2018
 Total number of smart meters	Approximately 630,000	Increase from approximately 150,000 in 2017
 IPART benchmark solar feed-in tariff rate: 2021-22	4.6 – 5.5 c/kWh	Decrease from 8.5 – 10.4 c/kWh in 2019-20
 Proportion of households who own their home (with or without mortgage) (2017-18)	64%	Decrease from 67% in 2015-16
 Proportion of households renting (2017-18)	34%	Increase from 32% in 2015-16
 Proportion of dwellings classified as 'flat or apartment' (2017-18)	18.8%	Increase from 15.3% in 2015-16
Consumer outcomes		
 Median market offer electricity bills (average income households, 2020)	Ausgrid: \$1,576 Endeavour Energy: \$1,687 Essential Energy: \$1,996	As compared to 2017: Ausgrid: \$1,665 Endeavour Energy: \$1,891 Essential Energy: \$2,059
 Proportion of residential customers on a hardship program	Electricity: 1% Gas: 0.5%	No change from 1% (electricity) and 0.5% (gas) in 2017-18
 Proportion of residential customers on payment plans	Electricity: 1% Gas: 0.5%	Decrease from 2.6% (electricity) and 1.5% (gas) in 2017-18

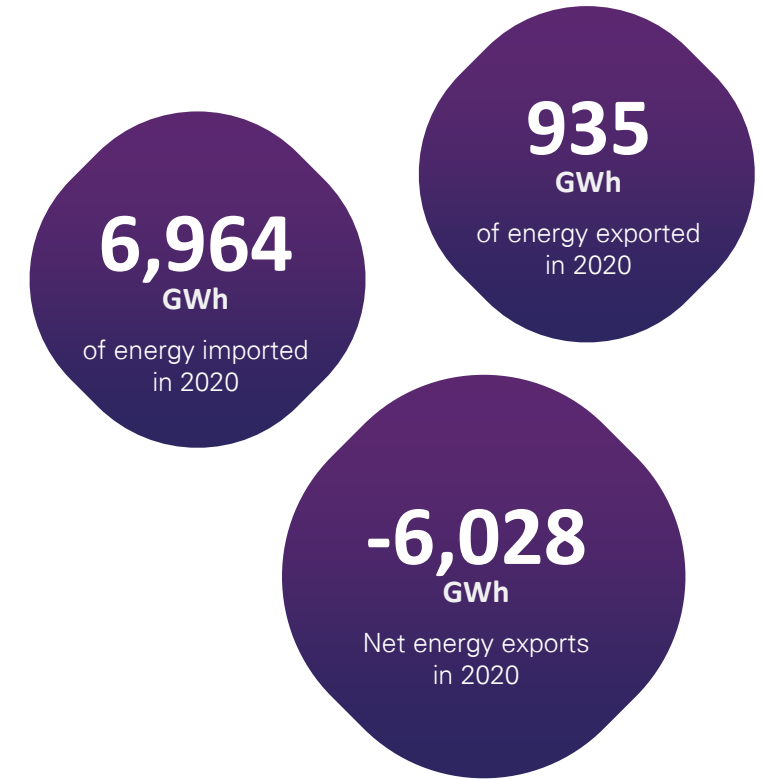
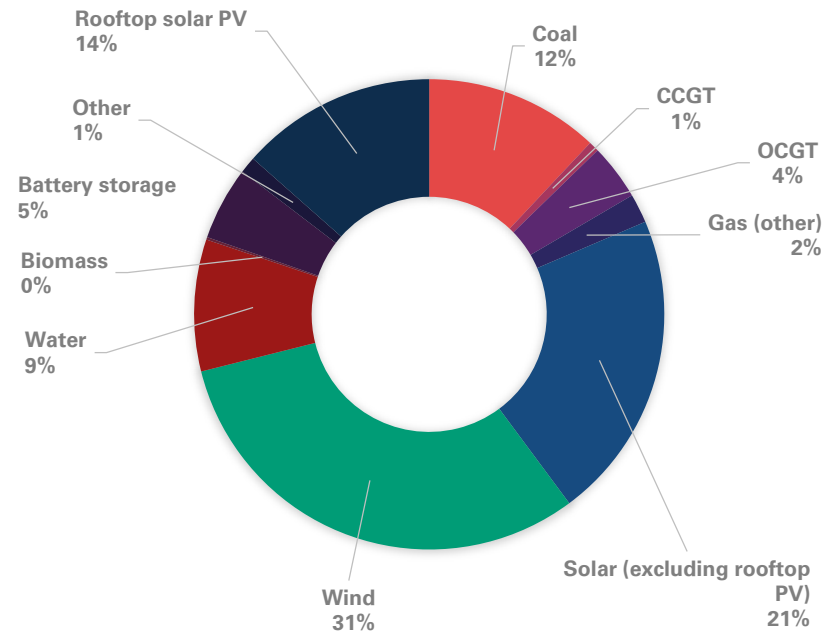
*Tesla does not disclose local sales figures. Electric vehicle sales are sourced from the Electric Vehicle Council: State of Electric Vehicles 2020

A snapshot of the energy supply mix in New South Wales

CURRENT GENERATION MIX



POTENTIAL FUTURE GENERATION MIX*



The total capacity of rooftop solar PV is forecast to more than triple by 2050, and will play an increasing role in NSW's generation mix alongside large-scale renewables.

14 per cent of the total installed generation capacity in NSW is rooftop solar PV. This means that many consumers are already making choices over their electricity generation and consumption.

New South Wales is a net importer of energy, having imported more energy than exported in all of the past 17 quarters since Q1 2017.

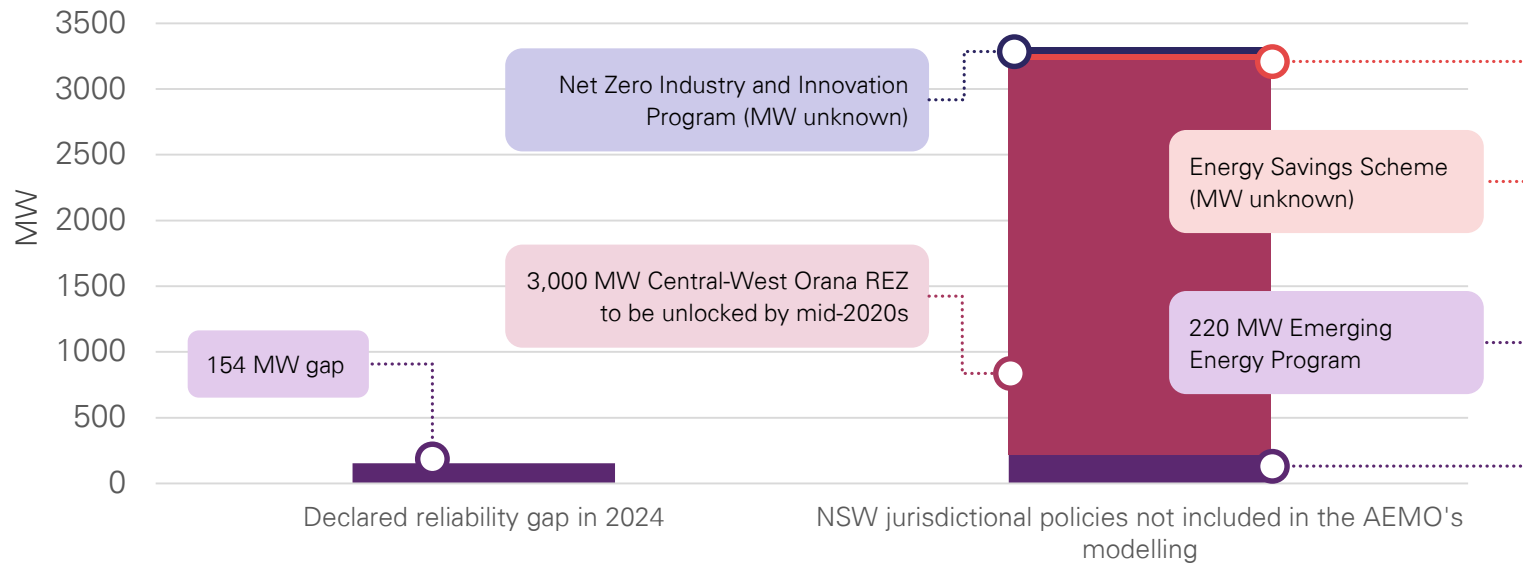
*Potential future generation mix' is sourced from AEMO: NEM Generation Information - July 2021, 2020 Inputs and Assumptions Workbook. It is the sum of existing generation + (committed projects + anticipated projects + proposed projects + network upgrades) - (committed and announced withdrawals and closures) + forecast capacity of rooftop solar PV, central scenario 2049-50.

Source: AER Wholesale Markets Quarterly Q1 2021 - Wholesale electricity markets data, May 2021.

Supply-demand outlook in New South Wales

Supply outlook: new committed generation and retirements 2020-2030

FIGURE 1
NSW DECLARED RELIABILITY GAP VS. CAPACITY TO BE UNLOCKED BY PROJECTS NOT INCLUDED IN AEMO'S MODELLING



Not all jurisdictional policies were included in AEMO's modelling to determine a forecast reliability gap.

Figure 1 indicates how the implementation of these policy measures in the NSW energy market will address the declared reliability gap. Whilst some degree of oversupply is required to account for the fact that 1 MW of variable renewable energy is not equivalent to 1 MW of dispatchable energy due to its intermittent and variable nature, NSW appears to be procuring excess generation beyond the forecast supply required by NSW consumers.

Large scale solar
1,041
MW

Wind
635
MW

Hydro
2,040
MW

Coal-fired
3,215
MW

DEMAND OUTLOOK

- Operational demand is forecast to remain relatively flat over the next 20 years, with a higher number of connections and increased usage being offset by rooftop PV uptake.
- Maximum demand is expected to increase steadily, growing to an expected level of 14,523 MW in summer. Maximum demand periods are expected to shift to later in the day.
- Minimum demand is forecast to decrease steadily, and shift to the middle of the day, driven by increased rooftop PV capacity.

KEY INSIGHTS

- In December 2020, the AER approved AEMO's request to declare a reliability gap in NSW of 154 MW for the period of 1 Jan to 29 Feb 2024.
- The retirement of Liddell Power Station in 2023, and the retirement of Vales Point in 2029 are the most significant drivers of forecast reliability challenges in NSW.
- The additional capacity provided by Snowy 2.0 from 2025-26 will have a significant impact on reliability outcomes, however this is contingent on transmission upgrades to unlock this capacity, which were not committed at the time of AEMO's 2020 modelling.

Electricity Infrastructure Roadmap

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Electricity Infrastructure Roadmap is a set of policies and programs that are specifically designed to attract and secure large-scale investment in new electricity infrastructure to replace closing power stations. The key components of the Roadmap are:</p> <ul style="list-style-type: none"> • A plan to deliver Renewable Energy Zones – including introducing a Transmission Development Scheme - a bespoke NSW regime to allow scale-efficient transmission investments to proceed. To do this, a Transmission Efficiency Test will be introduced. • Electricity Infrastructure Investment Safeguard – under this mechanism, option contracts which give projects optional access to a competitively set minimum price for their energy service will be offered for generation, long duration storage and firming. A dedicated Scheme Financial Vehicle will recover payments to projects under these contracts by on-selling energy services or with funding contributions from DNSPs who will pass these costs on to consumers. • Pumped Hydro Recoverable Grants Program – an open tender of recoverable grants (\$50m in total) to fast track the development of pumped hydro projects.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> • According to the NSW Government, the electricity market is not designed for the scale, speed and complexity of the transition that NSW faces, which is compounded by investment risk from the energy transition and the regulatory settings that govern transmission investment and access. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • The Roadmap is expected to attract \$32 billion of private sector investment by 2030 in large-scale generation, storage and transmission to maintain a reliable, secure and affordable supply.

Expected benefits:

Average annual household bill savings of \$130 a year between 2023 and 2040;
 Average annual small business savings of \$430 a year between 2023 and 2040;
 NSW to be in the top 10 for lowest industrial electricity prices across the OECD; and
 A net increase of 23,600 jobs over the NSW economy in the period 2032 to 2037.

Expected costs:

The total cost of implementing the Roadmap is unknown, the NSW Government has allocated \$380 million over four years as part of the 2021-22 NSW Budget.

Method of cost recovery

- ENERGY CUSTOMER** for the Electricity Infrastructure Investment Safeguard
- TAXPAYERS** for the Pumped Hydro Recoverable Grants Program.

Aim in investment stock (MW, MWh, type of generation)

- 12 GW of new transmission capacity through the Central-West Orana, New England and South West Renewable Energy Zones by 2030.
- 3 GW of new pumped hydro capacity by 2030.

Type of incentive (Upfront or ongoing)

Upfront – For pumped hydro projects, the grants will help meet upfront costs of establishing the feasibility of potential projects. The Government will recover grants for pumped hydro when the project reaches financial close or development rights are sold. **Ongoing** – Under the Infrastructure Safeguard, a Consumer Trustee will be appointed to run competitive process rounds to offer Long Term Energy Services Agreements.

Timeline and key dates

Date of introduction Announced in November 2020	Duration – permanent or temporary Permanent	Any other relevant key dates In March 2021, an Issues Paper was published on the Central-West Orana Renewable Energy Zone Access Scheme.
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Electricity Infrastructure Roadmap

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Solving

The Roadmap and the Electricity Infrastructure Investment Act 2020 (NSW) will:

- change policy settings under the National Electricity Rules (such as the regulatory investment test for transmission (RIT-T) process);
- have an impact on investment signals (e.g. through Long Term Energy Services Agreements); and
- establish additional energy market bodies in NSW – Consumer Trustee, Energy Corporation of NSW, Renewable Energy Sector Board, Electricity Infrastructure Jobs Advocate.

The Roadmap is comprised of multiple key ‘solving’ interventions, including:

Delivering REZs

The delivery of REZs will have a significant impact on NSW’s energy supply mix, and will involve NSW moving away from the national framework to implement the necessary transmission infrastructure.

Electricity Infrastructure Investment Safeguard

The Safeguard will shift investment signals across REZ generation, long duration storage and firming generation.

Pumped Hydro Recoverable Grants Program

The Program will support up to 3 GW of pumped hydro projects, including fast-tracking their development, to have a large impact on NSW’s energy supply mix.

Policy review to date (if available)

No policy review has been conducted.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- Forecast reduction in retail electricity prices of 8% compared to if no action was taken.
- Average annual energy bills are reduced by \$130 for NSW households, and \$430 for NSW small businesses.
- Aurora’s forecasts show that in the long term, average wholesale prices will reduce in Queensland (\$10/MWh), South Australia (\$15/MWh), Tasmania (\$16/MWh) and Victoria (\$19/MWh) due to the policies implemented in NSW.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The Consumer Trustee acts on behalf on consumers to create a long term contract investment market, it will:

- publish a detailed plan on the development pathway and the long term interests of consumers
- apply a merit criteria assessment that encourages projects that benefit host communities
- have discretion over the schedule for competitive process rounds where it would be in the best interests of consumers and it is within the framework provided by the statute.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The Energy Corporation of NSW and Consumer Trustee will implement community-benefit sharing schemes to ensure the economic benefits of REZs are shared equitably.
- The Roadmap plans for community benefit sharing to be coordinated in areas with multiple generation and storage projects – making contributions go further.
- Major electricity infrastructure projects will bring broader indirect benefits to local communities, e.g. road, distribution network and telecommunications upgrades.

Energy Savings Scheme

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	The Energy Savings Scheme (ESS) aims to reduce energy consumption (electricity and gas) in NSW by providing financial incentives to implement activities that save energy without reducing production or service levels.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> Absence of a national efficiency scheme Split incentives Bias for short-term priorities High transaction costs and liquidity constraints Information asymmetries. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Create a financial incentives to reduce the consumption of energy by encouraging energy saving activities. Assist households and businesses to reduce energy consumption and energy costs. Complement any national scheme for carbon pollution reduction by making the reduction of greenhouse gas emissions achievable at a lower cost. Reduce the cost of, and the need for, additional energy generation, transmission and distribution infrastructure.

Benefits in 2019:

The estimated cost savings to NSW consumers in 2019 were \$235 million (estimated bill savings less charges passed through by electricity retailers). By lowering electricity demand, the scheme saved NSW households an average of \$13.50 a year on their bills between 2009 and 2018.

Costs in 2019:

\$8 of the representative annual consumer electricity bill or 0.6% of the total cost of supplying electricity to NSW residential customers.

The total cost to electricity customers from charges passed through by the electricity retailers is in the range of \$88 million – \$112 million (\$87m – \$108m in 2018).

Method of cost recovery

- ENERGY CUSTOMER
 TAXPAYERS

Aim in investment stock (MWh, MWh, type of generation)

The ESS target establishes the demand for Energy Savings Certificates (ESCs). In 2019, the target was 8.5% of all electricity purchased for supply to end use customers in NSW. This target is equivalent to 4,649,936 MWh or 4,649,936 certificates. The target will increase by 0.5% each year from 2022, reaching 13% of all electricity purchased in 2030. The target will then remain at 13% until the scheme ends in 2050.

Type of incentive (Upfront or ongoing)

Financial incentives are in the form of tradeable certificates. Generally, householders and businesses who fund energy savings activities transfer the right to create ESCs to an Accredited Certificate Provider in return for a discount on the cost of the energy savings activity.

Timeline and key dates

Date of introduction The ESS was established in 2009 under the Electricity Supply Act 1995 (the Act).	Duration – permanent or temporary Temporary – the NSW Electricity Strategy announced the extension of the ESS to 2050.	Any other relevant key dates
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Energy Savings Scheme

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

The scheme has been operating since 2009 and has had limited impact on the national market design to date, and is unlikely to impact the national market design in the future.

The scheme focuses on energy savings from lighting activities. In previous years, the majority of certificates were created from commercial lighting activities.

The scheme design is similar to other energy efficiency schemes introduced nationally and internationally.

Policy review to date (if available)

In its Annual Report to the Minister in 2019 and 2018, the Independent Pricing and Regulatory Tribunal (IPART) noted that:

- IPART has ongoing concerns about the potential lack of evidence of additionality. For example, Certificate Providers become involved late in the development of projects when decisions have already been made to implement those projects without the ESS; or the market has already matured significantly, for example, lighting upgrades involving LED technology.
- There is a shift in the nature of participants, which present challenges for assuring compliance. The business models are evolving, with an increasing reliance on sub-contracted labour and agents. The number of retailers has increased, with a number of small retailers facing an individual energy savings target for the first time.
- An increase in generation not recorded by AEMO has increased the complexity of the compliance. The ESS was designed for traditional energy systems, but with the increasing uptake of DER the scheme will need to adapt

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The ESS will be expended under the Energy Security Safeguard and will include a Peak Demand Reduction Scheme. Together, the schemes are projected to save households up to \$15.50 per year on their electricity bills.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- The scheme was designed for a traditional energy system and will need to adapt to remain modern.
- There are many eligible activities under the ESS which provide consumers with choice.
- IPART has commenced an update of the public facing guidance material to clarify existing requirements and improve accessibility, readability and user-friendliness.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The policy is targeted at residential and commercial consumers, and small businesses. In previous years, more than 70% of certificates were created from commercial lighting. However, in 2019 certificates from residential and small business lighting reached 22%, increasing from 4% in 2018.

Peak Demand Reduction Scheme

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>Alongside the extension of the Energy Savings Scheme, as part of the Energy Security Target and Safeguard, the NSW Government has introduced a peak demand reduction scheme, which will introduce certificates to reward the deployment of peak demand reduction activities; across peak demand saving, load response and shifting to flexible consumption. The scheme requires liable parties to purchase and surrender peak demand certificates in line with meeting legislated demand reduction targets.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> Market barriers including split incentives, and access to capital currently restricting the flexibility of consumers with demand reduction technologies and limiting the uptake of such technologies. Challenges attached to the energy transition towards both large scale and distributed renewables, including the impact on energy reliability. The energy security risk extreme weather events such as heatwaves and bushfires pose to transmission and distribution systems. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Put downward pressure on retail prices. Maintain supply reliability and reduce the likelihood of outages. Avoid the need for and costs of network investment in supply infrastructure. Provide the government with low-cost tools to respond to forecast peak events. Support consumers to lower their energy bills through peak demand reduction technologies.

<p>Expected benefits of the scheme to 2030:</p> <ol style="list-style-type: none"> Reduced wholesale purchase costs: \$1,435 million. Avoided network investment: \$313 million. Avoided health cost of air pollution: \$18 million. 	<p>Expected costs of the scheme to 2030:</p> <ol style="list-style-type: none"> Government costs: \$32 million Regulatory costs: \$642 million 	<p>Method of cost recovery</p> <input checked="" type="checkbox"/> ENERGY CUSTOMER <input type="checkbox"/> TAXPAYERS
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Aim in investment stock (MW, MWh, type of generation)

The scheme has an initial peak demand reduction target of 141 MW in 2022, scaling up to 362 MW in 2025 and 1,029 MW in 2030.

Type of incentive (Upfront or ongoing)

The mechanism under the scheme operates via the deployment of peak demand reduction certificates. As at April 2020, the preferred option posed by the government is for the scheme to operate in the same way as the ESS whereby certificates are created when peak demand reduction activities are provided, certificates will not expire and may be surrendered by liable parties in the same year as the activity is conducted or in future years.

Timeline and key dates

<p>Date of introduction</p> <p>The initial consultation paper was released in April 2020, noting the NSW Government intends to introduce the Safeguard as soon as possible.</p>	<p>Duration – permanent or temporary</p> <p>Temporary – the consultation paper indicates a time horizon of 10 years.</p>	<p>Any other relevant key dates</p> <p>Forecasting provided in the initial consultation paper suggests the scheme is scheduled to be implemented in 2022.</p>
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Peak Demand Reduction Scheme

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

The scheme does not conflict with any existing NSW or national regulatory frameworks, and is specifically targeted to complement existing national reliability measures.

Although it is focused on demand reduction, the scheme will operate via a similar mechanism as existing certificate based energy efficiency schemes operating in multiple jurisdictions.

The scheme intends for the 'market to lead', focussing on providing the market certainty as to how much new investment is needed to provide energy system reliability. Outside of imposed obligations on liable parties, the mechanism of the scheme is largely open for the market to operate to deploy demand reduction activities and trade the resulting certificates.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The Energy Security Safeguard, includes both the Energy Savings Scheme and Peak Demand Reduction Scheme. Together, the schemes are projected to deliver savings of up to \$15.50 per year on household electricity bills.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The scheme is proposed to adopt the following principles:

- Consumers are well informed: requiring service providers to provide detailed information on the products and services that is accessible and easy to understand.
- Any consumer participation must be based on informed consent.
- Service providers will not be able to lock consumers in to unreasonable contracts, requiring providers to offer cooling off periods.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The scheme will reward demand reduction activities ranging from small-scale residential appliances through to large scale commercial and industrial systems.

The expected contributions of the scheme towards system security and placing downward pressure on wholesale prices are noted to benefit all consumers in NSW.

Net Zero Industry and Innovation Program

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	The Net Zero Industry and Innovation Program is a program of co-investment with industry to reduce carbon emissions and develop low emissions technologies. The program has three streams of focus: clean technology innovation, new low carbon industry foundations and high emitting industries.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> Substantial investment is needed to achieve a net zero emissions economy. By 2030, it is the NSW Government's objective to achieve a 35% reduction in emissions compared to 2005 levels. In order to reach the target, it is critical that clean technologies are developed. The program also recognises that the biggest opportunity for decarbonisation in NSW sits with a relatively small number of high emitting industries, with 55 industrial mining and manufacturing facilities creating 29% of emissions in NSW. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Attract new players in the low emissions technologies industry. Enable existing players to update their plant and equipment with low emissions alternatives Encourage research and development in innovative, clean technology. <p>Funding will focus on three key areas:</p> <ul style="list-style-type: none"> supporting existing industries to re-tool with low emissions alternatives and future proof their businesses; setting up low carbon industries such as green hydrogen to create the jobs; and researching and developing new clean technologies to decarbonise in ways that grow the economy.

Expected benefits:

Supporting the development and continued innovation of emerging clean technologies in NSW.

Laying the foundations for low emissions industries by building enabling infrastructure and increasing the capability of our supply chains in NSW

Deploying low emissions technologies and infrastructure to reduce the emissions associated with existing, high emitting industrial facilities in NSW.

Expected cost: \$750 million of funding will be dispensed across three key areas:

\$380 million to support existing industries to re-tool with low emissions alternatives and future proof their businesses;

\$175 million to set up low carbon industries such as green hydrogen to create jobs; and

\$195 million to research and develop new clean technologies to decarbonise in ways that grow the economy.

Method of cost recovery

- ENERGY CUSTOMER
 TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

Not stated

Type of incentive (Upfront or ongoing)

Upfront – A combination of traditional and recoverable grant funding will be made available. Recoverable grants include a mechanism for the NSW Government to recoup some or all of the funding over time, subject to the achievement of certain agreed performance criteria.

Timeline and key dates

Date of introduction
Announced in March 2021.

Duration – permanent or temporary

Temporary – projects to be delivered prior to 2030.

Any other relevant key dates

Net Zero Industry and Innovation Program

Applying our framework to the jurisdictional policy

Scope of the intervention

Learning



The focus of the program is to invest in the research, development and commercialisation of low emissions technologies, especially in industries where they do not yet exist.

The policy will not amend the existing regulatory frameworks or change incentives for energy market players.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The costs of the \$750 million program will be recovered through taxes, not energy bills. It is expected that the benefits of the program, as technology advances and industry experience grows, will be passed onto NSW consumers through cheaper bills, cleaner fuel and cars, and the creation of new jobs.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The policy design is currently at an early stage. The NSW Government noted it would apply the following principles:

1. employing an upfront collaborative and consultative approach with industry
2. engaging in broad and ongoing consultation to shape opportunities and priorities over the life of the program
3. partnering with industry to co-invest and co-deliver the focus areas, leveraging a range of funding sources
4. ensuring value for money for public funds, balancing emissions reduction and economic objectives, and medium and long-term benefits
5. using strong probity and governance principles to manage the risks attached with large public funding commitments.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- Funding applications may come from individual businesses, consortia, not-for-profits or development authorities.
- To qualify for the high emitting industries stream of funding, the facility must emit more than 0.09 megatonnes of CO2 emissions per annum.

Empowering Homes Solar Battery Loan Offer

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The offer assists homeowners to access interest free loans to install solar battery systems. Eligible homeowners can access interest free loans of up to \$14,000 towards a solar PV and battery system, or up to \$9,000 towards retrofitting a battery system to an existing solar PV system, the offer is not available for the purchase of solar PV systems only. The program is initially running as a pilot across certain postcodes before rolling out across NSW, designed to test the merit of the offer across a large and diverse area. The program intends to provide loans to up to 300,000 homeowners when fully rolled out.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The program targets high upfront costs of installing a battery and seeks to shift the trend in DER uptake towards solar and battery systems rather than solar PV only systems. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Unlock investment in renewables Improve the ability of homeowners to install solar and battery systems Assist in reducing emissions

Expected benefits to NSW energy outlook:

- Unlock a \$3.2 billion investment in renewables.
- Expected benefits to participating consumers:
- Electricity bill reductions.
- More effectively utilise the solar that is generated from the PV system.
- Become more self-sufficient.
- Have the capacity to sell excess electricity back to the grid.

Expected costs for participating consumers:

- The minimum monthly repayment on a solar PV and battery system is \$146 (\$14,000 loan over a maximum loan period of 8 years).
- The minimum monthly repayment on a battery only installation is \$75 (\$9,000 loan over a maximum loan period of 10 years).

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

The Clean Energy Finance Corporation, an Australian Government-owned bank will provide finance for the pilot which will be administered by Plenti as a delivery partner.

Aim in investment stock (MW, MWh, type of generation)

When fully rolled out, the batteries are estimated to add up to 3,000 MWh of storage to NSW's energy system.

Type of incentive (Upfront or ongoing)

Upfront –the offer provides loans to cover all or part of the upfront cost of installing a battery, the loan must be paid off over a maximum of 8 or 10 years.

Timeline and key dates

Date of introduction Launched in February 2020.	Duration – permanent or temporary Temporary – The program is due to run for 10 years	Any other relevant key dates
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Empowering Homes Solar Battery Loan Offer

Applying our framework to the jurisdictional policy

Scope of the intervention

Learning and Enabling



The program is initially running as a pilot in a restricted set of postcodes to refine its design before rolling out to the whole state.

The offer acts as an enabling tool to remove the financial barrier attached to the upfront cost of battery technology.

The program does not amend or conflict with existing NSW regulatory arrangements for households solar or battery resources, and a number of other states have similar programs in place to assist in financing behind the meter energy resources.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

It is estimated that a family with a \$500 quarterly electricity bill could save up to \$285 per year during the repayment period, and potentially more than \$2,000 per year when the loan is fully repaid.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Multiple approved suppliers are available under the program, allowing consumers to seek quotes from multiple suppliers before choosing to apply for a loan and install a system. The program guide provides a list of questions to consumers to assist them in undertaking discussions with suppliers.
- Consumers may purchase a higher priced system beyond the available loan amount, choosing to pay the difference or seeking a top-up loan at market interest rates. However, all suppliers must offer a system within the maximum loan amounts such that the upfront cost to the consumer is zero.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- Eligibility for the offer is means tested, with eligible applicants having a household income of no more than \$180,000.
- Apartment or townhouse owners can participate in the program, provided they provide evidence of written approval for a solar battery system to be installed, and a sufficient sized system can fit within the available roof area of the dwelling.
- The program is targeted to benefit households that: consume an above-average amount of electricity (greater than 6,000 kWh per year), use electricity mostly during peak times (mornings or evenings), and are on a time of use tariff or plan to switch to a time of use tariff.

Solar for Low Income Households

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>Solar for Low Income Households is a trial program that enables eligible households to receive a free fully installed 3 kW solar system. Under the eligibility criteria for the program, applicants must currently be receiving the Low Income Household Rebate, in electing to participate in the program successful applicants will forego receiving the rebate (equivalent to a \$285 annual discount on their energy bill) for a 10 year period in return for the savings associated with the solar PV system.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The high upfront cost of a rooftop solar PV system can be prohibitive and exclude low income households from accessing the benefits of solar generation. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Unlock the savings benefits of rooftop solar generation for low income households. Support the NSW Government's commitment to reducing emissions and acting on climate change.

Expected benefits:

- Provide energy bill savings to low income and vulnerable households.
- Add renewable capacity to support a clean, affordable and reliable electricity grid.

Expected costs:

- The program is part of a \$15 million commitment by the NSW Government to reduce the impact of high energy prices.
- Up to 3,000 households will receive a system and installation valued at \$4,000, indicating an approximate cost of up to \$12 million.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

Up to 3,000 rooftop solar systems are expected to provide more than 8 MW of total renewable generation capacity.

Type of incentive (Upfront or ongoing)

Upfront and ongoing – participants receive a fully installed solar system free of charge, and enjoy the savings associated with the system on an ongoing basis.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
The program began operation in October 2019.	Temporary – the program is open until June 2022, or until all systems have been allocated	

Solar for Low Income Households

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Learning and Enabling



The program is a trial scale program targeted at a small number of households within a limited set of eligibility criteria.

The program is unlikely to impact the supply-demand outlook in NSW or impact consumers in the NSW energy market outside of those directly participating.

The mechanism of providing support to low income households via wholly subsidised solar PV installations reflects an enabling intervention given that it removes upfront financial barriers to uptake of solar PV technology.

Policy review to date (if available)

No policy review has been conducted.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

Participants in the program could receive up to \$600 in savings per year from their solar PV system, as compared to the \$285 annual discount provided under the Low Income Household Rebate, leaving them approximately \$300 better off per year.

Note that there are certain costs that may be incurred in preparing a household for the solar installation; including a requirement to install a smart meter if the home does not already have one and upgrading wiring if necessary, as well as ongoing maintenance costs borne by the consumer. These costs may impact the net savings derived from participating in the program.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Households who choose to participate in the program and have a solar PV system installed, and subsequently move to a different home in the 10 year period will not be eligible to receive the Low Income Household Rebate. Hence, the program is structured to provide long-term benefits to individuals planning on staying in their current home, rather than flexibility.
- The standard system installed under the program is 3 kW, participants can choose to upsize to a system of up to 6 kW. All costs associated with the upsizing are borne by the consumer. Installers under the program are not allowed to actively upsell consumers to a larger system.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The trial involves relatively restrictive eligibility criteria, eligible participants must:

- Be currently receiving the Low Income Household Rebate (available to individuals with eligible pensioner or Department of Veterans' Affairs concession cards).
- Own their own home.
- Live in one of 5 specified eligible trial regions of NSW.

In total, the trial is only available to up to 3,000 households in NSW, indicating its total impact of the energy generation outlook in NSW is likely to be limited.

Regional Community Energy

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The program supports community energy projects in regional NSW via grants for projects that are innovative or generate on-demand renewable energy, funding for community energy hubs that provide expert energy advice to small energy consumers and funding to install backup systems for disaster management and resilience. Under the first round of funding, seven projects consisting of solar PV, battery storage and hydrogen energy storage were awarded funding. Grant funding is available for projects both in front of the meter and behind the meter, provided behind the meter projects have a total capacity within the program constraints (100 kW – 5 MW), generate sufficient benefits to the community and are sufficiently innovative relative to business as usual models.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The program targets limitations in existing knowledge regarding community energy models, and the role they can play in providing network reliability. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Strengthen energy reliability – including on-demand availability of community generated energy. Improve energy affordability. Increase the number of renewable projects in regional areas.

<p>Expected benefits - under the first round:</p> <ul style="list-style-type: none"> Grants were awarded to seven projects worth approximately \$15.4 million. Estimated to unlock 17.2 MW in generation and up to 17.9 MW / 39.3 MWh of energy storage. The initial funding round is estimated to have leveraged \$36 million in private investment. 	<p>Expected costs:</p> <ul style="list-style-type: none"> The Regional Community Energy Program as a whole is a \$30 million program, with the Regional Community Energy Fund providing a total of \$20 million of funding over two rounds. 	<p>Method of cost recovery</p> <input type="checkbox"/> ENERGY CUSTOMER <input checked="" type="checkbox"/> TAXPAYERS
<p>Aim in investment stock (<i>MW, MWh, type of generation</i>)</p> <p>Under the first round of funding, grants were awarded to seven projects estimated to unlock 17.2 MW in generation and up to 17.9 MW / 39.3 MWh of energy storage.</p>		
<p>Type of incentive (<i>Upfront or ongoing</i>)</p> <p>Upfront - the program provides grants equal to up to 50% of total project costs.</p>		
<p>Timeline and key dates</p>		
<p>Date of introduction</p> <p>February 2019 – initial funding round opened.</p>	<p>Duration – permanent or temporary</p> <p>Temporary – projects funded by the program must have spent their funding by June 2022.</p>	<p>Any other relevant key dates</p>

Regional Community Energy

Applying our framework to the jurisdictional policy

Scope of the intervention

Learning and Enabling



- The program is targeted at facilitating innovative renewable energy projects that benefit local communities.
 - As such, the scale of generation supported by the program remains at a local level rather than imposing significant implications for the broader NSW energy outlook.
- A large implied focus of the program is on learning through innovative community energy models and the application of innovative technology. Successful applicants must agree to publicly share knowledge resulting from the project, with an aim to improve the level of understanding in the broader market, supporting and informing future renewable projects.
- The eligibility criteria requires that all eligible projects must not require regulatory change, indicating the program does not conflict with existing NSW or national regulatory frameworks.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The program is broadly stated to help communities save on energy bills – both through greater access to energy advice through regional hubs, and through increased renewable generation increasing energy supply and improving energy reliability.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- As part of the project merit assessment, projects will be assessed with respect to the level and breadth of benefits they will provide to the local community, and the nature and extent of community engagement conducted by the project.
- The NSW Department of Planning, Industry and Environment will primarily be responsible for assessing projects to ensure they will achieve the outcomes desired by consumers.
- The community energy hub stream of the program is designed to educate consumers to be more informed and take control of their energy choices.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- Members and beneficiaries of participating communities must be located in regional NSW.
- Projects eligible for grant funding may be behind-the-meter, however applicants must hold an Australian Business Number or Australian Company Number.
- Benefits from successful projects will be primarily realised within the local community of which the project takes place.

Emerging Energy Program

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Emerging Energy program provides grant funding to assist with the development of innovative, large-scale electricity and storage projects in NSW. There are two funding streams to support activities that accelerate the development of on-demand, electricity projects:</p> <ol style="list-style-type: none"> 1. Capital Projects: activities that will assist with the construction of a dispatchable electricity project. 2. Pre-Investment Studies: activities that will lead to the development of a dispatchable electricity project.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The status quo encourages investors to wait for high price signals before committing to new projects. This leaves a long delay between rising prices and new generation or storage coming online, leaving NSW consumers vulnerable to price spikes and electricity shortfalls. <p>What are the objectives set out for the policy to address this?</p> <p>Under the program, the NSW Government will co-fund on-demand electricity projects with the private sector to ensure:</p> <ul style="list-style-type: none"> new private sector-led investment will be delivered before power stations close over the next 15 years to avoid price spikes; deliver the required capacity to ensure that there will be no shortage of supply in NSW.

<p>Expected benefits:</p> <ul style="list-style-type: none"> Enhance system reliability and system security in NSW; Promote competition in the NEM to place downward pressure on wholesale electricity prices; Promote diversification of electricity supply; and Reduce greenhouse gas emissions. 	<p>Expected costs:</p> <ul style="list-style-type: none"> The NSW Government will provide \$75 million in grant funding under the program. 	<p>Method of cost recovery</p> <input type="checkbox"/> ENERGY CUSTOMER <input checked="" type="checkbox"/> TAXPAYERS
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Aim in investment stock (MW, MWh, type of generation)

220 MW in the capital projects stream and the potential to deliver 2,700 MW under the pre-investment studies stream.

Type of incentive (Upfront or ongoing)

Upfront - The program provides incentives via grants. In the capital projects stream, grant funding of approximately \$47.5 million is being provided to five projects. In the pre-investment studies stream, almost \$10.1 million of grant funding has been awarded to nine electricity projects to undertake pre-feasibility and pre-investment activities.

Timeline and key dates

<p>Date of introduction</p> <p>Announced in October 2018.</p> <p>Registration opened in February 2019. Successful recipients were announced in October 2019.</p>	<p>Duration – permanent or temporary</p> <p>Temporary – at this stage, no further funding rounds are scheduled for either stream. Additional funding rounds may be introduced in the future.</p>	<p>Any other relevant key dates</p> <p>In November 2020, it was announced that the program will be extended with the Pumped Hydro Recoverable Grants Program.</p>
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Emerging Energy Program

Applying our framework to the jurisdictional policy

Scope of the intervention

Learning and Enabling



- The program aims to address a major policy concern that NEM price signals alone may not be enough to ensure sufficient and timely deployment of private capital. Power stations could therefore reach the end of their operating life without timely replacement. To address this perceived problem, the NSW Government intervened by providing grants to certain projects.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

It is expected that the program will lower electricity prices for consumers through helping diversify the energy supply mix in NSW and promoting competition in the wholesale market. However no quantitative analysis was made public on the price impact of the program.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Among other grid-scale projects two virtual power plant (VPP) projects are supported under the program:
- The 6 MW VPP project is a first for NSW and will strengthen the NSW electricity network and lower electricity costs for consumers. Solarhub will aggregate the energy from the group of distributed batteries to create a virtual network of connected batteries.
 - Solar Analytics is creating a simulation using 1,000 homes and businesses to determine what is required to deliver local energy support during peak times. This customer-focused model aims to lower costs as it leverages the infrastructure paid for by customers and to incentivise customers to participate.

Consumers and stakeholders have confidence that the energy system is designed for all consumers













Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- While the program will support two VPP projects, its main focus is to deliver large-scale investment such as grid-scale batteries. One of the key eligibility criteria was for the project capacity to be 5 MW or above.
- Projects that solely improve the efficiency or availability of existing generation or storage were not eligible for funding.

An aerial photograph of a large-scale solar farm, showing rows of solar panels stretching across a landscape. The image is overlaid with a semi-transparent map of the state of Victoria, Australia, which is highlighted in white. The background has a color gradient from dark blue on the left to dark red on the right.

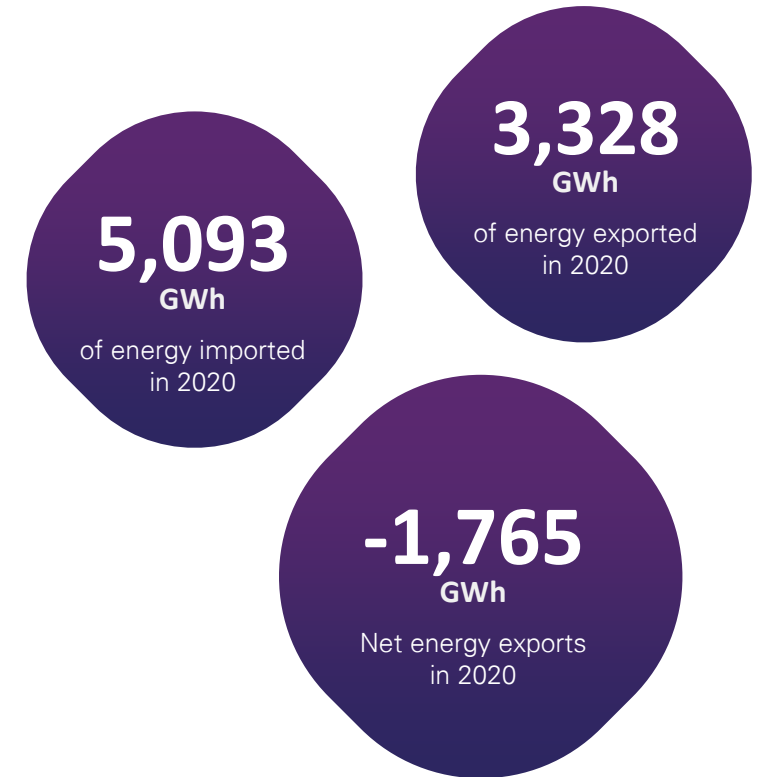
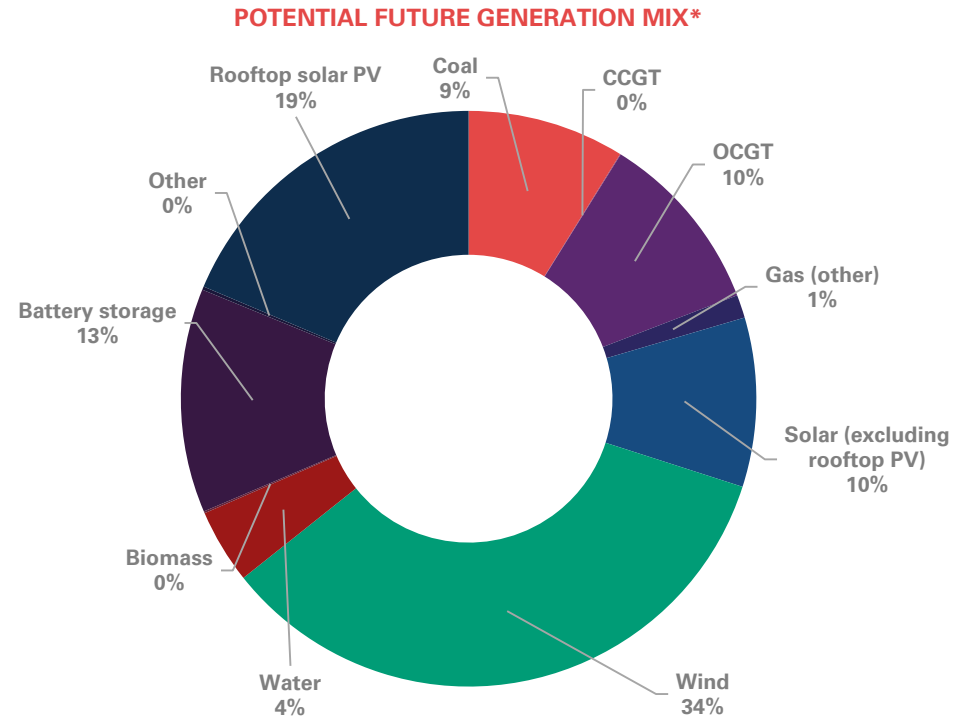
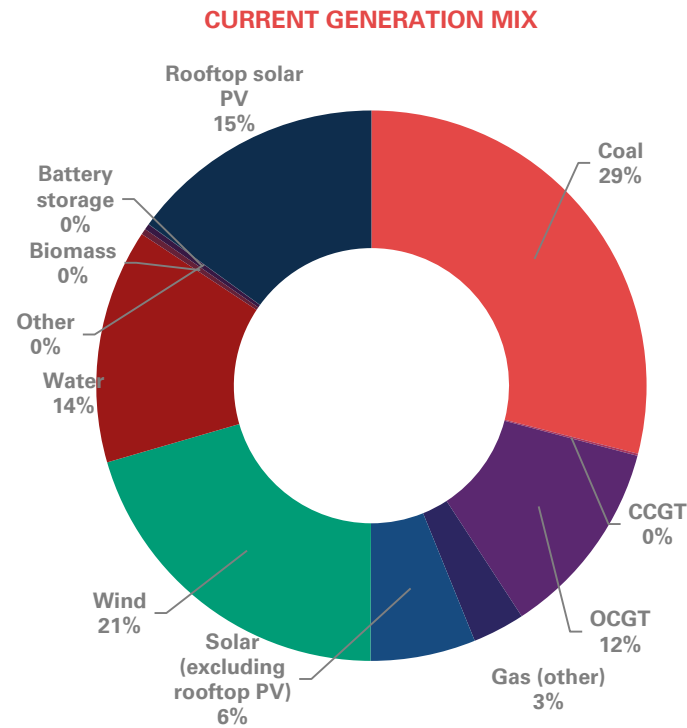
VICTORIA

A snapshot of household outcomes in Victoria

Key category	VIC outcome	Trend
DER penetration and the potential for demand flexibility		
 Percentage of households with solar PV	21.1%	Increase from 15% in December 2018
 Number of households with battery storage	3,347	Increase from 728 in 2017
 Total capacity of installed rooftop PV (0 – 100 kW)	2,679 MW	Increase from 1,224 MW in 2017
 Total capacity of installed behind the meter storage	23,611 kVAh	Increase from 1,420 kVAh in 2017
 Electric vehicle sales (2019 – excluding Tesla*)	815	As compared to less than 2,000 total sales 2011 – 2018
 Total number of smart meters	Smart meters are now in place in all homes.	The Victorian Government completed the smart meter rollout between 20016 and 2014.
 IPART benchmark solar feed-in tariff rate: 2021-22	Flat rate: 6.7 c/kWh. Time-varying rate: 6.1-10.9 c/kWh	Decrease from 10.2 c/kWh and 9.1-12.5 c/kWh in 2020-21.
 Proportion of households who own their home (with or without mortgage) (2017-18)	68%	Decrease from 70% in 2015-16
 Proportion of households renting (2017-18)	29%	Increase from 28% in 2015-16
 Proportion of dwellings classified as 'flat or apartment' (2017-18)	9.1%	Increase from 8.8% in 2015-16
Consumer outcomes		
 Median market offer electricity bills (average income households, 2020)	AusNet Services: \$1,628 CitiPower: \$1,341 Jemena: \$1,346 Powercor: \$1,571 United Energy: \$1,448	As compared to 2017: AusNet Services: \$1,646 CitiPower: \$1,260 Jemena: \$1,303 Powercor: \$1,533 United Energy: \$1,340
 Proportion of residential customers receiving tailored assistance (June 2020)	Electricity: 1% Gas: 0.5%	Decrease from 2.6% (electricity) and 1.5% (gas) in 2017-18

*Tesla does not disclose local sales figures. Electric vehicle sales are sourced from the Electric Vehicle Council: State of Electric Vehicles 2020

A snapshot of the energy supply mix in Victoria



Large scale renewables have started to play an increased role in Victoria's energy supply profile – 6 wind farms and 5 solar farms have registered or been commissioned since July 2020.

Rooftop PV generation capacity is forecast to grow most significantly in Victoria, highlighting a shift towards consumer-owned renewable sources alongside large scale solar and wind projects.

Victoria is a net exporter of energy, having exported more energy than imported in 10 of the past 17 quarters since Q1 2017.

*Potential future generation mix' is sourced from AEMO: NEM Generation Information - July 2021, 2020 Inputs and Assumptions Workbook. It is the sum of existing generation + (committed projects + anticipated projects + proposed projects + network upgrades) - (committed and announced withdrawals and closures) + forecast capacity of rooftop solar PV, central scenario 2049-50.

Source: AER Wholesale Markets Quarterly Q1 2021 – Wholesale electricity markets data, May 2021.

Supply-demand outlook in Victoria

Supply outlook: new committed generation and retirements 2020-2030

September 2020 – Yatpool Solar Farm (94 MW)		
October 2020 – Berrybank Wind Farm (181 MW)		
November 2020 – Kiamal Solar Farm (200 MW)		
November 2020 – Lay Yang B Upgrade (45 MW)		
November 2020 – Bulgana Green Power Hub (20 MW)		
December 2020 – Bulgana Green Power Hub (204 MW)		
December 2020 – Moorabool Wind Farm (312 MW)		
December 2020 – Stockyard Hill Wind Farm (532 MW)		
March 2021 – Winton Solar Farm (85 MW)		
April 2021 – Cohuna Solar Farm (31 MW)		
April 2021 – Glenrowan Solar Farm (132 MW)		
Mid 2028 – Yallourn (1,480 MW)		

Based on committed generation and retirements included in AEMO's 2020 ES00:

- There are 1,771 MW of additional VRE capacity committed to come online.
- There is an additional 927 MW attached to VRE projects undergoing commissioning.

In March 2021, it was announced the Yallourn Power Station will close in mid 2028, four years earlier than scheduled.

- The Yallourn Power Station provides 1,480 MW of capacity and currently generates approximately 22% of Victoria's electricity.

DEMAND OUTLOOK

- Operational demand is forecast to decrease in the next 5-10 years, driven by increased uptake of rooftop PV. In the longer term it is forecast to increase due to increased EV charging loads.
- Maximum demand is expected to occur later in the day, increasing the evening peak.
- Minimum demand is forecast to decrease significantly in the next 5 years due to rooftop PV uptake, reaching negative levels by 2028-29. Beyond 2030, slowing uptake of rooftop PV and EV charging demand are forecast to offset this trend.

KEY INSIGHTS

- No reliability gap has been declared in Victoria. Following the announcement of the early retirement of the Yallourn Power Station, AEMO released updated forecasting which forecast a reliability gap against the Interim Reliability Measure to occur in Victoria in both 2028-29 and 2029-30.
- In the short term, increasing rooftop PV uptake without effective energy storage and limited offset EV charging demand may present minimum demand challenges.
- In the longer term, the retirement of coal generation may place pressure on the capacity of renewable generation to meet peak demand, with AEMO forecasting the early retirement of Yallourn to create unserved energy challenges in 2029 and 2030.

Victorian Neighbourhood Battery Initiative

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	The Neighbourhood Battery Initiative is a program of government funding to facilitate trials and pilots of new energy storage models relating to neighbourhood scale batteries that are connected in front of the meter to the electricity distribution network.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> Limited information on neighbourhood scale energy storage: at present neighbourhood scale battery business models are under-developed, creating a need to investigate the barriers and challenges to the successful deployment of neighbourhood batteries. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> To understand the benefits of different neighbourhood scale battery models, and determine which models maximise benefits to energy users. Inform and overcome barriers to the successful deployment of neighbourhood scale batteries. Inform regulatory reform. Support decarbonisation of the electricity system.

The Initiative itself is a trial program targeted at investigating the costs and benefits, and associated feasibility, of neighbourhood scale energy storage. As such, a formal cost benefit analysis has not been completed – and the Victorian Government has not provided a quantitative estimate of the expected benefits of the Initiative.

The following benefits of neighbourhood storage more broadly were noted:

- Network: managing voltage and demand, defer infrastructure upgrades
- Supporting solar integration: allow for the storage of solar generated energy
- Facilitate participation in the wholesale market
- Reliability in outage prone areas
- Virtual storage service: expand consumer access to the benefits of DER to people who may not otherwise be able to install these technologies

Expected costs:

- The Initiative is indicated to have a cost of \$3 million to be funded by the Victorian Government..

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

The Initiative targets the application of storage for systems ranging in power capacity from 100 kW to 5 MW. No specific capacity target is stated.

Type of incentive (Upfront or ongoing)

Funding under the \$3 million Initiative is to be dispensed as grants under two different streams:

- Project Development (funding of up to \$150,000)
- Implementation-ready projects (funding of up to \$800,000)

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
Consultation opened March 2021.	Successful applicants must complete their project by June 2022.	

Victorian Neighbourhood Battery Initiative

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Learning



- The Initiative is focused on learning outcomes regarding the models that best facilitate the integration of community scale storage.
- The Initiative is a small-scale trial-based program that is unlikely to significantly impact the national energy framework.
- Pending success of the Victorian Initiative and similar projects in other states, the national framework may require more significant reform with respect to issues such as access rights to neighbourhood storage and technical integration of the technology with distribution networks.

Policy review to date (if available)

The following risks and challenges were noted by the Victorian Government in the initial consultation paper published in March 2021:

Financial

- High capital cost of batteries.
- Revenue uncertainty: due to difficulty in forecasting market value streams.

Technical

- Technical equipment requirements for participation in FCAS markets.
- Metering and settlement issues.

Logistical

- Recruitment of participants for virtual storage model trials.

Regulatory

- Current electricity tariff arrangements are not designed to support two way electricity flows.
- Registration in market participant categories for provision of market services.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The Initiative is a relatively small-scale trial-based project and is therefore unlikely to have any significant initial impact on energy bills. In the longer term, neighbourhood storage has the potential to manage voltage and peak demand issues, deferring the costs associated with infrastructure upgrades and enabling consumers to save on bills through lower network charges.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Proposed community engagement strategy is a key criteria for assessing applicants.
- Project proposals will need to demonstrate that appropriate consumer protections are in place and that consumers are appropriately informed about the risks of participation.
- The participant interface with the battery and the extent to which consumers can engage and maximise their value from participation is a key consideration in assessing applicants.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The policy is targeted at storage in front of the meter, rather than at a specific household or business premises. In expanding consumer access to the benefits of DER through local energy models such as peer-to-peer trading and shared storage schemes – neighbourhood batteries may provide a platform for the more equitable distribution of benefits and correct for some equity barriers attached to accessing other forms of DER.

Victorian Default Offer

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	The Victorian Default Offer (VDO) regulates standing offer prices for electricity. Whilst it does not prevent retailers from making market offers above or below the VDO price, all Victorian electricity customers can choose to opt-in to the VDO.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The VDO was introduced following the Independent Review into Electricity and Gas Retail Markets which found that Victorians were paying more than they should for electricity, as part of the Victorian Government's Energy Fairness Plan, to make the electricity market simpler and more affordable for all consumers. The policy targets price gouging of customers and protecting customers who do not actively change or regularly review their energy provider from being moved from a competitive deal to a more costly standing offer. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> To provide a simple, trusted and reasonably priced electricity option that safeguards consumers unable or unwilling to engage in the electricity retail market. To promote the long-term interests of Victorian consumers, with regard to price, quality and reliability of essential services.

Stated benefits – annual electricity bills for customers on standing offers will fall (2019):

- Typical residential bills (customers on standing offers using 4000 kWh per year) will fall by \$310-\$450 relative to the median standing offer.
- Typical small business customers (using 20,000 kWh per year) would see their annual electricity bills reduce by \$1,380-\$2,050 relative to the median standing offer.

The expected regulatory costs:

of introducing the default offer are not stated, early evidence produced by the ACCC indicates that the introduction of the DMO and VDO do not appear to have resulted in increased market offer prices – indicating that concerns regarding retailers seeking to compensate for decreased standing offers via increased market offers have not yet resulted in increased costs to be recovered from energy customers on market offers.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

The VDO aims to reflect the efficient costs of a retailer, including a reasonable allowance for retail margin and customer acquisition and retention, the costs borne by retailers issuing standing offer contracts under the VDO will be recovered from energy customers.

Aim in investment stock (MW, MWh, type of generation)

N/A

Type of incentive (Upfront or ongoing)

Ongoing – The DMO is an ongoing pricing regulation, updated annually.

Timeline and key dates

Date of introduction
1 July 2019

Duration – permanent or temporary
Permanent – to be updated on an annual basis.

Any other relevant key dates
In November 2020, it was announced that the program will be extended with the Pumped Hydro Recoverable Grants Program.

Victorian Default Offer

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Solving



In setting its own default offer, Victoria has shifted from the national framework of the Default Market Offer (DMO) set by the AER. Whilst there are similarities between the VDO and the DMO, the methodology and objectives of the offers vary. The AER uses a price-based approach, where the DMO is the midpoint of median standing offers and median market offers, whilst the ESC has set the VDO using a bottom-up cost stack based methodology.

Policy review to date (if available)

The VDO is reviewed annually by the ESC. The methodology for calculating the VDO has remained largely unchanged from the initial 2019 instrument, with the 2020 and 2021 reviews focusing on updating the instrument for changes in market conditions.

- ACCC – Inquiry into the National Electricity Market – September 2020: The report aimed to assess the early effects of the DMO and VDO collectively, using data from 8.5 million electricity bills for 1.5 million customers between Q3 2018 and Q3 2019 across the DMO regions and Victoria. The report found:
- Median effective prices for standing offer customers decreased by 4.4% and 7.5% for residential and small business customers respectively.
- The median effective price paid by market offers fell by 1.4% – 7.6% and 1% – 3.7% for residential and small business customers respectively.
- Median market offers were 17% and 25% lower than median standing offers for residential and small business customers respectively.
- These early outcomes broadly indicate that the DMO and VDO are both operating to effectively achieve their objectives.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The Essential Services Commission estimates – a typical residential customer will save up to \$450 per year by switching from a standing offer to the VDO, and small business customers could save up to \$2,050 per year.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- If a customer was not on a simple standing offer prior to the introduction of the VDO, they can still opt in to be placed on the VDO.
- After a customer opts in to the VDO, they are able to leave at any time and access other offers in the market.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The VDO is available to residential and small business customers.
- The VDO applied to around 160,000 customers upon coming into effect in July 2019.

Solar Homes Program

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The Solar Homes Program assists Victorian households in accessing solar PV, solar hot water and solar batteries through the provision of rebates, which are deducted from the cost of the overall system and installation. A range of criteria apply to determine if a household is eligible to receive a rebate under the program.</p>
Stated objectives	<p>What are the objectives set out for the policy to address this</p> <p>The Victorian Government's stated objectives are to help Victorian households:</p> <ul style="list-style-type: none"> • take charge of their power bills; • adopt renewable energy; and • provide a cleaner, better future. <p>Other objectives include:</p> <ul style="list-style-type: none"> • Increase solar PV uptake from households without existing systems. • Facilitate access to the benefits of renewable technology for rental tenants.

Benefits:

- The program will provide rebates and interest-free loans to facilitate the uptake of solar PV, solar hot water and solar batteries in 778,500 Victorian households.

Costs:

- In August 2018, the Victorian Government made a \$1.3 billion commitment over 10 years, plus the program received a \$191 million expansion as part of the 2020/21 Victorian State budget.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

The program does not offer a specific capacity target, from August 2018 to March 2021 – 785 MW of solar panel capacity was installed under the program.

Type of incentive (Upfront or ongoing)

Upfront - the rebate is deducted from the cost of the overall system and installation. Interest free-loans are also available under the program – which must be paid back over a four year period.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
Announced in August 2018	Temporary – 10 year duration	

Solar Homes Program

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Enabling

- The policy aims to remove financial barriers attached to uptake of solar PV uptake in the market. The program does not conflict with the approaches of other jurisdictions, the Small-scale Renewable Energy Scheme is an example of a similar policy at the national jurisdictional level, whilst multiple other states also have similar schemes in place that offer financial incentives for energy users to take up various forms of small scale DER.

Policy review to date (if available)

Victorian Auditor General's Office – Delivering the Solar Homes Program – June 2021

The Victorian Auditor General's Office independent examination of the Solar Homes Program findings included:

- Victoria's electricity grid was not designed to accommodate high levels of DER, including energy exported from solar PV. The total unmitigated impact of the Solar Homes Program on the grid would cost consumers up to \$320 million, to date, Solar Victoria has not sufficiently addressed these challenges or mitigated their risks.
- A lack of planning prior to implementation resulted in oversubscription for the available rebates in the early stages of the program's life, leaving some consumers unable to access the Program's benefits.
- The program delivery agency, Solar Victoria, is not yet able to report to what extent the program has reduced consumers' bills and carbon emissions.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The policy is expected to reduce the upfront cost of solar technology through rebates, and reduce power bills for those households who take up solar technology through the program.

Savings to date:

- An average of \$1,073 per year for household installs to March 2021.
- Expected savings of up to \$649 per year for battery system installations.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Participation in the program is voluntary.
- The program functions through authorised solar retailers, with rebates being claimed by solar retailers on the consumer's behalf. This allows consumers to access rebates under the program whilst also accessing a range a solar PV retail offers in the market.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The eligibility criteria for rebates is based on household income to facilitate access for consumers that may not have the financial means to access solar technology.
- Under the solar for rentals stream, the program allows for a Solar Homes Landlord-Tenant Agreement to allow renters to access the benefits of solar PV. Landlords receive the rebate on solar technology as an improvement to their rental property, whilst tenants benefit via reduced energy bills.

Renewable Energy Zones Development Plan

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Victorian Government has committed to the development of six Renewable Energy Zones (REZs) identified by AEMO in the ISP. REZs refer to areas of abundant renewable energy resources, with appropriate transmission capacity connected. The development of REZs form a significant part of the Victorian Government's energy strategy in the transition to renewable energy. New and augmented transmission infrastructure is key to the delivery of Victorian REZs, legislation introduced by the Victorian Government in February 2020, the National Electricity (Victoria) Amendment Act 2020, enables the state to fast-track investments in transmission infrastructure by making an order to modify or disapply parts of the national regulatory framework.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> • The unreliability and retirement of aging coal-fired power stations • The need to increase the share of renewable energy generation in Victoria in pursuit of the Victorian Renewable Energy Target (VRET) of 50% by 2030. • The need for timely transmission network upgrades to facilitate the development of REZs, and the challenges in achieving this under the national regulatory framework. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Provide for the orderly, planned development of renewable energy resources. • Efficiently and effectively expand the grid and connect new generation. • Reduce network congestion and costs.

Expected benefits:

- Unlock 10 GW of new renewable energy capacity in Victoria.
- Contribute to the achievement of decarbonisation targets in Victoria.
- Broader benefits to local economic development.

Expected costs:

- The Victorian Government has made a \$540 million REZ Fund available to assist in financing network investments.
- The total cost of implementing REZs has not been confirmed.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Costs may be recovered from either taxpayers or beneficiaries (renewable energy projects and generators), the Victorian Government has sought feedback on the appropriate cost recovery models for funding from the REZ Fund.

Aim in investment stock (MW, MWh, type of generation)

The REZ Development Plan will unlock 10 GW of renewable energy capacity in Victoria, increasing the total capacity of Victoria REZs to 16 GW.

Type of incentive (Upfront or ongoing)

N/A

Timeline and key dates

Date of introduction

November 2020 – Introduced in Victorian State Budget

February 2021 – Directions paper released

Duration – permanent or temporary

The REZ Development Plan considers two streams of projects:

- Stage 1: priority projects to be completed by 2025.
- Stage 2 projects: medium term projects expected to be delivered in the next 2-7 years.

Any other relevant key dates

Further details are expected to be announced in the second half of 2021 regarding a REZ Implementation Plan, and the establishment of VicGrid.

Renewable Energy Zones Development Plan

Applying our framework to the jurisdictional policy

Scope of the intervention

Solving



- The development of REZs are a significant intervention to address supply-side concerns in the Victorian energy market, and will have a wide reaching impact on investment in both generation and transmission infrastructure in Victoria. Furthermore, the National Electricity (Victoria) Amendment Act 2020 represents a material move away from the national regulatory framework, addressing concerns with respect to the ability of the NEL and NER to operate to effectively facilitate timely transmission investment.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

Through improving the efficiency of investment and facilitating the entry of lower cost renewable generation, cost reductions are expected to flow through to result in lower energy bills for consumers.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Consumers and consumer groups were able to make written submissions to the REZ Development Plan before 31 March 2021.
- Projects considered for funding from the REZ Fund will be assessed against in the context of the priorities of local communities.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The policy relates to network scale generation and transmission infrastructure developments rather than directly to consumers, its objectives are broadly targeted at achieving better outcomes for all energy consumers.

Victorian Energy Upgrades Program

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The Victorian Energy Upgrades Program (previously the 'VEET scheme') provides households and businesses access to discounted energy efficient products and services. Discounts are available on a range of equipment, including space heating and cooling, water heating, draft sealing, refrigeration, motors, water heating and heating and cooling systems. Accredited providers that deliver financial incentives generate Victorian Energy Efficiency Certificates based on greenhouse gas savings associated with the product or service, which can be sold to energy retailers; energy retailers have a legal obligation to surrender a certain number of certificates each year to meet greenhouse gas reduction targets sets by the program. Following the 2020-21 Victorian State Budget, new subsidies will be introduced to the program relating to smart technology, including smart thermostats, home and commercial energy management systems, smart water and space heating.</p>
Stated objectives	<p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> The stated purpose for the initial legislation (Victorian Energy Efficiency Target Act 2007 - amended in March 2019) under which the program was established was to promote the reduction of greenhouse gas emissions, by providing for the creation, acquisition and surrender of energy efficiency certificates. The objectives of the legislation were to reduce greenhouse gas emissions, encourage the efficient use of electricity and gas, encourage investments, employment and technology development in industries that supply goods and services which reduce the use of electricity and gas by consumers.

Historic and expected benefits:

Since 2009 the program has supported over 1.8 million households and over 100,000 businesses to upgrade appliances and equipment, and facilitated the introduction of over 16,000 energy saving products to the market. The program has reduced Victoria's greenhouse gas emissions by over 60 million tonnes, saved \$4 billion in energy system costs. Energy savings targets set under the program increase each year from 2021-2025 – expected to reduce Victoria's energy consumption by 7% in 2025, and deliver 28 million tonnes of greenhouse gas emissions savings between 2022 and 2025.

Expected costs:

- The 2020-21 Victorian State Budget allocated \$17 million of funding to support the program over the next four years, a separate \$9 million initiative will provide grants to support small and medium sized businesses in participating in the VEU program, including those impacted by COVID-19.

Method of cost recovery

- ENERGY CUSTOMER
 TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

Energy efficiency targets are set based on emissions savings – the target for 2021 is 6.5 million tonnes of CO2 greenhouse gas abatement.

Type of incentive (Upfront or ongoing)

Upfront - the program provides an upfront incentive for households and businesses by providing discounts on energy efficient technology. For accredited providers – certificates for eligible activities can be generated at any time and transferred to a buyer in the open VEEC market. Retailers must surrender certificates equal to their liability on an annual basis.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
First established in 2009	Permanent	

Victorian Energy Upgrades Program

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Enabling

- The program is designed to facilitate uptake of energy efficient products in the market, as well as regulate retailers to assist in the achievement of energy efficiency targets. The mechanism the program engages is to remove financial barriers in the market by subsidising the cost of energy efficient technology to facilitate households and businesses to access this technology.
- The Victorian program is similar to those applied in other jurisdictions, for example the NSW Energy Savings Scheme and SA Retailer Energy Efficiency Scheme.

Policy review to date (if available)

VEET Guidelines Review 2019

The ESC undertook a review of the legislation governing the Victorian Energy Upgrades Program in 2019. Key amendments included:

- Changing the Register of Products' requirements.
- Allowing the ESC to set requirements for certain installations (e.g. minimum standards).
- Confirming the ESC's power to require accredited providers to provide certain training and use licensed installers.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

Households who participate in the program are expected to save, on average, \$120 per year. Businesses who participate in the program are expected to save more than \$500 per year.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Consumers are able to view accredited providers and discuss the available energy saving products and offers with them, and make a decision on the upgrade to be installed by which accredited provider.

Consumers and stakeholders have confidence that the energy system is designed for all consumers














Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The program is designed to deliver system-wide benefits to all Victorian energy users, by avoiding the need for grid upgrades and lowering wholesale electricity and gas prices.
- With the exception of approximately 100 businesses who represent Victoria's largest energy users, who must opt-in to the program by advising the ESC of their intention, the program is available to all Victorian households and businesses.

An aerial photograph of a large-scale solar farm, showing rows of solar panels stretching across a landscape. The image is overlaid with a semi-transparent map of Queensland, Australia, which is centered on the word "QUEENSLAND". The background has a color gradient from dark blue on the left to dark red on the right.

QUEENSLAND

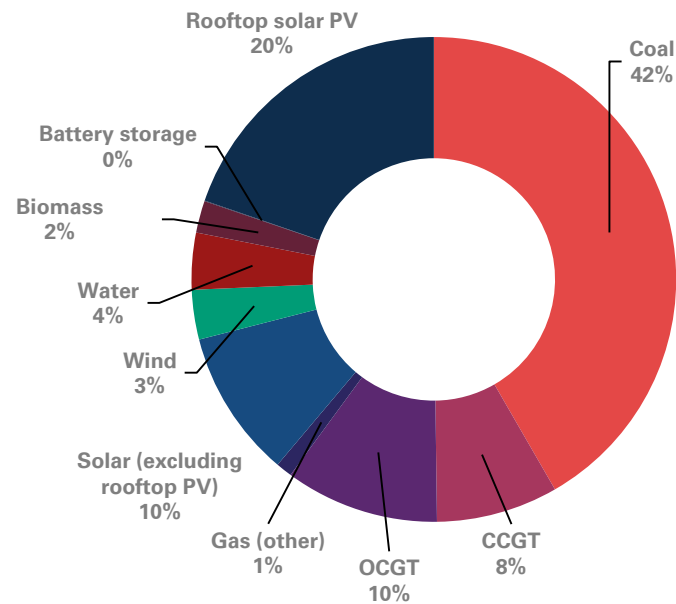
A snapshot of household outcomes in Queensland

Key category	QLD outcome	Trend
DER penetration and the potential for demand flexibility		
 Percentage of households with solar PV	39.6%	Increase from 30% in December 2018
 Number of households with battery storage	7,736	Increase from 1,415 in 2017
 Total capacity of installed rooftop PV (0 – 100 kW)	3,847 MW	Increase from 1,979 MW in 2017
 Total capacity of installed behind the meter storage	82,210 kVAh	Increase from 14,074 kVAh in 2017
 Electric vehicle sales (2019 – excluding Tesla*)	450	As compared to approximately 1000 total sales 2011-2018
 Total number of smart meters	Approximately 375,000	Increase from approximately 70,000 in 2017
 IPART benchmark solar feed-in tariff rate: 2021-22	No regulated feed-in tariff in SEQ	–
 Proportion of households who own their home (with or without mortgage) (2017-18)	63%	Decrease from 65% in 2015-16
 Proportion of households renting (2017-18)	36%	Increase from 33% in 2015-16
 Proportion of dwellings classified as 'flat or apartment' (2017-18)	9.9%	Increase from 8.6% in 2015-16
Consumer outcomes		
 Median market offer electricity bills (average income households, 2020)	Energex: \$1,528 Ergon: \$1,860	As compared to 2017: Energex: \$1,842 Ergon: \$2,040
 Proportion of residential customers on a hardship program	0.9%	No change from 0.9% in 2017-18
 Proportion of residential customers on payment plans	1.3%	Decrease from 1.6% in 2016-17

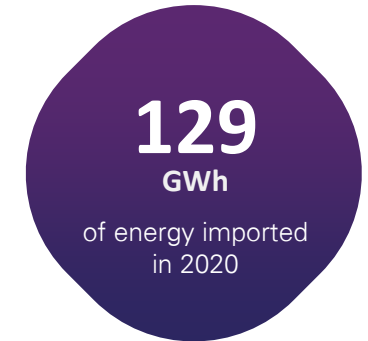
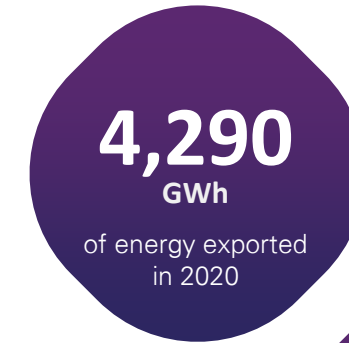
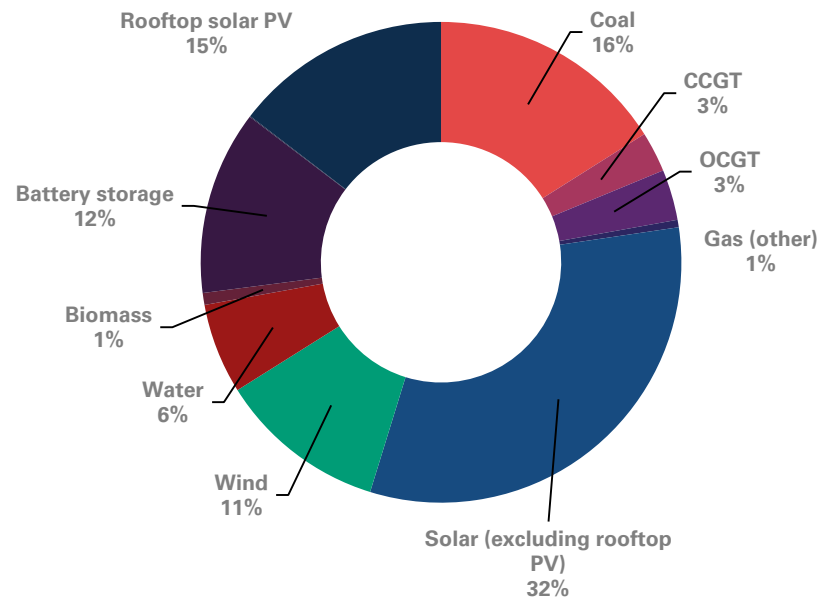
*Tesla does not disclose local sales figures. Electric vehicle sales are sourced from the Electric Vehicle Council: State of Electric Vehicles 2020

A snapshot of the energy supply mix in Queensland

EXISTING GENERATION MIX



POTENTIAL FUTURE GENERATION MIX*



Coal-fired generation remains the most significant source of supply in Queensland. Rooftop PV penetration is also a large contributor in Queensland's supply mix.

Large-scale solar PV projects are a key aspect of Queensland's renewable energy transition strategy, whilst a large portion of current coal generation is expected to be retired between 2035 and 2050.

Queensland is a net exporter of energy, having exported more energy than imported in all 17 of the past 17 quarters since Q1 2017.

*Potential future generation mix' is sourced from AEMO: NEM Generation Information - July 2021, 2020 Inputs and Assumptions Workbook. It is the sum of existing generation + (committed projects + anticipated projects + proposed projects + network upgrades) - (committed and announced withdrawals and closures) + forecast capacity of rooftop solar PV, central scenario 2049-50.

Source: AER Wholesale Markets Quarterly Q1 2021 - Wholesale electricity markets data, May 2021.

Supply-demand outlook in Queensland

Supply outlook: new committed generation and retirements 2020-2030

Proposed additions to Queensland's generation mix

In addition to the above renewable generation classified by AEMO as 'committed' as at August 2020, Queensland is pursuing significant further renewable generation projects – with just under 18,000 MW of additional generation capacity to be contributed by proposed projects.

Large-scale solar appears likely to underpin Queensland's future renewable generation mix, with projects representing approximately 11,600 MW of solar generation capacity being proposed and publicly announced as at May 2021.

Callide B Power Station

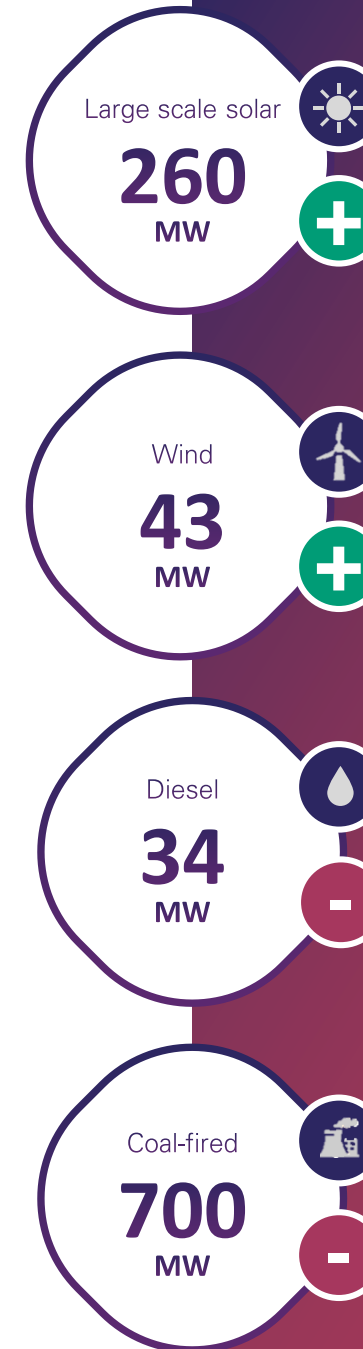
The most significant change to Queensland's generation mix in the next 10 years is the closure of the Callide B coal-fired generator, representing 700 MW of capacity removed from Queensland's energy supply.

The retirement is currently scheduled for 2028, and will increase the reliance on intermittent renewables to meet demand, particularly in peak times.

Queensland REZs

AEMO has identified eight potential REZs in Queensland in the 2020 ISP, noting that achieving the QRET will require approximately 5.1 GW of additional large scale VRE capacity, the Queensland Government has committed \$154 million to establish three REZs.

Augmentations to transmission infrastructure will be necessary to enable such significant increases in generation capacity, whilst the implementation of energy storage may reduce the level of network investment required.



DEMAND OUTLOOK

- Operational demand is forecast to increase in the next 20 years, driven primarily by electric vehicle uptake, although offset by ongoing uptake of rooftop PV and energy efficiency improvements.
- Maximum demand is forecast to increase in the next 20 years, and shift to later in the evening. This is driven by an expected increase in non-coordinated EV charging, at times after sunset where solar PV will not offset demand.
- Minimum demand is forecast to decline steadily over the next 15 years, before stabilising after 2035 as EV uptake is forecast to increase.

KEY INSIGHTS

- AEMO has not forecast reliability issues to arise in Queensland between 2020 and 2030.
- Following the scheduled closure of Callide B, some instances of unserved energy may arise, but remaining below the Interim Reliability Measure.
- A significant amount of additional renewable capacity in committed and proposed projects indicates that Queensland is likely to have sufficient supply to replace ageing thermal generators and achieve the Queensland Renewable Energy Target.
- As the load curve shifts and minimum and maximum demand levels fall and rise respectively, energy storage capacity and effective transmission infrastructure will become increasingly important in ensuring demand can be met and system security maintained.

Solar 150

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>An initiative of the Queensland Government, in conjunction with funding dispensed by ARENA, to support up to 150 MW of solar power generation through the development of large-scale solar energy projects in Queensland. The program supports four solar generation projects through long-term revenue guarantees. The initiative has supported the following projects: Whitsunday Solar Farm (58 MW), Kidston Solar Project (50 MW), Oakey Solar Farm (25 MW), Longreach Solar Farm (15 MW).</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve? Risks and obstacles attached to large-scale solar projects – particularly long-term income certainty.</p> <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Encourage new large-scale renewable energy projects in Queensland. • Reduce the cost and risk of future renewable energy projects by demonstrating financial and technology feasibility. • Provide tangible learnings across development and supply chains to facilitate future renewable energy developments.

Expected benefits:

- Under the broad scheme of 12 projects funded by ARENA – the 12 projects are expected to triple the amount of electricity produced from large-scale solar in Australia and unlock almost \$1 billion in commercial investment in technology. The 12 projects add almost 500 MW of new generation – the Solar 150 Program provides revenue guarantees to 4 of these projects representing 150 MW of generation.

Generation benefits of each supported project:

- Kidston project benefits – 145,000 MWh generated per year, power 26,000 average Australian homes, offsets 120,000t of CO2 per year.
- Oakey project benefits – power 7,835 average Australian homes.
- Whitsunday Solar – power 31,000 average Australian homes.
- Longreach project benefits – power 5,000 average Australian homes.

Expected costs:

- the contractual obligations of the state over the life of the agreement amount to a liability of \$121.2 million.

Method of cost recovery

- ENERGY CUSTOMER
 TAXPAYERS

the liability of \$121.2 million is held by the Department of Natural Resources, Mines and Energy.

Aim in investment stock (MW, MWh, type of generation)

The project commits to supporting up to 150 MW of solar generation in Queensland.

Type of incentive (Upfront or ongoing)

Ongoing – the Queensland Government guarantees a minimum level of revenue over a 20 year period.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
First revenue guarantee signed in December 2016.	Temporary - successful projects receive long-term revenue contracts with a 20-year revenue guarantee.	

Solar 150

Applying our framework to the jurisdictional policy

Scope of the intervention

Learning and Enabling



- The Solar 150 Program is only a small component of the broader solar PV competitive funding round conducted by ARENA.
- The program acts as an enabling tool to reduce the risk borne by large-scale solar PV projects, by providing financial certainty.
- The program aims to some extent to inform and facilitate future renewable energy developments, therefore serving a learning purpose.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The project is expected to reduce the costs and financial risks borne by generators, by transferring these costs and risks to the Queensland Government. Furthermore, a broader long-term goal to secure electricity supply as the transition to renewables progresses may reduce network costs borne by consumers in electricity bills.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The policy does not include any measures directly targeted at the role of the consumer.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The policy is focused on generation – it has no direct measures to govern how energy generated will be distributed through the network to end consumers.

CleanCo

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>CleanCo Queensland Limited is a government-owned corporation established in 2018 as part of a restructure of government-owned generators under the Queensland Government's Powering Queensland Plan. CleanCo was established to operate Queensland's existing renewable and low-emissions energy generation assets and develop new renewable energy projects. CleanCo builds, owns and operates its own assets, as well as investing in new renewable projects driven by others. CleanCo also operates as a retailer, exclusively for commercial and industrial energy customers.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>CleanCo was established in respect of the challenges of climate change and meeting the Queensland Government's Renewable Energy Target (50% renewable energy generation capacity by 2030).</p> <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Affordability – place downward pressure on wholesale prices, particularly during peak periods. Reliability and security – support the provision of a secure and reliable electricity supply during peak periods. Sustainability – facilitate the development of new renewable energy projects, to support the delivery of renewable energy targets.

<p>Expected benefits of establishing CleanCo:</p> <ul style="list-style-type: none"> Estimated reduction of \$7/MWh in wholesale electricity prices. CleanCo has a target to support 1,000 MW of new renewable generation by 2025. 	<p>Costs:</p> <ul style="list-style-type: none"> CleanCo reported establishment costs of \$4.92 million in the 2018-19 financial year, and \$5.80 million in 2019-20. 	<p>Method of cost recovery</p> <p><input type="checkbox"/> ENERGY CUSTOMER <input type="checkbox"/> TAXPAYERS</p> <p>CleanCo is incorporated as a public company, established as a government-owned corporation, with all shareholding held by the State of Queensland.</p>
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Aim in investment stock (MW, MWh, type of generation)

CleanCo's initial target is to support 1,400 MW of renewable generation by 2025.

Type of incentive (Upfront or ongoing)

Ongoing - CleanCo achieves its objectives by investing in new renewable projects, as well as building, owning and operating their own assets.

Timeline and key dates

<p>Date of introduction</p> <p>October 2018 – CleanCo Queensland Limited incorporated under the Corporations Act 2001.</p>	<p>Duration – permanent or temporary</p> <p>Permanent.</p>	<p>Any other relevant key dates</p> <p>October 2019 – Commenced trading in the NEM.</p>
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CleanCo

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

The establishment of CleanCo was driven by an intention to integrate the operation of Queensland's existing renewable assets, as well as provide a Government owned body to invest in and operate new renewable projects, targeted at achieving Queensland's existing renewable energy targets. As such, CleanCo does not represent a significant shift in the direction of Queensland's energy policy, but rather centralising its management.

ARENA performs a similar function at the national level, however the operation of ARENA focuses on investment and grant funding to support renewable energy projects, with a focus on a broader range of innovative and emerging technologies.

Policy review to date (if available)

The most recent assessment of CleanCo's performance is available in its FY2019-20 Annual Report. In this report, CleanCo addresses its progress against milestones outlined in its Statement of Corporate Intent:

- All milestones relating to the establishment of CleanCo in areas such as: obtaining government approval to build, own and operate renewable assets, obtaining relevant licenses to operate in the NEM, finalising transfer of foundation assets and recruitment of senior management were deemed as complete or on target.
- Financial targets set for FY20 were largely not met, particularly in regard to gross profit, EBITDA and NPAT. CleanCo noted the impact of fallen demand in FY20 due to the combined impacts of increasing solar PV penetration and decreased commercial and industrial loads due to COVID-19 restrictions.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The Government's preliminary analysis indicates CleanCo would reduce wholesale electricity prices by around \$7/MWh, expected to translate to a saving of approximately \$70 per annum for the average household.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The retail component of CleanCo's operations is targeted at providing tailored energy solutions for large commercial and industrial customers.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

CleanCo's objectives are targeted at delivering large scale generation projects, which aim to benefit all customers via reduced wholesale prices.

Access to the retail component of CleanCo's operations is exclusive to large commercial and industrial customers.

Renewables 400

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Queensland Government conducted a reverse auction for up to 400 MW of renewable energy capacity, including 100 MW of energy storage; where projects bid the lowest price for which they are prepared to provide electricity, to be awarded power purchase agreements (PPAs) for some or all of the electricity they generate. The auction was open for bid applications from renewable energy, standalone energy storage and integrated renewable and energy storage projects. In March 2020, Acciona won the entirety of the auction capacity offered under the scheme for the Macintyre Wind Farm, CleanCo entered into a PPA with Acciona to support 400 MW of new capacity at the Macintyre Wind Farm.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>The auction is one of a number of measures targeted at supporting new renewable generation capacity to meet Queensland’s 50% renewable energy target by 2030.</p> <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Diversify the sources of Queensland’s electricity generation. • Support system security and reliability. • Accelerate the deployment of energy storage in Queensland. • Support local business and employment. <p>The provision of PPAs intends to provide projects long-term financial certainty to allow them to secure the financing required to deliver the project.</p>

Expected benefits:

- The total 1,026 MW capacity of the Macintyre Wind Farm is expected to supply energy to 700,000 households – 400 MW of the total generation capacity is attached to the PPA under the Renewables 400 scheme.

Expected costs:

- The total investment in the Macintyre Wind Farm precinct is \$1.96 billion, representing 1,026 MW of generation of which 400 MW is attached to the Renewables 400 program. The exact price at which CleanCo and Acciona are contracted via the reverse auction remains confidential.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

The financial burden under the PPA sits with CleanCo, a government-owned corporation.

Aim in investment stock (MW, MWh, type of generation)

The policy will support 400 MW of renewable generation.

Type of incentive (Upfront or ongoing)

Ongoing – the Renewables 400 program provides a PPA with CleanCo to successful projects, which locks in a price for renewable energy generated by successful projects.

Timeline and key dates

Date of introduction August 2017	Duration – permanent or temporary Temporary – the Macintyre Wind Farm successfully secured the 400 MW of capacity in March 2020.	Any other relevant key dates
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Renewables 400

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

- The policy provides financial certainty to large scale renewable energy projects to allow them to secure the necessary financing to fully execute the project, hence, the program is targeted at providing support and removing barriers to allow projects to become technically and financially feasible, i.e. for the market to resolve the problem.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

Data on the winning bid price by Acciona in the tender has not been disclosed – but the reverse auction process indicates the Macintyre Wind Farm will generate energy at a highly competitive price, suggesting it should broadly contribute to competition in the wholesale market and lower energy bills.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The program selects projects solely on price using a reverse auction mechanism with no measures related to customer engagement.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The policy is targeted at large-scale renewable generation, with no direct focus on any specific consumer group.

Wandoan South Battery Energy Storage System

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Queensland Government is supporting Vena Energy’s Wandoan South Battery Energy Storage System (BESS) project. The project will be the first to connect a large-scale battery directly to Queensland’s grid, with a capacity approximately 25 times larger than the largest battery currently operating in Queensland. Government-owned Powerlink is working with Vena Energy to support the connection of the project to the transmission network nearing completion at Wandoan.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>As Queensland pursues a renewable energy target of 50% by 2030, and a significant amount of large-scale intermittent generation capacity connects to the grid, storage will be vital to the operation of the energy system, particularly when the sun isn’t shining and large-scale solar is not generating energy.</p> <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Deliver cleaner, cheaper and reliable energy to Queenslanders even when the sun isn’t shining. • Provide a storage solution to support the continued uptake of renewables. • Lead in developing a pathway for investment in renewable energy.

Expected benefits:

- The battery is indicated to have the capacity to power up to 57,000 average homes annually.
- Facilitate future renewable energy generation.
- Assist with system stability by providing ancillary services and dispatchable energy supply during periods of high demand.

Expected costs:

- The battery has a construction budget of \$120 million.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Vena Energy has signed a contract with AGL for the BESS’ dispatch rights.

Aim in investment stock (MW, MWh, type of generation)

The BESS will have a discharge capacity of 100 MW and storage capacity of 150 MWh.

Type of incentive (Upfront or ongoing)

Government-owned Powerlink will support the project by facilitating connection of the battery to the Wandoan South Substation, connecting the battery to the necessary transmission infrastructure to connect it with Queensland’s grid.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
Government support of the project was announced in May 2021.	Permanent.	The battery is expected to reach commercial operation in Q3 2021.

Wandoan South Battery Energy Storage System

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Enabling

- The Wandoan BESS is primarily a project initiated by the market.
- By facilitating connection of the battery to Queensland’s energy grid, the Queensland Government has removed a barrier to allow the benefits derived from the battery’s energy storage capacity to be maximised and distributed across Queensland.

Policy review to date (if available)

No policy review has been conducted.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

Vena Energy or the Queensland Government have not estimated a dollar value reduction in annual energy bills, however the project is broadly stated to result in cheaper energy.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The project focusses on the network and wholesale sectors, with no direct measures for consumer involvement.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The policy is broadly targeted at improving the reliability and affordability of Queensland’s energy supply.

Renewable Energy and Hydrogen Jobs Fund

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Queensland Government will invest \$2 billion in a Renewable Energy and Hydrogen Jobs Fund, as part of the Queensland Jobs Fund introduced to support new jobs in the recovery from COVID-19. The fund will encourage investment in the renewable energy and hydrogen industries, and support associated industries manufacturing key inputs in the renewable energy supply chain. The initiative represents an extension of the existing \$500 million Queensland Renewable Energy Fund.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve? Delivery of Queensland's Renewable Energy Target of 50% by 2030.</p> <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Provide cheaper, cleaner energy through investment in local manufacturing of renewables and hydrogen. • Powering more jobs and more industries through developing projects in Queensland's hydrogen and renewable industries. • Supercharging Queensland's resources sector through facilitating an increased demand for materials such as cobalt, copper and nickel used in the manufacturing of clean energy resources such as batteries, electric vehicles and solar panels.

Expected benefits:

- Facilitate the achievement of Queensland's Renewable Energy Target.
- Drive growth in renewable energy assets in Queensland.
- Improve certainty of energy reliability and affordability as the energy transition progresses, and free up gas to be used in industrial manufacturing.
- Support local manufacturing of key renewable energy resources, including for Queensland to play a role in supplying hydrogen to the global market.

Expected costs:

- \$2 billion will be provided by the Queensland Government to establish the fund.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

The Queensland Government does not provide a specific target for total renewable capacity supported by the fund.

Type of incentive (Upfront or ongoing)

Upfront and ongoing – the fund may be used to finance upfront or ongoing investments in renewable energy projects or manufacturing in Queensland.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
June 2021	The duration over which the available funds will be dispensed is unclear, the renewable energy target date of 2030 may be a key milestone.	

Renewable Energy and Hydrogen Jobs Fund

Applying our framework to the jurisdictional policy

Scope of the intervention

Solving



The intervention involves a significant financial investment of \$2 billion. The funding will drive outcomes across Queensland's energy system, aiming to develop Queensland's emerging hydrogen industry, as well as likely support a large number of new renewable generation assets. Over the duration of the funding being disbursed, the intervention is likely to contribute to significant shifts in Queensland's generation mix, contributing to a move away from thermal generation and towards renewable sources.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

In supporting additional renewable generation capacity, the fund aims to reduce wholesale prices in Queensland, therefore aiming to reduce energy bills for consumers.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The policy does not include any direct measures for consumer engagement at this stage, although further opportunities for consumer engagement may arise as funding begins to be disbursed.

Consumers and stakeholders have confidence that the energy system is designed for all consumers














Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The policy is not targeted at any specific group of consumers, rather aiming to increase supply in Queensland's wholesale market to deliver cleaner and cheaper energy for all consumers.

An aerial photograph of a large-scale solar farm, showing rows of solar panels stretching across a landscape. The image is overlaid with a semi-transparent map of Australia, with the Western Australia region highlighted in white. The text 'WESTERN AUSTRALIA' is written in white, bold, uppercase letters across the map.

WESTERN AUSTRALIA

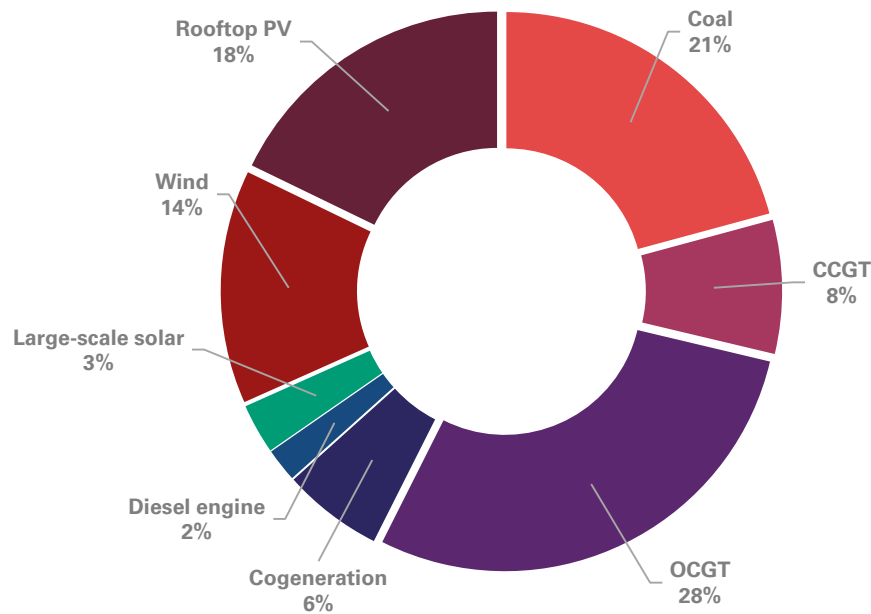
A snapshot of household outcomes in Western Australia

Key category	WA outcome	Trend
DER penetration and the potential for demand flexibility		
 Percentage of households with solar PV	33.4%	Increase from 26% in December 2018
 Number of households with battery storage	2,171 installed since 2014	Increase from 711 from 2014-2018
 Total capacity of installed rooftop PV (0 – 100 kW)	1,715 MW	Increase from 856 MW in 2017
 Total capacity of installed behind the meter storage	Not available	–
 Electric vehicle sales (2019 – excluding Tesla*)	212	As compared to less than 600 total sales 2011 – 2018
 Total number of smart meters	Not available	Western Power will install 238,000 between 2019 and 2022
 IPART benchmark solar feed-in tariff rate: 2021-22	Peak: 10 c/kWh. Non-peak: 3 c/kWh	For installations prior to 6 November 2020; customers in the SWIS with Synergy receive 7.135 c/kWh
 Proportion of households who own their home (with or without mortgage) (2017-18)	70%	Increase from 69% in 2015-16
 Proportion of households renting (2017-18)	28%	Decrease from 29% in 2015-16
 Proportion of dwellings classified as 'flat or apartment' (2017-18)	5.6%	Increase from 4.7% in 2015-16
Consumer outcomes		
 Median market offer electricity bills (average income households, 2020)	\$1,566	Residential electricity prices for the representative consumer in the SWIS increased by 7% from 2017-18 to 2018-19
 Proportion of residential customers on a hardship program	2.9%	Remained between 2.21% and 3.36% between 2016-17 and 2019-20
 Proportion of residential customers on payment plans	30,417	Between 21,948 and 35,218 between 2016-17 and 2019-20

*Tesla does not disclose local sales figures. Electric vehicle sales are sourced from the Electric Vehicle Council: State of Electric Vehicles 2020

A snapshot of the energy supply mix in Western Australia

2020 GENERATION MIX



Gas-fired generation remains the largest capacity provider, whilst the transition to renewables is being driven by rooftop PV, accounting for more than half of WA's renewable capacity

Under 2020 Whole of System Plan modelling:

- Wind is the preferred form of new large-scale generation – additional new wind facilities are forecast to provide between 60 MW and 3,002 MW by 2030 across different scenarios. No new large-scale solar PV is forecast to be in the lowest cost to supply energy mix before 2030.
- No new thermal generation is forecast under the two lower demand scenarios, between 667 MW and 867 MW of new gas-fired generation is required by 2030 under the higher demand scenarios.
- The increasing penetration of rooftop PV will place more pressure on the viability of coal-fired generation, as reduced output required from coal-fired plants will result in more frequent shut-down and restart procedures.
- An opportunity for batteries is identified by the modelling, particularly beyond 2030 where large-scale energy storage is forecast to play a more prominent role in addressing higher levels of operational demand.

DER Roadmap

- The DER Roadmap is likely to contribute to an increasing role of DER; including rooftop PV, energy storage, electric vehicles and demand management technology.
- Through actions under the Roadmap, the WA Government is targeting for this impact to be realised in the relatively short term, by 2025.

Announced scheduled retirements:

- Muja C (392 MW) will be retired by the end of 2024

Therefore, the South West Interconnected System cannot import energy from other states during periods of high demand or export energy during periods of low demand.

The Wholesale Electricity Market in Western Australia operates independently from states in the National Electricity Market.

The SWIS must be self-sufficient in meeting its energy needs through energy generated within WA. Ensuring that WA's generation mix can provide secure and reliable generation to meet consumers' needs is particularly important given that the WEM is unable to rely on imports from other states.

'2020 Generation Mix' is sourced from the 2020 Whole of System Plan, pg. 10.

Supply-demand outlook in Western Australia

Supply outlook: new committed generation and retirements included in AEMO/WOSP modelling

The reliability standard in the Wholesale Electricity Market

The reliability standard used in the Wholesale Electricity Market (WEM) is called the Planning Criterion, it requires sufficient capacity to be available to meet the following requirements:

- The 10% probability of exceedance peak demand forecast under the expected demand growth scenario, plus allowances for intermittent loads, frequency control, and a reserve margin.
- Limit expected unserved energy to 0.002% of forecast expected unserved energy (in line with the reliability standard used for NEM states).
 - These two parameters are used to set a Reserve Capacity Target for each year of the planning horizon.

Greenough River Solar Farm expansion
(30 MW) – commissioning complete in 2020

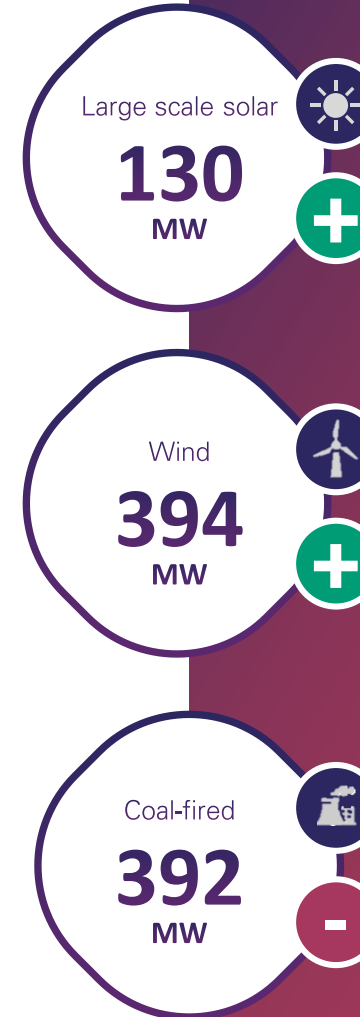
Merredin Solar Farm
(100 MW) – reached full capacity in 2020

Warradarge Wind Farm (180 MW) – reached full operation in October 2020

Yandin Wind Farm
(214 MW) – officially opened in May 2021

Muja C Power Station

The retirement of Muja C (392 MW) has been announced by the WA Government to occur in two phases, being completed by 2024.



DEMAND OUTLOOK

- Operational consumption is forecast to remain relatively flat over the next 10 years, with growth in underlying demand being offset by increasing rooftop solar PV uptake behind the meter.
- Peak demand is not forecast to change significantly in the next 10 years, being forecast by AEMO to fall for the first time, at an average annual rate of 0.2%, attributed to the continued uptake of rooftop solar PV combined with battery storage installations and energy efficiency. Peak demand is forecast to shift to later in the evening, minimising the potential impact of rooftop PV.
- Minimum demand levels have decreased year-on-year in recent years, and shifted to daytime periods. Minimum demand is forecast to fall sharply, falling below the system security threshold of 700 MW as early as 2023-24. The WA Government has numerous DER workstreams targeted at managing the impact of continued uptake of rooftop PV on system security.

KEY INSIGHTS

- AEMO does not forecast a capacity shortfall to occur between 2020 and 2030, and expected unserved energy is not forecast to exceed the 0.002% threshold in any year over the same period.
- The retirement of the Muja C coal-fired generator by 2024 will place some pressure on maintaining reliability, with an increasing proportion of demand being met by intermittent sources of generation.
- As peak demand shifts to later in the evening, there is a higher risk of unserved energy due to less large-scale or rooftop PV generation during these periods.
- The main challenge identified by the WA Government is to maintain system security in the transition to large-scale renewables and DER.

DER Roadmap

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The Distributed Energy Resources (DER) Roadmap will guide changes to policies, regulations, technical requirements and customer protections to support the integration of DER into the power system over the short, medium and longer term. This includes guidance on how DER can be integrated with the operation of the power system and Wholesale Electricity Market in the South West Interconnected System (SWIS). Actions under the Roadmap relate to four aspects of the DER transition: technology integration, tariffs and investment signals, DER participation, and customer protection and engagement.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>Network risks – falling daytime demand compromising the stability of the SWIS. Risks to consumers:</p> <ul style="list-style-type: none"> • decreased security and reliability of the electricity system; • higher costs; and an • emerging divide between those that can afford to install DER and those that cannot. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Allow customers to continue to utilise DER to manage their own energy bills. • Enable all electricity customers to share in the benefits from higher levels of DER. • Integrate increasing volumes of DER into the SWIS without adversely affecting system security.

Expected benefits:

The DER Roadmap sets out the actions required to achieve The Energy Transformation Taskforce’s vision by 2025, the desired outcomes of the vision are:

- A safe and reliable electricity system where customers can continue to connect DER and where DER supports the system in an efficient way.
- DER capability can offer value throughout the electricity supply chain.
- DER benefits are flowing to all customers.

The primary benefit of the DER Roadmap is to provide a set of actions with associated timelines to allow the transition towards an energy market with increasing amounts of DER to be effectively integrated with current market arrangements in the SWIS and ensure the values of all stakeholders are reflected in the future SWIS.

Expected costs:

The total costs of developing and implementing the Roadmap are not available, however, the Economic Regulation Authority (ERA) in WA has approved \$14.6 million in forecast capital expenditure to be added to AEMO’s budget to implement actions under the Roadmap.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

The costs of developing the Roadmap were primarily borne by the WA Government, whilst the costs of implementing the Roadmap will primarily be borne by AEMO.

Aim in investment stock (MW, MWh, type of generation)
N/A

Type of incentive (Upfront or ongoing)
Ongoing

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
April 2020 – DER Roadmap published.	Temporary – the Roadmap identifies a set of actions for implementation from 2020-2024, targeting a vision for 2025.	

DER Roadmap

Applying our framework to the jurisdictional policy

Scope of the intervention

Learning and Enabling



- The Roadmap includes a number of pilot measures targeted at improving the level of existing knowledge, for example pilots for alternative tariff structures and for VPP technology.
- The Roadmap is focused on integration of technology with the energy system to facilitate an efficient transition to a higher-DER future market, it does not necessarily impose significant interventions to existing market arrangements, but rather provides upgrades, augmentations and new measures to better facilitate the involvement of DER in future energy markets.
- The most significant and direct regulatory interventions relate to the role of a Distribution System Operator and Distribution Market Operator.

Policy review to date (if available)

DER Roadmap Progress Report – April 2021

The Progress Report broadly states that implementation is on track in line with the 2024 timeframe, however risks to system security and reliability remain present in the interim.

- 16 of the 36 actions set out by the Roadmap had been completed or commenced (requirement met, with work ongoing).
- 14 of the 36 actions set out by the Roadmap were deemed underway (work in progress to meet DER requirement) – the initial timeframes outlined for 6 of the 14 actions still underway had passed, while 8 were yet to be due.
- Planning had commenced for 6 of the 36 actions set out by the Roadmap – these actions are due to be implemented between July 2022 and July 2024.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- The Roadmap does not intend to reduce electricity prices, rather it is designed to ensure that electricity prices remain affordable as the energy transition progresses.
- It specifically targets resolving current outcomes where customers who install DER are disproportionately benefitting from lower energy bills whilst consumers unable to access DER are cross-subsidising those who can.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- The Roadmap identifies areas where existing protections may need to be strengthened into the DER-future.
- In the Roadmap's vision for 2025: DER customers have certainty about how their DER can be used and access value.
- In the Roadmap's vision for 2025: customers' data is protected but is available to customers to support their decision making.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The Roadmap places a strong focus on the potential emerging divide in access to DER, and ensuring that DER can provide benefits to all customers in the future.
- The Roadmap identifies actions to deliver a program by December 2021 that reduce barriers to the installation of DER at commercial and residential rental properties, and to facilitate the sharing of the benefits of DER between landlords and tenants.

Whole of System Plan

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Whole of System Plan was developed by the WA Government’s Energy Transformation Taskforce, with input from Western Power and AEMO. The plan outlines the future outlook for the South West Interconnected System over a 20-year horizon. The plan models four scenarios: Cast Away, Groundhog Day, Techtopia, and Double Bubble – that represent different emerging pathways based on changes in demand, technology and economic growth. For each scenario, the model produces a mix of the lowest cost options for transmission, generation and storage capacity required to meet demand. This output serves as guidance for investment and energy policy decisions required in managing the transition to lower emissions and renewable generation, whilst maintaining energy affordability, security and reliability.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>In developing the plan, the WA Government has recognised the challenges associated with managing the energy transition, and the uncertainty regarding the broad range of scenarios as to how the SWIS may evolve.</p> <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Identify the best options for investment in the SWIS, to maintain security and reliability at the lowest cost. Guide the efficient integration of renewable generation and identify opportunities for energy storage. Provide guidance to regulators and industry regarding efficient power system investment, and to policy makers on the future needs of the power system.

Expected benefits:

- As more renewable generation enters the market, new technologies emerge and older generators retire, the Whole of System Plan will provide longer term guidance regarding investment, planning and policy development. This will mitigate the risk of inefficient investment, and directs the transition towards the lowest cost mix of generation, storage and network augmentation.
- The development of an effective set of models will provide a valuable tool to the WA Government in developing forecasts moving forward.

Costs:

The total cost borne by the WA Government’s Energy Transformation Taskforce to develop the plan has not been disclosed.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

N/A

Type of incentive (Upfront or ongoing)

Ongoing – the plan provides modelling from 2020 to 2040.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
Launched in October 2020	Temporary – the plan models a 20 year horizon from 2020 to 2040.	A second Whole of System Plan will be delivered as part of a package of investment in Energy Policy WA announced in July 2021.

Whole of System Plan

Applying our framework to the jurisdictional policy

Scope of the intervention

Solving



The Whole of System Plan and the associated modelling represents the most comprehensive modelling and analysis ever undertaken in the SWIS.

Modelling under the plan validates a number of significant market interventions and developments, including reforms to redesign the Wholesale Electricity Market. As such, the plan will contribute to significant changes to the operation and structure of the WA energy market.

The plan has implications for all key stakeholders who hold a high degree of influence on the WA energy market, including policy makers, regulators and investors in significant infrastructure projects. Furthermore, these implications are ongoing for a period of 20 years.

Policy review to date (if available)

An extensive stakeholder consultation process took place in developing the Whole of System Plan, no policy review has been conducted since its publishing.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The plan does not have a direct consumer focus, however guiding investment to ensure efficient supply at the lowest-cost should reduce the costs recovered from consumers and result in lower energy bills.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

No measures for direct consumer involvement are included in the plan.

Consumers and stakeholders have confidence that the energy system is designed for all consumers














Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The plan indicates it will inform a broad range of stakeholders, including customers in the SWIS. However, the key stakeholders targeted by the plan are policy makers, regulators and investors in large scale generation and network infrastructure.

An aerial photograph of a vast solar farm with rows of solar panels stretching across a landscape. A semi-transparent map of South Australia is overlaid on the left side of the image. The text 'SOUTH AUSTRALIA' is written in white, bold, sans-serif capital letters across the map area. The background has a color gradient from purple to red.

SOUTH AUSTRALIA

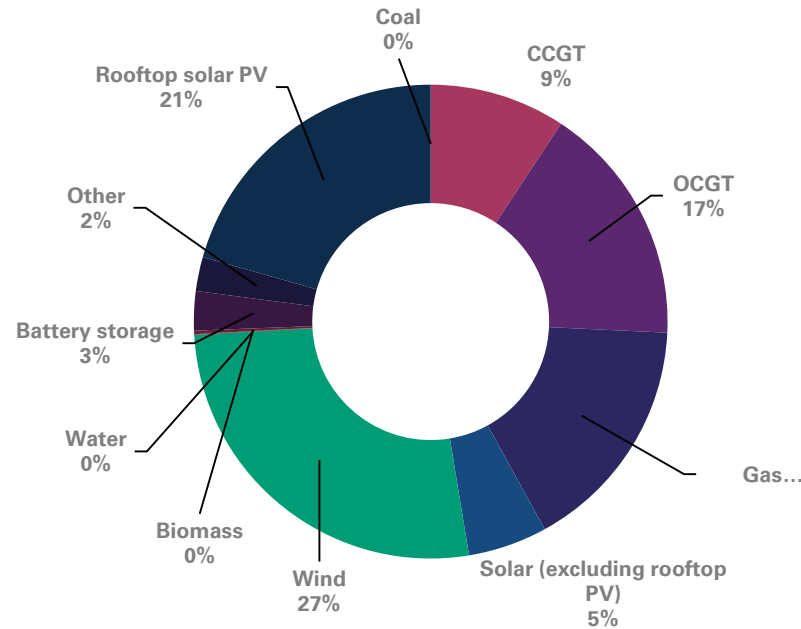
A snapshot of household outcomes in South Australia

Key category	SA outcome	Trend
DER penetration and the potential for demand flexibility		
 Percentage of households with solar PV	38.5%	Increase from 31% in December 2018
 Number of households with battery storage	11,102	Increase from 79 in 2017
 Total capacity of installed rooftop PV (0 – 100 kW)	1,585 MW	Increase from 833 MW in 2017
 Total capacity of installed behind the meter storage	141,497 kVAh	Increase from 800 kVAh in 2017
 Electric vehicle sales (2019 – excluding Tesla*)	412	As compared to approximately 1,200 total sales 2011 – 2018
 Total number of smart meters	Approximately 160,000	Increase from approximately 60,000 in 2017
 IPART benchmark solar feed-in tariff rate: 2021-22	No regulated feed-in tariff rate	–
 Proportion of households who own their home (with or without mortgage) (2017-18)	69%	Increase from 67% in 2015-16
 Proportion of households renting (2017-18)	30%	Decrease from 31% in 2015-16
 Proportion of dwellings classified as 'flat or apartment' (2017-18)	7.4%	Increase from 5.4%
Consumer outcomes		
 Median market offer electricity bills (average income households, 2020)	SAPN: \$1,808	Decrease from \$2,017 in 2017
 Proportion of residential customers on a hardship program	1.9%	Increase from 1.5% in 2016-17
 Proportion of residential customers on payment plans	1.4%	No change from 1.4% in 2016-17

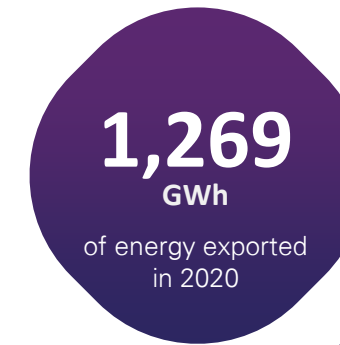
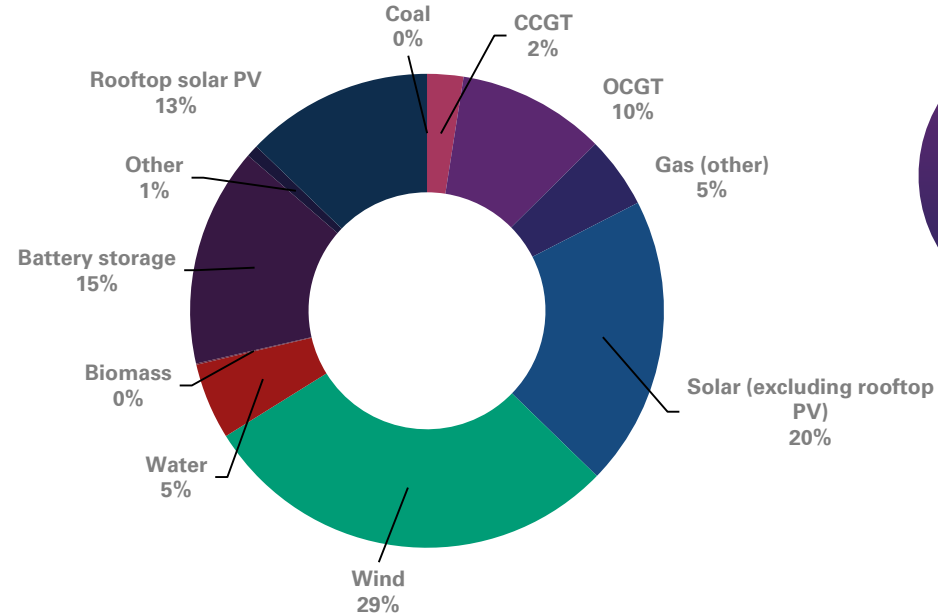
*Tesla does not disclose local sales figures. Electric vehicle sales are sourced from the Electric Vehicle Council: State of Electric Vehicles 2020

A snapshot of the energy supply mix in South Australia

EXISTING GENERATION MIX



POTENTIAL FUTURE GENERATION MIX*



Gas-fired generation remains a significant non-renewable source of energy generation in SA, whilst large-scale wind and distributed rooftop solar PV are the most significant renewable contributors.

The contribution of already high levels of rooftop PV is expected to slow, whilst emerging large-scale wind, solar and battery will play a growing role in SA's supply mix.

South Australia is a net exporter of energy, having exported more energy than imported in 10 of the past 17 quarters.

*Potential future generation mix' is sourced from AEMO: NEM Generation Information - July 2021, 2020 Inputs and Assumptions Workbook. It is the sum of existing generation + (committed projects + anticipated projects + proposed projects + network upgrades) - (committed and announced withdrawals and closures) + forecast capacity of rooftop solar PV, central scenario 2049-50.

Source: AER Wholesale Markets Quarterly Q1 2021 - Wholesale electricity markets data, May 2021.

Supply-demand outlook in South Australia

Supply outlook: new committed generation and retirements 2020-2030

Managing system security with high penetration of distributed solar PV

In the 2020 ES00, AEMO has identified that significant existing penetration of distributed solar PV, which is projected to continue to increase, presents challenges to SA's energy system in maintaining operational demand above minimum demand thresholds.

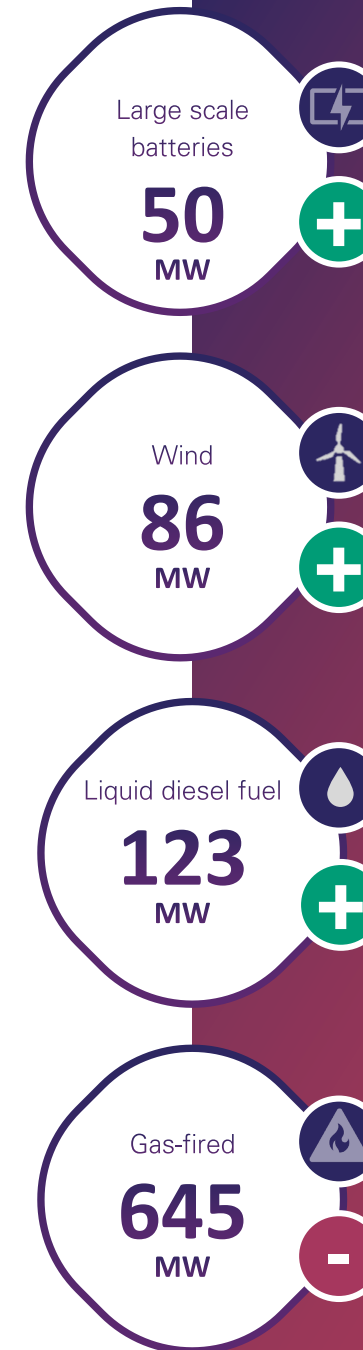
AEMO has identified shedding PV generation to be a necessary aspect of the operation of SA's energy system, and first engaged this capability in March 2021 by instructing ElectraNet to maintain grid demand above 400 MW, resulting in the curtailment of both large-scale and residential solar PV generation. In the longer term, load shifting, energy storage and active DER management will play an increasing role in managing the significant levels of distributed PV generation to minimise the frequency with which load shedding is required.

Project EnergyConnect

Project EnergyConnect is an approximately 900 km, 330 kV interconnector between SA and NSW, with an additional connection to Victoria. The project is scheduled to be complete by 2024-25.

The addition of the Project EnergyConnect interconnector will provide substantial relief to the challenges forecast to emerge in SA's energy system, it is projected to provide a noticeable reliability improvement in SA by connecting SA with the NSW and Victorian energy systems.

Project EnergyConnect is forecast by ElectraNet to deliver an expected average reduction of \$100 per annum for residential customers in SA.



DEMAND OUTLOOK

- Operational demand is forecast to remain relatively flat over the next 20 years, with a higher number of connections and increased usage being offset by rooftop PV uptake.
- Maximum demand is expected to increase steadily, growing to an expected level of 3,346 MW in summer, driven by projected growth in EVs and population growth, uptake of household battery systems is expected to have a dampening effect on peak evening demand.
- Minimum demand is forecast to decline significantly in the next 5 years due to increasing penetration of rooftop PV capacity. In the longer term, minimum demand is forecast to continue to decline, reaching negative levels by 2026-27. SA Government policy to provide households access to home battery systems is expected reduce some of the impact of minimum demand challenges.

KEY INSIGHTS

- No reliability gap has been declared in South Australia. In the final year of the forecast period, 2029-30, AEMO forecasts unserved energy to be above the Interim Reliability Measure.
- The retirement of gas-fired generation between 2020 and 2024 may present some supply challenges, however these are expected to be offset by increased renewable and battery capacity, as well as the addition of Project EnergyConnect.
- Managing declining minimum demand levels is an important aspect of maintaining reliability in both the short and long term.

Smarter Homes

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>Following advice from AEMO, a number of new technical standards and requirements for smaller generating systems, such as rooftop solar PV, have been introduced in South Australia. These include:</p> <ul style="list-style-type: none"> • Voltage ride through standards for generating systems connected via an inverter • Remote disconnection and reconnection requirements • Export limit requirements • Smart meter minimum technical standards • Tariffs to incentivise energy use in low demand periods
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> • Growing penetration and reliance on household solar systems is causing stress on an energy system that was designed for a one-way flow of electricity from large generation sources. • Minimum net demand is an emerging challenge that must be managed in South Australia. The Australian Energy Market Operator (AEMO) has made recommendations which seek to respond to the minimum net demand challenge. This policy actions AEMO's recommendations. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Tightening the technical standards for household generation to ensure they are capable of remote disconnection and reconnection, can ride through voltage disturbances, and respond to dynamic export limits imposed by the distribution network. • Adding to the minimum specifications for smart meters to allow separate operation and measurement of load and generation for a customer. • Imposing a requirement on retailers to pass through the network tariff rates of SAPN to customers on relevant standing offers.

Expected Benefits:

- Improved system security.
- Increase in the amount of distributed solar generation that can be connected to the power system.
- Avoidance of costly power system investment which could increase electricity prices for all electricity customers.

Expected Costs:

The expected regulatory cost to implement the new standards has not been made available.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

New owners of embedded generation will bear the costs of the new standards.

Aim in investment stock (MW, MWh, type of generation)
N/A

Type of incentive (Upfront or ongoing)

Ongoing – the new technical standards and requirements will apply permanently.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
In effect as of 28 September 2020.	Permanent.	

Smarter Homes

Applying our framework to the jurisdictional policy

Scope of the intervention

Solving



The policy reflects direct intervention, primarily to address a significant emerging issue of minimum net demand in South Australia. Introducing technical standards to allow for export limits to be placed on energy generated by consumer-owned assets, or remotely disconnect these loads are representative of a significant intervention in the operation of the energy market that affect a large number of stakeholders across the energy system.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- The SA Government stated that since export reduction or disconnection will only occur during extreme circumstances to avoid the risk of blackouts, the new standards should have a negligible impact on power bills or return on investment.
- However, the SA Government also noted that there may be costs involved for the relevant agent to provide the service to remotely disconnect and reconnect the solar system for the life of the system. Customers need to consider these costs when selecting a relevant agent.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Due to the short consultation period and 'fast-tracking' the implementation, consumers may have limited information and understanding of how the returns they anticipate and calculate for their solar installations are impacted (and can be optimised) by third party control including export constraints.
- While the owner or the operator of the solar system must provide written authorisation to a relevant agent to manage the disconnect/reconnect requirement on their behalf, it is unclear what tools are in place for consumers to monitor or control their systems.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- All new solar systems being installed are required to comply with new standards and requirements.
- The new standards will only apply to existing solar systems if any declared part of the existing system (for example the inverter) is being replaced (excluding warranty repairs).

Home Battery Scheme

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	The South Australian Home Battery Scheme helps households to access state government subsidies and loans of up to \$3,000 to pay for the installation of home battery systems.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The scheme targets financial barriers to uptake due to the high upfront cost of battery technology. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Directly reduce power prices for 40,000 households; reduce demand on the network especially during peak periods, and in turn; lower power prices for all South Australians.

Expected Benefits:

- Lower energy prices;
- Increased stability to the grid;
- Protection for consumers during a grid outage; and
- Reduced greenhouse gas emissions.

Expected Costs:

The scheme has an expected cost of \$100 million in the form of subsidies and loans funded by the SA Government.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

- The aim is to deliver home battery systems to 40,000 South Australian households.
- As of March 2020, 82 MWh of additional storage capacity has already been delivered under the scheme, taking the collective storage capacity of home batteries to over 60 per cent of the current capacity of Hornsdale Power Reserve.

Type of incentive (Upfront or ongoing)

Upfront: Upfront subsidies and loans.

Timeline and key dates

Date of introduction Launched 29 October 2018.	Duration – permanent or temporary Temporary	Any other relevant key dates In April 2020, the subsidy reduced from a maximum of \$6,000 (\$600/kWh for energy concession holders and \$500/kWh for non-holders) to a maximum of \$4,000 (\$400/kWh for energy concession holders and \$300/kWh for non-holders). In September 2020, the subsidy further reduced to \$3,000 (\$300/kWh for energy concession holders and \$200/kWh for non-holders).
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Home Battery Scheme

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

the scheme is aimed at reducing the upfront cost of batteries for consumers to facilitate battery uptake,
the scheme is available to a limited number of households, and
the scheme does not amend the existing regulatory frameworks or change incentives for energy market players.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The SA Government stated that the scheme will reduce electricity prices for 40,000 households. However, it is expected that the scheme will result in lower power prices for all South Australians due to reduced demand on the network especially during peak periods.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Batteries that are subsidised under the scheme provide some households with increased flexibility and control over their energy use.
- Consumers may choose from multiple accredited System Providers and from 23 battery brands.
- Consumers who purchased a battery are encouraged to join a virtual power plant (VPP) and take advantage of the financial incentives they offer.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- In addition to the subsidy, low interest loans are available to assist households to cover the purchase of the subsidised battery and new solar panels if they don't already have them.
- The subsidy offered to energy concession holders is higher than for non-holders.
- The subsidy has been reduced two times since the commencement of the scheme, so early adopters benefited more from the scheme.
- The subsidy is not available for off-grid battery installations.
- While renters are eligible to participate in the scheme if they have their landlord's permission, it is not clear whether a battery is expected to stay on the premises when the tenant leaves.

Retailer Energy Productivity Scheme

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The Retailer Energy Productivity Scheme (REPS) is a South Australian Government initiative that supports households and businesses to reduce their energy costs. Under the scheme, South Australian households and businesses may be able to receive free or discounted energy efficiency and energy productivity activities from energy retailers participating in the REPS.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> There is no national efficiency scheme in place determined to be sufficient to address South Australia's challenges. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Improve energy productivity for households, businesses and the broader energy system, with a focus on low-income households. This will reduce energy costs and greenhouse gas emissions, also potentially improving human health. From January 2021, the scheme was expanded beyond energy efficiency and now includes demand response and the creation of new virtual power plants. Under the expanded program, retailers can meet their obligations under the scheme by helping households to shift their demand and reduce consumption during peak periods by incentivising households to participate in demand response programs.

Expected benefits:

- Save energy, reduce energy bills and greenhouse gas emissions, and improve the productivity (or economic output) of that energy use.
- Credits awarded under REPS will focus on activities that reduce energy costs, not just energy consumption. It was noted that it is not just the quantum of energy used to deliver a service but also the time of that use that is a determinant of its true cost, particularly in terms of wholesale electricity prices.
- The South Australian Government expects that the changes to the scheme will deliver a wider range of product offerings for consumers.

Expected costs:

The regulatory cost associated with operating the scheme has not been made available.

Method of cost recovery

- ENERGY CUSTOMER
 TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

The Minister for Energy and Mining sets an overall energy productivity target to be achieved by obliged retailers through the provision of energy productivity activities to South Australian households and businesses. The annual energy productivity targets increase from 2,500 MJ in 2021 to 3,750 MJ in 2025.

Type of incentive (Upfront or ongoing)

Upfront: Free or discounted energy productivity activities from energy retailers.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
Launched 1 January 2021.	Temporary - the REPS consists of two five-year stages: 2021 to 2025 and 2026 to 2030. The scheme will operate until the end of 31 December 2030.	The scheme initially commenced on 1 January 2009 as the Residential Energy Efficiency Scheme. From 1 January 2015, the Residential Energy Efficiency Scheme was replaced by the Retailer Energy Efficiency Scheme and now includes small business. In January 2021, the REPS replaced the Retailer Energy Efficiency Scheme.

Retailer Energy Productivity Scheme

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Enabling



- The scheme has been operating since 2009 and has had limited impact on the national market design to date.
- The mechanism the program engages is to remove financial barriers in the market by subsidising the cost of energy efficient technology to facilitate households and businesses accessing this technology.
- The SA scheme is similar to those applied in other jurisdictions, for example the NSW Energy Savings Scheme and VIC Energy Upgrades Program.

Policy review to date (if available)

In 2019, an Independent Evaluation conducted by Common Capital found that the REES has been an effective policy tool. In particular:

- delivered positive net economic benefits of \$156 million, and supported 8.5 million gigajoules of energy savings;
- was on track to deliver over \$1 billion in energy bill savings over the life of energy efficiency activities implemented from 2015 to 2020;
- reduced greenhouse gas emissions by 450,000 tonnes of CO2 emissions due to activities from 2015 to 2017, and is on track to reduce emissions by over 1 million tonnes of CO2 emissions from activities implemented from 2015 to 2020; and
- performs well compared to similar Australian schemes in relation to administrative costs as a proportion of total scheme costs and average energy bill reductions.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- It is expected that the REPS will deliver significant energy bills savings similar to the REES. It was noted that REES delivered to July 2019:
- \$328 million in energy bill savings for households, of which \$155 million in energy bill savings were for priority low-income households; and
- \$720 million in energy bill savings for businesses.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Customers can contact any of the REPS obliged retailers or third-party contractors to find out what energy savings activities may be available for them, not just the retailer currently supplying their energy services.
- If a customer has received a particular REPS activity at a current address, they will not be eligible for the same thing again, they may be able to receive a different REPS activity.
- If a customer has received an activity under the former REES, they may be eligible for further activities under the new REPS.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The scheme includes a priority group target for households in which a person holds one or more of various health or concession cards, who are undergoing financial hardship or are renting.
- Whilst a regional target was not implemented from the commencement of the REPS, the Minister may set a regional target if activities delivered in regional areas comprise less than 15 per cent of the target in a given year.

Grid Scale Storage Fund

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Grid Scale Storage Fund offers grant funding from the SA state government for both grid-scale and behind the meter energy storage assets capable of addressing intermittency challenges in the SA electricity system. The fund is technology neutral, eligible technologies include: pumped hydro, hydrogen and natural gas, solar thermal and battery storage.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve? Unaddressed challenges imposing cost impacts on South Australia's power system, including:</p> <ul style="list-style-type: none"> • low system strength; • a lack of dispatchable generation during peak periods; and • reliability in areas of regional South Australia on the fringe of the grid. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Catalyse private sector investments in storage infrastructure assets that will improve affordability, reliability and security for consumers. • Demonstrate new or improved technology applications to contribute to improving the economics of storage technologies.

Expected benefits:

- Improve affordability, reliability and security of electricity supply for consumers.
- Accelerate the deployment of new grid-scale energy storage infrastructure assets.
- Assist in resolving intermittency challenges associated with increasing penetration of large scale renewables and distributed rooftop PV.

Benefits to date – the fund has provided:

- \$15 million of funding to support the expansion of the Hornsdale Power Reserve, expanding the storage capacity by 50 MW / 64.5 MWh.
- \$10 million of funding to Tesla's SA Virtual Power Plant, supporting the expansion of the scheme to an additional 3,000 homes.

Expected costs:

\$50 million of grant funding is available to be disbursed.

Method of cost recovery

- ENERGY CUSTOMER
 TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

The SA government has not identified a specific target for storage capacity to be supported by the fund.

Type of incentive (Upfront or ongoing)

Upfront and ongoing: Projects will receive upfront approval for grant funding which may help the project reach financial close, however funding may be disbursed in a phased approach, contingent on the achievement of pre-agreed performance metrics.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
November 2018	All proposals were due by 7 February 2019, the SA Government indicated preference would be given to projects that demonstrated the ability to reach financial close by the end of 2019. No specific date for the full disbursement of the funding was provided, with the SA Government reserving the right to withhold full disbursement of the \$50 million of available funding.	

Grid Scale Storage Fund

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

- The fund is targeted at removing financial barriers to allow energy storage projects to achieve financial close and reach the phase of deployment.
- The two projects the fund has supported to date were existing storage assets that were expanded via grant funding, rather than being entirely new assets connected to the South Australian network.
- The fund has no implications for the regulatory framework in South Australia, and does not conflict with the national framework.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- The fund is broadly stated to improve electricity affordability for consumers by securing energy supply.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- There are no direct measures for consumer engagement with the fund.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The fund is targeted at supporting large-scale storage. Eligible proposals for behind the meter assets relate to storage in commercial and industrial facilities, rather than smaller scale residential distributed storage (which is supported by the Home Battery Scheme).
- As such, storage supported by the fund is intended to have broad impact across the energy security outlook in SA.

Energy and Emissions Reduction Agreement

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	The Energy and Emissions Reduction Agreement is a \$1.08 billion deal between the Commonwealth and South Australian Governments aimed at increasing gas supply in South Australia to help reduce greenhouse emissions and alleviate potential future gas shortages on the east coast, as well as facilitate investment in carbon capture, hydrogen, solar thermal storage and electric vehicles technology.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> • Risk of gas shortages on the east coast. • High greenhouse gas emissions. • Challenges attached to the transition to more renewable energy sources and the meeting of SA decarbonisation targets. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Target of an additional 50PJ of gas per year by the end of 2023 (with a stretch target of 80 PJ per year by 2030). • Increase the flow of energy between South Australia and New South Wales through Project EnergyConnect. • Facilitate investment in carbon capture and storage, electrical vehicles, hydrogen and solar thermal projects. • Reduce greenhouse emissions and lower power prices for all South Australians.

Expected benefits:

- Alleviate potential east coast gas shortages
- Support the transition to renewable energy
- Reduced greenhouse gas emissions
- Lower priced energy
- Increased energy storage capacity through solar thermal technology

Expected costs:

The agreement includes a contribution of \$660 million from the Commonwealth Government and \$422 million from the South Australian Government.

Method of cost recovery

- ENERGY CUSTOMER**
- TAXPAYERS**

Aim in investment stock (MW, MWh, type of generation)

The aim is to increase gas supply in South Australia by 50 petajoules per year by the end of 2023 and a stretch target of 80 petajoules per year by 2030.

Type of incentive (Upfront or ongoing)

Upfront and ongoing – the deal includes various mechanisms including: funding for investment in emissions reduction projects, underwriting mechanisms, and making concessional finance available.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
April 2021 – deal signed by Commonwealth and SA Governments	The exact timeline for investment under various streams of the agreement is not specified – 2030 is a target date for the gas supply target and also the date set for SA’s net 100% renewables target.	

Energy and Emissions Reduction Agreement

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling and Solving

The main goal of this intervention is to increase gas supply in South Australia by the year 2023 and to boost energy supply to the east coast to solve forecast gas shortages. To achieve this, the agreement makes changes to existing 2023 gas targets, and introduces a new stretch target for gas supply by 2030 – reflecting a direct intervention on the gas supply-demand outlook in SA.

The policy is significant due to the scale of financial investment by both state and Commonwealth governments.

The deal also invests in carbon capture, electric vehicles, solar thermal and hydrogen projects which all act as enabling technologies and facilitate policy making to address the issues of greenhouse gas emissions and energy storage.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- Both the SA and Commonwealth Governments believe that this deal will reduce energy bills for consumers.
- The SA-NSW Project EnergyConnect interconnector supported under the agreement is forecast to save households \$100 per year on energy bills.
- By ensuring that future east coast gas shortages are avoided, high gas prices due to supply shortages should be avoided.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- The primary aim of this deal is to increase gas supply in SA and the rest of the east coast. This doesn't promote any further consumer choice or control than the current system.
- Currently, there is limited information for consumers on the break down of the proposed investments, and the opportunities for consumers to engage.

Consumers and stakeholders have confidence that the energy system is designed for all consumers














Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- Increasing the gas supply in South Australia will impact all residents.
- The deal supports a further reaching impact beyond only South Australia through its support of the SA-NSW Project EnergyConnect interconnector which will provide access to new generation sources and an expanded wholesale market, particularly in regional NSW.

An aerial photograph of a large-scale solar farm, showing rows of solar panels stretching across a landscape. The image is overlaid with a semi-transparent map of Tasmania, Australia, which is centered on the left side. The word "TASMANIA" is written in white, bold, uppercase letters across the map. The background has a color gradient from dark blue on the left to dark red on the right.

TASMANIA

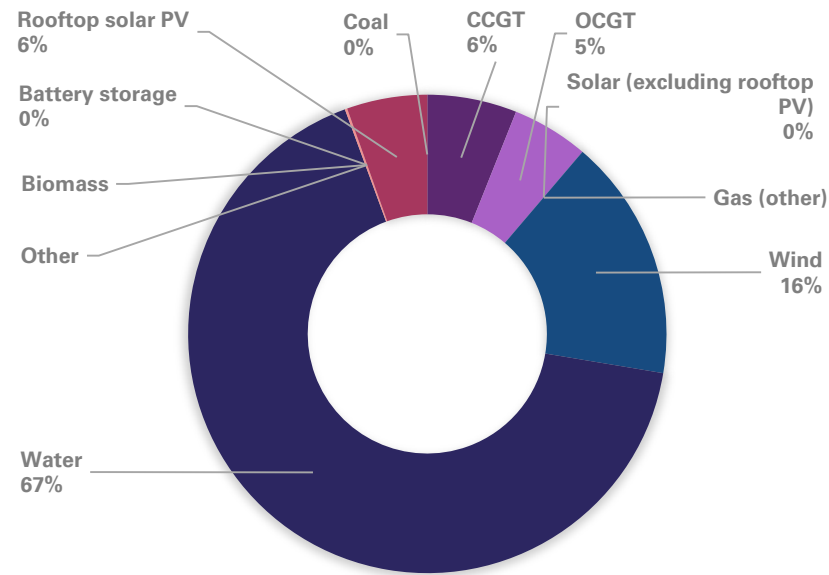
A snapshot of household outcomes in Tasmania

Key category	TAS outcome	Trend
DER penetration and the potential for demand flexibility		
 Percentage of households with solar PV	16.3%	Increase from 14% in December 2018
 Number of households with battery storage	695	Increase from 227 in 2017
 Total capacity of installed rooftop PV (0 – 100 kW)	187 MW	Increase from 118 MW in 2017
 Total capacity of installed behind the meter storage	34,090 kVAh	Increase from 20,565 kVAh in 2017
 Electric vehicle sales (2019 – excluding Tesla)	65	As compared to less than 100 total sales between 2011 and 2018
 Total number of smart meters	Approximately 55,000	Increase from approximately 0 in 2017
 Minimum feed-in tariff rate 2021-22	6.501 c/kWh	Decrease from 9.347 c/kWh in 2019-20
 Proportion of households who own their home (with or without mortgage) (2017-18)	72%	Increase from 71% in 2015-16
 Proportion of households renting (2017-18)	26%	No change from 2015-16
 Proportion of dwellings classified as 'flat or apartment' (2017-18)	4.4%	Increase from 3.8% in 2015-16
Consumer outcomes		
 Median market offer electricity bills (average income households, 2020)	TasNetworks: \$2,428	Increase from \$2,368 in 2017
 Proportion of residential customers on a hardship program (2019-20)	2.1%	Increase from 0.9% in 2016-17
 Proportion of residential electricity customers on payment plans (2019-20)	1.1%	Increase from 1.0% in 2016-17

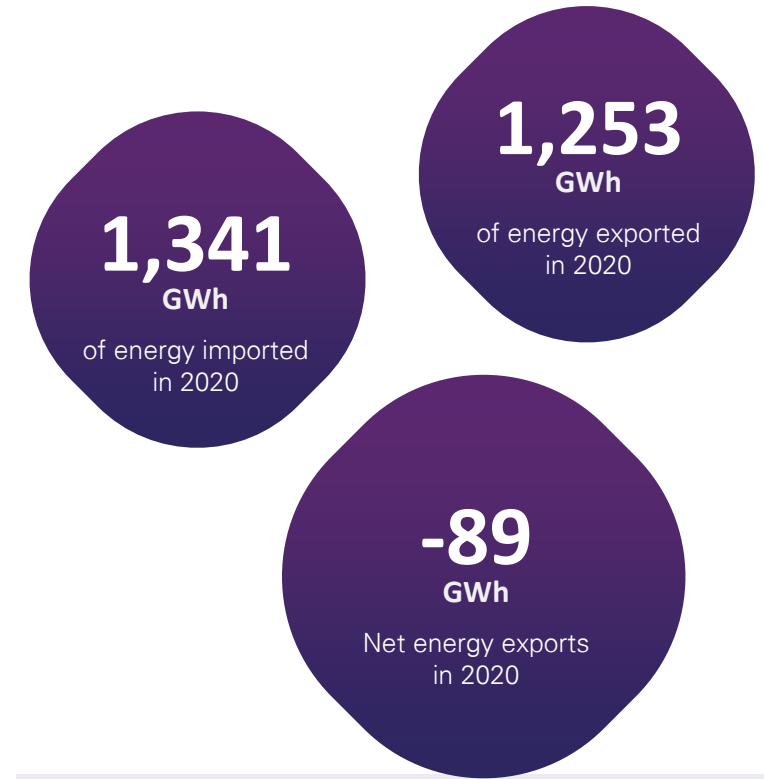
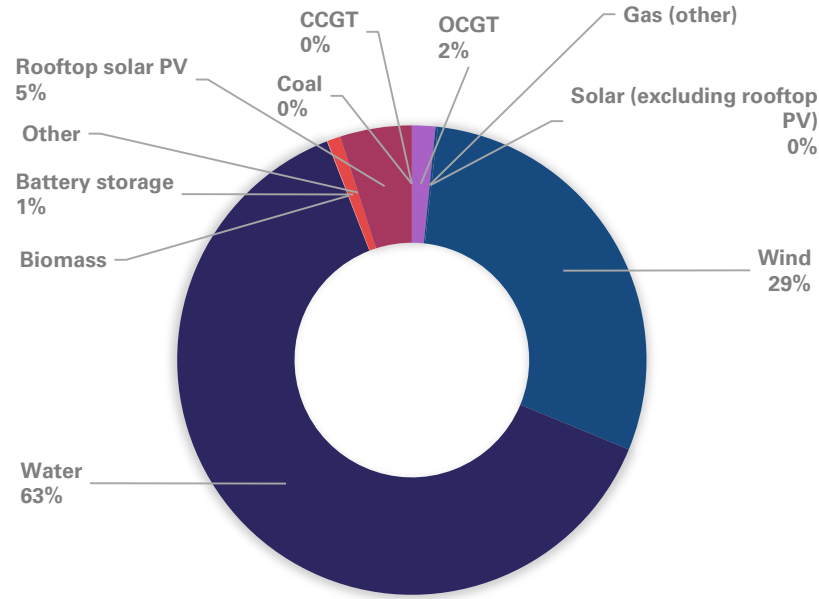
*Tesla does not disclose local sales figures. Electric vehicle sales are sourced from the Electric Vehicle Council: State of Electric Vehicles 2020

A snapshot of the energy supply mix in Tasmania

EXISTING GENERATION MIX



POTENTIAL FUTURE GENERATION MIX



Hydro and wind generation already represent a significant portion of Tasmania's generation, whilst weather conditions warrant less application for large-scale or distributed solar PV.

Four wind farm projects representing 1,642 MW of additional generation have been publicly announced, contributing to the pursuit of Tasmania's 200% renewable generation by 2040 target.

Tasmania is a net importer of energy, having imported more energy than exported in 10 of the past 17 quarters since Q1 2017. Tasmania's net export balance fluctuates significantly, Tasmania has displayed numerous quarters of significant exports and few imports, and similarly large imports and few exports.

*Potential future generation mix' is sourced from AEMO: NEM Generation Information - July 2021, 2020 Inputs and Assumptions Workbook. It is the sum of existing generation + (committed projects + anticipated projects + proposed projects + network upgrades) - (committed and announced withdrawals and closures) + forecast capacity of rooftop solar PV, central scenario 2049-50.

Source: AER Wholesale Markets Quarterly Q1 2021 - Wholesale electricity markets data, May 2021.

Supply-demand outlook in Tasmania

Supply outlook: new committed generation and retirements 2020-2030

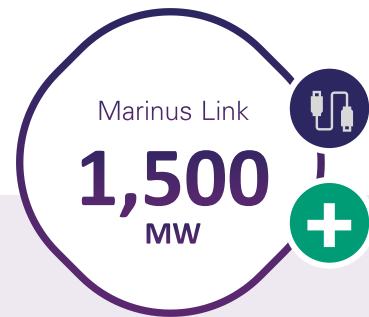
As per AEMO's 2020 ES00, there are currently no committed projects expected to commence commercial operations during the modelling horizon of 2020-2030. This remains the case based on AEMO's NEM Generation Information published in May 2021. However, AEMO's 2020 ISP indicates that just under 1.4 GW of new large-scale VRE is expected to be required to meet the TRET by 2040.

Key projects to enable the achievement of the TRET



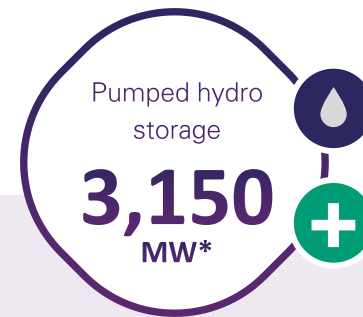
Across the three Tasmanian REZs proposed in the 2020 ISP, AEMO has forecast the potential for large scale VRE of 9,800 MW of wind and 150 MW of solar.

Whilst not all of this identified potential generation is projected by AEMO to be added, it provides an indication of the significant natural wind resources possessed by Tasmania.



Marinus Link is an interconnector project consisting of two 750 MW cables connecting Tasmania and Victoria's energy systems.

Commissioning and completing the Marinus Link in a timely manner is a key enabling factor impacting the achievement of the TRET, due to the necessity for significant transmission capacity to allow for the export of large amounts of energy from Tasmania to the mainland NEM.



The Battery of the Nation project is a workstream being conducted by Hydro Tasmania, that is centred around developing Tasmania's hydropower and pumped hydro storage capacity.

*AEMO has placed a nameplate capacity of 3,150 MW for the project in its entirety, based on the average storage capacity of Tasmanian pumped hydro opportunities.

DEMAND OUTLOOK

- Operational consumption is forecast to remain relatively flat over the next 20 years, with a limited forecast uptake of EVs and rooftop PV resulting in consumption levels not significantly increasing or decreasing from current levels.
- Unlike other states, maximum operational demand occurs in winter, driven by residential heating loads. Maximum demand levels are not forecast to increase significantly over the next 20 years, and are expected to continue to occur during the early morning and evening driven by the peak heating load.
- Minimum demand levels are forecast to decrease slightly, but remain well above those forecast for other states. Minimum demand is not expected to threaten system reliability in Tasmania.

KEY INSIGHTS

- AEMO does not forecast reliability issues to occur in Tasmania, with no unserved energy projected to arise over the 2020 – 2030 horizon.
- Given that Tasmania is in a strong position with regard to being unlikely to face energy supply or system reliability issues, the most significant driver of Tasmania's energy strategy is the pursuit of the Tasmanian Renewable Energy Target of 200% by 2040.
- Tasmania is seeking to be a significant driver of the nation's energy transition, and a strong source of network support to mainland NEM states through exporting excess renewable generation.

Renewable Energy Action Plan

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	The Tasmanian Renewable Energy Action Plan (TREAP) sets out the Tasmanian Government's strategic vision for the future of renewable energy, including the setting of targets and actions to achieve them over a 20 year period.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> Existing objectives have been achieved ahead of schedule and therefore are becoming outdated. A clear pathway is needed to manage unprecedented growth in Tasmania's renewable energy sector. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Transforming Tasmania into a global renewable energy powerhouse. Making energy work for the Tasmanian community: ensuring Tasmanians have access to reliable, secure and affordable energy. Growing the economy and providing jobs: utilising renewable energy as a driver of job creation, investment and economic growth.

Expected benefits:

The overarching benefit of the TREAP is to set out a consistent pathway to manage the growth of the renewable energy sector and ensure that the value of this stream is seized and maximised. Key priority targets set out by the plan include:

- Double Tasmania's renewable electricity generation by 2040 – with a new Tasmanian Renewable Energy Target of 200% of Tasmania's baseline needs.
- Tasmania to achieve the lowest regulated electricity prices in the NEM by 2022.
- Attract new load and energy intensive industries to Tasmania.
- Realise up to \$7 billion of new investment in the renewables sector by 2030.

Expected costs:

The cost of developing the plan is not available, a wide number of different measures with different cost profiles for implementation are captured under the plan.

Method of cost recovery

The plan encompasses a range of different cost streams for which costs will be recovered from both taxpayers and energy customers.

Aim in investment stock (MW, MWh, type of generation)

- By 2040, annual renewable electricity generation equal to twice the current 10,500 GWh baseline (i.e. 21,000 GWh per annum). The plan also sets an interim target of 15,750 GWh by 2030.
- Unlock 220 MW of flexible hydropower capacity.
- Support of Project Marinus and the Battery of the Nation to deliver 1,500 MW capacity of undersea electricity connection, and potentially unlock up to 500 MW of latent capacity in the existing hydropower system.

Type of incentive (Upfront or ongoing)

Ongoing – the plan provides ongoing strategic direction over a 20 year period.

Timeline and key dates

Date of introduction	Duration – permanent or temporary
Released in December 2020	Temporary – the plan sets out strategic direction until 2040.

Renewable Energy Action Plan

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

- The plan represents significant measures that are above and beyond the renewable energy objectives of other states or those set out by the national framework.
- However, the plan is a response to an existing strong position held by Tasmania in the renewable energy sector, and is targeted at providing state coordination and support of the renewable energy market to maximise outcomes for Tasmanian energy users.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The TREAP aims to reduce energy bills for Tasmanian consumers, the following relevant measures are included in the plan:

- Target for achievement of the lowest regulated electricity prices in the NEM by 2022.
- Commitment to supporting electricity consumers during COVID-19 via targeted support measures.
- Establishing a wholesale pricing framework to minimise price volatility and ensure affordability.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The TREAP has a target to “ensure Tasmanian customers have the tools and information required to manage their electricity use, lower their bills and access new products and services”, measures to achieve this include:

- Development of an “Energy Customer Empowerment Blueprint” to improve the knowledge and ability of customers to be dynamic with their energy use.
- Aim to influence the ESB Post 2025 Market Design and other aspects of the national policy agenda to facilitate customer engagement and access to their energy data.

Consumers and stakeholders have confidence that the energy system is designed for all consumers














Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- A key focus of the plan is strategic direction for investment in large-scale renewable energy and transmission projects.
- From a consumer perspective, the plan is broadly targeted at making energy work for the Tasmanian community and benefitting all Tasmanians.
- A number of the consumer focused measures in the plan are targeted at residential and small business consumers.

An aerial photograph of a vast solar farm with rows of solar panels stretching into the distance. A semi-transparent map of Australia is overlaid on the left side of the image. The text 'AUSTRALIAN CAPITAL TERRITORY' is written in white, bold, uppercase letters across the map.

AUSTRALIAN CAPITAL TERRITORY

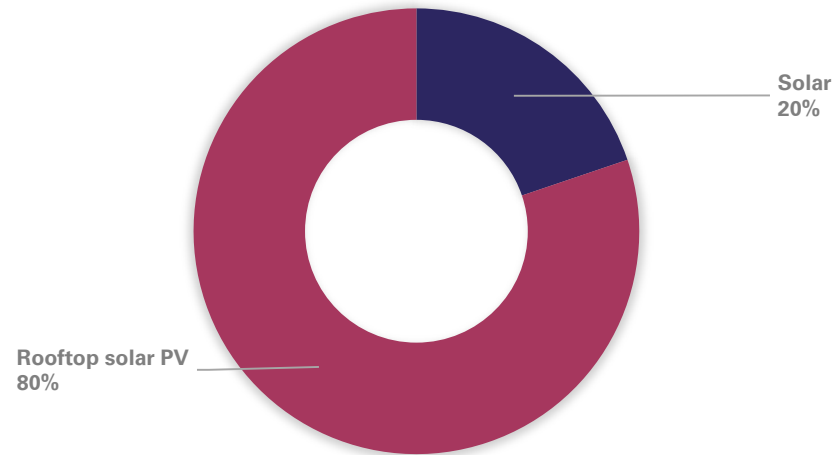
A snapshot of household outcomes in the Australian Capital Territory

Key category	ACT outcome	Trend
DER penetration and the potential for demand flexibility		
 Percentage of households with solar PV	23%	Increase from 15% in December 2018
 Number of households with battery storage	1,403	Increase from 543 in 2017
 Total capacity of installed rooftop PV (0 – 100 kW)	176 MW	Increase from 26 MW in 2015
 Total capacity of installed behind the meter storage	15,312 kVAh	Increase from 4,952 kVAh in 2017
 Electric vehicle sales (2019 – excluding Tesla)	134	As compared to approximately 200 total sales 2011 - 2018
 Total number of smart meters	Approximately 30,000	Increase from approximately 0 in 2017
 Feed in tariff rate	No regulated feed in tariff rate	–
 Proportion of households who own their home (with or without mortgage) (2017-18)	64%	Decrease from 67% in 2015-16
 Proportion of households renting (2017-18)	34%	Increase from 32% in 2015-16
 Proportion of dwellings classified as 'flat or apartment' (2017-18)	13.2%	Increase from 11.2% in 2015-16
Consumer outcomes		
 Median market offer electricity bills (average income households, 2020)	Evoenergy: \$1,723	Increase from \$1,449 in 2017
 Proportion of residential customers on a hardship program	0.7%	Increase from 0.4% in 2016-17
 Proportion of residential customers on payment plans (2019-20)	0.5%	Increase from 0.2% in 2016-17

*Tesla does not disclose local sales figures. Electric vehicle sales are sourced from the Electric Vehicle Council: State of Electric Vehicles 2020

A snapshot of the energy supply mix in the Australian Capital Territory

GENERATION BASED WITHIN THE ACT



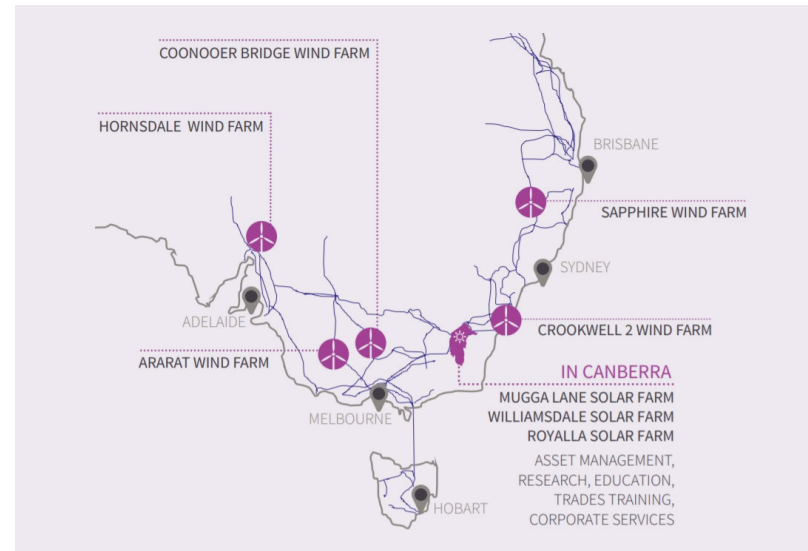
Energy generated within the ACT is generated by four solar farms, as well as rooftop solar PV. The total capacity of rooftop PV in the ACT is much greater than that of the larger-scale solar farms.

The ACT's energy supply position is unique in the NEM

The ACT is estimated to only generate approximately 5% of the energy its residents consume, primarily drawing energy from generators in other NEM states.

The mix of energy generators located within the ACT therefore has a lesser impact on energy outcomes in the ACT relative to other state jurisdictions.

Energy policy and ACT State Government funding targeted at investment in network scale generation has therefore been directed towards generation assets in other states, rather than the addition of new renewable generators located within the ACT.



Achieving 100% renewable energy in the ACT

The ACT has achieved a renewable energy target of 100% by 2020, which remains a legislated target.

In order to achieve this target, the ACT invests in renewable energy sources in other states to feed renewable energy into the grid, equivalent to the shortfall of non-renewable energy that Canberrans consume via imports from non-renewable generators in other states.

The ACT funds 5 wind farms located in NSW, Victoria and South Australia, representing 600 MW of renewable generation, in addition to the approximately 43 MW of solar capacity located within the ACT.

This mix of local solar generation and wind generation in other states funded by the ACT represents approximately 77% of the ACT's electricity consumption.

The ACT Government makes a mandatory contribution towards the national Renewable Energy Target scheme, equivalent to 21 per cent of its total consumption. In addition to rooftop solar PV generation, this makes up the shortfall to reach 100%.

Therefore, the ACT's energy supply mix is to some extent a reflection of large scale generators located both within the ACT and other states within the NEM.

Canberra's wind and solar farms within the NEM

Source: ACT Government – Environment, Planning and Sustainable Development Directorate

Gas Phase-out

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	The ACT Government is seeking to phase-out gas whereby new suburb developments will not be connected to the gas network, meaning new suburbs will be all-electric.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The policy follows the action proposed in the ACT Climate Change Strategy 2019-25, which places a strong focus on reducing emissions from both transport and gas, citing the significant role of gas in buildings and urban development in achieving the ACT's target of net zero emissions by 2045. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Reduce emissions from reticulated gas in new suburbs. Allow new suburbs to be all electric with zero emissions.

Expected benefits

- Emissions reduction impact:** 22% of the ACT's total carbon emissions come from natural gas, with the gas phase-out being part of the ACT Government's planning to reduce the ACT's greenhouse gas emissions to zero by 2045.
- Expected benefits for consumers:** Savings on energy bills for households – the use of energy efficient electric appliances were noted to result in energy bill reductions relative to gas appliances.
- Expected costs:** The total cost of implementing the change is not available.

Method of cost recovery

- ENERGY CUSTOMER**

Aim in investment stock (MW, MWh, type of generation)

- The policy does not target a specific number of properties or number of all-electric homes to be developed, or quantity of gas consumption to be reduced.

Type of incentive (Upfront or ongoing)

Ongoing

Timeline and key dates

Date of introduction

The phase-out has been introduced in a staggered manner through multiple reforms, most notably through a Draft Variation to the ACT Estate Development Code in January 2020.

Duration – permanent or temporary

Permanent

Gas Phase-out

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling



- The policy does not impact existing gas connections or appliances, gas in existing suburbs will not be turned off or disconnected.
- The reform, although significant, is in line with the strategy outlined by the ACT Government over the duration of their term and planning by gas networks and regulators to manage the transition effectively has commenced.
- The policy enables new suburbs to be all-electric with zero emissions.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The ACT Climate Change Strategy indicates that all-electric new homes could reduce annual energy bills for residents by up to \$450 per year.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The policy change impacts the decision-making of estate developers more directly than consumers, although it does potentially provide greater scope for consumers to choose all-electric, zero emissions homes in their choice of home.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The policy only impacts new estate developments, as such it will not have impacted consumers living in homes built prior to its introduction.

Community Solar

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input checked="" type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The community solar program run by SolarShare allows ACT residents to invest in The Majura Valley Community Solar Farm. SolarShare will sell generated power to the wholesale electricity market via a partnership with Enova Energy, the ACT government has committed to a feed-in tariff of 19.5c/kWh for a 20 year period removing the exposure of SolarShare and its community investors to spot market volatility. Members pay to own a share in the project, and receive an annual dividend.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>The community solar farm addresses access and equity issues in participation in solar technology. Specifically, the barrier of home-ownership for renters and an inability to install solar PV for owners of units or apartments where roof-space may not be available.</p> <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Provide opportunity for those households and businesses unable to install solar on premises • Advance the achievement of the ACT's renewable energy targets • Set an example for future community solar initiatives across the nation

Expected benefits and costs:

Benefits for investors: A total of 550 ACT residents raised over \$2.4 million for the project. Members invested between \$500 and \$100,000 each, with an expected return of between 4% and 6%.

Benefits to the Canberra economy: SolarShare estimates that a community owned project generates 7 to 9 times the local economic impact compared to a project owned by external financiers.

Energy market benefits: The solar farm is estimated to be powering approximately 250 Canberra homes, and expected to provide 1,600 tonnes of CO2 abatement per annum.

Cost: ACT residents provided a total of \$2.4 million to fund the project.

Method of cost recovery

ENERGY CUSTOMER

Aim in investment stock (MW, MWh, type of generation)

- The Majura Valley Community Solar Farm has a nameplate capacity of 1 MW.

Type of incentive (Upfront or ongoing)

Ongoing – investors in SolarShare receive an ongoing annual dividend attached to their investment.

Timeline and key dates

Date of introduction

The project was confirmed to begin construction in June 2019, although had previously been floated as part of an agreement between Labor and the Greens over the 2012-16 term.

Duration – permanent or temporary

Permanent/temporary – after 20 years when the initial equipment reaches the end of its life; members may have the opportunity to re-invest to recommission the solar farm, or initial invested capital will be returned to members and the project will be decommissioned. The pathway will be determined via stakeholder consultation as the equipment reaches the end of its life.

Any other relevant key dates

Construction began in September 2020.

The solar farm began feeding energy into the grid in March 2021.

Community Solar

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

- The project is targeted at removing the barriers attached to home-ownership to enable participation and access to the benefits of solar technology to a broader range of individuals and businesses. Other similar renewables projects include provisions for community-ownership.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

International jurisdictions have provided 'virtual net metering' on community solar programs, to allow solar farm shareholders to receive credits on their electricity bill for the portion of renewable energy that they own that is fed back into the grid. SolarShare's scheme does not provide this, the benefits for investors in the project will come through annual dividends. At a scale of 1 MW, the project is unlikely to have a significant direct impact on energy bills for customers.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Investment in the project is optional and open to all ACT residents.
- Consumers are able to sign up for the minimum investment (\$500) and purchase more shares at a later date, subject to availability of shares.
- Investors in the project may sell their shares to a resident of the ACT, in the first three years since they were issued, or to any person or entity with an Australian address beyond this three year period.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- Investments in the Majura Community Solar Farm are open to residents of the ACT or companies with a registered address in the ACT.
- The investment opportunity was open to all individuals and businesses, with a minimum investment of \$500 required.
- The nature of community investment allows those who would not be able to access the benefits of solar PV under traditional models to participate. This removes some of the existing barriers to participation for consumer groups such as unit and apartment owners or renters.

Next Generation Energy Storage Program

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The 'Next Gen' Program requires external providers to deliver a rebate on battery installations on residential and business premises. Systems eligible for a rebate must be new systems than are coupled with solar panels. Rebates are determined based on the storage capacity of the battery (at a rate of \$825 per kW). The ACT Government selects qualified installers via a tendering process where entities bid for the right to offer the incentive to their customers.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>Barriers to decentralised energy storage uptake, including:</p> <ul style="list-style-type: none"> the benefits of battery storage are not well understood by consumers; financial barriers including an unattractive return on investment and business case for battery storage; and underdevelopment of the industry with a lack of unified leadership at the national jurisdictional level. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Encourage the rollout of solar energy storage in the ACT Assist the development of ACT-based energy storage industry, research and training Extend the ACT's national leadership in renewable

<p>Expected benefits:</p> <ol style="list-style-type: none"> Reduction in peak demand during high demand periods. Put downward pressure on wholesale prices during high price events. Deliver bill savings to program participants. 	<p>Expected cost:</p> <p>\$25 million in grant funding from the ACT Government is available to finance the rebates delivered under the program.</p>	<p>Method of cost recovery</p> <p><input checked="" type="checkbox"/> TAX PAYERS</p>
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Aim in investment stock (MW, MWh, type of generation)

- 12 GW of new transmission capacity through the Central-West Orana, New England and South West Renewable Energy Zones by 2030.
- 3 GW of new pumped hydro capacity by 2030.

Type of incentive (Upfront or ongoing)

Upfront – installers access the rebate on the customer's behalf and offer a reduction in the upfront price of the battery.

Timeline and key dates		
Date of introduction 2016	Duration – permanent or temporary No precise date for the end of the program has been provided.	Any other relevant key dates The application process for interested provided to participate in Round 6 of the program will commence in the last quarter of 2021.

Next Generation Energy Storage Program

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Enabling

The program aims to reduce financial barriers associated with investment in battery storage at a residential and business level, aiming to facilitate greater uptake of distributed energy storage by improving the return on investment and business case for battery investment.

Policy review to date (if available)

The ACT Government engaged Point Advisory and Energy Synapse to conduct a mid-term review of the Next Generation Energy Storage Program in March 2019, the review found that:

- 95.5% of participants noted savings on their electricity bills, of which between \$40 and \$140 per quarter was estimated to be derived from engaging battery storage.
- Significant financial barriers to program participation were still existent, including long payback periods, high upfront costs and split incentives in rental contexts.
- Businesses do not have an energy usage profile aligned with the benefits of installing a battery, and may not be a relevant target of the program.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The mid-term review in March 2019 found that the program delivered average bill savings of \$275 per quarter as a result of the impacts of solar and storage, of which 15 – 50% (\$40 – 140) was estimated to be related to the battery storage component.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

Multiple providers are available as qualified program providers, consumers are able to evaluate the products and options offered by each provider and choose the most appropriate offer.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The policy is targeted at residential and business customers, with a cap on the available rebate of \$41,250 for the maximum size system (50 kW).
- All consumers are eligible, provided the installed battery system is a new system that is coupled with solar panels and includes an inverter that meets the program requirements.

Energy Efficiency Improvement Scheme

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The Energy Efficiency Improvement Scheme (EEIS) places a requirement on retailers to achieve energy savings in households and small-to-medium businesses. Large retailers must deliver energy savings initiatives to customers, small retailers can either deliver energy saving initiatives or pay a contribution towards energy saving activities. The range of eligible energy efficiency activities under the scheme was extended in 2019 to add new heating and cooling technologies and include demand response capability in the minimum product requirements for some heating and cooling technologies.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>The scheme is targeted at contributing towards the achievement of the ACT's decarbonisation targets, as well as access to energy efficient technologies, particularly for low income households.</p> <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Encourage the efficient use of energy • Reduce greenhouse gas emissions associated with stationary energy use • Reduce household and business energy use and costs • Increase opportunities for priority (low-income) households to reduce energy use and costs

Benefits to date:

Between 2013 and mid-2019; 74,000 households and businesses had participated in the scheme, including 19,000 priority low-income households, resulting in the installation of over 1.3 million energy saving items. This has contributed:

- 6.5 million gigajoules of energy savings, and 500,000 tonnes of emissions reduction.
- \$400 million in total lifetime energy bill savings.

Costs to date:

A 2018 review found that total pass-through costs and co-contributions between 2013 and 2017 amounted to \$60.78 million.

Method of cost recovery

ENERGY CUSTOMER
 the EEIS is funded by retailers, who pass a portion of the costs to electricity customers.

Aim in investment stock (MW, MWh, type of generation)

- N/A

Type of incentive (Upfront or ongoing)

Ongoing – the scheme places an ongoing obligation on electricity retailers to achieve targets relating to energy efficiency activities.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
2013	The scheme has been extended until 2030.	

Energy Efficiency Improvement Scheme

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Enabling

- The program is designed to facilitate uptake of energy efficient products in the market, as well as regulate retailers to assist in the achievement of energy efficiency targets. Therefore, the program aims to remove barriers to the distribution and uptake of energy efficient technologies in the market.
- The ACT program is similar to those applied in other jurisdictions, for example the NSW Energy Savings Scheme and SA Retailer Energy Efficiency Scheme.

Policy review to date (if available)

The scheme was most recently reviewed in mid-2018, through an independent review prepared by Point Advisory for the ACT Government, its key findings included:

- Participating households were saving \$5.65 per week, and participating businesses were saving an average of \$57 per week.
- The total savings of the EEIS were four times greater than the running costs of the scheme.
- An opportunity existed to include additional eligible activities related to insulation, heating and cooling and demand response (which have since been included).
- Participation in the scheme could be more accessible to Tier 2 (small) retailers. (Currently, all Tier 2 retailers choose to pay the contribution and are not delivering energy efficiency activities).
- Overall, the scheme had been efficiently rolled out and was effective in achieving its objectives.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The scheme is expected to contribute to lower energy bills for consumers, delivering savings of approximately \$5.80 per week for participating households.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Participation in the scheme is voluntary for all ACT households and businesses.
- Only one retailer, ActewAGL currently delivers activities under the scheme. ActewAGL provides information regarding the process to participate in the scheme and the available activities and discounts.

Consumers and stakeholders have confidence that the energy system is designed for all consumers














Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The EEIS is available to households and small-to-medium businesses in the ACT.
- The EEIS places a specific focus on low-income households, requiring retailers to meet specific legislated emissions reductions targets in priority (low-income) households.

An aerial photograph of a vast solar farm with rows of solar panels stretching into the distance. A semi-transparent map of the Northern Territory of Australia is overlaid on the left side of the image. The text 'NORTHERN TERRITORY' is written in white, bold, sans-serif capital letters across the map.

NORTHERN TERRITORY

A snapshot of household outcomes in the Northern Territory

Key category	NT outcome	Trend
DER penetration and the potential for demand flexibility		
 Percentage of households with solar PV	22.9%	Increase from 13% in December 2018
 Number of solar PV systems with concurrent battery storage	312 installed since 2014	Increase from 28 in 2017
 Total capacity of installed rooftop PV (0 – 100 kW)	132 MW	Increase from 53 MW in 2017
 Total capacity of installed behind the meter storage	Not available	–
 Electric vehicle sales (2019 – excluding Tesla)	5	As compared to less than 2 total sales 2011-2017
 Total number of smart meters	Not available	As of 2019, the NT is in the process of rolling out smart meters on a new and replacement basis.
 Standard feed-in tariff rate: 2020-21	8.3 c/kWh	Feed-in tariff prior to April 2020: 26.05 c/kWh
 Proportion of households who own their home (with or without mortgage) (2017-18)	59%	Increase from 54% in 2015-16
 Proportion of households renting (2017-18)	39%	Decrease from 42% in 2015-16
 Proportion of dwellings classified as 'flat or apartment' (2017-18)	14.1%	Increase from 10.5% in 2015-16
Consumer outcomes		
 Annual electricity bill for a typical residential customer (2017-18)	\$1,711	Increase from \$1,702 in 2016-17
 Proportion of residential customers on a hardship program (2019-20)	0.7%	Increase from 0.2% in 2017-18
 Proportion of residential customers on payment plans (2019-20)	2.6%	Increase from 2.2% in 2017-18

*Tesla does not disclose local sales figures. Electric vehicle sales are sourced from the Electric Vehicle Council: State of Electric Vehicles 2020

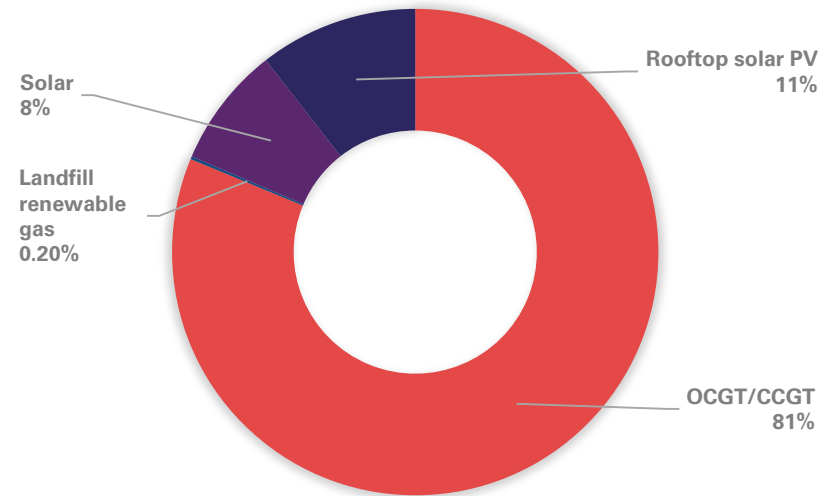
Snapshot of the energy supply mix in the Northern Territory

The Northern Territory consists of three regulated power systems, the Darwin-Katherine Interconnected System (DKIS), Alice Springs and Tennant Creek, as well as a number of smaller unregulated networks.

The DKIS serves approximately 150,000 people, as compared to approximately 28,000 and 7,000 by the other two regulated networks. The DKIS represents the largest amount of generation capacity in the NT and therefore has the most significant impact on the generation mix in the NT.

As such, the analysis of the NT's energy supply mix focusses on the existing and prospective sources of generation in the DKIS.

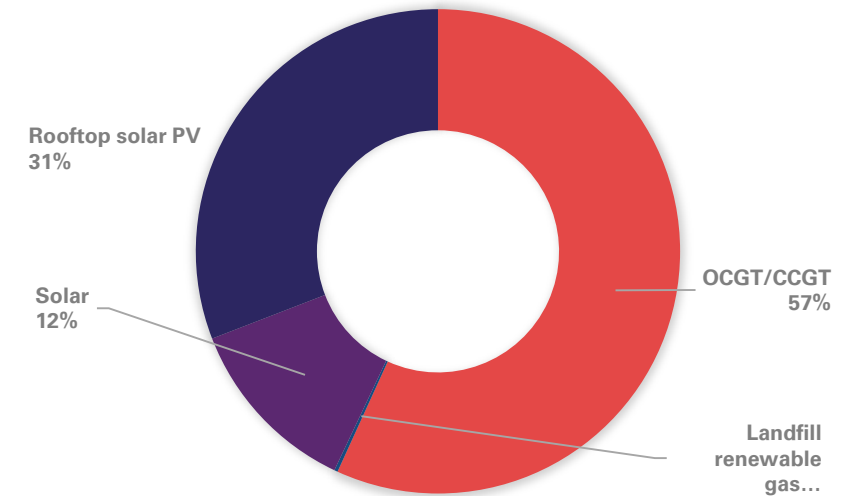
CURRENT GENERATION MIX (DKIS)



When aggregated, rooftop solar PV is already the largest generator in the DKIS. The System Controller has very limited visibility or control over this largest virtual generation unit.

Potential future generation mix' is sourced from AEMO: NEM Generation Information - July 2021, 2020 Inputs and Assumptions Workbook. It is the sum of existing generation + (committed projects + anticipated projects + proposed projects + network upgrades) - (committed and announced withdrawals and closures) + forecast capacity of rooftop solar PV, central scenario 2049-50.

POTENTIAL FUTURE GENERATION MIX (DKIS)*



182.9 MW of gas-fired generation is scheduled to be decommissioned from 2026-28. Projected uptake of rooftop solar PV will play an increasing role in the DKIS supply mix.

*Potential future generation mix' is sourced from the NT Utilities Commission. It is the sum of existing generation - scheduled decommissions + projected growth in large-scale and rooftop solar PV.

Home and Business Battery Scheme

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The Home and Business Battery Scheme makes a grant available to homeowners, businesses and not-for-profit organisations to fund the purchase and install of batteries and inverters. The grant is equal to \$450 per kWh of battery system capacity, up to \$6,000. The scheme is open to applications from residential homeowners, registered businesses and not-for-profit or community organisations in the NT. The funding may be used to purchase and install a battery and inverter, or purchase and install solar PV with a battery and inverter simultaneously, although it may not be used to purchase and install solar PV without a battery. From August 2021, the grant will only be made available for battery systems that are assessed as virtual power plant (VPP) capable.</p>

Stated objectives

What is the perceived problem the Government is trying to resolve?

The scheme is targeted at the upfront financial barriers to accessing battery storage, as well as shifting the focus of DER from strictly solar PV systems to combined solar and battery systems.

What are the objectives set out for the policy to address this?

- To support the Northern Territory Government's plan for 50% renewable energy by 2030, while maintaining secure, reliable and affordable power for homes and businesses.
- To drive battery uptake alongside solar PV systems.

Expected benefits to consumers:

1. Lower electricity bills
2. Protection during a grid outage
3. Reduce greenhouse gas emissions

Expected benefits to the NT economy:

In November 2020 the Northern Territory Government estimated the economic impact value of the scheme to be over \$7 million, this is likely to be larger following the extension of the scheme in June 2021.

Expected costs of the scheme:

- The scheme will be funded by the NT Government's change from one-to-one feed-in tariffs to a lower standard feed-in tariff rate (from approximately 24.3c/kWh to 8.3c/kWh). The feed-in tariff savings have been earmarked to finance grants under the scheme.
- In June 2021 the NT Government indicated over 550 applications worth \$3.3 million in grant funding had been approved, and an additional \$2.8 million was allocated in the 2021-22 NT State Budget to extend the scheme.

Method of cost recovery

Energy customers or taxpayers: Energy customers – savings from FiT reductions were delivered via government owned energy companies – customers with existing solar PV prior to the reduction will be grandfathered to remain on the higher rate (unless they upgrade their system or take up the battery subsidy under the scheme), meaning the burden falls most heavily on new solar PV owners.

Aim in investment stock (MW, MWh, type of generation)

It is expected that approved applications to date will deliver approximately 3.8 MWh of energy storage capacity, a target for future installations has not been provided.

Type of incentive (Upfront or ongoing)

Upfront – the scheme is dispensed via grants to assist in funding the purchase and install of batteries and inverters.

Timeline and key dates

Date of introduction
April 2020 – scheme launched

Duration – permanent or temporary
The scheme was extended in June 2021, an exact timeline for the conclusion of the scheme has not been provided.

Home and Business Battery Scheme

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

- The scheme is aimed at reducing the upfront cost of batteries for consumers to facilitate batteries penetration; does not amend the existing regulatory frameworks; and
- other state jurisdictions have similar battery subsidy or rebate schemes in place (ACT – Next Gen Energy Storage Program, SA – Home Battery Scheme)

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The scheme is stated to contribute to lower energy bills for those customers who participate by installing battery and inverter capacity.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

If a customer with an existing solar system was on a one-to-one feed-in tariff (grandfathered from the previous feed-in tariff regulation) – taking up a grant to participate in the scheme would result in them being switched to the lower standard feed-in tariff.

- This aspect of the policy restricts consumer choice and disincentivises uptake of the scheme from those customers seeking to augment existing solar PV systems with a battery.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- Grants under the scheme are available to NT homeowners, businesses and not-for-profit organisations.
- Properties can be owner-occupied or used as an investment, potentially opening up the benefits of the scheme to renters.

Electricity Market Priority Reform Program

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The program sets out a package of coordinated priority reforms to market arrangements in the Darwin-Katherine Interconnected System. At a high-level, areas for reform considered under the program include:</p> <ul style="list-style-type: none"> • Reliability – introduction of an overarching system-wide standard of reliability of supply. • Dispatch – significant changes to dispatch arrangements to optimise the use of energy and essential system services, and manage an increasing number of plausible operational situations. • Essential system services – potential arrangements for the market provision of essential system services (as compared to the existing assumption that Territory Generation is the sole provider of all essential system services). • Settlement – changes to ensure energy settlement arrangements can accommodate foreseeable contractual arrangements.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> • The package of reforms targets challenges regarding maintaining secure and reliable electricity as the energy transition progresses and the NT Government continues to target 50% renewable energy capacity by 2030. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Improve coordination of solar and gas-fired generators • Ensure there is sufficient generation capacity available to meet consumers' needs. • Facilitate payments between retailers and generators. • Improve the efficiency of the provision of essential power system security services.

Expected benefits:

- Anticipated downward pressure on electricity costs as a result of a more competitive and lower cost industry.
- Encourage private investment in new and innovative technology to facilitate more renewables in the electricity system.
- Facilitate increased market entrants and emerging technologies to progress towards the NT's renewable energy target.

Expected costs:

The regulatory cost to develop and implement the reforms has not been stated by the NT Government.

Method of cost recovery

ENERGY CUSTOMER

Aim in investment stock (*MW, MWh, type of generation*)

- N/A

Type of incentive (*Upfront or ongoing*)

Ongoing – permanent market redesign and regulatory reforms.

Timeline and key dates

Date of introduction
Announced in June 2020.

Duration – permanent or temporary
Permanent

Any other relevant key dates

- It was announced by the NT Government that essential system services reform will commence late 2021.
- In relation to the capacity mechanism, the required legislative and regulatory changes will be implemented late 2021.
- The commencement date for the reliability and wholesale market reforms is not yet known.

Electricity Market Priority Reform Program

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Solving

- The intervention represents sweeping reform in the form of significant redesign of the NTEM. Essentially, it is proposed to “unbundle” the energy market. Participants will receive pricing and investment signals under three mechanisms: via the electricity market, essential system services mechanism and capacity mechanism.
- The proposed changes have significant implications for the roles played by market participants.
- New market bodies will be introduced (e.g. the Reliability Manager).

Policy review to date (if available)

No policy review has been conducted.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The Northern Territory Government has indicated that the reforms are expected to place downward pressure on electricity prices as a result of a more competitive and lower-cost energy industry.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The reforms do not impose any significant implications for the role of the consumer.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The reforms have a broad reaching impact on the operation of the whole of the Northern Territory Electricity Market, but do not specifically impact one consumer group more than others.

COMMONWEALTH



Underwriting New Generation Investments Program

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Underwriting New Generation Investments (UNGI) program was developed by the Federal Government to create an ongoing mechanism to support targeted investment in projects that will lower prices, increase competition and increase reliability in the system. 12 projects have been shortlisted under the program – 6 pumped hydro, 5 gas, 1 coal upgrade. The selection process is technology neutral, with the government’s focus being to support “best and lowest cost” energy generation: whether coal, gas or renewables.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>The policy was introduced as a response to the ACCC Retail Electricity Pricing Inquiry, the following challenges are targeted:</p> <ul style="list-style-type: none"> • Ineffective operation of competition in the wholesale market, detrimentally affecting electricity affordability. • Risk attached to upfront investment in large-scale generation projects, given the difficulty in predicting future wholesale prices – creating the desire for generators to seek longer-term contracts. • Increasing supply challenges in the NEM. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Reduce wholesale electricity prices by increasing competition and supply • Assist commercial and industrial customers and smaller retailers to access affordable energy supply arrangements • Improve reliability by increasing the level of firm capacity in the system

Expected benefits:

- The Government is targeting a 25-30% reduction in the average NEM wholesale price by the end of 2021.
- The program is targeted to deliver 1,000 – 2,000 MW of new on-demand capacity with wholesale costs below \$60/MWh.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

The program will be revenue neutral and recover administration costs from project proponents.

Aim in investment stock (MW, MWh, type of generation)

The program is targeted to deliver between 1,000 MW and 2,000 MW of new on-demand capacity.

Type of incentive (Upfront or ongoing)

Ongoing and upfront – mechanisms used to support projects under the program include:

- Financial products that impose an effective price floor on the sale price received by the proponent.
- Loans – upfront capital to be returned over a set repayment period.
- Small grants – to support the development of business cases or deliver additional firm capacity.
- Cap and floor contracts – the government and project proponents may agree to a floor price and cap price to be enacted after year three.
- Contracts for difference – strike price to be triggered after year five.
- Underwriting cap contracts.

Timeline and key dates

Date of introduction October 2018 – initial public consultation paper was released.	Duration – permanent or temporary Temporary - the program is intended to be open for support until 2022-23.	Any other relevant key dates The terms to underwrite the first two projects were agreed in December 2019.
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Underwriting New Generation Investments Program

Applying our framework to the jurisdictional policy

Scope of the intervention

Enabling

The policy aims to remove financial and incentive barriers with respect to the entry of new generation, through support provided by the Commonwealth Government. The program is focussed around targeted investment in specific generation projects, rather than being a significant intervention that has direct implications for all generators under the national framework.

Policy review to date (if available)

The following risks were identified by the Australian Government in the public consultation paper released in October 2018:

- Incentivising over-investment in generation assets.
- Distortion of debt markets for generation investment.
- Transferring investment risks from investors to taxpayers who do not have the ability to manage them.
- The intervention having a dampening effect on investment.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- The Government is targeting a 25-30% reduction in the average wholesale price in the NEM by the end of 2021 – which should in turn result in lower energy bills for consumers.
- The competitiveness of the price at which the project will supply customers is a key project merit criteria, intending to ensure that supported projects will contribute to lower wholesale prices.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

Eligibility criteria requires project proponents to demonstrate that the project is supported by commercial and industrial customers, and/or small retailers that have agreed in-principle to purchase the majority of energy from the project for a minimum of three years.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The policy is targeted at the wholesale market and has more significant implications for commercial and industrial customers than residential and small business customers.

'Big Stick' Legislation

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The new legislation (<i>Treasury Laws Amendment (Prohibiting Energy Market Misconduct) Act 2019</i>) requires energy companies to pass on savings to consumers when there is a sustained and substantial reduction in the costs it faces to supply electricity. The legislation achieves this by amending existing legislation to provide the ACCC with a graduated and targeted set of remedies.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> • Electricity retailers failing to pass on savings to consumers. • Electricity generators refusing to offer contracts to retailers for anti-competitive reasons. • Generator misconduct in wholesale markets to manipulate wholesale prices. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> • Address misconduct in retail, contract and wholesale markets. • Place downward pressure on electricity prices. • Hold energy companies to account. • Deliver a fairer, more affordable and reliable energy system and a stronger economy.

Expected benefits:

A formal cost-benefit analysis has not been conducted – the broad stated benefits of the legislation are to place downward pressure on electricity prices and hold energy companies to account, to deliver a fairer, more affordable and reliable energy system and a stronger economy. Specifically, the government states the amendment will:

- Require electricity retailers to pass on sustained savings to consumers.
- Prevent energy companies from withholding hedge contracts for anti-competitive purposes.
- Stop generators from manipulating the spot market, including by withholding supply.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

The aim is to increase gas supply in South Australia by 50 petajoules per year by the end of 2023 and a stretch N/A

Type of incentive (Upfront or ongoing)

Ongoing – the policy takes the form of an ongoing set of prohibitions and associated remedies to disincentivise misconduct by energy market participants.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
The bill was introduced in September 2019. The legislation took effect in June 2020.	Temporary – the legislation will sunset in January 2026 following the conclusion of the ACCC's inquiry into the NEM.	

'Big Stick' Legislation

Applying our framework to the jurisdictional policy

Scope of the intervention

Solving

- The policy introduces significant measures, including some that go beyond the ACCC's recommendations.
- The Federal Government has indicated that misconduct in the energy market is an area of significant concern, with the 'Big Stick' legislation being one of a number of measures targeting this policy area, including the Default Market Offer, the Underwriting New Generation Investments program and extension of the Consumer Data Right to energy – all of which include objectives to facilitate competition and achieve better price outcomes for consumers.
- Given the policy is a federal policy, it is likely to have an inherent impact on the national framework.

Policy review to date (if available)

No policy review has been conducted.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The legislation is stated as being expected to result in lower bills for consumers by facilitating competition in the spot market and ensuring the savings of retailers are passed on to consumers. However, questions have been raised over how well aligned the measures are with actual misconduct occurring in the market and how effective the threat of severe penalties will be in lowering energy prices.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The policy is primarily focused on the conduct of retailers and generators in order to facilitate the best outcome for consumers as end-users – but does not include any provisions for direct consumer involvement.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The policy does not relate to consumers directly, rather focusing on generator and retailer conduct in the wholesale market. Through targeting misconduct at the wholesale market level, the policy is broadly stated to benefit all energy users.

Snowy 2.0

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	Snowy 2.0 is a pumped hydro project linking two existing dams in the Snowy Mountains region of NSW, providing on-demand energy generation and large-scale energy storage.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>The challenges of an increasing reliance on intermittent renewables, particularly the need for large-scale energy storage and quick-start on-demand generation to meet peak demand when energy supply from renewables may be low. This intends to mitigate the impact of rising energy costs and deterioration in energy system security.</p> <p>What are the objectives set out for the policy to address this?</p> <p>Provide large-scale storage and quick start energy generation to underpin the reliability of the NEM as it becomes increasingly characterised by intermittent renewable resources.</p>

Expected benefits:

A feasibility study was conducted in 2017. The stated benefits were:

- System security and reliability – on-demand energy generation can respond to changing market needs within minutes.
- Lower energy prices – wholesale energy costs will be lower.
- Scale and central location – power from Snowy 2.0 will reach all NEM users.
- Supporting renewables – Snowy 2.0 will enable a low emissions future at least cost by underpinning the stability of the NEM as more intermittent renewables enter the market.

Additional quantitative benefits:

- Snowy 2.0 will provide an additional 2,000 MW of fast-start, dispatchable capacity and 350,000 MWh of energy storage.
- Snowy 2.0 will have the capacity to supply 500,000 households at peak demand for up to 175 hours.

Expected costs:

Estimated project capital costs: \$3.8 - \$4.5 billion – which will be funded by a \$1.38 billion equity injection from the Commonwealth Government, with the remainder financed from Snowy Hydro's balance sheet..

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

The Snowy 2.0 project is largely funded from Snowy Hydro's balance sheet, with the Commonwealth Government committing \$1.38 billion in equity. Snowy Hydro has indicated that the investment generates an 8% IRR, which indicates that revenue is sufficient to service debt and provide a return on all equity.

Aim in investment stock (MW, MWh, type of generation)

The project will provide an additional 2,000 MW of fast-start, dispatchable capacity and 350,000 MWh of energy storage.

Type of incentive (Upfront or ongoing)

Upfront and ongoing – the deal includes various mechanisms including: funding for investment in emissions reduction projects, underwriting mechanisms, and making concessional finance available.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
The project was first announced in early 2017.	Expected project completion – 2026	Main works construction approved in May 2020.

Snowy 2.0

Applying our framework to the jurisdictional policy

Scope of the intervention

Solving

- The large scale of the project and its wide reaching impact across the supply side of the entire NEM indicates it is a significant intervention that will have an inherent significant impact on the national energy framework.

Policy review to date (if available)

- Snowy Hydro conducted a feasibility study in 2017 that concluded the project is both technically and financially feasible – based on its base case design, construction schedule and costs, and returns that meet Snowy Hydro’s investment hurdles.
- An independent analysis was conducted by Marsden Jacob and Associates in 2017, its findings were reasonably aligned with those of Snowy Hydro’s internal assessment; Marsden Jacobs found that Snowy 2.0 would lead to better price outcomes for retailers, customers and large energy users, and help strengthen the NEM at least cost in regard to growing intermittent sources of generation.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- Reduction in price volatility: Snowy 2.0 is expected to reduce supply-side volatility that is a function of intermittent renewable generation sources, resolving demand and supply imbalances and protecting consumers from price shocks.
- Reducing energy prices: Snowy 2.0 will provide capacity and energy storage that can be injected into the NEM during price peaks, therefore expecting to reduce prices paid by consumers.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- The project is focused on generation – it does not include any direct measures for consumer control.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- Power generated by Snowy 2.0 is expected to reach all National Electricity Market users, including Melbourne and Sydney directly and South Australia indirectly.
- The project design does not include any specific measures for the equitable distribution of generated energy amongst consumers.

Technology Investment Roadmap

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The Technology Investment Roadmap is a framework to accelerate the competitiveness of priority technologies against higher emissions alternatives. The Roadmap outlines short, medium and long term goals up to 2050 and beyond. The Roadmap focuses on new and emerging technologies: clean hydrogen, energy storage, low carbon materials (steel and aluminium), carbon capture and storage, soil carbon.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <p>The stated 'big technology challenges' targeted and key priorities of the Roadmap are:</p> <ul style="list-style-type: none"> Delivering more affordable, clean and reliable energy to households and industry for transportation, heating, production and power. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Expanding production and increasing productivity, creating jobs and substantially reducing emissions from Australia's primary industries. Preserving and expanding onshore manufacturing of energy-intensive products and capturing new export markets for low emissions commodities. Scaling geological and biological sequestration such that we provide globally significant permanent sequestration of CO₂.

Expected benefits:

- Position Australia for over \$30 billion per year of new export revenue from energy intensive, low emissions products by 2040.

Priority technology stretch goals (defined as ambitious but realistic) targeted under the Roadmap:

- Clean hydrogen under \$2/kg
- Energy storage: electricity for firming under \$100/MWh – to enable firmed wind and solar at or below the present average wholesale electricity price.
- Low carbon materials: low emissions steel production under \$900/tonne, low emissions aluminium production under \$2,700/tonne
- CO₂ compression, hub transport and storage under \$20/tonne.
- Soil carbon measurement under \$3/hectare per year.

Expected costs:

The Roadmap sets out direction for expected government investment of over \$18 billion in low emissions technology to 2030.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

The Roadmap does not provide a specific, comprehensive investment target.

Type of incentive (Upfront or ongoing)

Ongoing - the Roadmap provides strategic direction to 2050.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
May 2020 – Discussion paper released	The Roadmap sets out key milestones in the short term (2020-22), medium term (2023-30) and long term (2030-50), as well as informing Australia's Long Term Emissions Reduction Strategy.	

Technology Investment Roadmap

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Learning and Enabling



The Roadmap is targeted at expanding the role of priority low emissions technologies and achieving cost parity to incentivise uptake of these technologies in the market.

The Roadmap also provides measures to support emerging and enabling technologies where research and learning will play a role in unlocking the capacity of these technologies.

Policy review to date (if available)

In developing the Roadmap – the Department of Industry, Science, Energy and Resources received approximately 500 submissions from industry, researchers and the community.

A policy review has not been conducted since the implementation of the Roadmap.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- The Roadmap aims to de-risk and reduce costs of emerging energy efficient technologies to allow consumers to capture the savings they offer, therefore reducing energy bills for consumers.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- The Roadmap is targeted at expanding the range of available and cost accessible energy technologies – trusting households and businesses to adopt emerging technologies as they reach cost parity – rather than mandating deployment targets on new technologies or taxation mechanisms on existing technologies.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The key priority technologies identified by the Roadmap are likely to result in more significant implications for industrial energy consumers and the network as a whole, rather than smaller residential or small business energy users.
- The secondary focus on emerging and enabling technologies (such as electric vehicles, demand management systems and energy efficient appliances) is likely to have a stronger application for residential and commercial energy users.

Default Market Offer

Describing the jurisdictional policy

Sector focus	<input type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input checked="" type="checkbox"/> RETAIL
High-level summary	<p>The Default Market Offer (DMO) limits the price that retailers can charge electricity customers on default or 'standing offer' contracts – it is set by the AER and reviewed annually. The DMO is further intended to act as a reference price to allow consumers to more effectively compare market offers from electricity retailers. The DMO was first introduced in July 2019 for home and small business customers in NSW, SA and South-East Queensland, from 1 July 2020 the DMO was introduced for residential customers with a time-of-use rate or without controlled load, and residential and business customers with solar.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The DMO was introduced in response to the Retail Electricity Pricing Inquiry by the ACCC, which noted that standing offers were unjustifiably high and were no longer serving their intended purpose to act as a default protection for consumers. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Reduce the unjustifiably high level of standing offer prices for consumers not engaged in the market. Set DMO prices at a level that provides consumers and retailers with incentives to participate in the market: <ul style="list-style-type: none"> As per the ACCC's recommendations: the default offer should not be the lowest price in the market. Therefore, the introduction of the DMO does not constrain the facilitation of competition, efficient investment and innovation in retail markets.

Expected benefits:

- Reduce electricity bills for customers on standing offer contracts, and allow consumers to more effectively compare energy plans in the market through having a consistent reference price.

Expected costs:

The expected regulatory costs of introducing the default offer are not stated, early evidence produced by the ACCC indicates that the introduction of the DMO and VDO do not appear to have resulted in increased market offer prices – indicating that concerns regarding retailers seeking to compensate for decreased standing offers via increased market offers have not yet resulted in increased costs to be recovered from energy customers on market offers.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Any regulatory cost of introducing the DMO will be borne by the AER and therefore recovered from taxpayers. The DMO aims to reflect the efficient costs of a retailer, including a reasonable allowance for retail margin and customer acquisition and retention, the costs borne by retailers issuing standing offer contracts under the DMO will be recovered from energy customers.

Aim in investment stock (MW, MWh, type of generation)

The DMO is a pricing regulation, it does not target a specific capacity of generation.

Type of incentive (Upfront or ongoing)

The DMO is an ongoing pricing regulation, updated annually.

Timeline and key dates

Date of introduction
1 July 2019

Duration – permanent or temporary
Permanent – to be reviewed and updated annually by the AER.

Any other relevant key dates
A review of the methodology for setting DMO prices will be undertaken as part of developing the 2022-23 DMO.

Default Market Offer

Applying our framework to the jurisdictional policy

Scope of the intervention

Solving



- The DMO reflects a direct intervention by the AER to address unjustifiably high standing offers provided in the market.
- The intervention takes the form of an annual price cap in each region based on a set amount of energy use, whereby default offers provided by retailers to the market cannot exceed the regulated DMO for a given jurisdiction.
- As such, the AER has implemented a pricing barrier on the market, rather than allowing the market to continue to operate freely to set prices.

Policy review to date (if available)

Notable **stakeholder submitted feedback** prior to the establishment of the DMO included:

- Retailers believed a hard-cap DMO would disincentivise customers to pursue a market offer, negatively impacting competition and engagement.
- A bottom-up cost stack approach to more accurately reflect retailers' costs should be considered moving forward, relative to the top-down approach where the DMO is set as the midpoint of the median market offer and median standing.

ACCC – Inquiry into the National Electricity Market – September 2020: The report aimed to assess the early effects of the DMO and Victorian Default Offer (VDO) using data from 8.5 million electricity bills for 1.5 million customers between Q3 2018 and Q3 2019 across the DMO regions and Victoria. The report found:

- Median effective prices for standing offer customers decreased by 4.4% and 7.5% for residential and small business customers respectively.
- The median effective price paid by market offers fell by 1.4%–7.6% and 1%–3.7% for residential and small business customers respectively.
- Median market offers were 17% and 25% lower than median standing offers for residential and small business customers respectively.

Under the **2021-22 DMO:** DMO prices have decreased for all customers in all regions, primarily due to lower forecast wholesale costs, partially offset by increases in network and environmental costs.

How will the policy impact and include consumers?

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

- The DMO is intended to reduce standing offer prices – therefore reducing energy bills for those customers who do not actively participate in the market, whilst providing a more effective reference price for those consumers comparing energy plans in the market, facilitating competition and lower prices.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- On request, retailers are required to supply electricity to customers under a default offer, i.e. consumers have the choice to opt-in to the DMO where they would prefer not to actively engage in the market.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The DMO most significantly affects residential and small business customers who do not actively participate in the market and are therefore on standing offers. The majority of customers on standing offers are customers of 'Tier One' retailers, particularly Local Area Retailers.

National Gas Reservation Scheme

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	<p>The prospective reservation scheme would involve diverting gas to the Australian market that may otherwise be exported. The specific reservation mechanism to be used in the scheme is open to feedback in the options paper. The Commonwealth Government has noted measures adopted by some Australian states, including: acreage reservation whereby gas produced on certain acreage must be supplied to domestic consumers, preferential reservation whereby domestic consumers must be provided first opportunity to buy new gas, and blanket reservation whereby LNG producers are required to reserve a fixed percentage of LNG production for the domestic market. The Commonwealth Government has noted it will consider both a blanket approach or case-by-case assessments under the scheme.</p>
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> The potential reservation scheme is part of the government’s gas market reform agenda, in response to concerns from domestic gas users about higher gas prices and potential future supply shortfalls, including the risk of Australian prices rising above international levels due to domestic scarcity. The ACCC anticipates increased risks surrounding the adequacy of east coast gas supplies to arise – particularly for south-eastern states beyond 2023. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Act as a safeguard against the risk of shortfalls in the adequacy of available supply of gas. Promote the supply of affordable, reliable gas to the domestic market.

<p>Expected benefits:</p> <ul style="list-style-type: none"> Secure gas supply for the domestic market. Provide supply and price security for large C&I gas users. Prevent the potential future need for gas supply restrictions and curtailment of gas powered generation in south-eastern states beyond 2023. 	<p>Expected costs:</p> <p>The expected cost of enacting a reservation scheme has not been stated.</p>	<p>Method of cost recovery</p> <p><input type="checkbox"/> ENERGY CUSTOMER</p> <p><input type="checkbox"/> TAXPAYERS</p> <p>The method of cost recovery will depend on the reservation mechanism used by the scheme.</p>						
<p>Aim in investment stock (<i>MW, MWh, type of generation</i>)</p> <p>The government has not stated an estimated or targeted quantity of gas to be diverted from the export market.</p>								
<p>Type of incentive (<i>Upfront or ongoing</i>)</p> <p>The exact mechanism applied under the scheme has not yet been determined.</p>								
<p>Timeline and key dates</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Date of introduction</td> <td style="width: 33%;">Duration – permanent or temporary</td> <td style="width: 33%;">Any other relevant key dates</td> </tr> <tr> <td>August 2019 – scheme first announced.</td> <td>Permanent</td> <td></td> </tr> </table>			Date of introduction	Duration – permanent or temporary	Any other relevant key dates	August 2019 – scheme first announced.	Permanent	
Date of introduction	Duration – permanent or temporary	Any other relevant key dates						
August 2019 – scheme first announced.	Permanent							

National Gas Reservation Scheme

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Enabling

The policy is intended as being closer to a last resort measure to secure domestic supply in the event of a shortage, rather than a frequent intervention in the operation of the market. As per AEMO forecasting, supply is sufficient to meet demand across eastern and south-eastern Australia until at least 2023, beyond this date increasing risk of a supply shortfall arises.

The Western Australia, Victoria and Queensland state governments currently have different versions of gas reservation policies to ensure supply for the domestic market.

The Australian Domestic Gas Security Mechanism is also in place at the national jurisdictional level, which has similar objectives to secure domestic supply. As such, a gas reservation policy implemented at the national level is not a significant shift from the approach already adopted in other jurisdictions, although the Commonwealth Government will need to consider the submissions of state jurisdictions in determining the final mechanism for the national reservation scheme to ensure it does not create significant conflict with existing state policy.

Policy review to date (if available)

A policy review has not been conducted.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The policy is aimed at increasing supply in the domestic gas market – therefore intending to reduce gas prices for consumers, or mitigate the risk of price increases in the future.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

The policy is targeted at gas producers and does not include any direct measures for consumer engagement.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The policy is targeted at gas producers and does not have a direct consumer focus.
- DISER does note that reliability of supply and affordability of gas is vital to commercial and industrial gas users, particularly in the role it plays in the Australian manufacturing industry, as such the benefits of the policy may have a more significant impact in these applications if the policy progresses.

Australian Domestic Gas Security Mechanism

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	The Australian Domestic Gas Security Mechanism (ADGSM) enables the Australian Government to take action to secure domestic gas supply where there will not be a sufficient supply of gas for Australian consumers. The action takes the form of restricting the export of liquid natural gas (LNG) from LNG projects to secure domestic supply, where there is reasonable prospect of a shortage.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve? The prospect of gas shortfalls or insufficient supply to meet projected demand over the 2017 – 2023 period, driven by net gas flows to LNG projects and a reduction in gas production.</p> <p>What are the objectives set out for the policy to address this? Ensure there is sufficient gas supply to meet the forecast needs of Australian gas consumers.</p>

Expected benefits:

An impact analysis – considering costs and benefits under a range of different scenarios as compared to the status quo – was conducted as part of a Regulation Impact Statement prepared by the Department of Industry, Innovation and Science in November 2017, it noted the following benefits:

- Export controls that are linked to projected shortfalls would ensure the domestic market is supplied with an adequate quantity of gas, helping to combat market uncertainty, which may reduce pressure on prices.
- Gas reliant industries are sensitive to price fluctuations, hence export controls will benefit them.
- Greater availability of reasonably priced gas for households with mains gas.
- Reductions in gas prices are likely to have a follow on effect in causing greater price competition in other energy sources, placing downward pressure on energy prices more broadly.

Expected costs:

The Regulation Impact Statement estimated an annual regulatory cost of \$180,000 for the ADGSM.

Method of cost recovery

- ENERGY CUSTOMER**
 TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

The policy does not target a specific quantity of gas to restrict from the export market.

Type of incentive (Upfront or ongoing)

Upfront – The mechanism operates by requiring LNG projects to limit their exports in the event of a forecast supply shortage in the market.

Timeline and key dates

Date of introduction	Duration – permanent or temporary	Any other relevant key dates
1 July 2017	Temporary – scheduled to cease operation on 1 January 2023.	

Australian Domestic Gas Security Mechanism

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Solving



- The policy is intended as being closer to a last resort measure to secure domestic supply in the event of a shortage, rather than a frequent intervention in the operation of the market.
- As per AEMO forecasting, supply is sufficient to meet demand across eastern and south-eastern Australia until at least 2023, at which point the temporary ADGSM will cease operation.
- However, where an event or sustained period of high prices arises such that the Commonwealth Government engages the ADGSM, this would reflect a significant and direct intervention with the operation of the market.

Policy review to date (if available)

The Department of Industry, Innovation and Science conducted a review of the ADGSM in January 2020, the review found that:

- Whilst it is difficult to quantify the impacts of specific reforms on market outcomes, the overall domestic supply outlook improved between July 2017 and January 2020, which can in part be attributed to the ADGSM alongside other reforms introduced as part of the Commonwealth Government's gas market reform agenda.
- Whilst the ADGSM was introduced as a temporary measure, and there have been clear improvements in the eastern gas market, the market remains uncertain with persisting market pressures to be addressed – hence, the review recommended retaining the ADGSM until its scheduled cessation in 2023.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The ADGSM aims to increase domestic gas supply and competition in domestic gas markets in times of shortage, potentially placing downward pressure on prices. However, it should be noted that the ADGSM is primarily a supply security measure and is not a direct price control mechanism. As such, it may contribute to lower gas bills for consumers, but this is not the primary aim of the policy.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

In determining whether a shortfall of gas supply is likely, consumer groups including major gas consumers and large industrial gas consumers may be consulted, however, this is at the Minister's discretion and not a measure directly available to consumers.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

- The policy is not targeted at any specific consumer group, it aims to improve supply in wholesale markets and provide the benefits of the mechanism to all consumers.
- In determining whether a shortfall is likely, the Minister will consider consumers in each of the major gas markets, and may determine that a shortfall applies to only part of the Australia domestic gas market, or Australia wide.

Hunter Power Project (Kurri Kurri Power Station)

Describing the jurisdictional policy

Sector focus	<input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> ELECTRICITY <input checked="" type="checkbox"/> WHOLESALE <input type="checkbox"/> NETWORK <input type="checkbox"/> RETAIL
High-level summary	The Commonwealth Government has committed \$600 million to support Snowy Hydro's Hunter Power Project, a 660 MW gas-fired generator to be constructed at Kurri Kurri. The generator will act as a peak-load generation facility, providing supply at short notice during times of high demand that cannot be served by renewables.
Stated objectives	<p>What is the perceived problem the Government is trying to resolve?</p> <ul style="list-style-type: none"> An increasing reliance on intermittent, renewable energy sources, and the need for on-demand or dispatchable generation to ensure security of supply. Reliability and risks of energy prices rising attached to the closure of the Liddell Power Station. <p>What are the objectives set out for the policy to address this?</p> <ul style="list-style-type: none"> Place downward pressure on electricity prices, particularly in NSW. Provide firming to existing and future renewable energy generation. Maintain security of supply as the energy transition progresses, particularly following the closure of the Liddell Power Station in 2022-23. Provide the necessary dispatchable energy to ensure security and stability with respect to the volatility that arises from intermittent renewables.

Expected benefits:

- Provide an additional 660 MW of firm and dispatchable capacity, to assist the grid in maintaining reliable energy supply.
- Mitigate the risk of price rises following the closure of the Liddell Power Station in 2022-23, as well as a further 10,000 MW due to be removed by 2040. Snowy Hydro estimated that the closure of Liddell Power Station without replacement could risk price rises of around 30% over two years.
- Facilitate an estimated 1.5 GW – 2 GW of renewable energy, by providing firming capacity within Snowy Hydro's portfolio.

Expected costs:

The Commonwealth Government has confirmed it will spend up to \$600 million to support the construction of the gas-fired power station, the project has an estimated total capital cost of \$610 million.

Method of cost recovery

- ENERGY CUSTOMER
- TAXPAYERS

Aim in investment stock (MW, MWh, type of generation)

Open-cycle gas turbine generator with 660 MW capacity.

Type of incentive (Upfront or ongoing)

Upfront– The Commonwealth Government will provide financial support to Snowy Hydro to support the construction of the plant.

Timeline and key dates

Date of introduction May 2021	Duration – permanent or temporary Permanent	Any other relevant key dates The Kurri Kurri gas-fired power station is expected to be completed and running by the end of 2023.
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Hunter Power Project (Kurri Kurri Power Station)

Applying our framework to the jurisdictional policy

How will the policy impact and include consumers?

Scope of the intervention

Solving



- The scale of investment associated with the project indicates it is of high significance.
- Whilst the addition of new gas-fired generation capacity is indicated to complement renewable generation by firming up supply when intermittent renewable are not generating energy, it may conflict with the decarbonisation goals of some states.
- The construction of large-scale infrastructure poses significant implications for many stakeholders in the energy market, which will last for a long period of time over the lifecycle of the generation assets.

Policy review to date (if available)

No policy review has been conducted.

Lower energy bills for all consumers

What is the expected impact of the policy on energy bills for consumers?

The project is expected to reduce the risk of price rises by firming energy supply when intermittent renewables are not generating sufficient supply to serve demand. Hence the project is targeted at reducing price volatility and mitigating the risk of price increases, rather than directly achieving a decrease in energy bills.

Modern and individualised energy services that give all consumers choice and control

What measures are included in the policy to promote consumer choice and control?

- Snowy Hydro has engaged with community stakeholders as part of the planning process for the project, including meetings with a Community Working Group and communication with local residents and businesses.
- Stakeholders were able to make a submission on Snowy Hydro's proposed project until 9 June 2021, the Department of Planning, Industry and Environment has requested Snowy Hydro prepares a Submissions Report detailing their response to issues raised in submission.

Consumers and stakeholders have confidence that the energy system is designed for all consumers

Who is the policy targeted at – how wide-reaching and equitable is its likely impact?

The project is broadly targeted to secure supply across the NEM, it is likely to have the most significant impact on consumers located in NSW.

Data sources used for this report

Percentage of households that have solar PV installed

NSW, VIC, QLD, WA, SA, TAS, ACT, NT

- Australian PV Institute, Solar PV Status

Commonwealth

- Clean Energy Regulator, Postcode data for small-scale installations

Number of households with battery storage installed, solar PV systems with concurrent battery storage

NSW, VIC, QLD, SA, TAS, ACT

- AEMO DER Register, DER Data Dashboard – number of residential battery units

WA, NT, Commonwealth

- Clean Energy Regulator, Postcode data for small-scale installations

Electricity generated by natural gas and coal

Commonwealth

- Department of Industry, Science, Energy and Resources, Australian Energy Statistics, Electricity generation by fuel type, June 2021

Energy imports data

NSW, VIC, QLD, SA, TAS

- Australian Energy Regulator – Wholesale Markets Quarterly, Q1 2021 – Wholesale electricity markets data

Renewable generation stock

NSW, VIC, QLD, SA, TAS, ACT

- Australian Energy Market Operator – NEM Generation Information, May 2021
- Australian Energy Market Operator – 2020 Inputs Assumptions and Scenarios Workbook

WA

- WA Government, Energy Transformation Taskforce – Whole of System Plan

NT

- Utilities Commission NT – Review of the NT Generator Performance Standards, 2019
- Utilities Commission NT – Northern Territory Electricity Outlook Report, 2018-19

Commonwealth (electricity generated by renewables in 2019)

- Department of Industry, Science, Energy and Resources, Australian Energy Statistics, Electricity generation by fuel type, June 2021

Households renting in 2017/18

NSW, VIC, QLD, WA, SA, TAS, ACT, NT, Commonwealth

- Australian Bureau of Statistics – Survey of Income and Housing, 2017-18

Electricity customers receiving tailored assistance/on a hardship program

VIC

- Essential Services Commission – Victorian Energy Market Update, June 2021 (pg. 14)

NSW, QLD, SA, TAS, ACT

- Australian Energy Regulator – Annual Retail Markets Report 2019-20 (pg. 81-82)

WA

- Economic Regulation Authority – Annual data report 2019/20, Energy retailers (pg. 22)

NT

- Utilities Commission NT – NT Electricity Retail Review, 2019-20 (pg. 25)

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