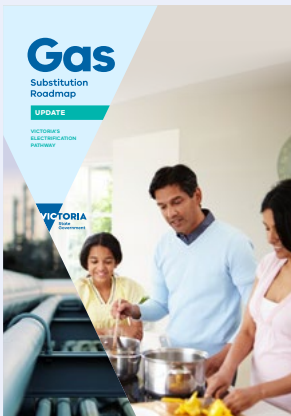


# Cheaper, Cleaner, Renewable: Our Plan for Victoria's Electricity Future



# Our plans to reach 95% renewable electricity

Victoria has comprehensive plans for each of the key sectors within the energy transition, providing clear guidance to industry and communities. Our Plan for Victoria's Electricity Future summarises all of the plans the Victorian Government has in place to reach 95% renewable electricity by 2035.



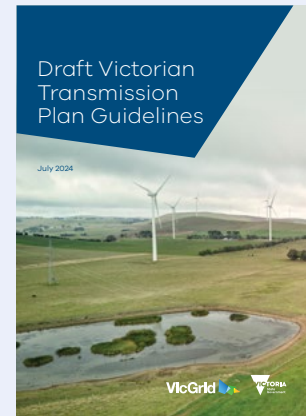
**Gas Substitution Roadmap Update**



**Offshore Wind Energy Victoria Implementation Statement 3**



**Victorian Transmission Investment Framework – Final Design Paper**



**Draft Victorian Transmission Plan Guidelines**



**Gas Substitution Roadmap**



**Offshore Wind Energy Victoria Implementation Statement 1**



**Offshore Wind Energy Victoria Implementation Statement 2**



**Victorian Renewable Hydrogen Industry Development Plan**



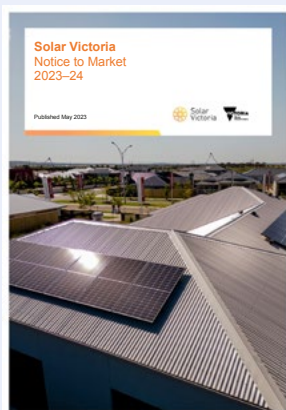
**Local Jobs First Policy**



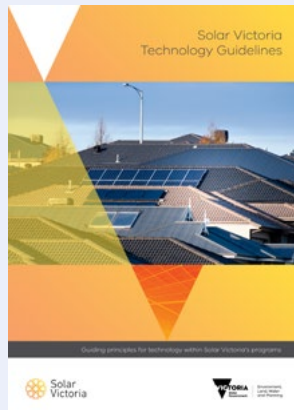
**Victorian Energy Jobs Plan Consultation Paper**



**State Electricity Commission Victoria Strategic Plan 2023–2035**



**Solar Victoria Notice to Market 2023–24**



**Solar Victoria Technology Guidelines**



**Victoria's Renewable Gas Consultation Paper**



**Clean Economy Workforce Development Strategy 2023–2033**



**Major Projects Skills Guarantee Policy Statement**



**Harnessing Victoria's Distributed Energy Resources**

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.



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# Message from the Minister

## Victoria's electricity transition will deliver clean, affordable, reliable and secure electricity for all Victorians.

Victoria is undergoing a once-in-a-generation electricity transition. As the state's ageing and unreliable coal-fired power plants retire, they are being replaced with cheaper, more reliable renewables.

The Victorian Government is committed to delivering an affordable, reliable and secure electricity system for all Victorians, helping us to keep the lights on as coal-fired generation closes, act against climate change, and deliver cheaper renewable energy to homes and businesses across the state. It will also help create opportunities for Victorians, including through partnerships with Traditional Owners and First Peoples, job creation, and local supply chain development.

The Victorian Government has legislated targets for renewable generation of 65% by 2030 and 95% by 2035, and nation-leading storage targets of at least 2.6 gigawatts (GW) by 2030 and 6.3GW by 2035. Victoria has also legislated offshore wind energy targets of at least 2GW by 2032, 4GW by 2035 and 9GW by 2040. These are critical to achieving our world-leading climate targets to reduce Victoria's emissions by 45–50% below 2005 levels by 2030, 75–80% by 2035 and achieving net zero emissions by 2045.

Victoria is well on its way to meeting these targets. We've more than tripled the share of renewable energy since 2014 and are now generating 38% of our power from renewables. Through close engagement with communities and industry, tangible progress is being made. As of July 2024, renewable energy policies and programs have helped Victoria to reach:

- 5,409 megawatts (MW) of commissioned large-scale wind and solar capacity – renewables are now producing more electricity per annum than any of the 3 remaining coal-fired generators;

- 4,847MW of small-scale rooftop solar photovoltaic (PV) capacity – rooftop solar produced more than 9% of Victoria's electricity generation in 2023/24;
- 537MW of commissioned battery storage capacity – more than any other state.

With our abundant offshore wind resources, Victoria is leading the development of offshore wind in Australia. In the Gippsland region, the Country and Sea Country of the Gunaikurnai, we have the nation's first and largest offshore wind zone of over 15,000 square kilometres. Up to 12 projects are under development in Gippsland with the potential to deliver 25GW of power generation. The huge potential of this technology has seen us make offshore wind energy a key pillar of our renewable energy transition and we expect this ambitious approach to play a crucial role in achieving our legislated 95% renewable generation by 2035 target.

Our record investments in renewable energy are the reason that Victorian wholesale power prices are consistently lower than other states, resulting in lower bills for all Victorians. We are also taking immediate action to rapidly electrify Victoria's gas use in residential and commercial buildings to further ease cost-of-living pressures and meet emissions reduction targets. Reducing gas use in households will also preserve gas for the small amount of gas-fired electricity generation that will be required to support our 95% renewables target, and for industrial processes where electrification is not yet feasible.

Victoria's Gas Substitution Roadmap, released in 2022, was an important first step in helping our state navigate the path to net zero emissions while cutting energy bills. The Roadmap outlined how we will use energy efficiency, electrification, biomethane and renewable hydrogen to drive down bills and cut carbon emissions. An update to the Roadmap was released in 2023, with the next iteration due for release in late 2024.

Despite our significant progress to date, we need to do more, to be bolder and move faster. That's why we are taking action to streamline planning

processes to help accelerate approvals and prevent undue uncertainty and delays for renewable energy projects, including through the new accelerated planning pathway announced in March 2024. Our Victorian Transmission Investment Framework, and Renewable Energy Zones, will help integrate the views of communities and ensure land use considerations are better understood, and environmental, economic and social impacts are robustly considered.

We must continue to enable self-determination outcomes for Traditional Owners and First Peoples, and improve how we engage with landowners, communities, and consumers. As a critical enabler to planning, building and participating in our future energy system, we are developing and investing in the necessary skills and workforce. We must do all this while maintaining system reliability and affordability.

Acknowledging the enormity of the transition, partnership remains fundamental to the government's approach. The Victorian Government is working closely with the private sector, the Australian Government and other state governments, Traditional Owners and First Peoples, landowners, and communities to accelerate the state's electricity transition. Partnerships also underpin action to develop the workforce necessary for our energy system of the future.

We see this as an unprecedented opportunity for the private sector to invest the capital and deliver the technology required for Victoria's transition. The Victorian Government is committed to continuing to support this investment in Victoria by providing fit-for-purpose policy settings, an accelerated planning approvals pathway, a stable regulatory environment, and promoting investment opportunities.

The Victorian Government also recognises the important role that government needs to play. We have re-established the SEC to help accelerate the energy transition and deliver renewable, affordable, reliable energy for all Victorians.

We are committed to ensuring consumers and communities remain at the heart of the transition through our focus on energy resilience, accessibility, and affordability. We understand that recent outages at coal-fired generators and high international gas prices have pushed electricity prices higher, placing pressure on households, industry, and businesses. We also know that regional communities are particularly impacted as the state transitions away from coal-fired power. We will ensure that in making decisions we consider these impacts.

This document lays out our vision for Victoria's future electricity system. It provides a whole-of-system view of the actions the Victorian Government is taking, and the investment opportunities for the private sector through to 2035. It also demonstrates our commitment to collaborate with landowners, local communities, investors and industry. Furthermore, it affirms our resolute commitment to meaningfully partner with Traditional Owners and First Peoples as distinct rights holders that will enable opportunities to be harnessed and drive Victoria's electricity transition forward.

We will keep Victoria at the forefront of this transition and ensure our energy future is a bright one.



**The Hon. Lily D'Ambrosio MP**

Minister for Climate Action  
Minister for Energy and Resources  
Minister for the State Electricity Commission

# Developing partnerships with Traditional Owners and First Peoples

The Victorian Government acknowledges that Traditional Owners and First Peoples' communities have historically not had a seat at the table in the formation of the state's energy infrastructure and technology development.

The Victorian Government is committed to working in partnership with Traditional Owners as distinct rights holders to Land, Sea, River and Sky Country. Traditional Owners have rights that must be upheld as laid out under the *Charter of Human Rights and Responsibilities Act 2006* (Vic), the *Traditional Owner Settlement Act 2010* (Vic), the *Aboriginal Heritage Act 2006* (Vic) and the *Native Title Act 1993* (Cth). The government acknowledges that Traditional Owners have legal rights and cultural responsibilities that will be recognised and supported. This is reflected in the government's commitment to Treaty, enshrined in the *Advancing the Treaty Process with Aboriginal Victorians Act 2018* (Vic).

The Victorian Government will enable self-determination and drive sustainable outcomes for Traditional Owners and First Peoples. The government will ensure that Traditional Owners and First Peoples who may be affected by renewable electricity technology development, including transmission infrastructure and onshore and offshore renewable generation and storage projects, are at the centre of decision-making processes for issues and opportunities that directly affect them, and have opportunities to benefit from renewable energy development.

The Victorian Government has recently engaged with Traditional Owners and First Peoples' communities on how it can best support self-determination through the electricity transition. We recognise their feedback, including on the need for greater community education about the electricity transition, increased resourcing and capability to engage with developers, early visibility of the government's program of work and opportunities for input on key decisions, economic benefit from infrastructure built on Country, and repatriation of Country. The Victorian Government has taken early steps to act on this feedback. For example, the government has provided

targeted early engagement and funding for resources to support meaningful participation and input on the state's offshore wind development – and its impact on Land, Sea, River and Sky Country. The government has also acted on transmission programs, facilitating on-Country sessions for the Victoria to New South Wales Interconnector (VNI) West and early and ongoing consultation on benefits-sharing models through VicGrid, and providing funding for resources to support participation. Funding has also been provided for education materials that can be customised for individual Traditional Owner Corporations' needs.

The Victorian Government honours Traditional Owners and First Peoples, who never ceded their sovereignty and their spiritual and intrinsic connection to Land, Sea, River and Sky Country, the sacredness and importance of protecting cultural heritage and cultural values since time immemorial.

Strong and mutually beneficial partnerships with Traditional Owners and First Peoples are imperative to the electricity transition's success and integral to ensuring the goals and objectives of self-determination set out in the Victorian Government's Self Determination Reform Framework and the Department of Energy, Environment and Climate Action's (DEECA) Pupangarli Marnmarnepu 'Owning Our Future' Aboriginal Self-Determination Reform Strategy 2020–2025.

We will be continually guided by Traditional Owners and First Peoples' communities – now and in the future – who have expressed a strong interest in investing in renewable energy to deliver their interests and their desire to own and manage renewable energy generation and storage technology and infrastructure to meet their communities' cultural, spiritual and economic needs.

This is our responsibility. This is our commitment.

As part of a once-in-a-generation renewable electricity transition and transformation, there is an obligation for industry and government to create genuine partnerships with Traditional Owners and First Peoples, to ensure that their self-determining rights and interests are upheld. This will be the catalyst for historical change and reform that will see immediate and future flow-on effects. It will have a positive impact on the environment and advance the social and economic outcomes for Traditional Owners and First Peoples and all Victorians.



# Benefits for Victoria

## The orderly electricity transition will result in:



### Improved affordability for consumers

Driving deployment and increasing use of renewables, which will continue to be the lowest cost form of generation available, will help keep electricity prices down.

Due to our higher share of renewables, Victorian households and businesses have been better insulated against recent price increases caused by high international gas prices and outages at coal generators. Victorian wholesale prices have been consistently lower than other states.

Parallel support will be provided through programs including Solar Homes and Victorian Energy Upgrades (VEU), and the new government-owned renewable energy company – the SEC – will enable Victorians to share directly in the benefits of the transition.



### Self-determination outcomes for Traditional Owners and First Peoples

Maintaining and creating partnerships that share benefits and ensure outcomes fairly recognise the rights and cultural responsibilities of Traditional Owners and First Peoples.



### Fair outcomes for communities and landowners

Supporting local communities and landowners (including farmers) through improved benefit-sharing arrangements and neighbourhood distributed energy resources initiatives.



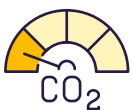
### Stronger local supply chains

Building on Victoria's thriving research and development sector, world-leading smart meter infrastructure and expectations for local content in renewable projects, there are many opportunities for businesses to invest in and build on existing capabilities in Victoria's manufacturing industry.



### New jobs and economic activity

Creating 59,000 jobs in solar, wind and emerging energy industries with workforce reskilling underpinned by new training centres, workforce development programs and school pathways. This includes creating around 6,000 jobs for apprentices and trainees, and the transformation of jobs across the economy.



### Reduced emissions

Leading Victoria's decarbonisation by focusing on our most polluting sector and setting ambitious targets of 75-80% emissions reduction (economy-wide) and 95% renewable generation by 2035.



### Maintained reliability and system resilience

Ending Victoria's reliance on ageing and increasingly unreliable coal-fired power plants in favour of a diverse mix of renewables, including onshore and offshore wind and solar, and storage to ensure system reliability is maintained.

System resilience will also be supported through new legislation, which will require network businesses to proactively invest in network and community resilience to respond to climate impacts.

# Victoria's electricity system in 2035

Achieving our emissions and renewables targets will transform electricity use and supply in Victoria. Compared to 2024, by 2035:



**Electricity use will have increased by about 50%**<sup>1</sup>, driven by the electrification of homes and businesses, uptake of electric vehicles, and new industrial load growth.



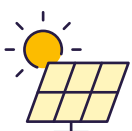
**Around 4.8GW of emissions-intensive brown coal-fired power capacity** will have closed.



**Around 11.4GW of new grid-scale renewables** will be installed, including 4GW of offshore wind.



**Around 6.3GW of new short and long duration storage** will be in place, supported by targeted gas-fired power generation (GPG), to ensure electricity supply in periods of peak demand and when there is low or no wind and solar generation.

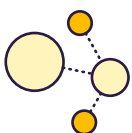


**Around 7.6GW of additional rooftop solar and 4.3GW of distributed storage**<sup>2</sup> will be installed, including behind-the-meter batteries, demand-side participation and smaller front-of-meter assets such as neighbourhood batteries.



**Consumers will see benefits from:**

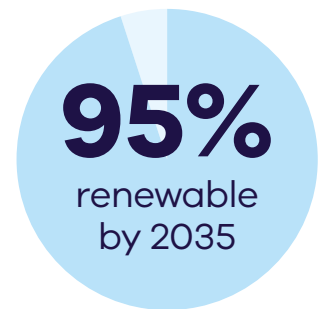
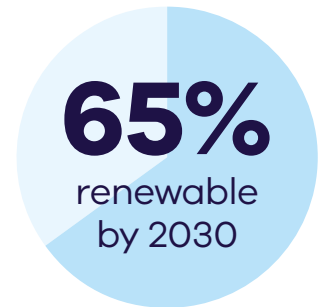
- **consumer energy solutions and electrification savings** including through the Solar Homes, VEU and SEC programs;
- **an orderly transition that will reduce wholesale price volatility; and**
- **comprehensive consumer protections and assistance programs will be available** including the Victorian Default Offer (VDO) and Victorian Energy Compare.



**VNI West and Marinus Link interconnectors will be online, exporting Victorian renewables in the National Electricity Market (NEM) and providing access to over 2.4GW** of firming resources to Victoria. These projects will also improve Victoria's energy security.



**New transmission line developments and network infrastructure upgrades** will be developed or completed (VNI West, Marinus Link, Western Renewables Link and transmission to transport offshore wind from Gippsland) to connect large-scale renewable energy and storage to the Victorian grid.



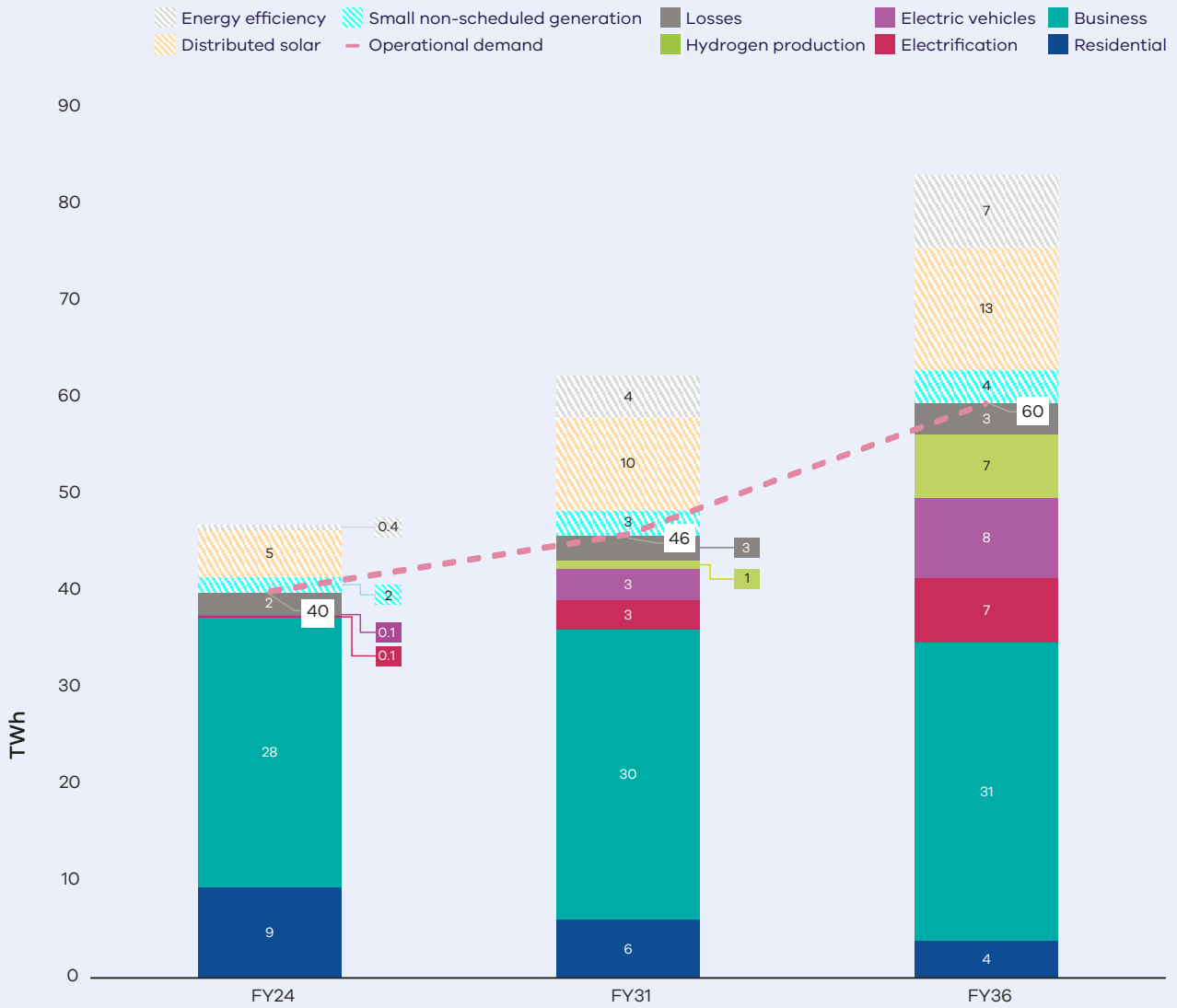
1 Australian Energy Market Operator electricity forecasting data portal, demand forecasts from 2024 Integrated System Plan Step Change scenario.

2 Includes virtual power plants (2,480MW), vehicle-to-grid (380MW), uncoordinated storage (1,600MW) and uncoordinated storage (1,450MW); Note virtual power plants (co-ordinated distributed storage) is also included in 6.3GW.



Victorian electricity use will increase by about 50% by financial year 2036, driven by the electrification of homes and businesses, and the growing uptake of zero emissions vehicles (ZEVs), partially offset by improved energy efficiency.

**Exhibit 1: Victoria's annual electricity consumption forecast, in terawatt-hours (TWh)**

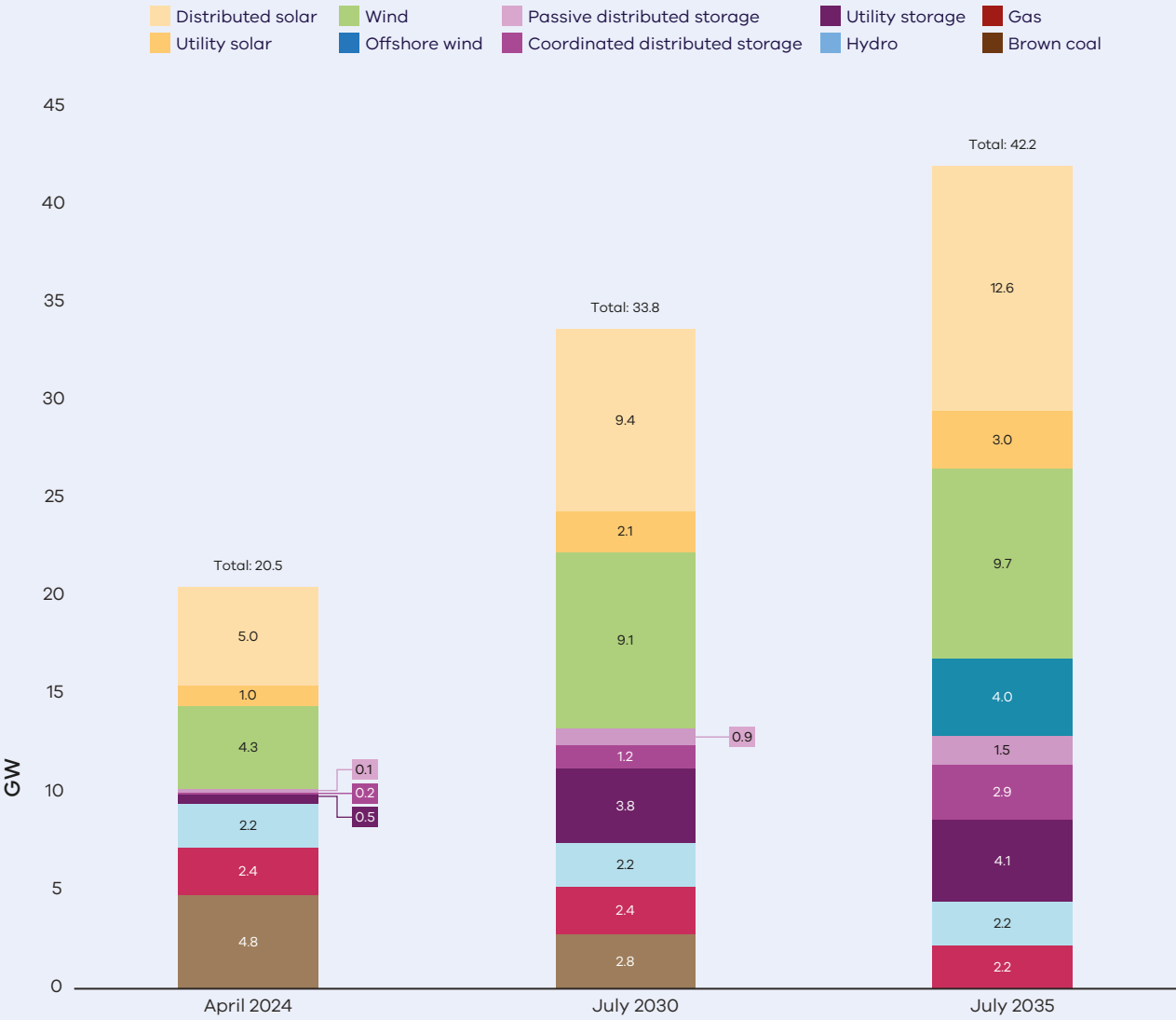


Source: Australian Energy Market Operator electricity forecasting data portal, demand forecasts from 2024 Integrated System Plan Step Change scenario

The above exhibit demonstrates one of several plausible scenarios and is indicative only. Depending on market developments and future government policy, levels of Victorian electricity consumption may differ from what is presented.

Victoria’s installed capacity will more than double by financial year 2036 to accommodate demand growth and address the exit of 4.8GW of coal-fired power as Victoria progresses towards the 65% (2030) and 95% (2035) renewable energy targets.

**Exhibit 2: Victoria’s installed capacity outlook (GW)**



Source: Projections are drawn from Australian Energy Market Operator 2024 Integrated System Plan

# Keeping Victoria's competitive advantage

It is critical that government facilitates an orderly energy transition to ensure affordable, reliable energy for business and industry, as it is essential for the stable and efficient functioning of Victoria's economy – and community more broadly.

Over the past decade, Victoria has made world-leading progress on the energy transition. We have often been the first Australian jurisdiction to head highly complex energy policy reform, laying the groundwork to ensure that communities and businesses benefit from an orderly transition. Victoria's approach to plan for – and now deliver – the electricity transition is arguably the most comprehensive of any Australian jurisdiction, and has enabled our state to provide investment certainty to all market participants, including through:

- Setting renewable energy and climate action targets through legislation;
- Leading the development of offshore wind in Australia. We've legislated Australia's first offshore wind targets and we are on track to deliver a comprehensive procurement design and support package to provide the investment certainty industry needs to develop and build offshore wind energy projects in Victoria;
- Negotiating Structured Transition Agreements to facilitate the orderly closure of coal-fired generators;
- Active engagement with the Commonwealth Government on the Capacity Investment Scheme (CIS) to bring forward further investments in renewable energy and battery storage for Victoria;
- Delivering a transparent, integrated Gas Substitution Roadmap and updates, which will reduce pressure on declining legacy gas supply sources, assist gas customers to take advantage of highly efficient and cost-effective electric appliances, and enable the uptake of renewable gas technologies;
- Leading and collaborating with other jurisdictions to implement national gas rule changes to better ensure reliability of gas supply through the transition;
- Uplifting the deployment rate of distributed energy resources, including solar and batteries, through the Solar Homes program;
- Providing new market supports to reduce the upfront cost of energy-efficient appliances to customers, avoid emissions, and provide whole-electricity-system benefits to all customers through the VEU and Solar Homes programs;
- Reforming the way our transmission system is planned and delivered to harness renewable energy hotspots and provide greater benefits to communities, through VicGrid;
- Planning system reforms, an accelerated approvals pathway for major energy projects, and new tools

and guidance to streamline environmental approvals, which have helped to make Victoria's planning approval timelines faster;

- Energy transition investments and contracting through the SEC's investment in the Melbourne Renewable Energy Hub, which is one of the world's largest batteries, the Victorian Renewable Energy Target (VRET) auctions and large-scale storage initiatives;
- Implementing nation-leading retail market reforms to protect consumers, including a default offer methodology that limits retail margins and the Payment Difficulty Framework; and
- Delivering a 10-year framework to inform government planning and investment in the skills and training Victoria requires to reach net zero emissions by 2045, through the Clean Economy Workforce Development Strategy 2023–2033. This work will be complemented by the Victorian Energy Jobs Plan and Women in Energy Strategy, which are due to be released in 2025.

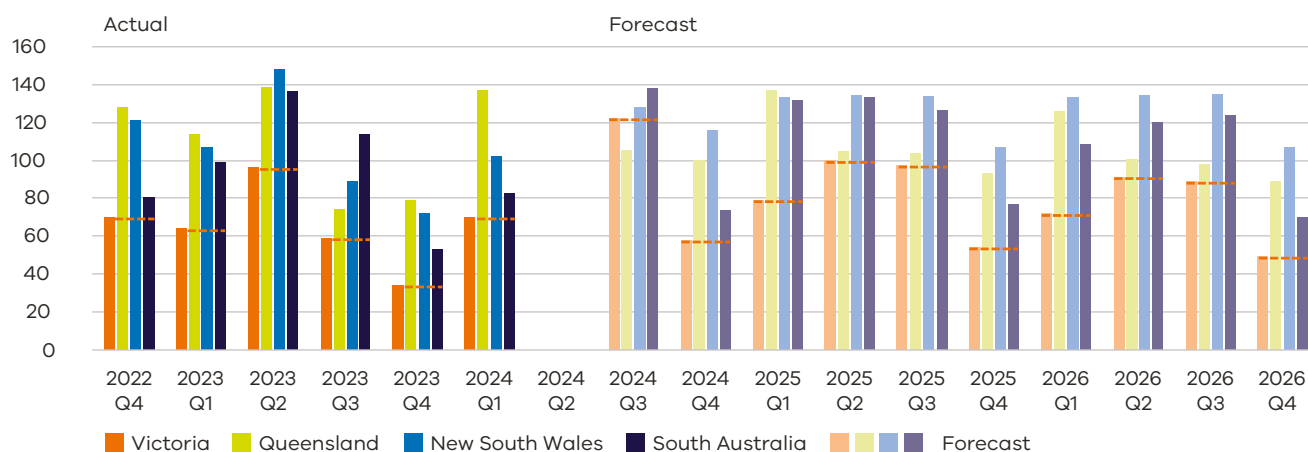
Victoria's brown coal and gas reserves have historically delivered low energy prices for Victorians. The state's progress in deploying renewables puts us in a position to be able to maintain competitively priced energy, with some of the lowest wholesale gas and electricity prices in the NEM, as we move away from these sources. **Exhibit 3** shows our wholesale electricity prices have been lower than other mainland states, and that they will continue to be into the future.

Victoria has consistently balanced affordability with reliability and improved sustainability of energy supply, leading the way in establishing an electricity default offer methodology that limits retail margins and creating the Payment Difficulty Framework to protect customers; initiatives that other jurisdictions have sought to replicate. **Exhibit 4** shows the VDO is lower than the equivalent default market offer (DMO) in other states.

Victoria has sought to ensure that retailer margins have been contained to give consumers the best outcomes. Retail competition is strong in Victoria, and the [Victorian Energy Compare website](#) helps all Victorians shop around for the best deal, based on their actual electricity usage as measured by their smart meter.

The energy transition contributes to the government's growth agenda, including by providing significant opportunities for growth in jobs and investment in the renewable energy transition. Victoria is taking a targeted and responsive approach to building on competitive advantages, as we build a sustainable energy workforce, leveraging assets such as our higher education and training sectors, and existing manufacturing base.

**Exhibit 3: Victoria's recent and forecast wholesale electricity prices, relative to other NEM states**



Source: Australian Energy Regulator quarterly volume weighted average spot prices – regions; ASX Quarterly Base Futures as at July 2024

**Exhibit 4: Residential and small business VDO compared to DMO rates**

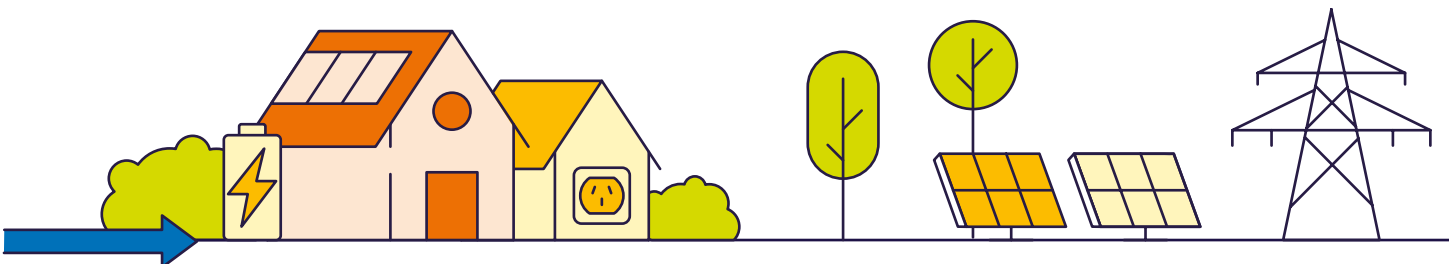
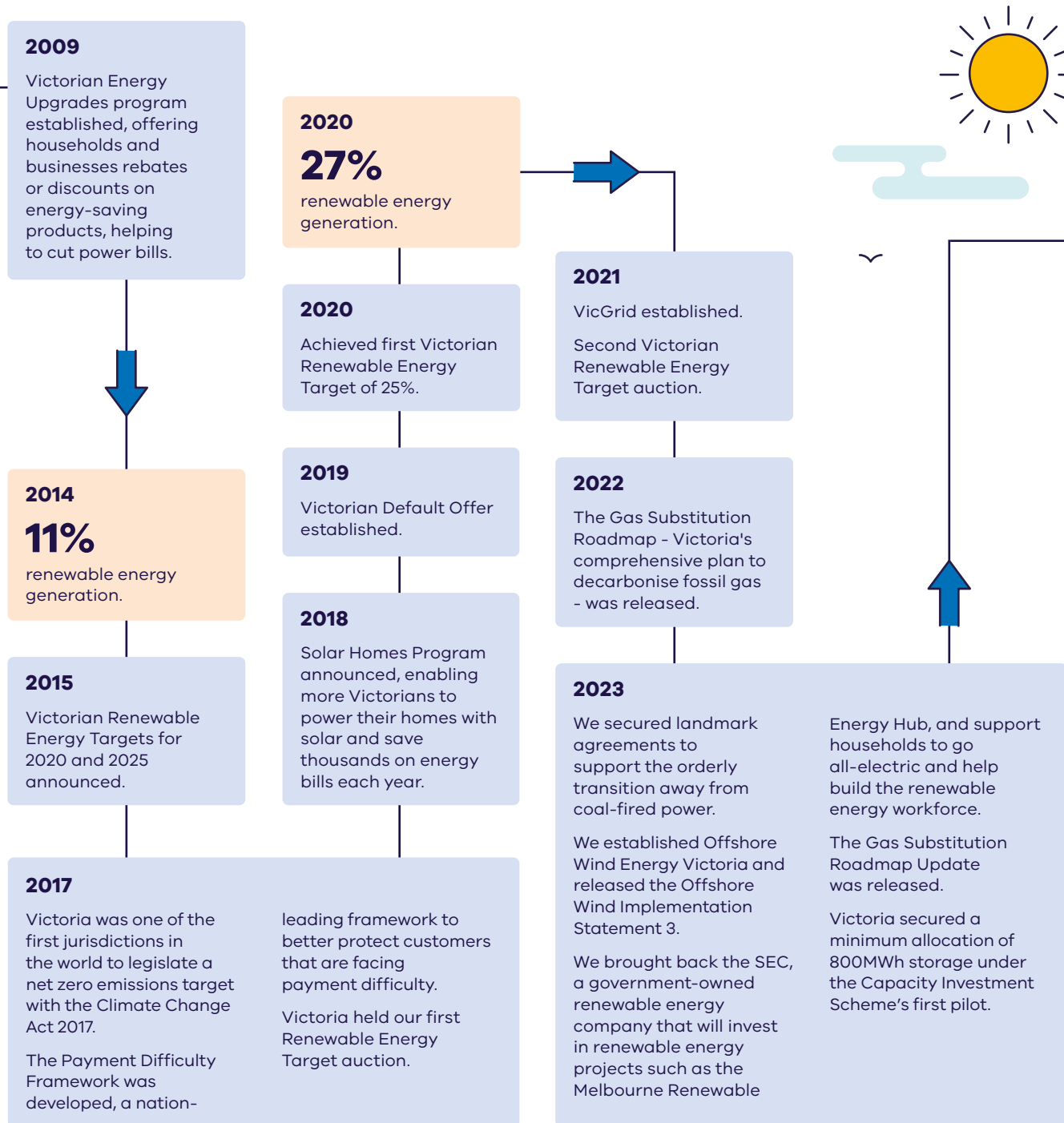
Residential VDO compared to DMO rates 2024–25			
Default offer	Jurisdiction	Equalised at 4,000 kilowatt-hours (kWh) annual usage (\$ per year)	DMO price compared to the VDO
DMO	NSW	\$1,952	+\$297
DMO	QLD	\$1,797	+\$142
DMO	SA	\$2,230	+\$575
<b>VDO</b>	<b>VIC</b>	<b>\$1,655</b>	

Small business VDO compared to DMO rates 202–25			
Default offer	Jurisdiction	Equalised at 10,000 kWh annual usage (\$ per year)	DMO price compared to the VDO
DMO	NSW	\$4,922	+\$1,392
DMO	QLD	\$4,261	+\$731
DMO	SA	\$5,352	+\$1,822
<b>VDO</b>	<b>VIC</b>	<b>\$3,530</b>	

Sources: Essential Services Commission; Australian Energy Regulator

# Victoria's leadership and vision for the transition





## 2024

We legislated updated renewable electricity generation targets of 65% by 2030 and 95% by 2035 and offshore wind targets of at least 2GW by 2032, 4GW by 2035 and 9GW by 2040. To provide support for more renewable capacity, we legislated storage targets of at least 2.6GW by 2030 and 6.3GW by 2035.

Victoria secured an initial allocation of a minimum

1.4GW renewable energy generation capacity under the national Capacity Investment Scheme's first tender.

We introduced a suite of reforms, including 7-star energy efficiency, all-electric new homes and minimum rental standards, that will make Victorian homes cheaper to run and more comfortable to live in.

## We are here

We are seeing an increase of large-scale solar and wind farms across the state and storage solutions, like the Victorian Big Battery.

Victorians are embracing the transition, with growing uptake of energy-efficient electric appliances, rooftop solar, household batteries and electric vehicles.

Our energy system is becoming stronger through microgrids and neighbourhood batteries.

We will kick off our competitive offshore wind auction process with an Expression of Interest opening later this year.

And we're working on transmission and network upgrades across the state to improve and modernise the grid so more renewables can flow through Victoria.

Throughout all this change, we are listening to communities and partnering with Traditional Owners and First Peoples to deliver better outcomes for all Victorians.

**38%**

renewable energy generation.

## 2030

- Emissions will be 45-50% below 2005 levels.
- 65% renewable electricity generation.
- At least 2.6GW energy storage capacity.
- Half of all light vehicle sales in Victoria will be zero emissions vehicles.

## 2025

By 2025, Victoria's emissions will be 28-33% below 2005 levels and 40% of our electricity will come from renewables.

Victorian Transmission Plan is released, the first strategic plan identifying Victoria's future renewable energy zones and transmission projects.

Next phase of the offshore wind auction process will commence.

## 2032

2GW offshore wind.

## 2035

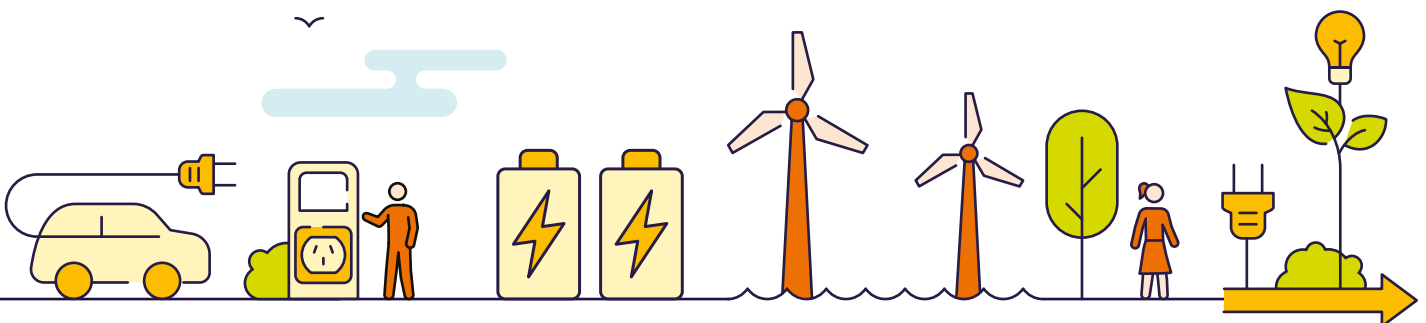
- Emissions will be 75-80% lower than 2005 levels.
- 95% renewable electricity generation.
- At least 6.3GW energy storage capacity.
- 4GW offshore wind.

## 2040

9GW offshore wind.

## 2045

Victoria will reach net zero emissions.



# Enabling partnerships in an orderly transition

Our Plan for Victoria's Electricity Future is underpinned by clear statutory frameworks and regulation, institutional reform and targeted interventions that support economic investment in an orderly electricity transition:

- **Statutory frameworks and regulation:** The Victorian Government has put in place explicit legislation to de-risk investment, including the *Climate Change Act 2017 (Vic)*, *Renewable Energy (Jobs and Investment) Act 2017 (Vic)*, and the *National Electricity (Victoria) Act 2005 (Vic)* legislation, which ensures timely delivery of critical infrastructure in the public interest.
- **Institutional reform:** Government has established fit-for-purpose Victorian institutional reforms that enhance the national frameworks to better serve Victorians, including:
  - **Establishment of VicGrid**, a dedicated Victorian transmission planning body responsible for developing and implementing the Victorian Transmission Investment Framework (VTIF). Transmission planning functions are being transitioned over time from the Australian Energy Market Operator (AEMO) to VicGrid.
  - **Establishment of Offshore Wind Energy Victoria**, a single gateway to government, to support the coordination and development of offshore wind generation in partnership with Traditional Owners, industry, and the community.
  - **Establishment of Solar Victoria**, to drive the revolution in solar, storage and energy-efficient appliances for homes and businesses, set strong standards for safety and consumer protection, and help Victorians take control of their energy bills.
  - **Retail market reforms**, to protect and assist consumers, including the VDO, Victorian Energy Compare, Energy Fairness reforms and Victoria's nation-leading Payment Difficulty Framework.
- **Targeted interventions:** Government has brought back the SEC to co-invest with the private sector and speed up the transition to renewables. The new SEC will put power back in Victorians' hands, including by investing an initial \$1 billion towards building 4.5GW of new renewable energy generation and storage projects by 2035. The SEC will also support households to go electric and help build the workforce needed to drive the transition, including through the implementation of the SEC Centre of Training Excellence. Workforce development is also being supported by expert workforce planning through the Victorian Skills Authority. Victoria's electricity transition provides enormous opportunities for Victorian communities,

particularly with respect to skills development and job creation, but it is also one of the most significant economic and technical transformations in history. To leverage these opportunities, the Victorian Government is listening to Traditional Owners and First Peoples as rightsholders and partners, consumers, landowners, and communities, and is working closely with energy market participants at all scales.

The Victorian Government is also working in partnership with industry, the Australian Government and other states to ensure appropriate and timely reform to national frameworks:





- **Industry:** Victoria will need industry to bring dynamism and innovation, skills and ultimately the capital needed to drive the transition. It is estimated that a further \$35 billion<sup>3</sup> of capital investment will be needed to deliver the transition between now and 2035.
- **Australian Government and other states:** Victoria is part of the NEM, and there are critical projects that the state will rely on (including VNI West and Marinus Link) and regulatory reforms that will be undertaken in partnership with the Australian Government and other states through the National Energy Transformation Partnership.
- **Traditional Owners and First Peoples:** The pace and complexity of Victoria's energy transition is having an immediate impact on the capacity of Traditional Owners and First Peoples' communities to engage and provide feedback to government and industry. Traditional Owners and First Peoples have clearly expressed their expectations and requirements of government and industry in engaging early, building respectful relationships, ensuring they have a seat at the table in the development of energy infrastructure on Country, and a share in the economic benefits delivered.
- **Landowners and communities:** These stakeholders remain at the heart of decision-making for the transition. The Victorian Government is committed to ensuring that in making decisions, the impacts and opportunities for communities that host new infrastructure are considered and that direct benefits are delivered.
- **Education, training providers and unions:** In achieving our 95% renewable energy target by 2035, we will create 59,000 jobs, including around 6,000 jobs for apprentices and trainees, and transformation of jobs across the economy. This will require a pipeline of skilled workers, apprentices and trainees.

3 This estimate is based on [analysis conducted by PWC](#) for DEECA in 2022. The actual investment required may vary.

# Actions that the Victorian Government is taking

The Department of Energy, Environment and Climate Action has responsibility for leading the Victorian Government's policy development and implementation across the transition with multiple government organisations all working together.

The Victorian Government's comprehensive set of actions to support Victoria's electricity transition – and ensure affordable, equitable and reliable outcomes for all Victorians – can be categorised under 4 pillars, summarised below.

Pillar	Actions
 <p><b>1</b> Enabling the renewables big build</p>	<p>Action 1.1: Building energy storage to support renewables</p> <p>Action 1.2: Diversifying through offshore wind</p> <p>Action 1.3: Coordinated transmission planning</p> <p>Action 1.4: Expanding and modernising the transmission network</p> <p>Action 1.5: Improving planning and approval processes to provide better and more timely outcomes</p> <p>Action 1.6: Bringing back the SEC</p>
 <p><b>2</b> Empowering households and businesses to lower energy bills</p>	<p>Action 2.1: Helping households, communities and businesses access distributed energy resources</p> <p>Action 2.2: Driving the uptake of zero emissions vehicles</p> <p>Action 2.3: Protecting consumers and supporting grid stability through regulatory reform</p> <p>Action 2.4: Improving the functioning of distributed energy resource markets</p> <p>Action 2.5: Decarbonising homes and businesses</p> <p>Action 2.6: Supporting households and businesses to electrify</p> <p>Action 2.7: Providing further targeted support for low-income groups and renters</p> <p>Action 2.8: Highlighting the benefits of electrification and energy efficiency through public education</p> <p>Action 2.9: Introducing energy efficiency requirements for homes and buildings</p>
 <p><b>3</b> Managing the transition away from fossil fuels</p>	<p>Action 3.1: Managing closures of coal-fired generators</p> <p>Action 3.2: Maintaining targeted gas use during the transition</p> <p>Action 3.3: Working with AEMO and industry to ensure reliability</p> <p>Action 3.4: Enhancing energy safety and network resilience</p>
 <p><b>4</b> Creating jobs, skills and supply chains</p>	<p>Action 4.1: Strengthening local renewable electricity supply chains</p> <p>Action 4.2: Developing the Victorian Energy Jobs Plan and the Women in Energy Strategy</p> <p>Action 4.3: Establishing greater energy-focused training</p> <p>Action 4.4: Developing energy-specific educational infrastructure for TAFE and other training providers</p>

# Pathway to deliver the future electricity system



## Pillar of the transition

## Progress to date

**1**  
Enabling the renewables big build

Generation



38% renewable energy use  
SEC strategy released

Storage



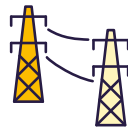
~0.5GW of storage currently operating  
Legislated storage targets

Offshore wind



Legislated offshore wind targets  
Offshore wind implementation statements released

Transmission



6,000km network  
Invested in priority renewable energy zone stage 1 projects to strengthen the grid  
Community and stakeholder engagement on the first Victorian Transmission Plan

**2**  
Empowering households and businesses to lower energy bills

Solar PV



~28 % of Victorian homes have solar PV  
Introduced emergency backstop for all new, upgrading and replacement solar systems

Energy efficiency in buildings



Introduced 7-star energy efficiency, all-electric new homes and minimum rental standards  
Solar Victoria 's Residential Electrification Grants program launched  
Energy Efficiency in Social Housing program launched



Lowest energy prices in NEM  
VDO established

**3**  
Managing the transition away from fossil fuels



Hazelwood closure (-1.6GW)

**4**  
Creating jobs, skills and supply chains



New Energy Jobs Fund, ~1,800 jobs created through VRET, ~2,200 jobs supported through the VEU program, over 4,700 workers received training through Solar Victoria  
SEC is building awareness of career opportunities in renewable energy through engagement with students at career days and events, with plans to scale up engagement from 2025

2025 →	2030 →	2035 →	2024-35	
2025: 0.6GW comes online from VRET2 auction		2035: 12.7GW onshore grid-scale renewables: onshore wind (9.7GW) and utility solar (3GW) online	+7.4GW	+25GW
	2030: 2.6GW total storage online	2035: At least 6.3GW total storage online	+6.3GW	
	2032: 2GW offshore wind	2035: A further 2GW offshore wind	+4GW	
2027: Western Renewables Link online 2029: 1.7GW VNI West <sup>4</sup>	2030: 750MW Marinus Link stage 1 <sup>5</sup>	2030-40: Completion of other high priority renewable energy zone transmission projects	+2.4GW <sup>6</sup>	
2025: 100 Neighbourhood Batteries program Round 1 projects completed		2035: 7.6GW additional solar PV (6.3GW rooftop PV, 1.2GW large distributed up to 30MW)	+7.6GW	
2025-26: New energy efficiency standards for commercial buildings 2027: 45,000 social housing energy efficiency upgrades complete			6GW avoided	
2025: Consumer Protections Framework				
2028: Yallourn closure (-1.45GW)		2035: Loy Yang A closure (-2.21GW) TBC: Loy Yang B closure (-1.16GW)	-4.8GW	
2025: Release of the Victorian Energy Jobs Plan and Women in Energy Strategy 2025: SEC Centre of Training Excellence commences implementation 2028: Full implementation of the TAFE Clean Energy Fund, including Clean Energy Centres established at TAFE Gippsland and South West TAFE; Stage 2 of the Asia Pacific Renewable Energy Training Centre at Federation TAFE		2035: Enabled the creation of 6,000 apprenticeships and traineeships through the electricity transition	59,000 jobs created	

4 Delivery as close as possible to 2028.

5 Development of Marinus Link Stage 2 subject to further business case assessment. This would provide a further 750MW of interconnector transfer capacity.

6 Interconnector flows only from VNI West and MarinusLink. Additional renewable energy zone transmission projects will be identified in the Victorian Transmission Plan, a long-term strategic plan for transmission development in Victoria.

# Pillar 1: Enabling the renewables big build



To ensure the ongoing affordability, reliability, and sustainability of Victoria's electricity system, a balanced combination of renewable generation and storage will be required to replace retiring coal-fired generation.

The Victorian Government has legislated renewable generation targets of 65% by 2030 and 95% by 2035, and storage targets of at least 2.6GW by 2030 and at least 6.3GW by 2035. These targets translate to approximately an additional 25GW of large and small-scale generation and storage capacity from 2024 to 2035. Storage will include a mix of short, medium and longer durations to manage both intra-day mismatches between renewable supply and demand and occasional periods of multi-day or seasonal shortfalls.

Key actions of the Victorian Government to enable the renewables and storage big build include:

### Action 1: Building energy storage to support renewables

Victoria is already the home of big batteries and has legislated storage targets of at least 2.6GW by 2030 and 6.3GW by 2035 to provide crucial support for more renewable capacity.




The Victorian Government has taken a range of measures supporting the entry of dispatchable zero emissions storage into the market. In addition to the 375MW of utility-scale storage online that has been supported by the Victorian Government, including the 300MW Victorian Big Battery:

- the State's VRET2 program will deliver a further 365MW of new energy storage;
- the State is supporting the Yallourn closure and the Yallourn asset owner's 350MW 4-hour battery;
- the Renewable Energy Zone (REZ) Stage 1 program is supporting a 185MW / 365 megawatt-hour (MWh) big battery with grid forming inverter in the Murray REZ; and
- the State's Energy Innovation Fund is supporting the 100MW / 220MWh Terang battery.

The Victorian Government has advocated for further national market reforms to provide signals for capacity investment, including long duration storage. Victoria has worked closely with the Australian Government to inform the national CIS, which will deliver 23GW of renewable electricity generation and 9GW of dispatchable capacity nationally by 2030.

The Victorian Government is currently engaging with the Commonwealth Government to develop a bilateral Renewable Energy Transformation Agreement (RETA) that meets Victorian energy transition needs. The RETA will set out Victorian allocations for future tender rounds of the CIS, securing support for investments in renewable energy and storage projects in Victoria. To date, Victoria has secured an initial allocation of at least 1.4GW of renewable energy generation capacity in the first national CIS auction that was launched in May 2024, which is in addition to Victoria's minimum allocation of 800MWh in a CIS pilot storage auction across Victoria and South Australia seeking to support at least 600MW of 4-hour equivalent (or 2,400 MWh) dispatchable capacity.

#### Indicative cumulative components needed from 2024 to 2035 (not comprehensive)

	<b>Onshore wind</b>	<b>+ 5.4GW</b> by 2035	<b>900</b> Wind turbines
	<b>Solar</b> (grid-scale and rooftop PV)	<b>+ 9.6GW</b> by 2035	<b>27 million</b> Solar panels
	<b>Utility-scale batteries</b>	<b>+ 3.6GW</b> by 2035	<b>3,600</b> Battery packs

Notes: Some figures have been rounded. Component figures for onshore wind assume 6MW turbines.

Sources: Indicative estimates based on modelling conducted by Accenture (2023) for DEECA and subject to change; stakeholder consultations; DEECA internal expert consultations.

## Action 2: Diversifying through offshore wind

Offshore Wind Energy Victoria (OWEV) has been established to unlock Victoria’s world class offshore wind resource and meet the state’s nation-leading offshore wind energy targets of at least 2GW of offshore capacity by 2032, 4GW by 2035 and 9GW by 2040. OWEV is the gateway for industry, stakeholder and community engagement as the new industry is developed.

Offshore wind is a key pillar of Victoria’s electricity transition and presents a huge opportunity to diversify Victoria’s sources of renewable energy. Offshore wind energy offers higher capacity factors<sup>7</sup> compared to other renewable generation sources, and can be built with comparatively lower impacts.

Victoria has unique advantages for offshore wind relative to other states. The waters off the coast of Victoria have strong and consistent wind speeds which are high by both Australian and international standards, and the timing of peak offshore winds aligns well with peak electricity demand. The large areas of shallow ocean in Bass Strait are suitable for fixed-platform turbines and are near existing onshore transmission points. Victoria also has ports with the potential to be upgraded to support construction, operation, and maintenance of offshore wind.

The Victorian Government is establishing foundational policies, processes and infrastructure planning frameworks to de-risk and encourage significant private capital investment, including by providing regular market updates through the offshore wind energy implementation statements.

Implementation statements provide updates on a competitive procurement process, legislative and regulatory reforms, and associated transmission, ports, industry and workforce development. Statements also address protecting the environment and the Victorian Government’s continued commitment to supporting the self-determination of Traditional Owners and First Peoples.

The Victorian Government has developed a balanced local content setting that ensures the early success of the offshore wind sector in Victoria, while creating long-term opportunities for Victorian workers and businesses, including through the recently established Renewable Jobs Taskforce. The Taskforce will continue to enable local industry engagement and participation in relation to offshore wind projects. Through the competitive procurement process, proponents will need to comply with the *Local Jobs First Act 2003* (Vic) and Local Jobs First Policy – with requirements tailored to reflect offshore wind as a new industry in Australia and significant global competition for the technology.

### Indicative cumulative components and equipment needed from 2024 to 2035 (not comprehensive)



**Offshore  
wind**

**222**  
Wind turbines

Notes: Assumes an average turbine size of 18MW.

Sources: Indicative estimates based on modelling conducted by Accenture (2023) for DEECA and subject to change; stakeholder consultations; DEECA internal expert consultations

### Offshore Wind Energy Targets

At least

**2 GW**

by 2032

**4 GW**

by 2035

**9 GW**

by 2040

<sup>7</sup> 'Capacity factor' refers to the ratio of the electrical energy produced by a generating unit for the period of time compared to the electrical energy that could have been produced at continuous full power during the period.



### Action 3: Coordinated transmission planning

VicGrid is the Victorian Government agency responsible for planning and developing the new infrastructure that will transport energy generated by large-scale renewables to the electricity grid. Guided by the Victorian Transmission Investment Framework (VTIF) reforms, VicGrid is introducing a new approach to planning infrastructure to ensure an affordable, reliable, safe and secure transition to net zero emissions.

As part of this approach, VicGrid is delivering a new long-term, strategic plan for renewable energy and transmission development in Victoria – the Victorian Transmission Plan. The Victorian Transmission Plan will ensure we build the right amount of energy infrastructure in the right places at the right time, avoiding both under-investment (building too little) and over-investment (building too much). VicGrid is implementing fundamental reforms to the transmission planning process to better accommodate the needs of local communities and accelerate development timelines.

Improving and modernising the electricity grid by proactively planning transmission upgrades to unlock REZs is critical to the renewable electricity transition. REZs will be areas of the state that not only have abundant renewable energy resources, such as wind and sun, but are also appropriate for development from a land use and environmental perspective.

REZs will also deliver benefits to developers, through improved access reform that gives generators more certainty they can deliver their energy to consumers, and to communities, through the government’s new Renewable Energy Zone Community Benefits Plan.

Existing arrangements for transmission planning and development are no longer fit for purpose to deliver network investment at the pace and scale required to support the transition, and they have not adequately prioritised community engagement. VicGrid’s new approach puts engagement at the heart of the transmission planning process, to minimise impacts on communities and the environment. The Victorian Government is establishing the VTIF, with the following reforms:

- amending the *National Electricity Victoria Act 2005* to deliver a new planning process for new major transmission infrastructure and REZs through the Victorian Transmission Plan;
- streamlining the approach to specifying and procuring projects, along with new access schemes to improve investor certainty and support the coordination of investment in transmission, generation and storage infrastructure, ensuring timely delivery and value for money taking a place-based approach to achieve genuine and meaningful partnerships with impacted local communities and Traditional Owners and First Peoples, focusing on collaborative, long-term strategies;

#### Victorian Transmission Investment Framework



1.

New strategic land use assessment to identify the most appropriate areas for renewable energy zone development while minimising impacts and maximising benefits and opportunities for host communities



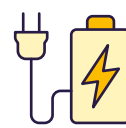
2.

Development of the Victorian Transmission Plan - a longer-term vision for transmission in Victoria



3.

New community benefits with additional payments for landholders, significantly affected neighbours, First Peoples and hosting communities



4.

Reform the way generators can access the grid and get energy to market in Victoria



5.

Reform the way Victoria procures major transmission infrastructure projects

#### Early and better engagement processes and partnership opportunities



- using a strategic land use assessment planning tool to improve the consideration of social and environmental factors when planning transmission projects and identifying significant or sensitive areas to be avoided; and
- taking a more equitable and effective approach to benefit sharing, including additional payments of \$200,000 per kilometre of a typical easement area of transmission hosted, indexed and paid over 25 years for landholders – in addition to existing compensation payments landholders who host new transmission easements are entitled to.

VicGrid has released draft guidelines that outline how it will develop the 2025 Victorian Transmission Plan and subsequent plans. The draft guidelines set out how the Victorian Government will determine how much renewable energy generation Victoria needs and when, and what transmission projects are needed to support that new generation.

The draft guidelines also include a study area map showing parts of Victoria that may be investigated further for suitability to host future REZs. Engagement with Traditional Owners and First Peoples, landholders, communities and industry will shape the final guidelines and development of the Victorian Transmission Plan.

#### **Action 4: Expanding and modernising the transmission network**

The Victorian Government is investing \$480 million from the REZ Fund into projects and network augmentations to improve system strength, reduce existing constraints and support the connection of Victoria's pipeline of renewable energy projects.

VicGrid is also working closely with the Australian Government and other states to accelerate the development of critical interconnector projects that will enhance Victoria's connections with the broader NEM, such as the Marinus Link.

Victoria has signed a non-binding agreement with the Australian Government that provides \$750 million in concessional financing to advance the completion of the crucial VNI West interconnector project by the planned date of 2028. This agreement also includes a further \$1.5 billion of concessional financing from the Australian Government's Rewiring the Nation initiative for REZ projects in Victoria.

VicGrid is also coordinating the planning and development of transmission infrastructure required for offshore wind in Gippsland and Victoria's southwest. By providing a coordinated solution, VicGrid is avoiding a 'spaghetti effect' of multiple transmission lines.

#### **Action 5: Improving planning and approval processes to provide better and more timely outcomes**

It is essential to strike the right balance between the needs of the electricity transition with local environmental and community considerations. Our planning and environmental approval processes for energy projects must be robust, but should not cause undue uncertainty and delays.

Government is streamlining planning processes to help accelerate approvals and provide greater up-front clarity to minimise the likelihood of unexpected late-stage refusal, or changes or delays to individual projects. This also ensures the views of Traditional Owners, First Peoples and local communities are integrated, land use considerations are better understood, and environmental, economic and social impacts are considered.

To achieve this, the Victorian Government is:

- making renewable energy projects eligible for an accelerated planning pathway, under the Development Facilitation Program. It will protect avenues for the voices of communities, who want to have input on a proposal, to be heard, while removing the scope for extended periods of uncertainty in the planning panel process and third party appeals at the Victorian Civil and Administrative Tribunal;
- funding the delivery of timely Environmental Effects Statement (EES) assessments and planning reform to improve the EES process, with \$7.3 million provided in the 2024-25 State budget;
- delivering new data sets, biodiversity mapping and guidelines on at-risk fauna to support more robust and predictable environmental approvals and facilitation, backed by \$10 million funding over 3 years<sup>8</sup>; and
- continuing to provide a dedicated facilitation team to support renewable energy planning applications, providing generators with more certainty in grid access, which has been a barrier to investment.

<sup>8</sup> State of Victoria, April 2024, *A better approach to managing biodiversity impacts of renewable energy projects*. Available: <https://www.energy.vic.gov.au>

## Action 6: Bringing back the SEC

The new SEC will deliver renewable, affordable, reliable energy for Victorians. The SEC is a government-owned renewable energy company that will deliver more equitable access to benefits of the energy transition and better outcomes for consumers. The SEC's Strategic Plan 2023-2035, released in October 2023, outlines the SEC's areas of focus:

- investing in renewable energy and storage projects that accelerate the transition and deliver commercial returns;
- supporting households to go all-electric to reduce their energy bills; and
- building the renewable energy workforce the transition requires.

The SEC is partnering with industry to transform the energy sector, driving further innovation and investments in renewables. This includes an initial \$1 billion towards delivering 4.5GW of new renewable energy and storage projects.

The SEC will play an important role in helping Victorian households to reduce their energy bills and emissions by offering simple and practical solutions to help them switch to all-electric.

The energy transition will create thousands of jobs. The SEC will help address the need for new skills in solar, wind, storage, small-scale energy solutions and emerging technologies, by working with schools, TAFEs and other educational institutions to support the development of training and skills to build the renewable energy workforce of the future. The SEC Centre of Training Excellence, which will commence implementation in 2025, will play a lead role in the attraction and training of renewable energy workers.

The SEC's work will help build a more reliable, affordable, renewable energy future and ensure Victorians can access the benefits of the transition.



### Melbourne Renewable Energy Hub investment

The SEC is investing \$245 million to develop the Melbourne Renewable Energy Hub, one of the world's largest battery projects. The hub is being developed near Melton by renewable energy investor Equis Australia and will deliver 1.6 gigawatt hours (GWh) of energy storage, with potential to expand. That is enough to power around 200,000 homes during peak evening consumption.

The SEC's investment enabled construction to begin immediately and supported one of the project's battery components to double in size. When operational in late 2025, the batteries' capacity will total 600MW and will store excess wind and solar energy being generated across the grid. The hub's powerful inverter technology will also enhance grid stability and reliability as our ageing coal-fired stations retire, helping safeguard Victoria's power supply. The hub will provide much-needed storage for Victoria's electricity grid and support the development of new renewable energy projects across Victoria's REZs.

## Pillar 2: Empowering households and businesses to lower energy bills



## The Victorian Government is empowering Victorian households and businesses to participate in the electricity transition and save money by taking greater control of their own energy through the uptake of distributed energy resources (DER).

The uptake of solar, batteries, energy-efficient appliances and electric vehicles by Victorian homes and businesses is underpinning the electricity transition and at the same time lowering bills and offering consumers greater control over their energy consumption.

Significant digital upgrades of the sector along with enhanced coordination and new control measures are necessary to maximise the full benefits of DER (so Victorians see a clear return on their investments) while maintaining the safety and security of the grid. This includes coordination by distribution networks and other third parties of distributed consumer devices, such as batteries and electric vehicles.

Victoria leads Australia in the uptake of smart meters, with near 100% penetration amongst homes, which provides rich electricity usage data and supports efforts to improve the management of Victorian distribution networks.<sup>9</sup> As at 1 July 2024, over 28% of Victorian homes have rooftop solar, and distributed PV already accounts for about 10% of the state's electricity generation (utility scale solar currently accounts for approximately 3%). By 2035, distributed PV is expected to account for about 20% of the state's electricity generation.

The Victorian Government is also taking immediate action to support Victorians to shift away from fossil gas use in residential and commercial buildings to ease cost-of-living pressures and meet emissions reduction targets. Through Victoria's Gas Substitution Roadmap (released in 2022) and Roadmap Update (released in 2023), the Victorian Government has outlined how the state will navigate the path to net zero emissions while cutting energy bills, using energy efficiency, electrification, biomethane and renewable hydrogen.

Cost-effective electric alternatives exist for most of Victoria's gas use – heating, hot water and cooking in buildings. Switching from gas to electricity in Victoria's residential and commercial buildings will save households and businesses thousands on energy bills, as well as cut emissions and help maintain reliability of supply for those industrial gas users that are harder to electrify.

### Action 1: Helping households, communities and businesses access distributed energy resources

Access to DER should be equitable for all Victorians. Currently, it is difficult for renters to install DER as landlords have little incentive to invest in these technologies for the benefit of their tenants. Low-income households have a reduced ability to pay the high upfront costs of DER systems and apartment dwellers have difficulty installing solar PV due to the complexities of installing solar panels on shared roof spaces, and owners' corporation approval processes.

The Victorian Government's \$1.3 billion Solar Homes Program, announced in 2018, is providing rebates and loans to support households to install solar PV systems, energy-efficient hot water units, and solar batteries. As of July 2024, around 340,000 solar PV, hot water and battery system rebates and loans have been approved under the program, adding around 2GW of generating capacity and 210MWh of storage capacity since 2018. In the 2024–25 budget the Victorian Government provided \$37.7 million for the Solar Homes hot water rebate program, providing an additional 35,000 rebates to eligible households, and \$6.1 million for the battery loans program, providing 2,500 interest-free battery loans in 2024–25.

Apartment dwellers are being supported through the Victorian Government's Solar for Apartments program, a \$16 million partnership with the Australian Government. The program, also delivered by Solar Victoria, aims to remove some of the barriers to installing solar PV on apartment buildings by targeting funding at owners' corporations.

<sup>9</sup> Australian Competition and Consumer Commission, May 2022, Inquiry into the National Electricity Market.

Solar Victoria has also launched the \$10 million Residential Electrification Grants program to provide bulk funding to volume home builders, developers and others for solar panels, solar hot water and heat pumps up to the value of \$2,400 for combined incentives per customer. The program will enhance the transition of new and existing Victorian homes, developments and precincts through electrification and innovative home energy solutions, reducing greenhouse gas emissions and energy bills while streamlining the customer experience.

The Victorian Government's \$42 million 100 Neighbourhood Batteries Program will fund the installation of 100 neighbourhood batteries. This will improve energy reliability and provide energy storage capacity for locally generated solar power, which is expected to increase access to renewable energy and help lower energy bills.

The Victorian Government is supporting businesses to take advantage of the benefits of DER through the VEU program, helping them to cut power bills and reduce greenhouse gas emissions. The program provides Victorian businesses with incentives for energy-efficient products and services such as heating and cooling upgrades, hot water system installation, and refrigeration upgrades. A strategic review of the VEU will ensure that the scheme is fit for purpose for the future and can enable electrification of homes and businesses at scale. Under the measurement and verification method, businesses can install solar to reduce their use of electricity from the grid. To date, 48 large businesses have installed 23MW of solar energy, saving more than 200,000 tonnes of emissions.



Credit: Powercor

## Action 2: Driving the uptake of zero emission vehicles

ZEVs are an important source of distributed energy storage. This contribution will grow through the development of vehicle-to-grid programs, which allow electricity stored in a vehicle's batteries to be exported back to the grid when it is efficient to do so. The uptake of ZEVs will also drive a reduction in vehicle emissions, which are significant – the transport sector currently accounts for 23% of Victoria's emissions<sup>10</sup>.

The Victorian Government has taken action to promote the transition away from internal combustion engine vehicles in favour of ZEVs, including setting targets for new vehicle sales, public transport buses and government fleet and investment into the expansion of charging infrastructure across the state. The Victorian Government announced additional funding in August 2023 for 214 new chargers across Victoria, building on 116 destination charging sites currently being rolled out. Regulatory changes have also been introduced including registration discounts for ZEV users, and an electricity licence general exemption order made for electric vehicle (EV) charge point operators to ensure these important assets can be provided swiftly, underpinning a smooth and rapid transition.

The Victorian Government is also working with the Australian Government and other jurisdictions on the delivery of national reforms and programs outlined in the National Electric Vehicle Strategy and the National Consumer Energy Resources Roadmap. The Victorian Government has advocated to the Australian Government for the introduction of strong New Vehicle Efficiency Standards (NVES). The NVES are expected to commence in 2025, and are expected to improve efficiency of internal combustion engine vehicles sold in Australia and reduce upfront costs for ZEVs by making the Australian new vehicle market more attractive for manufacturers to deliver low and zero emission vehicles.

Longer term, the uptake of electric vehicles, supported by national reforms, will enable vehicle-to-grid functionality, turning more homes into distributed sources of storage for the grid. Successful integration of electric vehicles into the grid presents a significant opportunity to stabilise the grid. Co-ordinated electric vehicle charging and discharging through vehicle-to-grid can smooth peaks and troughs in generation and demand and stabilise electricity prices while also providing frequency and voltage management services.

### Indicative cumulative components and equipment needed from 2024 to 2035 (not comprehensive)



**Residential  
EVs**

**1.4 million**  
Electric vehicles

**1.4 million**  
Charge ports

Sources: Indicative estimates based on modelling conducted by Accenture (2023) for DEECA and subject to change; stakeholder consultations; DEECA internal expert consultations

<sup>10</sup> Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2021, State and territory greenhouse gas inventories.

### **Action 3: Protecting consumers and supporting grid stability through regulatory reform**

The Victorian Government is pursuing regulatory reform to improve the stability of the Victorian grid. While the uptake of DER is desirable, it also creates challenges for system security which must be actively managed to unlock its full potential. For example, increasing solar PV penetration rates will reduce minimum energy demand, and high rates of solar export could lead to voltage instability without the implementation of mitigating measures. The complementary uptake of behind-the-meter batteries and flexible export technologies could reduce these risks by providing consumers with greater value and better ways of managing their solar power.

The Emergency Backstop Mechanism will provide Distributed Network Service Providers (DNSPs) with greater control during periods of low system security. The emergency backstop came into effect for large rooftop solar systems (greater than 200kW) from 25 October 2023, and will come into effect from 1 October 2024 for smaller rooftop solar systems (200kW and less). The Victorian Government is also continuing to improve proactive voltage management through the Voltage Management Directions Paper, and work has begun to develop longer-term policy and regulatory reform that will further support cost-effective approaches to DER market integration.

The Victorian Government is also taking action to protect consumers investing in new energy technologies from high pressure sales tactics, by banning doorknocking and telemarketing under the Solar Homes and VEU programs. From 1 May 2024, telemarketing is banned under both programs. From 1 August 2024, retailers in the VEU program are no longer allowed to doorknock – bringing the program in line with the Solar Homes program where door-to-door sales were banned in 2021.

Hundreds of thousands of Victorians have already embraced DER to take control of their energy supply and save on their energy bills. DER products and services are often more complex than the traditional energy services most businesses and households are accustomed to using. These trends bring potential new risks for consumers of DER products and services, particularly as new products and services enter the market. To minimise these risks – and maximise the benefits – it is important that households and businesses are appropriately protected, now and in the future, when purchasing and using DER products and services. To ensure this, the government is undertaking a review of consumer protections for customers of DER products and services.



## Action 4: Improving the functioning of distributed energy resource markets

Enabling consumers with DER to participate in wholesale energy markets and sell network services to distribution businesses is critical to achieving the full benefits of a high DER future. Market-wide solutions are required to facilitate data-sharing at the scale necessary to achieving an integrated DER market that delivers value to asset owners in addition to enhanced performance of the energy grid for all Victorians. Several products and services have emerged which enable DER participation in existing markets, and trials and technology are enabling new ways of compensating DER for the services it provides.

The Victorian Government is a strong advocate for the Australian Energy Regulator's trials of DNSP data-sharing requirements, which would make it easier to establish a market-wide view of DER data. The Victorian Government will continue advocating for the regulated provision of low-voltage network data.

## Action 5: Decarbonising homes and businesses

More than 2 million Victorians use gas in their homes and businesses (more than any other state or territory). By 2035, AEMO forecasts an approximate 40% reduction in consumption of fossil gas by these users.<sup>11</sup> Fossil gas currently accounts for around 17% of Victoria's greenhouse gas emissions and to achieve our emissions targets while ensuring sufficient gas is available for industry and GPG, we need to take immediate action to reduce household gas use. The Victorian Government's actions are outlined in the Gas Substitution Roadmap (the Roadmap). An updated version of the Roadmap was released in December 2023, with the next release planned for late 2024.

The shift to efficient electric appliances will help reduce Victoria's emissions and alleviate the pressure of rising energy costs on consumers. Renewable energy combined with modern, energy-efficient electrical appliances is now the most cost-effective way to warm, cool and power Victorian homes.

Increased uptake of energy-efficient appliances along with more efficient building construction reduces the amount of power dwellings and commercial buildings require, keeping prices lower for all Victorians and taking the pressure off electricity and gas systems – meaning less generation and transmission infrastructure will be needed to support a reduced demand profile.

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<sup>11</sup> Australian Energy Market Operator, 2024, Gas Statement of Opportunities, forecasting portal.

### New homes and businesses

Built today, a new, all-electric home has 16% lower emissions than a new dual-fuel home, saving 0.9 tonnes carbon dioxide equivalent. Over the 10-year period from 2024–2034, a new, all-electric home has 29% lower emissions than a new dual-fuel home, saving 13.5 tonnes carbon dioxide equivalent.

Residents of a typical new, all-electric detached home (without solar) will spend around \$2,600 a year on energy bills, compared with around \$3,600 per year for a dual-fuel (electric and gas) home. That means going all-electric will save new homeowners around \$1,000 per year. Those savings can increase to more than \$2,200 a year with solar installed. Not only do all-electric homes cost less to run, they also have none of the health risks associated with gas cooking and heating.

The Victorian Government is introducing all-electric requirements for new homes. From 1 January 2024, all new residential buildings and subdivisions that require a planning permit can no longer connect to the gas network. This applies to new planning permit applications submitted from 1 January 2024 for dwellings in both greenfield and infill sites, apartments, and all new public and social housing delivered by Homes Victoria.

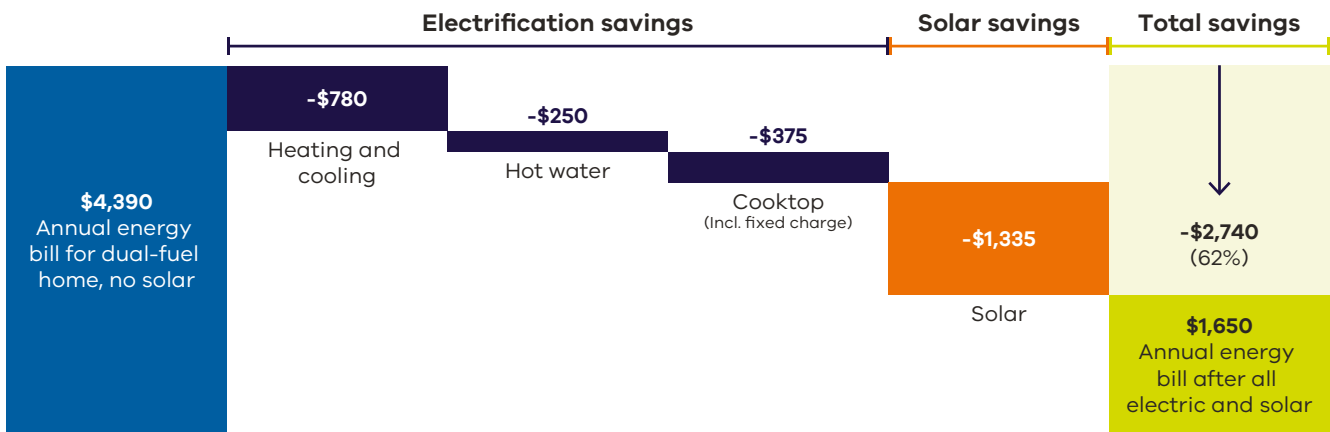
Building on these reforms, the government is considering options to progressively electrify all new residential and most commercial buildings (including through a regulatory impact statement and public consultation). The same regulatory impact statement will consider the costs and benefits of requiring existing gas appliances in homes and relevant commercial buildings be replaced with electric appliances when existing gas appliances reach end of life.

### Existing homes

By switching to all-electric with solar, households can reduce their energy bills by around 60%<sup>12</sup> and remove the health impacts of gas cooking and heating.

Residents of an existing detached home (without solar) will spend around \$4,400 a year on energy bills, compared with around \$3,000 per year after complete electrification. That means saving around \$1,400 a year by going electric. Savings can increase to more than \$2,700 a year with solar installed.

### Indicative annual savings for an average Victorian home from electrification



\*Based on an average existing detached dwelling

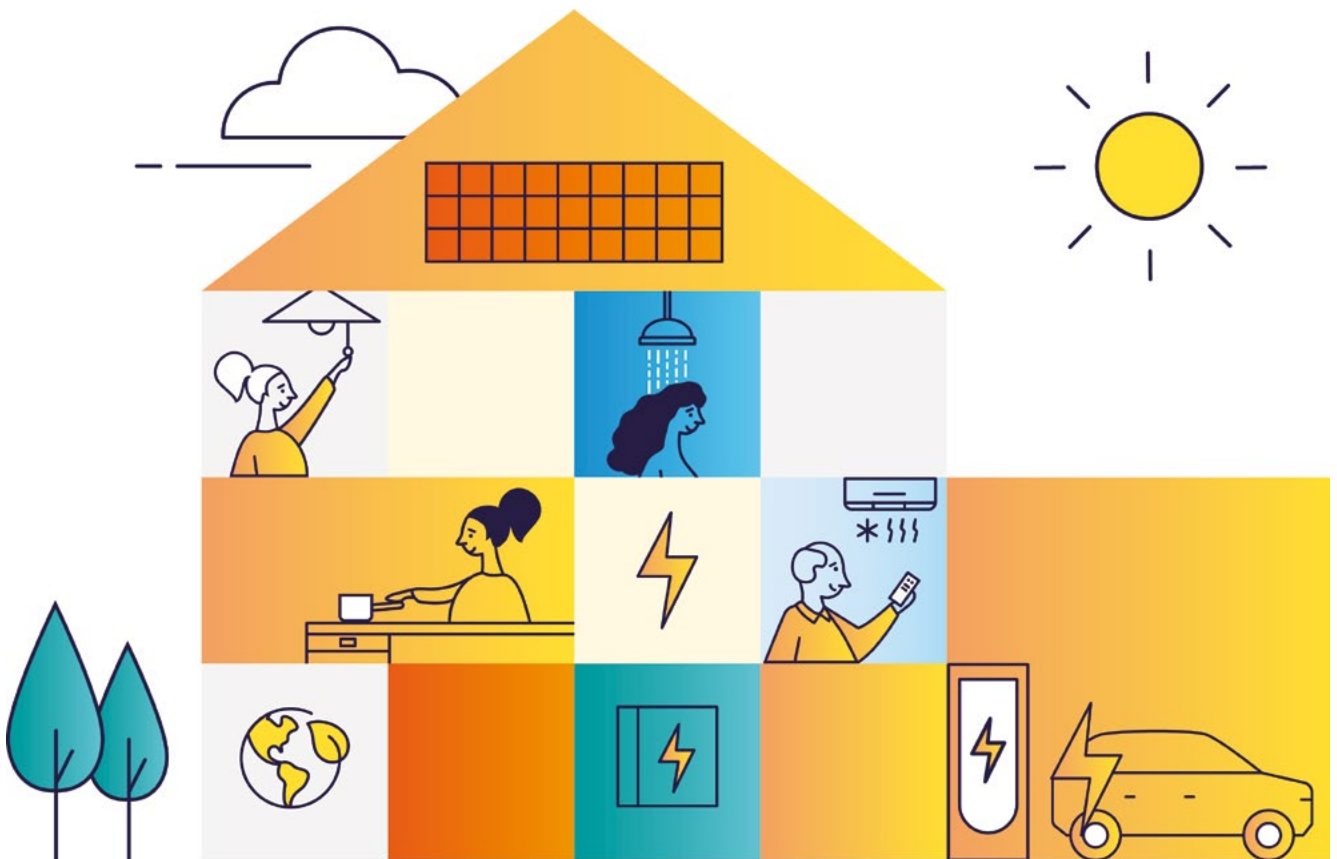
<sup>12</sup> Based on an average existing detached dwelling with solar.

## Action 6: Supporting households and businesses to electrify

The Victorian Government recognises that for many households, the upfront costs of electric appliances, including heat pump hot water systems, rooftop solar and efficient electric heaters, can be a deterrent to electrification. Through the VEU and Solar Homes programs and the SEC, the Victorian Government is providing support and incentives to enable the uptake of electrification and energy-efficient products in homes and businesses.

Since its launch in August 2018, the Solar Homes program has provided around 340,000 rebates and loans to eligible Victorian households to support the installation of solar PV, heat pump or solar hot water systems, and battery systems. As of the end of June 2024, the Solar Homes program has reduced carbon dioxide equivalent emissions in the NEM by an estimated 3.25 million tonnes, and installed more than 1.98GW of new solar PV generation capacity – equivalent to a large power station.

More than 2.3 million households and 170,000 business premises have participated in the VEU program since it commenced in 2009. In 2023 alone, more than 506,000 households and 24,000 businesses received discounted energy-efficient products and services. On average, households that undertake energy efficiency upgrades under VEU save \$110 and businesses save \$3,700, on their annual energy bills. Some businesses have saved as much as \$74,000 a year on energy costs. Energy savings from the VEU program activities undertaken in 2021–2025 are expected to reduce Victorian electricity consumption by 7% in 2025 and avoid \$3.8 billion in energy system costs, so even those who do not participate in the program will save on their bills – with households saving \$150 and businesses saving \$870 over the next 10 years.



The VEU program was revised in 2023 to support the move to efficient electric appliances. This includes the introduction of incentives to replace gas appliances with efficient electric alternatives and the removal of incentives for gas appliance upgrades. Since activities were revised in 2023, almost 10,000 space heating and cooling upgrades to replace gas heating and more than 21,000 efficient electric water heating systems installed replacing gas appliances.

In the 2024-25 budget the Victorian Government announced \$5.9 million to fund a strategic review of the VEU program. The review will deliver an updated VEU program that ensures continued alignment with key government objectives including electrification, energy affordability, emissions reduction targets, and reliability.

As a government-owned business, the SEC will ensure that more Victorians benefit from the renewable electricity transition. It will support households, over time including consumers who have traditionally lacked pathways to decarbonise, such as renters, to go electric by providing products and services that remove some of the barriers to switching. It will focus on products and services that accelerate the transition, deliver sustainable returns on the capital the SEC is investing on behalf of Victorians and provide broader benefits to the Victorian public, such as local employment and lower power bills. As part of its work supporting households, the SEC is piloting simple and practical solutions to help Victorians understand their home energy use and make the switch to all-electric. One of these is a digital planner for households that takes the guesswork out of switching to electric. The digital planner creates a personalised plan for users to reduce their energy bills and get the best value for money by calculating relevant government rebates, return on investment, and emissions reduction as they switch. It uses simple information about a household's energy usage and what systems and appliances they currently have, to provide this personalised plan. Further work is underway to explore how the SEC can make the whole journey seamless – from planning through to installation.

## **Action 7: Providing further targeted support for low-income groups and renters**

The Victorian Energy Efficiency in Social Housing program is providing \$112 million for the electrification and installation of energy-efficient appliances in public and community housing. The Victorian program is also accessing the Commonwealth Government's Social Housing Energy Performance Initiative, which will help further electrify and modernise social housing, with upgrades including electric reverse-cycle air conditioning, hot water heat pumps, electric cooktops, insulation, draught proofing and solar PV. This program will support low-income Victorians to transition away from fossil gas and reduce their energy consumption.

The Victorian Government has also expanded the state's minimum rental standards to include provisions for energy-efficient heaters and has similarly committed to introducing minimum energy-efficiency standards for hot water, draught sealing, cooling and ceiling insulation.

The Solar Homes program's solar PV and energy-efficient hot water system rebates also provide support for lower-income groups to electrify their homes, reducing the cost of these technologies through means-tested funding.

Similarly, the provision of solar PV rebates and interest-free loans for rental providers and community housing organisations will enable more renters to access the benefits of solar and reduce their operational demand. To July 2024, around 7,700 solar PV rebates have been approved for rental homes, including community housing properties. The \$16 million Solar for Apartments program jointly funded with the Commonwealth Government will support 5,000 apartment dwellers to install solar on their buildings. With around 65% of Victorian apartments being rented, this program will also benefit renters and create opportunities to grow the rooftop solar industry in a traditionally harder to reach sector.

## **Action 8: Highlighting the benefits of electrification and energy efficiency through public education**

For many families and businesses there is an attachment to existing appliances, such as gas cooktops, and information is needed to highlight the benefits of alternative solutions. The Victorian Government will continue to release targeted public education campaigns to explain the practicalities and benefits of switching away from fossil gas and reducing electricity consumption. Solar Victoria does this through its Solar Hub website, advertising and promotion, as well as attendance at home shows to provide guidance to consumers considering electrifying their homes and businesses.

The Victorian Government will also continue to administer the Residential Efficiency Scorecard initiative. This program facilitates the provision of independent assessments of the energy performance of existing homes, providing Victorians with a clearer understanding of the potential benefits they could access by investing in energy efficiency.

## **Action 9: Introducing energy efficiency requirements for homes and buildings**

The National Construction Code (NCC) 2022 commenced in Victoria on 1 May 2024. New residential buildings (detached houses, townhouses and apartments) need to meet 7-star energy performance standards for the building shell, as well as a new 'Whole of Home' energy use budget for fixed appliances (such as heating, cooling and hot water), with the potential to offset with rooftop solar.

Minimum energy efficiency standards for rented homes will be expanded to cover ceiling insulation, draught sealing, hot water and cooling. The government is currently consulting on options for implementation with the proposed regulations to take effect late 2025.

Efficient homes need less energy to stay comfortable year-round, making them cheaper to run and healthier to live in while providing better protection from extreme weather events such as heatwaves. The Victorian Government has invested \$5.9 million in targeted training efforts to support the construction industry to transition to all electric and 7-star homes, and Solar Victoria's \$11 million training and workforce development package will also help grow Victoria's clean energy workforce.

## Pillar 3: Managing the transition away from fossil fuels



## As Victoria moves away from coal-fired generation, the Victorian Government will ensure reliable and secure electricity supply is maintained.

Victoria relies on fossil fuel sources to generate about 62% of the state's electricity, with coal contributing about 59% and gas about 3% of electricity generation in 2023–24. This is down from around 90% in 2014, but around half of Victoria's emissions still come from electricity generation. Victoria's transition to 95% renewable electricity generation by 2035 will see the retirement of the state's 3 remaining coal-fired power plants, Yallourn, Loy Yang A, and Loy Yang B, which account for about 4.8GW of existing capacity.<sup>13</sup> After the unplanned closure of Hazelwood power station in 2016, in 2017 wholesale prices increased by 85% in Victoria<sup>14</sup> impacting customer bills and threatening reliability.

Victoria has experienced many unplanned coal-fired generator outages in recent years. AEMO forecasts unplanned outages to increase and become less predictable, reflecting recent trends of poor performance together with a wide range of commercial, environmental and social pressures on fossil-fuel asset owners pushing to accelerate closure schedules. Uncertain closure dates of coal-fired power stations can deter the timely entry of replacement capacity due to the uncertainty investors face in forecasting market conditions.

Certainty on closure timelines for these assets is critical to the confident investment of private capital in replacement renewables and storage. In the case of the Hazelwood closure, the deployment of new renewable capacity brought retail power bills back to 2017 levels within 4 years, demonstrating the benefits of lower cost renewables. However, it also demonstrates the need for certainty around closure dates to ensure that new capacity is built on time.

## Action 1: Managing closures of coal-fired generators

The Victorian Government's planned management of the closure of coal-fired generators over the long-term will support workers, businesses and local communities who are impacted by the transition to renewable energy. This will be particularly important for regional communities whose economies have historically relied on coal plants. The Victorian Government will maintain oversight of coal mine rehabilitation following closures. The Victorian Government is also collaborating at the National level on the Orderly Exit Management Framework to manage the closure of system significant generator units across the NEM.

Victoria has entered transition agreements with the owners of the coal-fired generators at Yallourn and Loy Yang A that will see these assets close in 2028 and 2035 respectively. The Victorian Government secured commitments from asset owners to build new storage capacity through the Wooreen Energy Storage System, a battery project that is expected to be completed by 2026.

As part of the agreement for Yallourn, the asset owner has committed to a package of up to \$10 million through the Power Your Future Program for transition services and support for its workforce. As part of the agreement for Loy Yang A, the asset owner will establish a Community and Economic Development Fund consisting of \$20 million to be directed to community benefit activities and \$30 million to be directed to site repurposing activities.

The Victorian Government has invested to create thousands of extra jobs in the Latrobe Valley. This included the establishment of the Latrobe Valley Authority (LVA) to directly support workers and businesses in regional transition. From 2025, the LVA's functions will be transitioned into Regional Development Victoria, with some of the programs pioneered by LVA to be extended across other areas of the State.

13 Australian Energy Market Operator, 2023, Inputs, Assumptions and Scenarios Report.

14 Australian Energy Regulator, 2018, Report to the COAG Energy Council.

## Action 2: Maintaining targeted gas use during the transition

Victoria's target of 95% renewable generation by 2035 positions a small but important role for gas-fired electricity generation to support grid reliability and security. On average, GPG provides around 2–7% of total electricity generation each year in Victoria. The Victorian Government recognises that GPG will be an important interim solution for firm dispatchable capacity during the transition.

In its Gas Statement of Opportunities (GSOO), AEMO forecasts annual gas consumption and demand, and reports on the 20-year supply adequacy of eastern and south-eastern Australian gas markets. The latest 2024 report shows that gas supply is declining and will continue to do so over this decade. As once-plentiful reserves in the Gippsland Basins in Bass Strait decline, maintaining a reliable supply of gas will be critical for the ongoing operation of GPG and other gas uses.

Victoria's Gas Substitution Roadmap, released in 2022, identified the challenges facing the gas sector and outlined actions to reduce Victoria's reliance on fossil gas while maintaining reliability through the transition.

The Victorian Government is leading initiatives to ensure gas reliability including working with gas infrastructure proponents to ensure timely new investment, supporting measures to enhance use of gas storage, and ensuring a robust regulatory framework is in place to support a gas market that works fairly and transparently for all.

Electrification and efficiency, particularly in buildings where cost-effective electric alternatives (such as high efficiency heat pump hot water systems and reverse cycle air-conditioners) exist, is key to maintaining reliable fossil gas supply for essential uses where electrification is not a feasible option. Around 35 petajoules (PJ) of residential and commercial demand can be reduced through electrification by 2030, freeing this gas up for critical manufacturing and industrial uses such as GPG.<sup>15</sup>

Despite the strong action we are taking to move from fossil gas to renewable sources of energy, the scale of gas use in Victoria – particularly over winter months – is such that the rate of decline in gas production is outpacing the current rate of demand reduction. Both AEMO and the Australian Competition and Consumer Commission (ACCC) continue to forecast gas supply shortfalls in southern jurisdictions from as early as 2026 on high-demand days. Additional interim supplies will be needed to ensure that GPG, households, businesses, and critical industry that still use gas continue to have a reliable supply of energy throughout the transition.

The Victorian Government is taking comprehensive, and responsible, action to ensure there is sufficient gas supply to support the move to renewable electricity and maintain downward pressure on emissions. This has included infrastructure approvals, such as the Beach Energy Enterprise gas field which is needed to maintain current forecast supply rates. As part of this approvals process, the Victorian Government has stipulated that any gas from the Enterprise field is to be used to meet domestic needs.

Since local gas reserves are limited, other temporary supply options will likely be required. Options include gas import terminals, which may offer a balanced solution that can balance supply, while avoiding creating expensive stranded assets like major new pipelines.

Victoria also continues to advocate for the effective use of all levers available to the Commonwealth such as the Australian Domestic Gas Security Mechanism (ADGSM), to help alleviate the risks of a domestic gas shortfall. The ADGSM is now informed by quarterly reporting by the ACCC. Victoria will continue to advocate for the prioritisation of domestic supply for domestic users on fair terms and reasonable prices. This will ensure that any additional gas supply or infrastructure to bridge the remaining gap between supply and demand is proportionate.

Victoria continues to be an active participant in the development of enhanced east coast gas reliability frameworks. On 12 August 2022, and in response to the east coast-wide energy crisis, Victoria agreed to progress a range of regulatory reforms to support more secure, resilient and flexible east coast gas markets. This included providing AEMO with enhanced powers to monitor, signal and respond to emerging threats across east coast gas markets. This first stage of reforms, including legislative and regulatory amendments to the national frameworks, was implemented in May 2023.

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<sup>15</sup> Australian Energy Market Operator, 2024, Gas Statement of Opportunities.

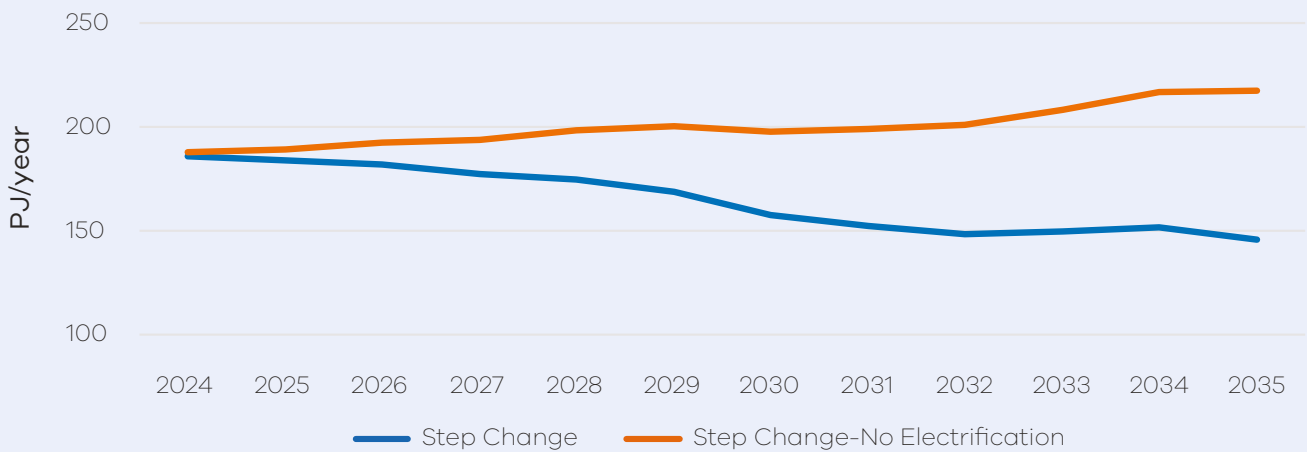


A second stage of reliability and supply adequacy reforms is now underway, seeking to implement an east coast gas reliability standard and other key reforms supporting gas supply reliability during the transition. Victoria continues to be a key contributor to this process working closely alongside the Commonwealth and other jurisdictions.

The Australian Energy Market Commission (AEMC), subject to final determinations, is expected to progressively implement the stage 2 reforms between 2025 and 2026. The AEMC is also considering reforms to better align AEMO's GSOO with the broader Integrated System Plan to ensure a more complete and holistic view of the scope and scale of the energy transition is delivered.

The government is also focused on scaling up biomethane and renewable hydrogen production across the state to reliably supply 'harder to electrify' gas uses such as GPG. A policy directions paper will be released in 2024, reflecting stakeholder input to the Renewable Gas Consultation Paper released in September 2023, and outlining next steps for driving the expansion of this critical sector. Further details on the Government's actions to reduce Victoria's reliance on fossil gas while maintaining reliability of supply through the transition are outlined in the 2022 Gas Substitution Roadmap and the 2023 Roadmap Update, which reports on progress in implementing Roadmap actions.

**Exhibit 5: Victorian forecast gas consumption with and without electrification, 2024 to 2035**



Source: Australian Energy Market Operator, 2024, Gas Statement of Opportunities

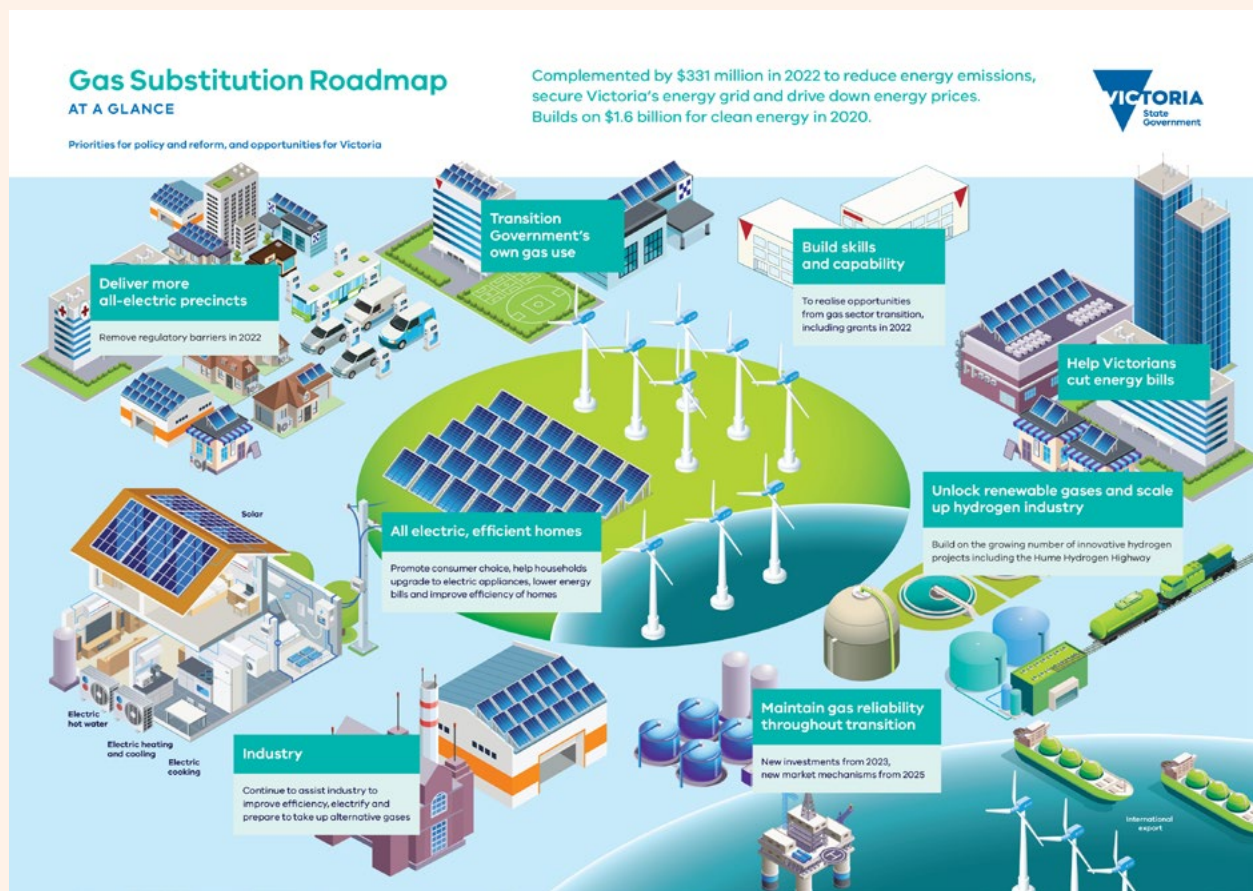
## Victoria's Gas Substitution Roadmap: the journey to net zero emissions for the gas sector

The Gas Substitution Roadmap is helping our state navigate the path to net zero emissions while cutting energy bills and ensuring reliability.

The Roadmap outlines how we will use energy efficiency, electrification, renewable hydrogen and biomethane to drive down bills and cut carbon emissions. The Roadmap will help empower Victorian households and businesses to embrace sustainable alternatives to fossil gas and enhance access to an affordable, secure, reliable and safe energy supply.

It sets a clear path forward to help protect consumers from rising fossil gas prices or interrupted supply, and ensure that the appropriate planning and investment is made for a smooth and coordinated transition.

As the Victorian Government delivers the actions of the Gas Substitution Roadmap Update 2023 and progresses the next stage of the fossil gas sector transition, we will continue to engage with industry and Victorians to ensure milestones are met, including regular updates to the Roadmap with the next release planned for 2024.



### Action 3: Working with AEMO and industry to ensure reliability

The Victorian Government works closely with AEMO and industry to monitor and address electricity and gas supply reliability and security issues. Risks to the energy sector include severe weather events (such as heatwaves and storms) and the unreliability of the ageing thermal coal generators. Contingencies are in place to ensure Victoria's electricity system is prepared for periods where extreme events create a gap between supply and demand.

AEMO maintains power system reliability and system security using market notices to issue directions to market participants including generators and contracting reserve capacity where necessary. As a last resort in extreme circumstances, Victoria can proclaim an emergency to enliven reserve powers to direct mandatory demand restrictions and/or direct supply if safe and available to do so.

### Action 4: Enhancing energy safety and network resilience

**Safety:** To improve community and worker safety, the *Energy Legislation Amendment (Energy Safety) Act 2023* (Vic) made critical amendments to the *Electricity Safety Act 1998* (Vic), *Gas Safety Act 1997* (Vic), and *Pipelines Act 2005* (Vic) that now afford certain owners and operators of high-risk complex electrical installations to have certain duties and obligations commensurate with a major electricity company. Other key changes include giving Energy Safe Victoria and the Minister for Energy and Resources greater powers with regulated entities, along with increased maximum penalties for offences relating to maintaining safe networks.

Solar Victoria's annual Notice to Market and Technology Guidelines provide industry guidance on compliance and safety requirements. Program rules for participating in incentive programs offered by government ensure there is an ongoing uplift in safety.

The next phase of the Victorian Government's commitment to a safe and just community transition will be through delivery of an Energy Safety Review, focusing on legislative reform and development of the Energy Safety Roadmap. This review will ensure that energy safety settings and licensing are keeping pace with emerging technologies to protect worker and community safety. Industry and community engagement on this review will commence in 2025.

#### **Network and community resilience:**

The government's response to the Electricity Distribution Network Resilience Review 2023 will ensure electricity distribution businesses proactively invest in network and community resilience to respond to climate change impacts and avoid long duration electricity outages. Implementing the supported recommendations will mean electricity distribution businesses are more proactive when responding to damage to their networks caused by extreme weather and that Victoria is better prepared for storms and severe weather events in the future.

Following the 13 February 2024 catastrophic storm that damaged the electricity distribution network, the government has commissioned a Network Outage Review into the system response, led by a panel of independent experts. The review will assess the electricity distribution business' operational response to the event, with a final report from the panel due by August 2024.

## Pillar 4: Creating jobs, skills and supply chains



## For a successful electricity transition, it is essential to skill, up-skill and train Victoria's energy workforce, and capture new industry prospects.

The efficient delivery of Victoria's electricity transition depends on a well-functioning supply chain that can withstand global supply shocks and rapidly compete for finite resources. It also requires an adaptive and diverse energy workforce capable of keeping pace with the emerging needs of the sector.

Globally, renewable energy supply chains are under increasing pressure from rising costs of raw materials, geopolitical tensions, and the global push to decarbonise. Mitigating supply chain risks will be key to ensuring Victoria can access the equipment, critical minerals, materials, components and workforce to build the infrastructure required for the electricity transition. Demand for workers in existing occupations such as engineers, architects and electrical specialists, and new occupations in sectors such as battery storage, offshore wind, energy auditing, home and business electrification and energy efficiency, resource recovery and sustainability, is creating competition in a tight labour market.

Along with improving affordability for households and businesses, Victorian Government activities will help ensure secure, affordable supply for large commercial and industrial users of electricity, to both protect existing industrial activity and create a strong value proposition for further investment.

Victoria offers investors a stable and competitive business environment with strong workforce capabilities, dynamic regional centres, a vibrant knowledge economy and access to Australia's largest connected port and Tullamarine and Avalon International Airports, which operate curfew-free for freight operations. The Victorian Government has committed to improving the cost and ease of doing business with a \$75 million regulatory reform program. As part of the renewable electricity transition, the Victorian Government will support development of local energy supply chains, enabling the creation of 59,000 jobs related to the electricity generation sector, including around 6,000 jobs for apprentices and trainees and transformation of jobs across the economy. This includes under training and employment pathways for underrepresented groups such as women and First Peoples.

The Victorian Government's Clean Economy Workforce Development Strategy 2023–2033 was released in June 2023. The strategy provides a 10-year framework to inform government planning and investment in the skills and training Victoria requires to reach net zero emissions by 2045. The strategy is anchored around the 3 pillars of the clean economy: climate change

mitigation and adaptation, renewable energy, and the circular economy. Implementation planning for the strategy is underway and captures activities required to skill, upskill and transition workforces for the state's electricity transition. Implementation of the strategy will complement activities in the forthcoming Victorian Energy Jobs Plan.

Significant progress is already being made. Government initiatives including the Low Carbon Manufacturing Grant Program and the Energy Technologies Manufacturing Program have supported Victorian manufacturers to build their capability in renewable energy and zero-emissions component manufacturing and helped workers transition to advanced manufacturing jobs. The Energy Innovation Fund is also supporting the commercialisation of innovative, emerging renewable energy technologies and has been designed to create new job opportunities and bring local economic development and environmental benefits to the state. The New Energy Jobs Fund has invested \$20 million since 2017 to support 85 local projects that create long-term, sustainable jobs, while increasing the uptake of renewable energy generation and driving innovation in new energy technologies. Additionally, the VRET auction projects when complete will have collectively generated about 1,720 jobs and \$2.4 billion in capital investment while the VEU program supports around 2,000 jobs annually.

Through Solar Victoria, more than 6,000 Victorians have accessed free training in residential solar, safe work in solar, and training programs that support plumbers and electricians to upskill in renewable energy and energy-efficient technologies. By the end of 2024-25, this will include targeting 1,000 plumbers to have participated in the Upskilling Plumbers initiative launched in 2022. Solar Victoria has supported women, who currently make up less than 2% of electricians in Victoria, to take up an apprenticeship in electrical or plumbing with mentoring and support to take advantage of the opportunities for jobs and new businesses in these growing sectors.

The Victorian Government has also committed \$1 million for Solar Victoria to work in partnership with Master Builders Association of Victoria and the Housing Industry Association to deliver training for tradespeople and building practitioners in energy efficiency and electrification.

The actions being taken by the Victorian Government will develop pathways for energy careers, starting with school leavers, and will help establish and retain stable jobs in local communities to build a skilled and robust workforce to help deliver the energy transition.

## Action 1: Strengthening local renewable electricity supply chains

The Victorian Government is engaging with key stakeholders involved in renewable energy supply chains to understand the potential to deliver economic opportunities that benefit Victorians.

Victoria's Regional Economic Development Strategies identify renewable energy development as an opportunity for strengthening supply chains in regional Victoria, including through:

- developing linkages with existing comparative advantages in established sectors such as manufacturing and extractive resources and leveraging current capabilities to diversify into emerging industries for new energy projects; and
- exploring pathways to widespread integration of renewable energy across regional industries and supply chains.

The Victorian Government will work to leverage the legislated local content policy (*Local Jobs First Act 2003* (Vic)) to build local capability and set up industry for long-term success. Victoria's Local Jobs First Policy is designed to provide local suppliers with full, fair and equal opportunity to participate in major government projects. All electricity transition projects that meet the Local Jobs First thresholds must apply the policy, unless an exemption is granted by the Minister under exceptional circumstances.

The Victorian Government has funded the Industry Capability Network Victoria (ICN) to support the delivery of Local Jobs First and provide independent advice in relation to local content settings for strategic projects. The ICN plays an important role supporting local businesses by connecting them with opportunities to work on significant government-procured projects, including energy generation and transmission projects.

Victoria also hosts significant resources of different critical minerals that are crucial inputs to build new renewable energy technologies. This presents new opportunities for Victoria's involvement in the renewable energy supply chain. In the 2024–25 State Budget, the Victorian Government committed \$44.8 million over the next 4 years to Resources Victoria, including funding to support the resources sector to achieve net zero.

The Victorian Government is also working closely with the Australian Government on the implementation of the \$15 billion National Reconstruction Fund by identifying and facilitating investment proposals for renewables and low-emission technologies that would contribute to long duration energy storage and electricity generation in Victoria.

## Action 2: Developing the Victorian Energy Jobs Plan and the Women in Energy Strategy

### Victorian Energy Jobs Plan

The Victorian Energy Jobs Plan will identify the skills and training needed to support Victoria's renewable energy workforce.

The Plan will outline the actions we need to take to develop our energy workforce to support the energy transition. It will support Victorians to benefit from the education, training and employment opportunities the electricity transition creates. The Victorian Energy Jobs Plan will identify actions to:

- support more people to enter and excel in the energy workforce, including transitioning workers;
- increase diversity in the energy workforce by supporting underrepresented groups to enter, such as women, people with disabilities and First Peoples;
- identify how Victoria's education and training sector can support the needs of current and future energy workforce; and
- improve industry confidence and increase renewable energy investment in Victoria.

### Women in Energy Strategy

The Women in Energy Strategy, developed alongside the Victorian Energy Jobs Plan, aims to further progress Victoria's efforts to building a sustainable, diverse and suitably skilled energy workforce and create attractive pathways for women to pursue a career in energy.

The strategy recognises that to meet the energy sector's increasing and changing workforce needs, it is critical to attract and retain women in this transitioning sector, and support Victoria to develop an equitable and thriving renewable energy sector.

The Victorian Energy Jobs Plan and the Women in Energy Strategy are expected to be released early in 2025.

### Action 3: Establishing greater energy-focused training

The Victorian Government is engaging closely with the energy industry and training providers to ensure a pipeline of skilled workers is available for the electricity transition both through retraining or transitioning existing industry workers, and attracting new talent to the sector.

- **The SEC Centre of Training Excellence** will play a lead role in the attraction and training of renewable energy workers. Working as a consortium of multiple training providers (including TAFEs, universities, and registered training organisations) and industry, and amplifying other workforce initiatives, the SEC Centre of Training Excellence will deliver programs that:

- build awareness of, and excitement in, renewable energy jobs;
- increase the availability of earn-and-learn programs in the industry, including apprenticeships and traineeships; and
- support and boost quality training across Victoria aligned with the needs of industry involved in the state's electricity transition.

The SEC Centre of Excellence will look to commence operations from mid-2025.

- **The Wind Worker Training Centre and the Renewable Hydrogen Worker Training Centre** will ensure new and existing workers can keep pace with emerging technologies. The Victorian Government has committed:

- up to \$6 million toward delivery of a Wind Worker Training Centre; and
- up to \$10 million toward delivery of a Renewable Hydrogen Worker Training Centre.

The Wind Worker Training Centre and the Renewable Hydrogen Worker Training Centre programs will be delivered through a competitive process.

- **The Local Jobs First – Major Projects Skills Guarantee** will provide opportunities for apprentices, trainees and cadets trained through the SEC Centre of Training Excellence, Wind Worker and Renewable Hydrogen Worker Training Centres as well as other programs and initiatives through its application to major Victorian Government infrastructure procurement.

- **Solar Victoria's \$11 million Training and Workforce Development program** is aimed at providing free and low-cost programs that support upskilling electrical and plumbing tradespeople, provide business, technical and career mentoring in the sector, engage underrepresented cohorts (e.g.

women, First Peoples), and facilitate safety and leadership training. To date, more than 5,000 workers have received safety training, almost 1,000 tradespeople have been up-skilled, more than 220 participants provided mentoring or site supervisor training and more than 15 women have been employed as apprentices.

- Solar Victoria is also working in partnership with the building and construction sectors to deliver training for tradespeople and building practitioners in energy efficiency and electrification.
- **Creating energy pathways for schools.** The Victorian Government has committed \$7.5 million to encourage schools to create a new clean energy pathway by introducing clean energy as a VCE Vocational Major from 2024, and supporting 10,000 students to undertake work experience in clean energy and other priority sectors. The SEC will build greater awareness of training and career opportunities in the energy sector by attending career nights across the government schools network.

### Action 4: Developing energy-specific educational infrastructure for TAFE and other training providers

The Victorian Government is investing \$116 million to build and operate 6 new technical schools across the state and is establishing a Clean Energy Equipment Fund to improve hands-on learning in science, technology, engineering and mathematics. The new tech schools will be built in Brimbank, Dandenong, Frankston, Hume, Wangaratta and Warrnambool.

The Victorian Government has also established a \$50 million TAFE Clean Energy Fund. A key project funded includes Stage 2 of the Asia Pacific Renewable Energy Training Centre at Federation TAFE. The Centre will offer specialised training in skills such as wind turbine maintenance and blade repair and in research-led innovative diagnostics. The fund will also establish a Clean Energy Centre at TAFE Gippsland's Morwell Campus and the Building Innovation and Design Centre at South West TAFE. Full implementation of the TAFE Clean Energy Fund is expected by 2028.

These investments confirm TAFE as a central provider of a skilled workforce. As TAFE is a statewide network, these investments ensure that local training will be available closer to communities where these investments will occur.

# Where to from here

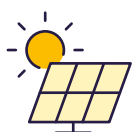
The Victorian Government will continue to develop new policies in each of the 4 pillars to support the transition. This work, which will be completed in close partnership with Traditional Owners, First Peoples, local communities and industry, will provide greater certainty for Victoria's electricity transition. A selection of upcoming milestones is shown below. These milestones will continue to evolve over time, and their exact release dates may vary from what is indicated.



## Pillar of the transition

2024 →

### 1 Enabling the renewables big build



**2024:** Our Plan for Victoria's Electricity Future released

**From 2024:** National rollout of the CIS

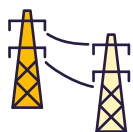
**Mid-late 2024:** Accelerated planning pathway available for renewable energy projects



**March 2024:** Transmission connection points and high-level corridors announced

**Late 2024-Early 2025:** Offshore wind EOI process

**Late 2024-Early 2025:** Offshore wind Implementation Statement 4 released



**May 2024:** Victorian Parliament passed amendments to the *National Electricity (Victoria) Act 2005* to implement first stage of the VTIF reforms

**July 2024:** Victorian Transmission Plan Guidelines – draft published

**Late 2024:** Victorian Transmission Plan Guidelines – final published

### 2 Empowering households and businesses to lower energy bills



**2024:** VEU review commences

**From February 2024:** Solar Victoria's Solar for Apartments program launched

**From March 2024:** Solar PV inverters installed under Solar Homes program must be 'dynamic export' capable (CSIP-AUS compliant)

**From October 2024:** Emergency backstop applies to all new, upgrading and replacement rooftop solar systems less than or equal to 200kW (small and medium).

**Late 2024:** Gas Substitution Roadmap update released



**From January 2024:** New residential buildings and subdivisions requiring a planning permit can no longer connect to the gas network

**From May 2024:** NCC requirement for 7 Star homes takes effect in Victoria

**From mid-late 2024:** First SEC pilot for consumers commenced. Over time, SEC expands household electrification offering, aligned with the outcomes of the pilots

### 3 Managing the transition away from fossil fuels



**Underway to 2026:** Energy safety review – deliver election commitment to undertake review of regulatory and licencing requirements for renewable energy systems

### 4 Jobs, skills and supply chains



**Underway to 2027:** Establishment of Renewable Hydrogen Worker Training Centre and Wind Worker Training Centre

**Underway:** Delivering Solar Victoria's Training and Workforce Development program



## 2025 →

**Mid-late 2024:** New guidance and tools to support environmental assessments for renewable energy projects

**From mid-2025:** SEC to begin servicing Victorian Government electricity requirements

**From 2025:** SEC to take responsibility for VRET and Bulgana contracts

**By end 2025:** All Victorian Government operations use 100% renewable electricity

**Late 2025:** Offshore wind request for proposals process

**Early 2025:** Stage 2 VTIF reforms introduced to Victorian parliament

**Early 2025:** First Victorian Transmission Plan – draft published

**Mid-2025:** First Victorian Transmission Plan – final published

**Late 2025:** Gas Substitution Roadmap update released

**2025:** Energy efficiency provisions for commercial buildings updated in the NCC 2025

**Early 2025:** Victorian Energy Jobs Plan and Women in Energy Strategy released

**From mid-2025:** SEC Centre of Training Excellence implementation

# Glossary

<b>Term</b>	<b>Definition</b>
<b>AEMO</b>	Australian Energy Market Operator
<b>AER</b>	Australian Energy Regulator
<b>CIS</b>	Capacity Investment Scheme
<b>DEECA</b>	Department of Energy, Environment and Climate Action
<b>DER</b>	Distributed energy resources
<b>DNSP</b>	Distributed Network Service Provider
<b>Emissions</b>	References to 'emissions' in this document are to greenhouse gas emissions, unless otherwise specified
<b>ESC</b>	Essential Services Commission
<b>EV</b>	Electric vehicle
<b>GPG</b>	Gas-fired power generation
<b>GW</b>	Gigawatt
<b>ICN</b>	Industry Capability Network
<b>kW</b>	Kilowatt
<b>MREH</b>	Melbourne Renewable Energy Hub
<b>MW</b>	Megawatt
<b>MWh</b>	Megawatt hour
<b>NEM</b>	National Electricity Market
<b>NVES</b>	New Vehicle Efficiency Standards
<b>OWEV</b>	Offshore Wind Energy Victoria
<b>PJ</b>	Petajoule
<b>PV</b>	Photovoltaic
<b>REZ</b>	Renewable Energy Zone
<b>t</b>	Tonnes
<b>TWh</b>	Terawatt hours
<b>VEU</b>	Victorian Energy Upgrades program
<b>VNI West</b>	Victoria to New South Wales Interconnector West
<b>VTIF</b>	Victorian Transmission Investment Framework
<b>ZEV</b>	Zero emissions vehicle

### **An important note on data sources used in Our Plan for Victoria's Electricity Future**

Our Plan for Victoria's Electricity Future reflects the state of Victoria's electricity transition at a single point in time, using the information available to us now and the policies and programs that are currently in place. The energy system is a dynamic and rapidly evolving space, and any projections referenced in this document are subject to change as we gain and apply new knowledge.

This document is largely informed by AEMO's 2024 Integrated System Plan (ISP), a 20-year plan for the NEM, which is used widely to inform energy market analysis and investment. The capacity and generation projections referenced throughout are based on the 2024 ISP Step Change Scenario. We recognise that the ISP is only one source of information and there are multiple potential pathways to meet Victoria's future generation

requirements. It is important to note that any future projections in any sector are inherently uncertain; these are not a prediction of the future and should not be taken as such.

Additionally, the Victorian Government is committed to ensuring that Victoria's needs for the transition are clearly identified to ensure we deliver on these needs cost-effectively to provide safe, secure, affordable and reliable renewable energy to all Victorians. The Victorian Government is progressing a breadth of work to understand these future needs and ensure that community and industry are brought along the journey. More specific direction on key components of the transition will become available through key planned publications as detailed in the section **Where to from here.**



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