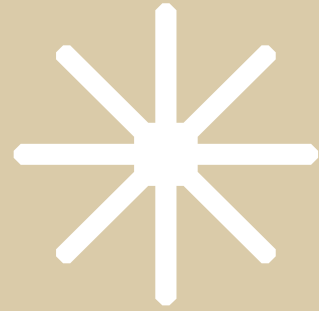


Victorian Environment Effects Statement

Chapter 2 – Project
rationale



Chapter 2 Project rationale

2.1 Introduction

2.1.1 Chapter overview and purpose

This Environment Effects Statement (EES) assesses works proposed to construct underground transmission infrastructure for the Star of the South Offshore Wind Farm Project within the Victorian jurisdiction (works in Victoria).

These works are required as a component of the overall project which is assessed through the Environmental Impact Assessment (EIS) under Commonwealth legislation. The rationale for the works in Victoria is linked to the overall need for the project, which is described in full in the EIS. This chapter provides a summary of the project rationale, demonstrating its role in Australia's clean energy transition and alignment with Commonwealth and Victorian Government energy, climate and economic goals.

2.1.2 Key drivers for offshore wind

Offshore wind is one of the fastest-growing energy technologies globally. Installed capacity has more than doubled in recent years, from 34.5 gigawatts (GW) in 2020 to 83 GW in 2025 (GWEC, 2025). Today, more than 13,000 offshore wind turbines are operating across 20 countries. Since the first offshore wind farm was built in 1991, the technology has become an integral part of electricity networks in many advanced economies. In Denmark and the United Kingdom, for example, offshore wind now accounts for over 10 per cent of total installed generation capacity due to its ability to be deployed at scale, helping to offset the loss of retiring fossil fuel generation.

Australia has the fourth-highest technical potential for offshore wind worldwide. Star of the South's early market analysis identified offshore wind as a critical solution to Australia's predicted energy supply gap, driven by the faster-than-expected retirement of coal fired power stations and climate targets. Independent studies support this assessment (Victorian Government, 2022).

As ageing coal-fired power stations retire, more large-scale renewable energy solutions are required. Australia has an opportunity to harness some of the strongest offshore wind resources in the world (Briggs et al., 2021), to drive economic growth and jobs while supporting energy security and net zero targets.

Recognising Gippsland's world-class offshore wind potential, the Commonwealth Government declared the region an offshore wind zone and the Victorian Government legislated offshore wind targets of 2 GW by 2032, 4 GW by 2035 and 9 GW by 2040, reinforcing Gippsland's key role in Australia's clean energy transition.

2.2 The need for offshore wind

Offshore wind is a reliable, large-scale clean energy source that complements onshore wind, solar and storage technologies. Since its emergence in the 1990s, offshore wind has expanded rapidly, becoming a key renewable energy source in the global clean energy transition. By 2030, total installed capacity is projected to increase to 285 GW (GWEC, 2025), making it one of the fastest-growing energy technologies worldwide.

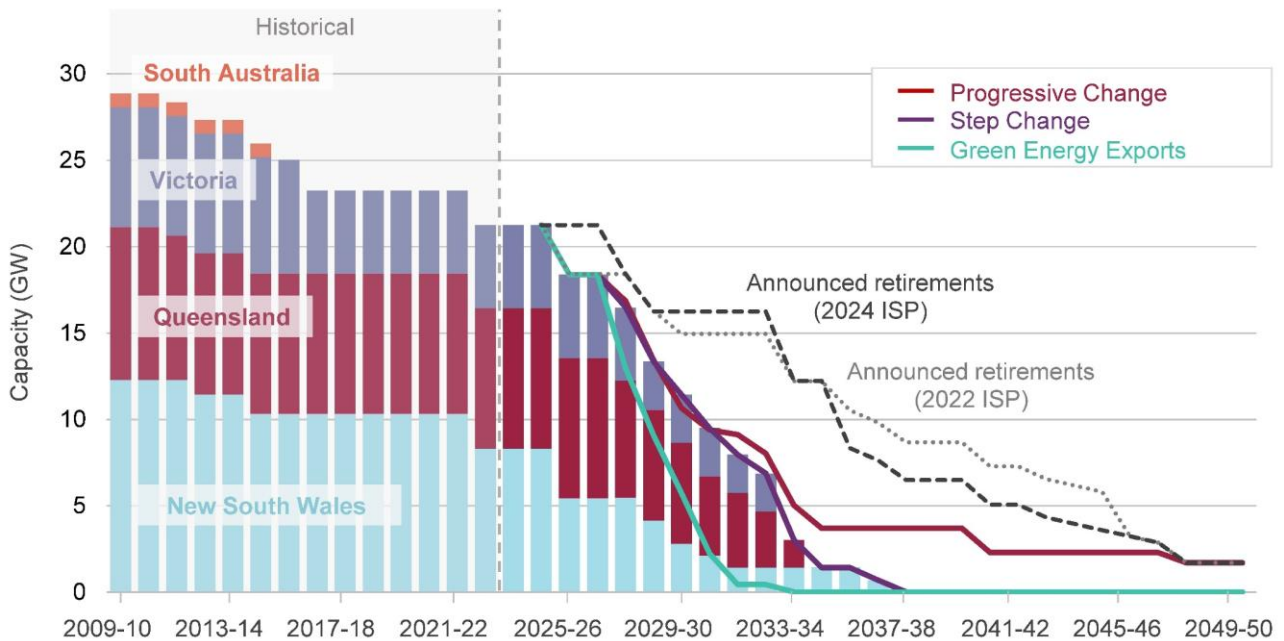
Offshore wind is increasingly being recognised as critical to Australia's energy security and reliability goals and to meet climate targets.

The Australian Energy Market Operator (AEMO) forecasts that by 2035, offshore wind will contribute five per cent of total energy generation in the National Electricity Market (NEM) - the interconnected power system spanning the eastern states of Australia, South Australia, and Tasmania. Offshore wind's contribution is forecast to rise to 10 per cent by 2040, (AEMO, 2024). This underscores the need to kick-start Australia's offshore wind industry this decade, ensuring replacement capacity is planned and permitted well in advance due to long lead times for procuring and installing offshore wind farms globally.

2.2.1 A transforming energy system

According to AEMO, coal-fired power stations are retiring at a rate two to three times faster than initially anticipated. All coal-fired power stations in the NEM are expected to retire by 2051; however, in its most likely future scenario, AEMO forecasts that approximately 90 per cent of the NEM's coal fleet will retire by 2035, and the entire fleet is expected to retire by 2040 (see Figure 2-1). This rapid exit – more than 20 GW of capacity, equivalent to roughly half of Australia's electricity consumption – creates an urgent need for new generation resources.

Figure 2-1 NEM coal capacity (GW, 2009 – 10 to 2049 – 50)



Source AEMO, 2024

Without timely investment in large-scale renewable energy projects, Australia will be left with limited electricity supply, which will severely impact energy security, increase prices and cause harm across Australia’s economy.

The Victorian Government is pursuing a diverse mix of renewable energy and storage solutions to ensure a reliable, affordable and secure electricity system. Over the past decade, significant investment in onshore wind and solar has expanded renewable capacity, helped stabilise prices, and supported regional jobs. In 2024, renewable energy – including wind, solar and hydropower – provided 40 per cent of Australia’s total electricity generation (Clean Energy Council, 2024). However, relying solely on onshore renewables or a single technology poses risks to the system, such as reduced supply during evenings when solar production declines or during prolonged periods of low wind conditions onshore. By integrating offshore wind into the energy mix, Victoria will further diversify its energy sources and avoid over-reliance on imports from other states, ensuring greater self-sufficiency and enabling the state to continue supporting the NEM.

2.2.2 Australia's net-zero commitment

Countries across the globe, including Australia, are taking steps to combat climate change and minimise the worst impacts of a rapidly heating planet. The United Nations Intergovernmental Panel on Climate Change warns that without adequate action, the planet faces severe climate change risks, including more frequent and severe droughts, heatwaves and rainfall (IPCC, 2022). Australia's National Climate Risk Assessment provides further insights into direct impacts to the nation's communities and broader economy because of climate change (Australian Government, 2025).

Australia is a party to the Paris Agreement, a legally binding international treaty on climate change that entered into force in 2016. In support of this commitment, the Commonwealth Government has pledged to reduce greenhouse gas emissions by 62 – 70 per cent below 2005 levels by 2035 and achieve net-zero emissions by 2050.

Delivering on these targets depends on a rapid transition to renewable energy. Current efforts are underpinned by nationwide actions to:

- Accelerate the use, storage and transmission of renewable energy through a diverse range of sources
- Shift consumer reliance away from traditional fossil-fuel energy to renewable energy sources to electrify households and personal vehicles
- Decarbonise heavy industries
- Minimise the environmental and biodiversity impacts of the clean energy transition.

To meet these targets, AEMO develops and publishes the Integrated System Plan (ISP). The ISP is the roadmap for the most significant transition of the NEM in 25 years: a shift away from ageing coal-fired power generation while tripling installed generation capacity to meet future demand. The 2024 ISP (AEMO, 2024) confirms that renewable energy connected with transmission and distribution, firmed with storage and backed up by gas-powered generation, is the lowest-cost way to supply households and businesses with electricity as Australia transitions to a net-zero economy.

2.2.3 Victoria's offshore wind opportunity

Australia has extensive untapped offshore wind resources, with coastal waters offering strong and consistent wind speeds that are high by both Australian and international standards. The potential energy output from these winds exceeds that of onshore wind and solar in Victoria, positioning offshore wind as key to the state's renewable energy future (AEMO, 2024).

Recognising this potential, the Commonwealth Minister for Climate Change and Energy declared an area off Gippsland, Victoria, as suitable for offshore renewable energy on 19 December 2022. The Gippsland Declared Area is one of six priority zones identified for offshore wind development in Commonwealth waters. Its suitability for offshore wind farms is underpinned by excellent offshore wind capacity, proximity to existing transmission infrastructure and access to major energy demand centres (DCCEEW, 2025).

Electricity generated by offshore wind projects located in the Gippsland Declared Area will be transmitted to the electricity network via the shared transmission line that VicGrid is developing. This part of the network has the largest available capacity in Victoria and currently services all operational coal-fired power stations in the state. Leveraging this existing infrastructure minimises the need for new transmission projects, avoiding costs and environmental impacts.

The *Climate Change Act 2017 (Vic)* commits Victoria to achieving net-zero greenhouse gas emissions by 2045 through the development of a low-emissions community and economy. Victoria is leading Australia's clean energy transition with ambitious offshore wind targets enshrined in legislation by the *Renewable Energy (Jobs and Investment) Act 2017*. In 2024, it became the first state to legislate offshore wind goals of at least 2 GW by 2032, 4 GW by 2035 and 9 GW by 2040. These commitments align with Victoria's broader targets of 65 per cent renewable electricity generation by 2030 and 95 per cent by 2035. Offshore wind is a key pillar of the state's energy transition strategy – *Cheaper, Cleaner, Renewable: Our Plan for Victoria's Electricity Future (2024)* – alongside initiatives such as the Victorian Transmission Investment Framework, renewable energy and storage targets, and the Gas Substitution Roadmap.

Beyond delivering clean and reliable energy, offshore wind presents a significant economic opportunity for Victoria, with the potential to generate \$1.6 billion in economic activity and create over 10,000 jobs within the next decade. Jobs would be concentrated in regions that need new industry the most, such as Gippsland, where the decline of fossil fuel production is expected to impact local economies. Offshore wind can also support a just transition for fossil fuel workers by using their transferable skills and supporting upskilling programs.

Globally, the offshore wind sector is growing rapidly, with larger project capacities making it an increasingly competitive resource. The International Energy Agency now ranks offshore wind as one of the 'big three' renewable energy sources, alongside onshore wind and solar (Briggs et al., 2021).

With international competition for investment and supply chain capacity intensifying, delays in advancing projects could put billions of dollars of potential investment at risk in Australia, and increase energy prices. Advancing offshore wind without delay will enable Victoria to secure these benefits, maintain energy security and deliver on its climate and renewable energy commitments.

2.3 Conclusion

The proposed works in Victoria support the development of the project, which is assessed in its entirety under the Commonwealth EIS process. The project aligns with Commonwealth and Victorian net-zero commitments, supports emissions reduction targets and secures reliable, large-scale renewable energy for the long term. Establishing Australia's first offshore wind project would kick-start a new industry, build supply chains, create local expertise and drive ongoing investment to decarbonise the country further.