

VRET Progress Report 2022-23.docx

2022/23 Progress Report



Photo credit

Gannawarra solar farm. Photo credit Edify Energy

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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Minister's foreword



I am pleased to report that the 2022/23 financial year has seen Victoria's renewable energy sector continue to develop strongly despite a challenging global environment. Victoria's renewable energy generation reached 37.8 per cent of Victoria's electricity generation in 2022/23 – around double that of five years ago. This increase puts Victoria well on track to achieve our next renewable energy target of 40 per cent renewable generation by 2025.

This year also saw the Victorian Government

- announce an historic VRET of 95 per cent renewable generation by 2035, as well as an increase to the legislated VRET 2030 target from 50 per cent to 65 per cent and
- set new Victorian energy storage targets for at least 2.6 gigawatts (GW) of energy storage capacity by 2030 and at least 6.3 GW by 2035 to support an accelerated renewable energy transition in Victoria.

These targets will be critical in leading Victoria through an accelerating renewable energy transition, which continued at pace this year with the commissioning of new capacity and commencement of construction at eleven new large-scale renewable energy projects across the state. Achieving these VRET and storage targets is estimated to bring forward around \$9.5 billion in economic development and around 59,000 two-year jobs over the period to 2035.

We continued to support investment in Victoria's energy infrastructure needs, with the announcement of six successful projects in our second VRET auction. These VRET auction projects will bring forward a combined 623 megawatts (MW) of new renewable energy capacity and 365 MW of energy storage. At a more local level, the Victorian Government has committed to installing 100 neighbourhood batteries across the state.

This year we also committed to bring back public ownership of energy by reviving the State Electricity Commission (SEC) to build renewable energy projects in Victoria. Through the SEC, we will make an initial investment of \$1 billion towards delivering 4.5 GW of new renewable energy capacity.

We have continued with the roll-out of our nation-leading Solar Homes Program to reduce emissions and help Victorians save on their energy bills. Over the 2022/23 financial year, the Solar Homes program supported more than 37,400 Victorians to install new rooftop PV with a capacity of 274 MW, while the Solar for Business program supported 1,385 small and mid-sized Victorian businesses to install a further 23 MW of capacity. Since its inception in 2018 the Solar Homes program has now supported more than 270,000 households and installed more than 1,600 megawatts of capacity.

The Solar Homes program is expected to generate 13 per cent of Victoria's 40 per cent renewable energy target by 2025 and 15 per cent of the increased VRET 2030 target of 65 per cent renewable generation. By 2027/28, the Solar Homes program is expected to reduce Victorian electricity sector emissions by around 1.9 million tonnes of carbon dioxide equivalent and reduce National Electricity Market (NEM) emissions as a whole by around 3.1 million tonnes of carbon dioxide equivalent, below what they would otherwise have been.

In terms of large-scale electricity generation, an impressive 2,972 MW of renewable energy projects were in construction or commissioning during the year. These projects are estimated to have resulted in capital expenditure of \$846 million during the 2022/23 financial year. Activity in these large-scale projects and Victoria's rooftop PV sector is estimated to have resulted in 3,859 jobs during the 2022/23 financial year.

Please join me in celebrating the achievements of our renewable energy sector – and Victoria's strong progress towards our VRET targets – in 2022/23. Our government will continue to work with the community and renewable energy industry to lead the energy transition and deliver strong outcomes for Victoria.

1. Background

1.1 About this report

Under the *Renewable Energy (Jobs and Investment) Act 2017* (REJI Act), Victoria has legislated renewable energy targets (VRET) of 25 per cent by 2020, 40 per cent by 2025 and 50 per cent by 2030. This legislation is currently being updated to reflect the government's commitment to 65 per cent renewable electricity generation by 2030 and 95 per cent by 2035 and our energy storage targets of at least 2.6 gigawatts (GW) of energy storage capacity by 2030 and at least 6.3 GW by 2035.

Section 8 of the REJI Act requires the Minister for Energy and Resources (the Minister) to report to the Parliament for each financial year on:

- the progress made towards meeting the renewable energy targets;
- investment and employment in Victoria in relation to renewable electricity generation; and
- the performance of schemes to achieve targets under the REJI Act that promote the generation of electricity by large scale facilities that utilise renewable energy sources or convert renewable energy sources into electricity.

The reporting period for this report is the 2022/23 financial year.

This report presents an assessment of progress towards the targets and state-wide investment and employment in Victoria in relation to renewable energy generation.

The Department of Energy, Environment, and Climate Action (DEECA) has based this report on the latest publicly available information from sources including the Australian Energy Market Operator (AEMO), the Clean Energy Regulator (CER), project information received from renewable energy project developers and data from Solar Victoria.

1.2 The Victorian Renewable Energy Target and Victoria's renewable energy sector

The Victorian Government introduced the VRET to provide greater policy certainty and investor confidence for the renewable energy industry in Victoria. The REJI Act and Victorian government initiatives in support of the targets have been important drivers of the development of renewable energy projects in Victoria.

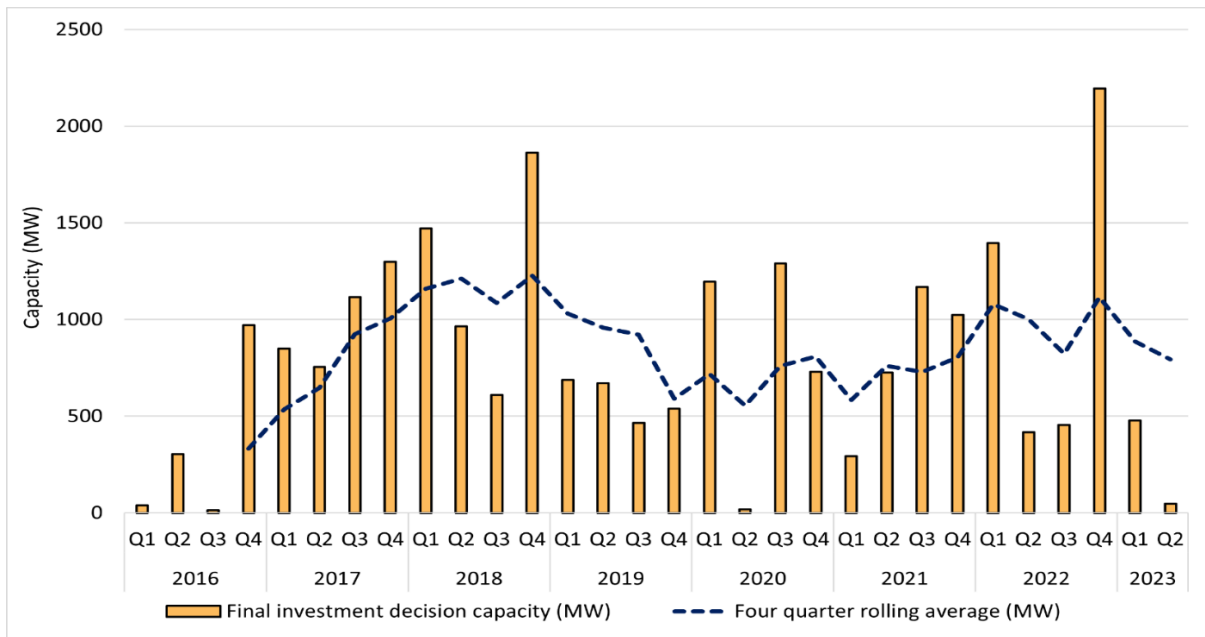
The announcement of the first VRET auction results in September 2018 supported investment in five new Victorian wind and solar projects with a combined capacity of 800 megawatts (MW). These projects have contributed to activity in Victoria's renewable energy sector and growth in Victoria's renewable energy generation over the past few years¹ (Figure 1).

The announcement of the successful second VRET auction projects in October 2022 will bring forward six large-scale solar projects with a combined 623 MW of new renewable generation capacity and 365 MW and 600 megawatt-hours (MWh) of new battery energy storage². These projects include the 102 MW Glenrowan Solar Farm, which commenced construction in March 2023.

¹ See <https://www.energy.vic.gov.au/renewable-energy/victorian-renewable-energy-and-storage-targets/victorian-renewable-energy-target-auction-vret1>

² New Solar Farms Powering Victoria, 7 October 2022. See <https://www.premier.vic.gov.au/new-solar-farms-powering-victoria>

Figure 1: Renewable energy project capacity committed by quarter in Australia since 2016, MW



Source: Source: Clean Energy Regulator, Quarterly Carbon Market Report June Quarter 2023

2. Progress towards the VRET targets

Highlights

- Over the 2022/23 financial year, renewable energy sources accounted for approximately 37.8 per cent of Victoria's electricity generation, up from 34.1 per cent in 2021/22.
- As at 30 June 2023, there were 17 renewable energy generation projects under construction or undergoing commissioning in Victoria. These projects have a combined capacity of 1,734 MW. There was also one utility-scale storage project – the 150 MW Hazelwood battery – undergoing commissioning.
- Over 2022/23, Victorian households and businesses installed 551 MW of rooftop solar systems, which saw rooftop solar provide 7.9 per cent of Victoria's electricity generation in 2022/23, up from 7.0 per cent in 2021/22.
- This volume of Victorian renewable energy projects under construction or undergoing commissioning, as well as the continuing strong investment in rooftop PV systems by Victorian homes and businesses, has Victoria well placed to achieve its VRET 2025 target of 40 per cent renewable electricity generation.

2.1 Victoria's current electricity generation profile

Renewable energy generation

In the 2022/23 financial year, Victoria generated around 20,414 gigawatt hours (GWh) of electricity from VRET eligible renewable energy sources (Table 1). This renewable electricity generation accounted for around 37.8 per cent of the 53,936 of electricity generated in Victoria in 2022/23 from all sources³. The major contributors to renewable generation in Victoria over the 2022/23 financial year were wind generation (about 20.1 per cent), solar power including both large-scale solar and rooftop PV (11.3 per cent) and hydroelectricity (5.5 per cent).

Table 1: Victorian electricity generation by source, 2022/23 financial year

Source	GWh	Share (%)
Brown coal	31,500	58.4
Gas	1,767	3.3
Renewable energy		
- Wind	10,867	20.1
- Solar (rooftop PV)	4,267	7.9
- Hydroelectricity	2,967	5.5
- Solar (large scale)	1,821	3.4
- Bioenergy (renewable energy sources eligible under VRET) ⁴	492	0.9
Other (renewable energy sources non-eligible under VRET)	256	0.5
Total eligible renewable energy	20,414	37.8
Total all renewable energy	20,670	38.3
Total	53,936	100.0

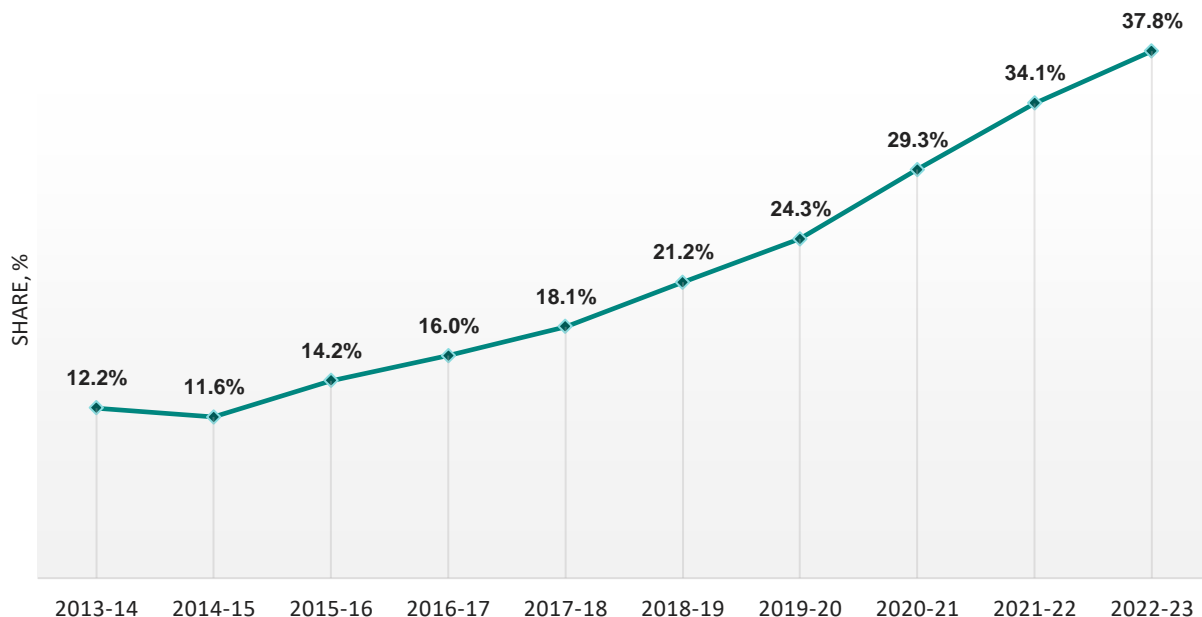
Source: Refer to Figure 2 below for sources. Note: Totals may not sum due to rounding.

³ The share of renewable generation from all sources (VRET eligible and ineligible) in 2022/23 was 38.3 per cent of Victoria's total electricity generation.

⁴ Bioenergy from native forest wood waste is not included as an eligible renewable energy source under VRET, as per the Minister's declaration of renewable energy sources on 29 June 2018. Victorian Government Gazette No. S318. Throughout this report, references to 'eligible renewable generation' should be interpreted as referring to the renewable generation sources that are eligible to contribute to VRET.

The share of renewable energy in Victoria's electricity generation has increased steadily over the last eight years, from 11.6 per cent in 2014/15 to 37.8 per cent over the 2022/23 financial year (Figure 2). The Solar Homes Program contributed around 3.1 per cent of Victoria's electricity generation in 2022/23⁵.

Figure 2: Victorian renewable electricity generation share, 2013/14 to 2022/23



Source: NEM Review, Metered generation (as generated), up to 2021/22, extracted on 5 July 2022 and NEOpint, Generation thereafter, extracted on 6 July 2023,⁶ except for bioenergy (based on Australian Government Department of Climate Change, Energy, the Environment and Water, Australian Energy Statistics)⁷ and some small generators (based on Departmental estimates)⁸.

The increase in Victoria's renewable electricity generation over this period has come from new wind and solar farms and the installation of rooftop PV systems across the state. The installation of rooftop PV systems has been supported by the Solar Homes Program since 2018. The Solar Homes Program is currently expected to generate 13 per cent of the renewable electricity needed to meet Victoria's 40 per cent renewable energy target by 2025 and 15 per cent of the increased VRET 2030 target of 65 per cent renewable generation⁹.

⁵ These estimates are based on current program uptake data from Solar Victoria at the time of writing in October 2023.

⁶ NEM Review and NEOpint are subscription based Australian energy data services prepared by Global Roam and Intelligent Energy Systems respectively. Both NEM Review and NEOpint's electricity generation data is based on AEMO's actual 5-minute electricity generation data for scheduled generating units, semi-scheduled generating units and non-scheduled generating units and estimated output of rooftop solar PV systems from AEMO's Australian Solar Energy Forecasting System. The NEM Review data captures the vast majority of Victorian electricity generation with some exceptions – see footnotes 6 and 7, below.

⁷ NEM Review and NEOpint do not include data for Victorian bioenergy generation. Estimated electricity generation from bioenergy generation is instead sourced from the Australian Energy Statistics, Table O Electricity generation by fuel type 2021/22 and 2022. Note that this update did not include data for 2022/23 so data from 2022 was used as a proxy for 2022/23.

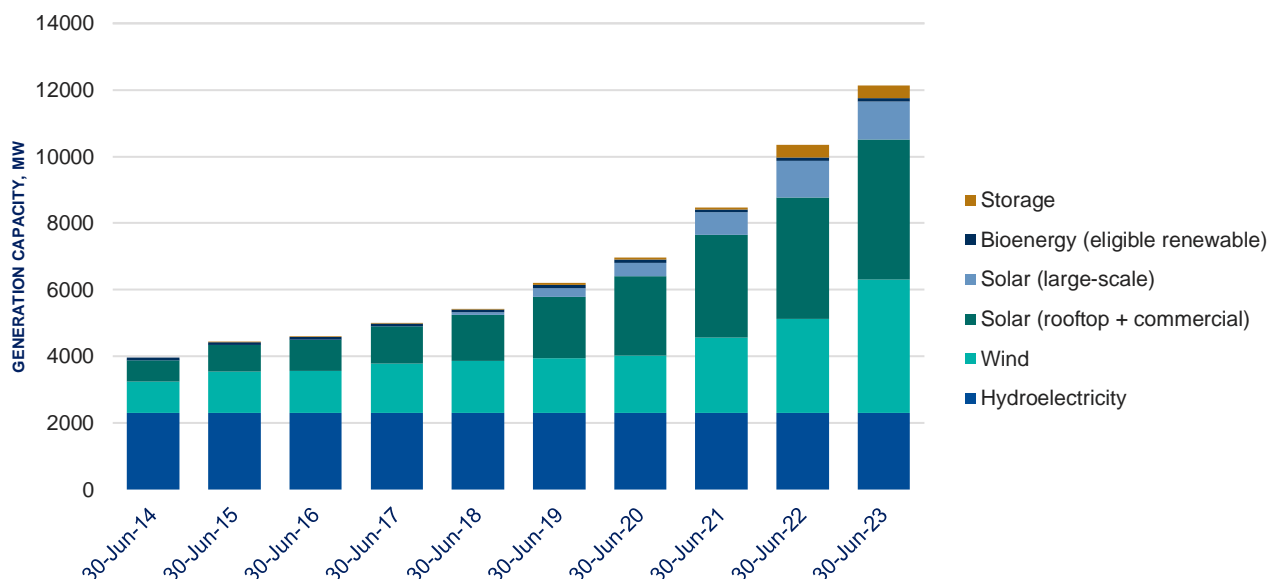
⁸ Electricity generation volumes for some small generators – Chepstowe (6.1 MW), Codrington (18.2 MW), Leonard's Hill (4.1 MW), Toora (21 MW), Wonthaggi (12 MW), Coonooer Bridge (19.8 MW), Maroona (7.2 MW), Timboon West (7.2 MW) and Yawong (7.2 MW), Swan Hill (14.4 MW), Numurkah APSU (6 MW), Girgarre 1 and 2 (5 MW each), Echuca (5 MW), Stanhope 1,2,3, 4 and 5 (5 MW each), Katamatite (5 MW), Numurkah 1 and 2 (5 MW each), Robinvale (7.4 MW), Longford (46.4 MW), Qenos (21 MW), Wunghnu (5 MW), Melbourne Airport (12 MW), Ferguson (12 MW), Waurm Ponds Smart Energy Project (7 MW), Yarroweyah (5 MW), Bamawm (5 MW), Pine Lodge (5 MW), and Tatura (5 MW) – are not reported by NEM Review. Annual output of these generators is estimated by the Department.

⁹ Based on internal analysis conducted by the Department of Energy, Environment and Climate Action. These estimates reflect current program information and should not be interpreted as statements of performance against Solar Homes program targets.

Installed renewable energy generation capacity

As of 30 June 2023, Victoria had 11,745 MW of installed capacity from all sources of renewable energy eligible to contribute to Victoria’s renewable energy targets – hydroelectricity, wind, solar (including large-scale, commercial and rooftop PV) and bioenergy excluding native forest wood waste¹⁰ (Figure 3). This compares to 9,932 MW of installed capacity at 30 June 2022¹¹.

Figure 3: Victorian renewable electricity generation and storage capacity, 2013/14 to 2022/23



Source: Based on AEMO, Generation information for Victoria¹²; CER, Small-scale postcode data¹³ and CER data on accredited power stations¹⁴ and other generation project information¹⁵.

In 2022/23, Solar Victoria’s Solar Homes Program supported 37,403 new rooftop PV installations in Victoria (for both owner-occupier households and rental providers), with an estimated capacity of 274 MW of rooftop PV installed. From its commencement to the end of June 2023, the Solar Homes Program has supported 1,567 MW of rooftop PV systems in Victoria¹⁶. Additionally, in 2022/23, the Solar for Business program supported 1,385 small and mid-sized Victorian businesses to install a further 23 MW of capacity.

Victoria’s commissioned renewable energy capacity increased by 7,782 MW between the end of June 2014 and the end of June 2023. This is overwhelmingly driven by the commissioning of large-scale wind and solar farms and the installation of rooftop solar PV systems. Over this period, rooftop PV capacity increased by

¹⁰ See footnote 4.

¹¹ The 2021/22 VRET Progress Report reported a total installed renewable energy capacity of 9,932 MW, which was derived from the most up to date information at the time of publishing. This capacity has been updated for the 2022/23 VRET Progress Report with the most recent data for 2021/22 from AEMO Generation Information and the CER small-scale postcode data for solar installations (see footnotes 12, 13 and 14). This change reflects updated rooftop PV and accredited power station data from the CER.

¹² AEMO Generation information spreadsheets for Victoria dated 30 May 2014, 13 August 2015, 11 August 2016, 29 December 2017, 8 August 2019, 30 April 2020, 7 July 2021, 22 July 2022 and 13 July 2023 were used in developing this data. See <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information>

¹³ CER small-scale postcode data for solar installations from 2014 through to 2020 is sourced from historical data available on the CER website at <http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations/historical-postcode-data-for-small-scale-installations>. CER small-scale postcode data for solar installations from 2022 onwards is sourced from CER postcode data as at 20 July 2023 available at <http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations>

¹⁴ The CER’s data on accredited power stations up to the end of 2022 is available at <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/Large-scale-Renewable-Energy-Target-market-data/large-scale-renewable-energy-target-supply-data/historical-large-scale-renewable-energy-target-supply-data>. The CER’s data on accredited power stations in 2023 is available at: <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/Large-scale-Renewable-Energy-Target-market-data/large-scale-renewable-energy-target-supply-data>

¹⁵ This information includes publicly available information from project websites and media releases and information that DEECA has obtained directly from project proponents.

¹⁶ Based on Solar Victoria program tracking.

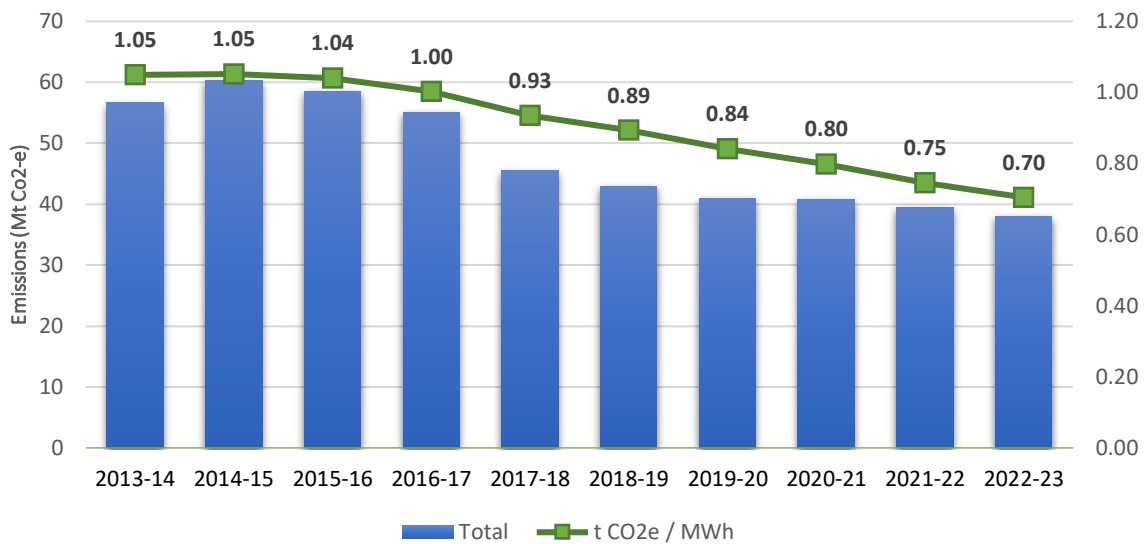
3,563 MW, wind capacity increased by 3,070 MW, large-scale solar capacity increased by 1,138 MW and bioenergy capacity increased by 13 MW.

Emissions reduction

Victoria’s electricity sector greenhouse gas emissions have fallen from around 60.3 million tonnes (Mt) of CO₂-e in 2014/15 to around 38.0 Mt of CO₂-e in 2022/23 (Figure 4). This decline was associated with the reduction in coal fired electricity generation (mostly contributed by the retirement of the Hazelwood Power Station in March 2017) and the growth of renewable electricity generation (which allows for the displacement of coal capacity) in Victoria over this period.

In 2022/23, the Solar Homes Program is estimated to have reduced emissions in the National Electricity Market by 0.85 Mt of CO₂e below what they would otherwise have been. By 2027/28, the Solar Homes Program is expected to reduce electricity sector emissions in Victoria and the National Electricity Market by around 1.9 and 3.1 Mt of CO₂e respectively below what they would otherwise have been.

Figure 4: Emissions from electricity generation in Victoria, 2013/14 to 2022/23



Source: Data to 2021/22 from Clean Energy Regulator, Greenhouse and energy information by designated generation facility, various years. Data for 2022/23 estimated based on emissions intensities from 2021/22 Clean Energy Regulator data and 2022/23 electricity generation from NEOpint.

2.2 Renewable energy development

Renewable energy generation projects commissioned in 2022/23

In the 2022/23 financial year, Victoria's renewable energy capacity increased by 1,783 MW (Table 2). This growth was driven by the:

- commissioning of the Lal Lal (Yendon), Murra Warra (stage 2), Stockyard Hill, Moorabool North and South wind farms.
- commissioning of the Cohuna and Melbourne Water (BTM) – Winneke solar farms.
- installation of 551 MW of rooftop solar panels by Victorian homes and businesses.

Victoria's commissioned energy storage capacity increased by 5 MW in 2022/23 with the commissioning of the Phillip Island battery storage system in early 2023.

Table 2: Change in Victorian renewable electricity generation and energy storage capacity in 2022/23

Project	Technology	Capacity (MW)	Location	Commissioned
Lal Lal (Yendon)	Wind	144	25 km south of Ballarat	Q4 2022
Murra Warra (s 2)	Wind	209	25 km north of Horsham	Q4 2022
Stockyard Hill	Wind	532	35 km west of Ballarat	Q4 2022
Moorabool (North)	Wind	150	25-30 km south east of Ballarat	Q4 2022
Moorabool (South)	Wind	162	25-30 km south east of Ballarat	Q4 2022
Subtotal – wind		1,193		
Cohuna	Large-scale solar	34	Kerang-Leitchville Road, Horfield	Q3 2022
Melbourne Water (BTM) - Winneke	Large-scale solar	6	Ridge Rd, Christmas Hills	Q2 2023
Rooftop PV (a)	Rooftop PV	551	State wide	Year round
Subtotal – solar		590		
Total – renewable energy		1,783		
Phillip Island BESS	Battery	5	Back Beach Road, Cowes	Q2 2023
Total – energy storage		5		

Note: (a) includes both small-scale rooftop PV installations and commercial scale rooftop PV installations¹⁷. * "BTM" refers to behind-the-meter solar generation. Totals may not sum due to rounding. Sources: Information on the large-scale projects was obtained from public and private sources¹⁸. Small-scale rooftop PV capacity is sourced from CER, Small-scale postcode data¹⁹ while commercial scale rooftop PV capacity is sourced from CER data on accredited power stations²⁰.

Renewable energy projects under construction or undergoing commissioning

As at 30 June 2023, there were 1,734 MW of renewable electricity generation and 150 MW of energy storage projects under construction or undergoing commissioning in Victoria (Table 3). This comprises six wind farms projects with a combined capacity of around 1,499 MW, eleven solar farms with a capacity of 236 MW and one utility-scale battery with a capacity of 150 MW.

Table 3: Victorian renewable energy and energy storage projects under construction or in commissioning as at 30 June 2023

Project	Technology	Capacity (MW)	Location	Estimated commissioning[1]
Berrybank (stage 2)	Wind	109	60 km south west of Ballarat	Q3 2023
Ryan Corner	Wind	235	10 km north of Port Fairy	Q2 2024
Golden Plains (Stage 1)	Wind	756	60 km north west of Geelong	By Q3 2025

¹⁷ Commercial scale systems include rooftop and behind-the-meter solar systems exceeding 100 kW in capacity.

¹⁸ See footnotes 12 and 15 above.

¹⁹ See footnote 13 above.

²⁰ See footnote 14 above.

Hawkesdale	Wind	109	35 km north of Port Fairy	Q3 2024
Mortlake South	Wind	158	5 km south of Mortlake	Q4 2023
Mt Gellibrand	Wind	132	25 km east of Colac	2024
Subtotal – wind		1,499		
McCain (BTM)	Large-scale solar	7	Ballarat	Q3 2024
Melbourne Water (BTM) - Eastern	Large-scale solar	19	Bangholme, Melbourne	Q3 2023
Cosgrove	Large-scale solar	5	Cosgrove-Caniambo Road, Greater Shepparton	Q4 2023
Glenrowan	Large-scale solar	102	Glenrowan West Rd, Glenrowan	Q2 2024
Goornong	Large-scale solar	5	Midland Highway, Goornong	Q4 2023
Ledcourt	Large-scale solar	5	Western Highway, Ledcourt	Q4 2023
Moolort	Large-scale solar	5	Pyrenees Highway, Moolort	Q4 2023
Raywood	Large-scale solar	5	McQualters Road, Raywood	Q4 2023
Stawell	Large-scale solar	5	Dane Road, Stawell	Q4 2023
Wunghnu	Large-scale solar	75	Kaarnimba Road, Wunghnu	Q3 2024
Carwarp (Raygen)	Solar thermal hydro	3	Carwarp	Q3 2023
Subtotal – solar		236		
Hazelwood	Battery storage	150	Brodribb Rd, Hazelwood	Q3 2023
Total – renewable energy		1,734		
Total – renewable energy + storage		1,884		

Note: * “BTM” refers to behind-the-meter solar generation. Totals may not sum due to rounding. Projects are reported by nameplate capacity as reported by AEMO, Generation Information, dated 7 July 2023²¹. Sources: Information on all projects was obtained from public and private sources²².

²¹ Projects contracted with the Victorian Government are reported by the capacity as reported by the project proponents, to ensure consistency across the government’s reporting of these projects. For other projects, nameplate capacities from AEMO’s Generation Information spreadsheet dated 7 July 2023 have been used. See <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Generation-information>.

²² See footnotes 12 and 15 above.

2.3 Investment and employment

Highlights

- Large-scale renewable generation projects in development (2,972 MW) in Victoria over the 2022/23 financial year are estimated to support around \$846 million in capital expenditure and around 662 jobs in the 2022/23 financial year.
- Over the whole period from project commencement to completion, these projects are estimated to support \$6.35 billion in capital expenditure and 4,105 jobs.
- In addition to the jobs supported through the construction of large-scale renewable energy projects, rooftop solar PV installations completed in 2022/23 are estimated to have supported a further 3,197 jobs.

The installation and operation of renewable electricity generation facilities attracts investment to the State, contributing to jobs growth and economic activity across Victoria. This section of the report discusses the investment and employment outcomes for Victoria's renewable generation sector in 2022/23.

Investment and employment from large-scale renewable energy projects commissioned or under construction in Victoria during 2022/23 are based primarily on information provided to DEECA by renewable energy project proponents. Victoria's small-scale solar industry is also an important driver of jobs and investment in Victoria. DEECA estimates that Victoria's rooftop solar PV industry supported approximately 3,197 jobs in 2022/23²³.

Investment and employment from large-scale renewable generation projects

Based on information available to DEECA²⁴, it is estimated that the large-scale renewable generation and storage projects in development in Victoria during the financial year 2022/23 will generate around \$846 million in capital expenditure and 662 jobs over the 2022/23 financial year (Table 4)²⁵.

Over the whole period from project commencement to completion, these projects are estimated to support \$6.35 billion in capital expenditure and 4,105 jobs. Projects in development during 2022/23 include projects that were commissioned during 2022/23 or were under construction or undergoing commissioning as of 30 June 2023.

Table 4: Estimated capital expenditure and jobs associated with Victorian large-scale renewable generation projects in development in 2022/23

	Capacity (MW)	Capex (\$m)		Jobs	
		In 2022/23	Over project life	In 2022/23	Over project life
Wind	2,696	653	5,697	458	3,459
Solar	276	192	651	204	646
Total	2,972	846	6,348	662	4,105

Source: Information sourced directly from project proponents and publicly available information from project websites and media articles. Note the capex and jobs figures for 2022/23 are an estimate of the proportion of the total capex and jobs from project commencement to completion that occurred in the 2022/23 financial year. Totals may not sum due to rounding.

Wind farm projects in development during 2022/23 are expected to account for around \$653 million in capital expenditure and 458 jobs over 2022/23, while solar projects in development during 2022/23 are expected to account for around \$192 million in capital expenditure and 204 jobs in 2022/23.

²³ Based on data from the Clean Energy Regulator and the employment multiplier for rooftop PV reported in Rutovitz, J., et al. (2020) *Renewable Energy Employment in Australia: Methodology*. Prepared for the Clean Energy Council by the Institute for Sustainable Futures, University of Technology Sydney. This multiplier includes 'direct' jobs from renewable energy project development but excludes 'indirect' jobs in related industries and jobs 'induced' through expenditure of wages and salaries.

²⁴ This information includes publicly available project information from websites and media articles, and information obtained by DEECA from project proponents. Note that whole-of-project renewable energy project jobs figures are reported here in the same terms as they were provided by the proponents.

²⁵ Construction jobs for 2022/23 have been estimated by apportioning the construction jobs figure reported by project proponents by the number of months in 2022/23 that the project was under construction relative to the project's total construction period. Operational jobs for 2022/23 have been estimated by apportioning the operational jobs figure reported by project proponents by the number of months in 2022/23 that the project was generating. DEECA notes that jobs figures are difficult to define and that this approach is an approximation.

Investment and employment by region in 2022/23

As Victoria's renewable energy facilities are being constructed in parts of the state with very strong renewable energy resources, the economic activity associated with renewable energy construction will benefit these regions. The areas of western Victoria, including the Central Highlands, Barwon and the Great South Coast have particularly good wind resources and have attracted much of Victoria's wind farm investment. In the same vein, large-scale solar project development initially occurred in Victoria's north to capture the higher levels of solar irradiation in those parts of Victoria relative to the rest of Victoria. More recent large-scale solar project investment has moved east towards Goulburn and the Ovens Murray districts in response to more favourable network conditions in those areas. These regional patterns are reflected in Table 5, which shows the regional distribution of estimated capital expenditure and jobs generated by large-scale wind and solar project development in Victoria during the 2022/23 financial year.

Table 5: Overview of renewable energy project development activity in Victoria during 2022/23, by region²⁶

	Capacity (MW)		Capex (\$ m)		Jobs	
	Wind	Solar	Wind	Solar	Wind	Solar
Barwon (incl Metro)	132	25	C	3	C	3
Central Highlands	1,744	7	227	C	132	C
Central North	0	95	0	74	0	120
East	0	102	0	C	0	C
Great South Coast	611	0	411	0	298	0
North West	209	47	C	26	C	48
Total	2,696	276	653	192	458	204

Source: Information sourced directly from project proponents and publicly available information from project websites and media articles. C = Not reported as results reflect single projects. Totals may not sum due to rounding. Central North includes Goulburn and Loddon Campaspe projects. East includes Gippsland and Ovens Murray projects. North West includes Mallee and Wimmera Southern Mallee projects.

²⁶ Regional definitions in this table are based on Regional Development Victoria's Regional Partnerships classifications at: <https://www.rdv.vic.gov.au/regional-partnerships>

3. Closing statement

The VRET 2022/23 Progress Report provides a review of data and key statistics on the status and trends of the development of the renewable energy sector in Victoria, with a focus on outcomes achieved over the 2022/23 financial year.

Overall, 2022/23 saw Victoria’s renewable energy industry progress with continued growth in renewable generation from wind and solar and the commencement of construction at a number of large renewable projects. In 2022/23, 11 new projects with a combined capacity of 1,307 MW commenced construction, while eight large scale projects with a combined capacity of 1,242 MW completed commissioning.

Activity in Victoria’s small-scale solar sector remained at a high level, although lower than FY 2021/22, as Victorian households and businesses continued to embrace rooftop solar generation and the Victorian Government’s Solar Homes Program.

A synthesis of the key findings with respect to the reporting requirements under the REJI Act are set out in Table 6 below.

Table 6: VRET 2022/23 Progress Report – synthesis of findings

Reporting requirements	Financial year 2022/23	Section with further detail
Progress made towards meeting the renewable energy targets	<p>Renewable energy generation accounted for 37.8 per cent of Victoria’s electricity generation over the financial year.</p> <p>Victoria is on track to meet the 2025 target of 40 per cent renewable energy generation.</p> <p>Victorian renewable energy generation capacity now exceeds the minimum generation capacity of 11,354 MW that was estimated to be required to achieve the 2025 target. As at 30 June 2023, there was already 11,745 MW of commissioned renewable energy generation capacity in Victoria and 1,734 MW under construction or commissioning.</p>	Section 2.1
Investment and employment in Victoria in relation to renewable electricity generation	<p>Victoria’s commissioned small and large-scale renewable electricity generation capacity increased by around 1,783 MW in 2022/23.</p> <p>Two large-scale solar farms and five large scale wind farms with a combined capacity of 1,237 MW were commissioned in Victoria in 2022/23.</p> <p>As of 30 June 2023, Victoria has six wind farms and eleven solar farms with a combined capacity of 1,734 MW under construction or undergoing commissioning.</p>	Section 2.2
	<p>Renewable generation projects commissioned during 2022/23 or under construction or undergoing commissioning as at 30 June 2023 are estimated to have resulted in capital expenditure of \$846 million and around 662 jobs in 2022/23.</p>	Section 2.3