IBISWorld

INDUSTRY REPORT

Solar Electricity Generation in Australia

Aug 2023

About IBISWorld

IBISWorld specializes in industry research with coverage on thousands of global industries. Our comprehensive data and in-depth analysis help businesses of all types gain quick and actionable insights on industries around the world. Busy professionals can spend less time researching and preparing for meetings, and more time focused on making strategic business decisions.

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Standard

About

A quick definition of the industry, its products and services, major companies and other key identifiers help you confirm you're in the right place.

1. About

https://my.ibisworld.com/au/en/industry/D2619b/about

Codes

ANZSIC 2006	2619

Definition

Industry firms supply electricity to the wholesale market using large-scale photovoltaic generation systems, or solar thermal systems. Photovoltaic systems with a generation capacity of less than five megawatts are excluded from the industry.

Related Terms

MEGAWATT (MW)

A unit equivalent to one million watts.

MEGAWATT HOUR (MWH)

One million watts of electrical power used for one hour.

GIGAWATT (GW)

A unit equal to 1,000 megawatts.

GIGAWATT HOUR (GWH)

The energy that is required to power 10 million 100-watt units, such as light globes, for an hour.

RENEWABLE ENERGY TARGET (RET)

Regulation designed to increase the share of renewable generation in Australia.

LARGE-SCALE GENERATION CERTIFICATE (LGC)

Certificates that allow electricity retailers to meet their RET responsibilities. One LGC is equivalent to one MWh of renewable energy.

What's Included

- Solar electricity generation
- Concentrated solar thermal electricity generation
- Solar electricity storing and dispatching

Companies

- Neoen Australia
- FRV Australia

- Wirsol Energy
- AGL
- Enel Green Power Australia
- Genex Power

Related Industries

Industries in the Same Sector

- **Competitors:**
  - No data available
- **Complementors:**
  - Hydro-Electricity Generation in Australia
  - Fossil Fuel Electricity Generation in Australia
  - Wind and Other Electricity Generation in Australia

International Industries

- Solar Power in the US
- Geothermal, Wind and Other Electricity Generation in New Zealand
- Renewable Electricity Generation in the UK
- Solar Power Generation in China

Additional Resources

- Clean Energy Regulator
- Australian Photovoltaic Institute
- Australian Energy Market Operator

At A Glance

Evaluate key industry data and trends and get an overview of important report sections to use in meetings and presentations.

2. At a Glance

https://my.ibisworld.com/au/en/industry/D2619b/at-a-glance

Revenue	Employees	Businesses
$1.5bn	**4,199**	**74**
'18-'23 ↑ 58.9 %	'18-'23 ↑ 34.8 %	'18-'23 ↑ 37.6 %
'23-'28 ↑ 3.6 %	'23-'28 ↑ 5.6 %	'23-'28 ↑ 7.9 %

Profit	Profit Margin	Wages
$346.4m	**23.4%**	**$323.8m**
'18-'23 ↑ 59.0 %	'18-'23 ↑ 0.1 pp	'18-'23 ↑ 40.1 %
		'23-'28 ↑ 4.7 %

Key Takeaways

Performance

- The large-scale solar capacity is growing. Solid investment is pushing solar generation as a viable alternative to other forms of renewable generation. Private and public sector support is encouraging new projects.
- Wholesale markets are buckling as supply pressures mount. Regulatory and government interventions have been needed to stabilise wholesale markets, as coal and gas prices push up supply costs.

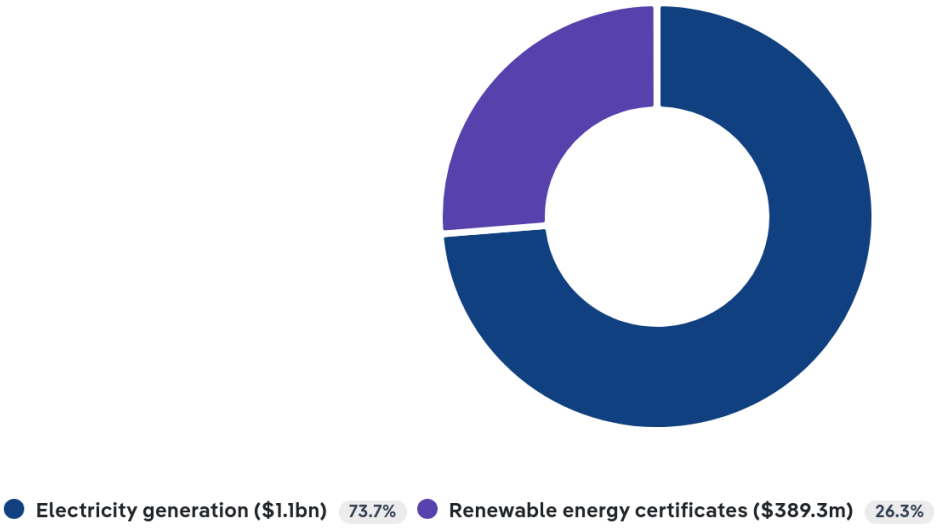
External Environment

- Electricity generators face heavy regulation. As part of the electricity supply chain, generators walk a regulatory tightrope to comply with legislation. The Australian Energy Market Operator oversees wholesale markets.
- Government funding supports renewable generators. Solar generators have taken advantage of extensive government funding programs. The Australian Renewable Energy Agency and Clean Energy Finance Corporation have complemented private investment.

Products and Services

Products & Services Segmentation

Industry revenue in 2023 broken down by key product and service lines.



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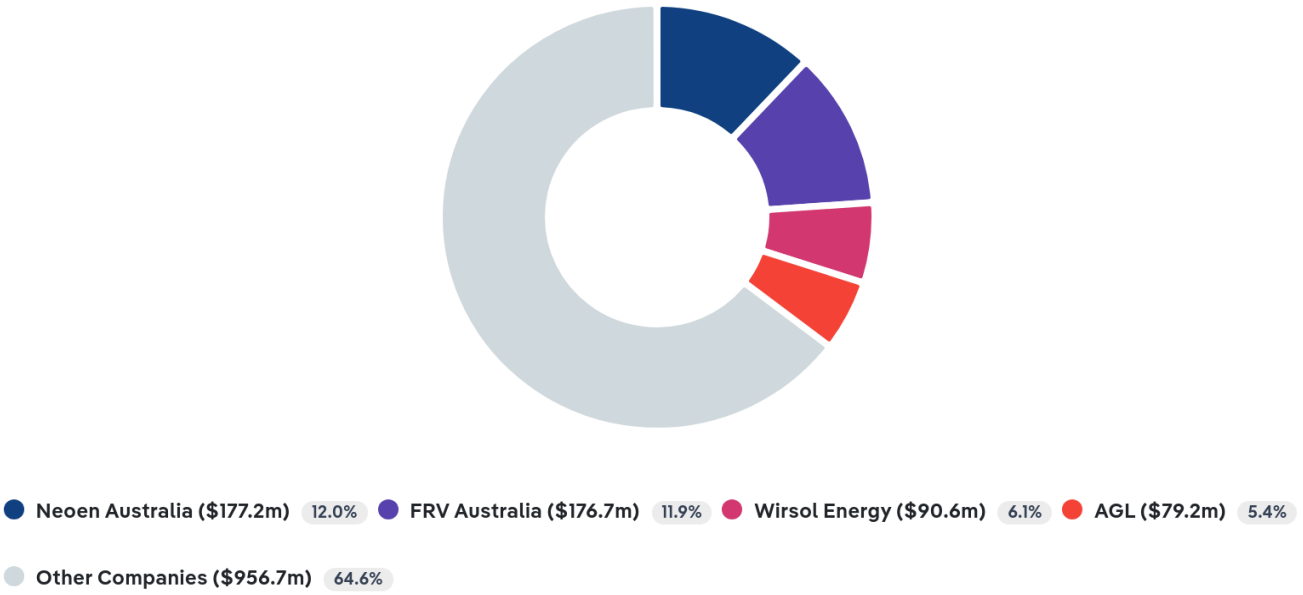
Source: IBISWorld

Major Players

Major Players



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Source: IBISWorld

Key External Drivers

Key External Drivers	Impact
Electricity wholesale price	Positive
Public concern over environmental issues	Positive
Demand from electricity retailing	Positive
Demand from fossil fuel electricity generation	Negative

Industry Structure

Characteristic	Level	Trend
Concentration	Low	
Barriers To Entry	High	Steady
Regulation and Policy	High	Increasing
Life Cycle	Growth	
Revenue Volatility	Very High	
Assistance	High	Decreasing
Competition	High	Increasing
Innovation	High	

SWOT

Strengths
High & Steady
Barriers to Entry
Growth Life Cycle Stage
Low Imports
High Profit vs. Sector Average
Low Customer Class Concentration

Weaknesses
High & Decreasing Level of Assistance
High Competition
Very high Volatility
High Product/Service Concentration
Low Revenue per Employee
High Capital Requirements

Opportunities
High Revenue Growth (2018-2023)
High Revenue Growth (2023-2028)
High Performance Drivers
Public concern over environmental issues

Threats
Demand from fossil fuel electricity generation

Executive Summary

As Australia looks to a cleaner future, solar power offers a bright alternative to emissions-intensive fossil fuels. Advances in solar photovoltaic (PV) technologies have made solar commercially viable, with China manufacturing most of the world's solar panels. In contrast to small-scale solar – which is covering more Australian homes than ever before – the utility-scale market remains relatively untapped. Buoyed by public sector support, private capital is now flooding into new solar projects and propelling capacity growth. Larger farms are being constructed to generate economies of scale and service industrial firms. Amid vocal consumer and shareholder support for clean energy, businesses are adopting net-zero targets and locking in Power Purchase Agreements (PPAs) with solar generators.In recent years, solar generators have capitalised on inflated wholesale electricity prices and banked healthy profit margins. Revenue is expected to have risen at an annualised 58.9% over the past five years, including an estimated jump of 10.3% in 2022-23, to total $1.5 billion. The lack of material inputs has saved solar generators from high coal and gas prices, which have ballooned since the Russia-Ukraine conflict began. Wholesale electricity markets have been in turmoil – prompting regulatory and government interventions. The National Electricity Market (NEM) was shut down for over a week in June 2022, while the Federal Government implemented temporary caps on domestic coal and gas prices in December 2022.One of the drawbacks of solar power is that it needs the sun to be shining. Energy storage mitigates this problem and firms up volatile output. That's why generators are investing in large lithium-ion batteries and pumped hydro storage facilities. Large renewable hubs are being created to reinforce different generation technologies – combining solar, wind and battery storage.Solar generators face headwinds in the coming years. Erratic wholesale markets are set to continue, as renewable capacity grows and coal-fired generators cease operations. Large-scale Generation Certificate (LGC) markets will also contend with a fixed Renewable Energy Target, which is set at an already-met 33,000 GWh until 2030. Wholesale and LGC prices will have to adjust as more renewable projects become operational. Revenue is projected to increase at an annualised 3.6% over the next five years, coming to an estimated $1.8 billion in 2027-28.

Performance

Track historical, current and forward-looking trends in revenue, profit and other performance indicators that make or break an industry.

3. Performance

https://my.ibisworld.com/au/en/industry/D2619b/performance

Highlights

Revenue	Employees	Businesses
$1.5bn	**4,199**	**74**
2018-23 CAGR ↑ 58.9 %	2018-23 CAGR ↑ 34.8 %	2018-23 CAGR ↑ 37.6 %
2023-28 CAGR ↑ 3.6 %	2023-28 CAGR ↑ 5.6 %	2023-28 CAGR ↑ 7.9 %

Profit	Profit Margin
$346.4m	**23.4%**
2018-23 CAGR ↑ 59.0 %	2018-23 CAGR ↑ 0.1 pp

Key Takeaways

- **The large-scale solar capacity is growing.** Solid investment is pushing solar generation as a viable alternative to other forms of renewable generation. Private and public sector support is encouraging new projects.
- **Wholesale markets are buckling as supply pressures mount.** Regulatory and government interventions have been needed to stabilise wholesale markets, as coal and gas prices push up supply costs.

Performance Snapshot

Revenue: ↑ 2018-23 Revenue CAGR +58.9%

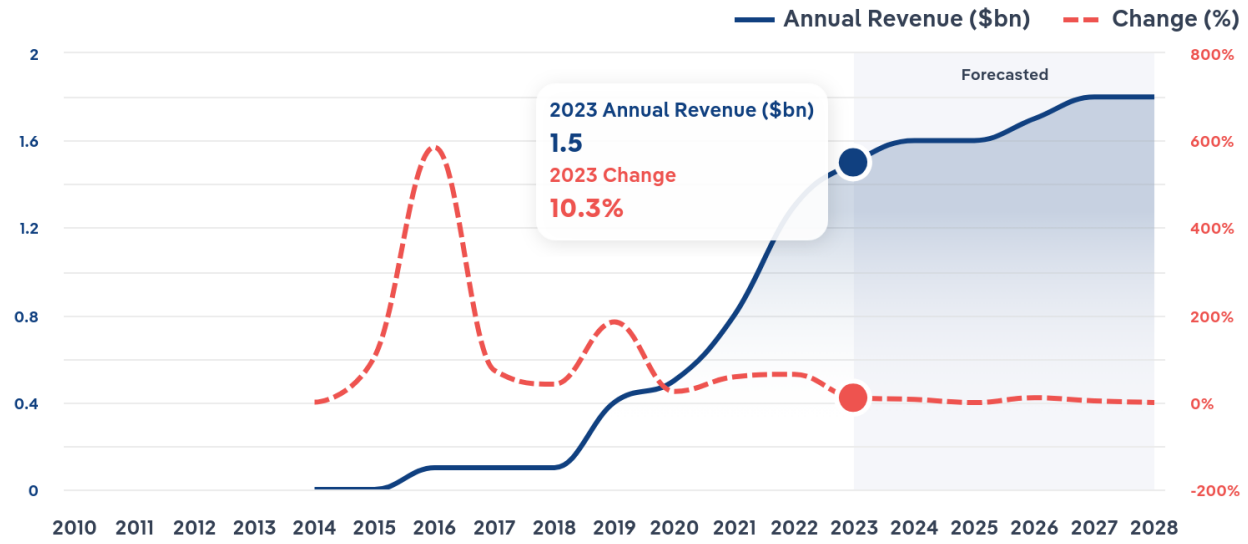
Revenue
$1.5bn
'18-'23 ↑ 58.9 %
'23-'28 ↑ 3.6 %

2023 Revenue CAGR
↑ 10.3 %

Revenue Volatility
Very High

Revenue

Total value ($) and annual change from 2010 – 2028. Includes 5-year outlook.



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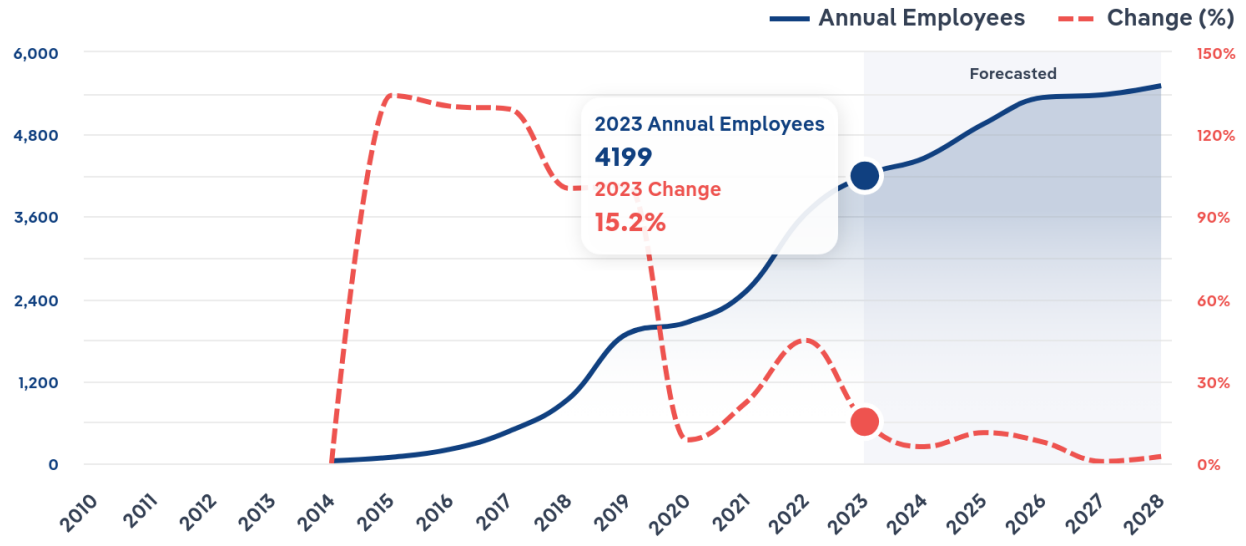
Source: IBISWorld

Employees: ↑ 2018-23 Employees CAGR +34.8%

Employees	Employees per Business	Revenue per Employee
4,199	**57**	**$353k**
'18-'23 ↑ 34.8 %	'18-'23 ↓ 2.0 %	'18-'23 ↑ 17.8 %
'23-'28 ↑ 5.6 %	'23-'28 ↓ 2.1 %	'23-'28 ↓ 1.9 %

Employees

Total number of employees and annual change from 2010 – 2028. Includes 5-year outlook.



IBISWorld

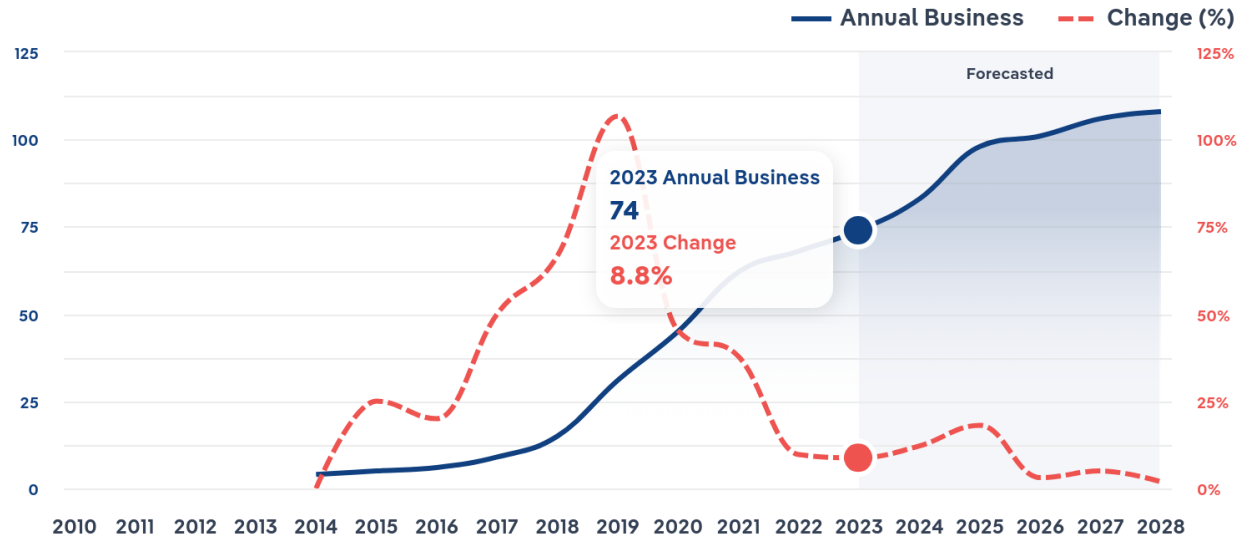
Source: IBISWorld

Businesses: ↑ 2018-23 Business CAGR +37.6%

Businesses	Employees per Business	Revenue per Business
74	**57**	**$20.0m**
'18-'23 ↑ 37.6 %	'18-'23 ↓ 2.0 %	'18-'23 ↑ 15.5 %
'23-'28 ↑ 7.9 %	'23-'28 ↓ 2.1 %	'23-'28 ↓ 4.0 %

Business

Total number of businesses and annual change from 2010 – 2028. Includes 5-year outlook.



IBISWorld

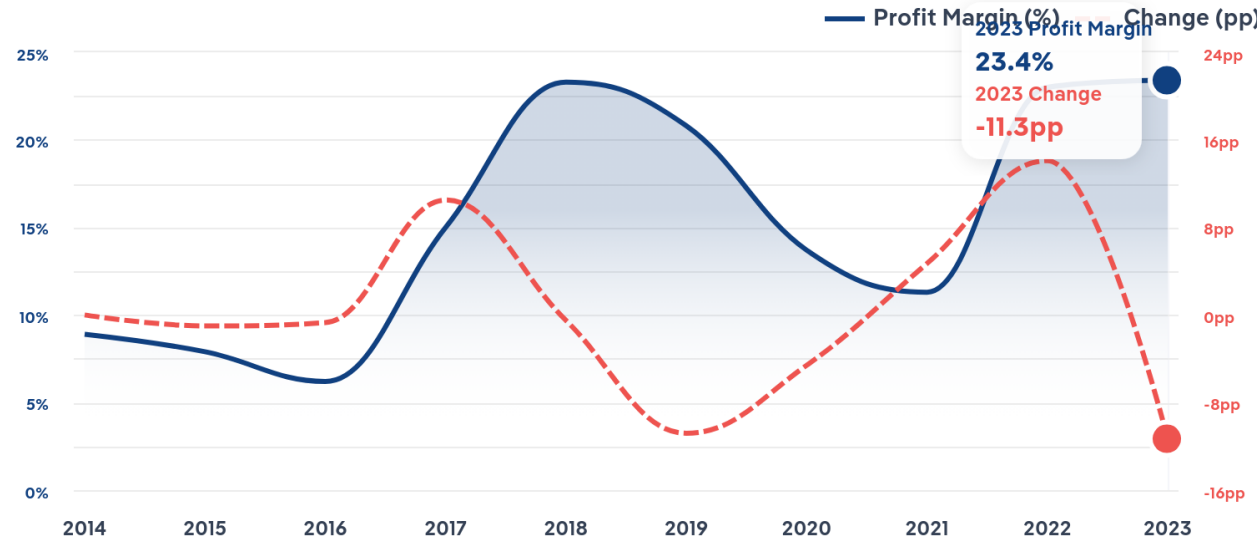
Source: IBISWorld

Profit: ↑ 2018-23 Profit CAGR +59.0%

Total Profit	Profit Margin	Profit per Business
$346.4m	**23.4%**	**$4.7m**
'18-'23 ↑ 59.0 %	'18-'23 ↑ 0.1 pp	

Profit Margin

Total profit margin (%) and annual change from 2010 – 2023



IBISWorld

Source: IBISWorld

Current Performance

What's driving current industry performance?

Large-scale solar capacity expands in a bright investment environment

- Over the past decade, solar panels have become commercially viable as a renewable electricity source. China has established the world's solar panel manufacturing hub, while photovoltaic (PV) technologies have matured.
- Australia's renewable generation has traditionally been derived from hydro and wind sources. This is changing, as strong investment strengthens large-scale solar's position in the electricity mix.
- The average size of new solar farms has picked up, as investors seek to maximise output and generate economies of scale. Energy firms have turned to debt funding and capital injections to bankroll larger facilities.

Out-of-control wholesale prices prompt market interventions

- Wholesale prices in the National Electricity Market (NEM) spiked in 2021-22.
- The Russia-Ukraine conflict has inflated coal and gas prices, with coal-fired generator outages and increased demand also pushing wholesale prices up.
- To ensure a reliable electricity supply, the Australian Energy Market Operator suspended the NEM for over one week in June 2022. The regulator instructed generators to operate at set prices during the suspended period, with compensation provided in future.
- In December 2022, the Federal Government intervened in energy markets, passing temporary price caps on domestic coal and gas prices to contain electricity bills.

Large-scale Generation Certificates (LGCs) generate revenue for solar farms

- The Renewable Energy Target (RET) assists solar generators. Under the RET, Australia needed to source 33,000 GWh of its electricity from renewable sources by 2020.
- The RET mandates that electricity retailers must purchase a minimum portion of their total electricity from renewable sources, through large-scale generation certificates (LGCs). The Renewable Power Percentage (RPP) is 18.96% in 2023.
- As the 2020 target has been achieved, but not updated, the target is constant until the scheme is scheduled to end in 2030. As LGCs are allowed above the target, this freeze has the effect of fixing demand – which weighs on prices.

What influences industry volatility?

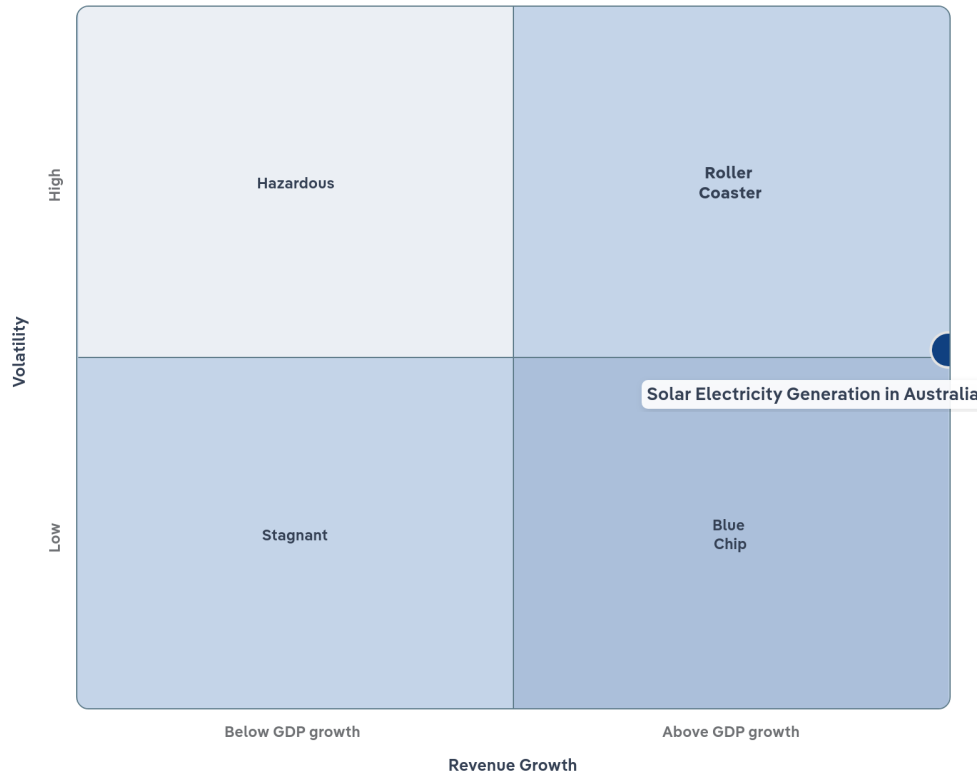
Fluctuating wholesale prices cause year-to-year revenue changes

- Electricity is sold in wholesale markets, like the National Electricity Market (NEM) that covers all states and territories except Western Australia and the Northern Territory.
- Wholesale markets are designed to efficiently supply electricity to meet demand from consumers and businesses. That's why supply issues, or an uptick in demand, brings radical pricing changes.
- Solar generators can link directly with large energy-intensive businesses through Power Purchase Agreements (PPAs). This hedges against volatility in wholesale markets, and lets businesses secure electricity at pre-set prices.

More solar investment is driving market growth

- Private and public sector funding is being funnelled to new solar projects, which is expanding solar generation capacity.
- As more solar projects come online, this means more total output from generators to balance volatile pricing swings.
- To cut costs and decarbonise operations, industrial firms are joining forces with solar generators – which is creating steady demand for new investment.

High risk, high reward
Industry volatility vs. revenue growth (2018-24 CAGR)



IBISWorld

Source: IBISWorld

Key Success Factor

How do successful businesses overcome volatility?

Take advantage of government subsidies and other grants

Firms that can demonstrate commercially viable projects can access significant funding assistance. Public and private sector assistance can turn a potential investment into a concrete reality.

Control total supply on market

Solar generators that can store electrical energy for transmission to the market in peak periods can cash in on higher market prices.

Outlook ↑ 2023-28 Revenue CAGR +3.6%

What's driving the industry outlook?

Australia's transition to renewables is heating up

- As Australia turns away from fossil fuels, large-scale solar is set for more capacity investment over the next decade.
- Vocal consumer and shareholder support for decarbonisation is compelling businesses to embrace net-zero targets.
- Industrial firms are turning to solar generators, securing clean energy solutions through Power Purchase Agreements.
- While household solar has exploded, large-scale generation still has room to grow. Large generators will service an increasingly electrified economy.

Solar generators brace for volatile wholesale and LGC markets

- Solar generators face headwinds as energy markets adjust to a cleaner future.
- As more renewable capacity becomes available, and outstrips demand, wholesale prices will naturally cool down.
- Wholesale volatility isn't going away, as the planned shutdown of coal-fired plants create a delicate balancing act for regulators.
- As the RET is fixed until 2030, the explosion of renewable investment is outpacing already-met targets, which translates to lower prices per megawatt hour of renewable electricity generated.

Energy storage is a key challenge for solar generation

- The next frontier for large-scale renewable generation is energy storage – this balances variable sources and means back-up generation is ready for peak periods.
- Energy firms are developing large-scale solar assets in conjunction with energy storage facilities. This will balance the intermittent nature of solar, reducing reliance on the sun.
- Pumped hydro storage functions as a large battery – storing energy for release when needed.
- Genex Power Limited is developing the 270 MW Kidston solar project in tandem with a collocated pumped hydro project. This project is set to come online in 2024 and will firm up Far-North Queensland's electricity supply.

Life Cycle Growth

Why is the industry growing?

Contribution to GDP

Rapid capacity investment is improving solar generation's importance to the overall economy. As solar takes up more of the electricity mix, an expanding labour force and solid profit margins are adding value to the economy.

Market Saturation

While electricity as a product is homogenous, the means used to produce it bring different environmental and economic burdens. The large-scale solar market has room to grow, creating opportunities for generators to capture more customers.

Innovation

Innovation in solar technologies is high. Breakthroughs in photovoltaic technologies have helped bring down costs over the past decade, paving the way for consumers and businesses to cut emissions. Generators are investing in energy storage, to complement intermittent renewable sources.

Consolidation

In a nascent market, solar generators have focused on expanding their capacity investment. International energy companies have been attracted to Australia's renewables sector, investing in solar and wind projects to tap into the natural resources and extensive space available.

Technology and Systems

Solar photovoltaic (PV) technologies have progressed over the past decade. Large solar panels convert sunlight into an electric charge. These panels come in monocrystalline, polycrystalline or thin-film options.

Products and Markets

Find out what the industry offers, where trade is most concentrated and which markets are buying and why.

4. Products and Markets

https://my.ibisworld.com/au/en/industry/D2619b/products-and-markets

Largest Market
$1.1bn
Electricity generation

Product Innovation
High

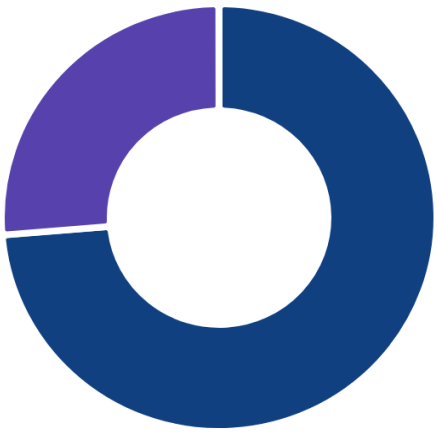
Key Takeaways

- **Retailers are meeting the Renewable Power Percentage (RPP).** Retailers have to source a certain percentage of their electricity from renewable generators, with Large-scale Generation Certificates (LGCs) providing a secondary income source for solar generators.
- **Generators are building bigger solar farms.** Larger projects have become commercially viable, with the cost of solar panels falling over the past decade. Solar generators sell electricity in wholesale markets.

Products and Services

Products & Services Segmentation

Industry revenue in 2023 broken down by key product and service lines.



Electricity generation ($1.1bn) 73.7% Renewable energy certificates ($389.3m) 26.3%

IBISWorld

Source: IBISWorld

How are the industry's products and services performing?

More electricity is being generated from large solar farms

- Electricity is generated from solar panels, which is sold in wholesale markets, or directly to industrial firms.
- The cost of solar panels has gradually fallen over the past decade, improving the commercial viability of large-scale solar electricity generation.
- Funding from the Clean Energy Finance Corporation and the Australian Renewable Energy Agency, has prompted a wave of investment in new solar farms.
- Strong prices have boosted earnings per megawatt hour of electricity produced in the wholesale market.

Renewable energy certificates are a secondary income stream for solar generators

- Renewable generators receive one large-scale generation certificate (LGC) for every MWh of electricity they produce.
- As part of the RET scheme, certificates are traded through the Renewable Energy Certificate Registry, which is operated by the Clean Energy Regulator.
- Electricity retailers are obligated to purchase a given quantity of LGCs each year. In 2023, retailers must source 18.96% of the total electricity they sell from renewable sources.
- An oversupply in the market, with the 2020 RET met and being kept constant until 2030, is weighing on LGC prices.

What are innovations in industry products and services?

Battery storage holds the key for solar power

- Solar power has become commercially viable. One of the key factors holding it back is its intermittent output, which relies on the sun to be shining.
- Battery storage solves the intermittent problem of solar and other renewable technologies. By storing energy to be released later, intermittent sources can still meet peak demand.
- Solar generators are investing in large lithium-ion batteries, to complement large solar farms and firm up output to industrial businesses and consumers.

Solar complements other renewable technologies

- Large-scale solar on its own is an increasingly cost-effective and clean source of energy. By combining with other renewable forms, like wind, and energy storage technologies, it can be further unlocked as a sustainable electricity source.
- Solar generators often operate diverse generation technologies. This spreads risk among multiple project pipelines, so if generation lags in one domain, like wind, other sources fill the gap.
- Rather than competing directly with other renewable technologies, many energy firms are embracing wind, solar and battery storage to create economies of scale.

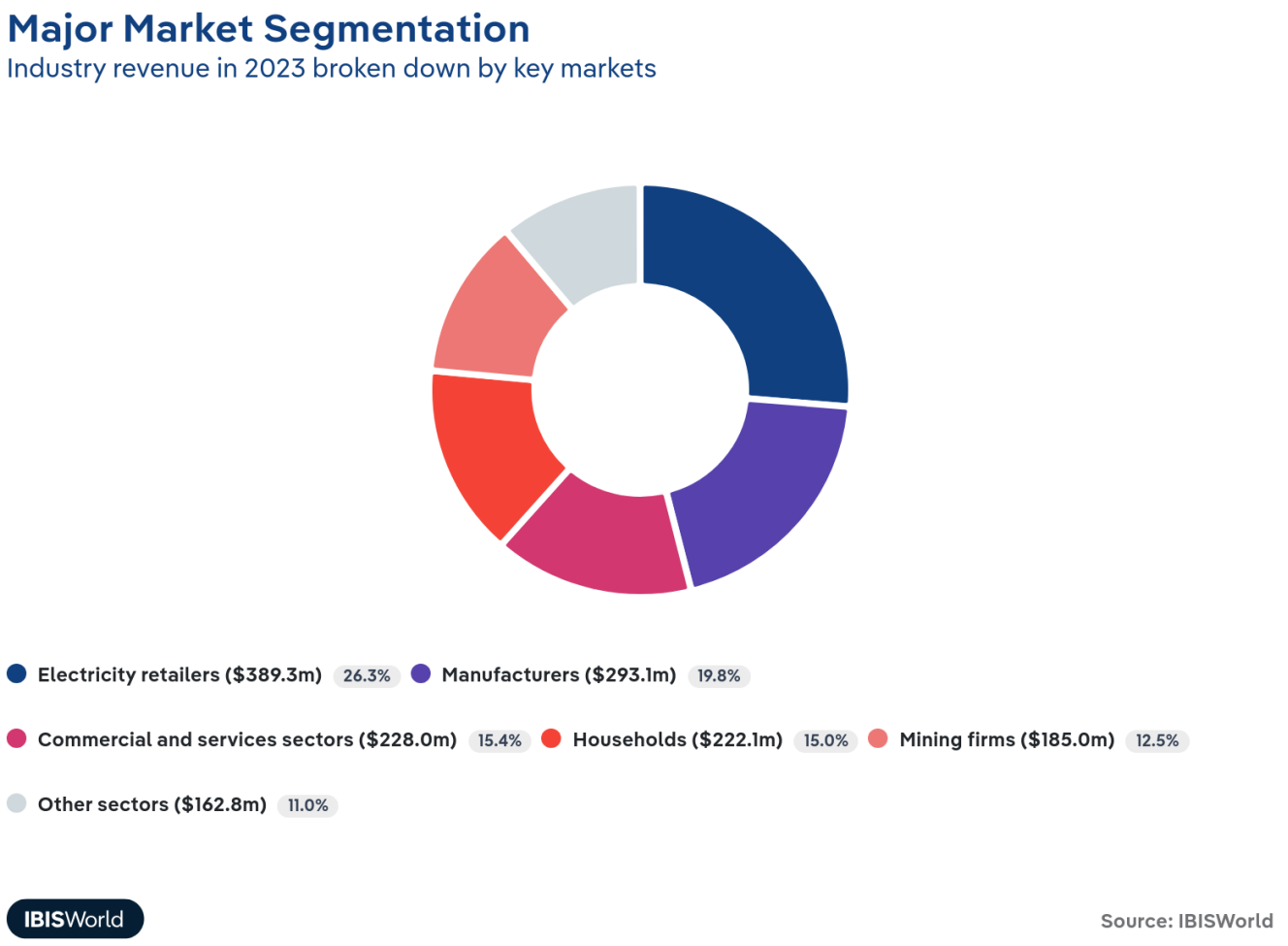
Key Success Factor

What products or services do successful businesses offer?

Quickly adopt new technology

Photovoltaic technology has become more efficient and cheaper over time. Firms that cannot adopt technology quickly are at a disadvantage.

Major Markets



What's influencing demand from the industry's markets?

Electricity retailers must purchase LGCs from renewable generators

- This market includes revenue from the sales of large-scale renewable energy certificates (LGCs) to electricity retailers.
- The Renewable Energy Target (RET) scheme has mandated electricity retailers buy a greater portion of their electricity from renewable sources.
- The RET is fixed until 2030, which has led to an oversupply in the market. So, LGC prices have declined since 2017-18, with operators receiving less for each megawatt hour of eligible generation produced.

Manufacturers are investing in renewable capacity to cut costs

- Manufacturers use electricity in a variety of processes, while energy-intensive firms, like aluminium smelters, rely on electricity to transform raw materials. This market also includes food, paper, chemical and steel manufacturers.
- Australia's manufacturing sector has battled rising competition from cheaper imports. Many manufacturers have transitioned production activities to overseas locations with lower production

costs.
- Energy-intensive businesses are turning to solar and wind power projects, to reduce input costs and cut emissions.

Commercial and services struggle with steep energy costs

- This market includes business operators in wholesaling, retailing, hospitality and communications industries.
- These firms require electricity to light, heat and cool their facilities. Retailers are key users of electricity, as they need to heat and light large display rooms and power point-of-sale systems.
- Businesses have fought inflated energy costs, with steep coal and gas prices pushing up wholesale supply costs.

An expanding population demands more solar electricity

- Households use electricity for purposes such as heating, cooling, lighting and cooking. These activities allow consumers to meet basic needs, and therefore demand from households tends to remain largely stable.
- Household energy use is changing, as consumers embrace small-scale photovoltaic systems, known as solar panels, and adopt energy-efficiency measures.
- Population growth is pushing up the number of households, while work-from-home practices have become the norm, thereby driving household consumption.

Mining firms need electricity to fuel their energy-intensive operations

- Mining requires significant input of electricity to power extraction and refining equipment.
- Some mining firms own and operate their own electricity generation facilities to supply power to remote mining operations.
- Over the long-term, the mining sector is consuming more electricity. Australia's booming commodity exports have encouraged mining firms to expand production.
- Many firms opt for Power Purchase Agreements (PPAs) to secure reliable flows of electricity directly from generators.

Other sectors rebound as transport use picks up

- Other users of electricity include the transport, agriculture, utilities and construction sectors.
- Transport use accounts for the majority of demand from this market. This market has demanded more electricity, with a growing population and recovering foot traffic supporting public transport networks.
- Agricultural firms, like dairy farming and sheep shearing, require electricity inputs. Dairy farms need to keep produce cold along the supply chain, which brings steep energy costs.

International Trade

Some industries don't directly import or export goods. See reports at the manufacturing level for international trade data on relevant products.

Geographic Breakdown

Discover where business activity is most concentrated in this industry and what's driving these trends.

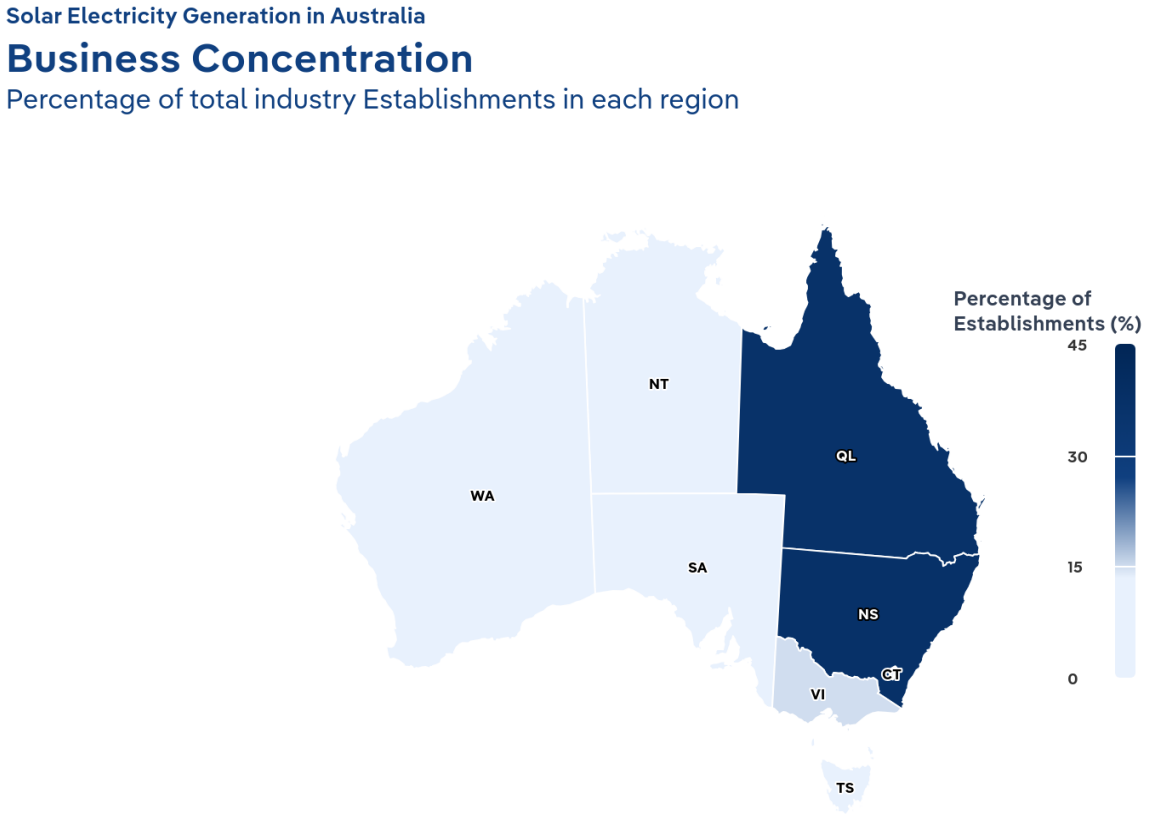
5. Geographic Breakdown

https://my.ibisworld.com/au/en/industry/D2619b/geographic-breakdown

Key Takeaways

- **Generators need strong sunlight.** Large solar farms are located where the sun is bright, to ensure steady output to consumers and businesses. Battery storage is improving the reliability of solar power.
- **Large solar projects need space to spread out.** To generate enough electricity, solar farms need adequate space to set up solar panels and supporting infrastructure. This often means establishing operations in rural areas.

Business Locations



Percentage of total industry Establishments,Population in each region

LGA	Establishments %	Population %
NSW	37.5	32.6
QLD	36.7	20.0
VIC	15.0	24.8
SA	5.9	7.5

WA	3.5	10.1
NT	0.9	1.0
ACT	0.5	1.6
TAS	0.0	2.3

Where are industry businesses located?

Access to sunlight is fundamental for generators

- Solar farms are set up to maximise sunlight. Solar generators tap into bright ultra-violet rays in the middle of the day, when the sun is at its peak.
- Electricity use jumps in the morning, and again at night. This is a problem for solar generators, as their maximum production isn't in sync with this cycle.
- Battery storage lets solar generators save energy to be dispatched during peak periods, when the sun isn't at its peak.
- Generators are turning to large lithium-ion batteries to firm up intermittent sources.

Wide open spaces are important for big solar farms

- Space is a chief concern for new solar projects. These farms need to have enough capacity to meet the energy needs of consumers and businesses.
- While small-scale panels can be installed on roofs, large-scale projects need considerable space to maximise sunlight intake.
- The biggest projects need to be located away from end markets, as they need vast areas to set up large photovoltaic panels and any supporting infrastructure.

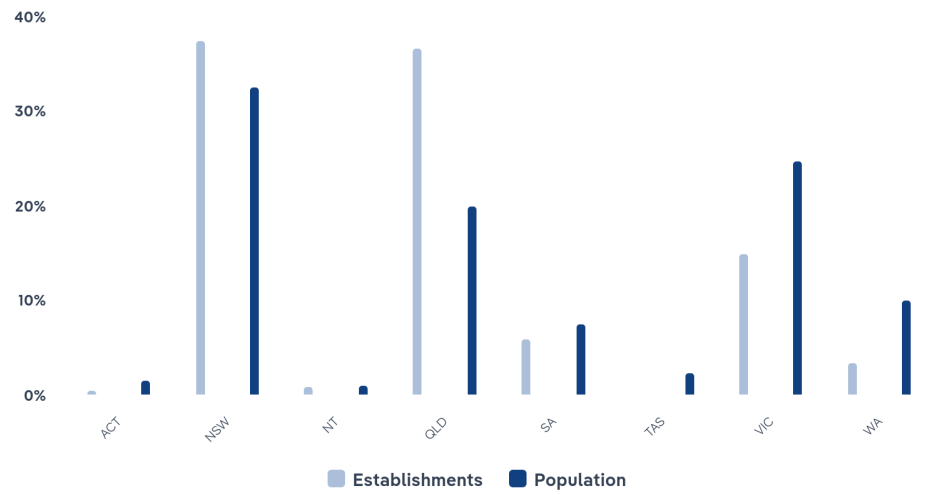
Proximity to end markets makes transport easier

- If there is enough sunlight and space available, being close to end electricity users keeps operations running smoothly.
- Transmission infrastructure transports high-voltage current over large distances. This lets generation facilities set up shop far from end markets.
- By being closer to end markets, there is less transmission infrastructure needed to ensure reliable electricity flows. At the extreme end, small-scale solar panels even cut out traditional transmission networks.

Solar Electricity Generation in Australia

QLD has the largest spread of businesses compared to its population

Share of Establishments (%) vs. share of population (%):



IBISWorld

Source: IBISWorld

Key Success Factor

How do businesses use location to their advantage?

Ensure resource availability

Successful solar generators require access to viable, naturally occurring sunlight resources near major markets. Balancing proximity to end users, and access to consistent sunlight, is an important consideration for generators.

Competitive Forces

Uncover challenges and benefits in the operating environment, digging into market share, buyer and supplier power and key success factors for operators.

6. Competitive Forces

https://my.ibisworld.com/au/en/industry/D2619b/competitive-forces

Concentration	Competition	Barriers to Entry
Low	High Increasing	High Steady

Substitutes	Buyer Power	Supplier Power
High Steady	Low Increasing	High Steady

Key Takeaways

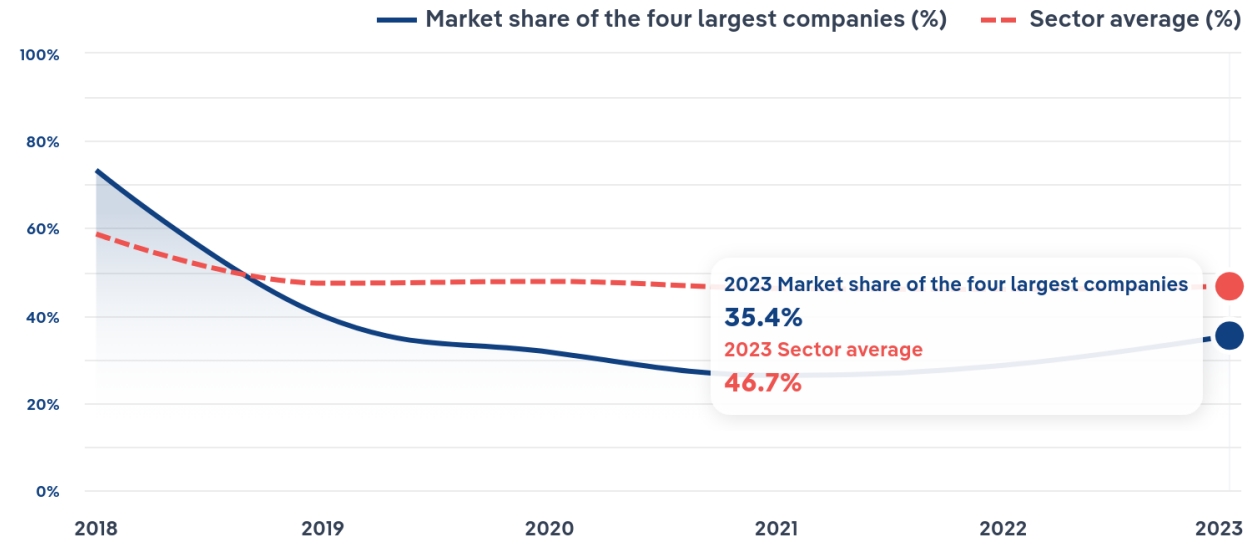
- **Firms race to expand capacity.** Large-scale solar will need to grow significantly to meet the needs of consumers and businesses. Generators are investing heavily in new solar projects.
- **Solar panel suppliers rely on silicon.** China dominates solar panel manufacturing, with silicon integral to photovoltaic technologies. This exposes solar generators to fluctuating global markets.

Concentration

Low

Market Share Concentration

Combined market share of the four largest companies in this industry



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Source: IBISWorld

What impacts the industry's market share concentration?

An emerging market is open for the taking

- While small-scale solar panel uptake has progressed, large-scale capacity still has room to improve. For investors, this means a wide-open market with no one dominant firm.
- Wind and hydro have traditionally outshone solar power. This balance is changing, as solar panels become more affordable and consumers demand emissions reduction from businesses.
- Securing PPAs with big businesses can ensure steady demand for solar generators, providing stability when planning long-term projects.

Australia beckons for international solar investors

- Australia's natural resources, including plenty of sunlight, and extensive land area makes it well-suited for renewable electricity generation.
- As government targets tighten, and the investment environment becomes more amenable to renewables, international energy firms are taking the plunge and committing to solar farms in Australia.
- By combining solar with investments in wind farms and battery storage, large utility companies can build a diversified generation portfolio that incorporates different technologies.

Key Success Factor

How do successful businesses handle concentration?

Take advantage of government subsidies and other grants

Firms that can demonstrate commercially viable projects can access significant funding assistance. Public and private sector assistance can turn a potential investment into a concrete reality.

Control total supply on market

Solar generators that can store electrical energy for transmission to the market in peak periods can cash in on higher market prices.

Quickly adopt new technology

Photovoltaic technology has become more efficient and cheaper over time. Firms that cannot adopt technology quickly are at a disadvantage.

Barriers to Entry

High | Steady

What challenges do potential industry entrants face?

Legal

- Generators must comply with extensive regulations. As an essential service, electricity generators face a strict regulatory environment, with legal guidance needed to sidestep any potential fines or penalties. Power Purchase Agreements (PPAs) also need to be legally sound.

Start-Up Costs

- New solar generators face sharp capital costs. Substantial investment is needed to establish large solar farms, at a scale that delivers return on investment over the long-term.

Differentiation

- Solar offers an alternative to emissions-intensive coal- and gas-fired plants. Among renewable sources, solar can tap into sunlight, which is more readily available than wind and hydro in some geographic regions.

Capital Intensity

- Steep capital investment is required to construct and maintain solar farms. These projects must operate at scale to generate enough electricity for the industrial firms and consumers that rely on them.

☆ Key Success Factor

How can potential entrants overcome barriers to entry?

Control total supply on market

Solar generators that can store electrical energy for transmission to the market in peak periods can cash in on higher market prices.

Substitutes

High Steady

What are substitutes for industry services?

Fossil Fuel Electricity Generation

- Most of Australia's electricity is sourced from fossil fuels. Coal forms the backbone of the electricity mix, with gas providing peaking power.
- Coal-fired generations ensures stable baseload power for the grid. On the other hand, renewables, like solar, rely on intermittent inputs.

- As the Federal Government strives to cut emissions 43.0% by 2030, fossil fuels are falling out of favour over the long-term.

Other forms of renewable electricity generation

- Hydro, wind and small-scale solar can easily substitute large-scale solar generation.
- While solar offers emissions-free generation compared with fossil fuels, this advantage disappears when competing against its renewable counterparts.
- Wind and hydro are more established renewable technologies than large-scale solar. However, rapid investment is improving solar power's position in the electricity mix.
- Energy firms are investing in diverse generation portfolios. Renewable hubs bring together wind, solar and battery storage.

Buyer & Supplier Power

Supply Chain

Direct and indirect supplier and buyer industries related to this industry

What power do buyers and suppliers have over the industry?

Buyers: industrial firms embrace solar power

Low | Increasing

- Electricity is a homogenous product and end users can't replace this essential service. Most consumers and small businesses can shop around for different retailers, but this doesn't directly affect generators.

- Consumers have traditionally had little power to influence upstream electricity markets. With the rise of small-scale solar panels, consumers are taking back some power from central generators.
- Power Purchase Agreements (PPAs) are signed between generators and large industrial users, which means some energy-intensive businesses can negotiate better terms with solar generators.
- Industrial firms are embracing solar and wind power to reduce their emissions.

Suppliers: solar panels rely on silicon inputs

High Steady

- Large-scale solar farms need photovoltaic solar panels, electrical equipment and machinery.
- China dominates global solar panel manufacturing. Generators rely on these imported solar panels to supply large-scale solar farms, which exposes them to market conditions in China.
- Crystalline silicon wafers are collated into modules to form solar panels. Silicon is used as a semiconductor, which ultimately enables the photovoltaic process.
- The reliance on silicon, and other commodities, exposes solar generators to fluctuating global prices.

☆ Key Success Factor

How do successful businesses manage buyer & supplier power?

Control total supply on market

Solar generators that can store electrical energy for transmission to the market in peak periods can cash in on higher market prices.

Companies

Find out which companies hold the most market share and how revenue, profit and market share have shifted over time for these leaders.

7. Companies

https://my.ibisworld.com/au/en/industry/D2619b/companies

Key Takeaways

- **Capacity expansions continue to build momentum.** Generators are investing in new, large-scale solar projects to fuel strong consumer and business demand for clean energy.
- **Generators are combining multiple technologies to balance output.** Big generators are firming up solar output with investment in flexible battery storage technologies. Pumped hydro and lithium-ion batteries balance variable technologies.

Market Share

Industry Market Share by Company

Industry-specific company revenue as a share of total industry revenue

IBISWorld

Source: IBISWorld

Chart displays current year only in the PDF version of this report. You can view and download chart for all other years associated with this industry on my.ibisworld.com.

Companies

Company	Market Share (%) 2023	Revenue ($m) 2023
Neoen Australia	12.0	177.2
FRV Australia	11.9	176.7
Wirsol Energy	6.1	90.6
AGL	5.3	79.2
Enel Green Power Australia	5.1	76.2
Genex Power	1.0	14.8

Neoen Australia

Company Details

Registered Name	Neoen Australia Pty Ltd
Industry Revenue (2023)	$177.2m
Industry Market Share (2023)	12.0%

Description

Neoen Australia Pty Ltd is the local subsidiary of Neoen, a French multinational corporation specialising in renewable energy projects. Neoen entered the industry upon activating the Parkes solar farm. This facility has a capacity of 66 MW and was completed in December 2017. The company's second facility, the Griffith solar farm, was completed in January 2018 and has a capacity of 36 MW.

Other Industries

- Wind and Other Electricity Generation in Australia

Company's Industry Revenue, Market Share, and Profit Margin Over Time

Year	Industry Revenue ($ million)	Market Share (%)
2015-16	2	3.6
2016-17	3	3.1
2017-18	14	11.1
2018-19	32	8.5
2019-20	27	5.6
2020-21	34	4.4
2021-22	115	8.7
2022-23	177	12.0

What's impacting Neoen Australia's performance?

The Western Downs Green Power Hub extends Neoen's solar capacity

- The company's Western Downs Green Power Hub is set to become operational in 2023.
- The project will be Australia's largest solar farm, with a capacity of 460 MW. The farm will tap into nearby transmission links and Powerlink's sub-station.

- The site is located in Queensland, featuring a 200 MW lithium-ion storage battery. The battery will be operational in 2024.

The Goyder Renewables Zone will synthesise Neoen's generation technologies

- Along with Neoen's strong solar capacity, the company is expanding its wind power presence.
- With construction getting underway in 2022, the Goyder Renewables Zone will bring together wind, solar and battery storage technologies. This will be operational in 2024.
- South Australia's Goyder region has unique weather conditions. Wind blows at night, which compensates for the lack of sun and lends itself to Neoen's integrated approach.

FRV Australia

Company Details

Industry Revenue (2023)	$176.7m
Industry Market Share (2023)	11.9%

Description

Fotowatio Renewable Ventures (FRV) is a Saudi Arabian-owned global renewable energy developer. FRV Services Australia Pty Ltd, operating as FRV, is the firm's Australian subsidiary. FRV runs the Clare, Lilyvale, Moree, Goonumbla, Sebastopol, Walla Walla and Metz solar farms, with further facilities planned or under construction. The Clare facility is located in Queensland, has a capacity of 128 MW and was completed in May 2018.

Company's Industry Revenue, Market Share, and Profit Margin Over Time

Year	Industry Revenue ($ million)	Market Share (%)
2013-14	1	27.8
2014-15	1	12.3
2015-16	13	26.2
2016-17	20	22.4
2017-18	22	17.4
2018-19	33	8.7
2019-20	35	7.2
2020-21	55	7.1
2021-22	113	8.6
2022-23	177	11.9

What's impacting FRV Services Australia Pty Ltd's performance?

FRV continues to invest in solar farms

- FRV is spending big on solar and large-scale battery projects.
- The company's Metz solar farm began operation in March 2022. The facility is located in New South Wales and has a capacity of 115 MW.
- FRV's Sebastopol solar farm began generating electricity in March 2022, with a capacity of 90 MW.

FRV brings OMERS Infrastructure on board to support investment

- In 2021, FRV sold 49% of its Australian subsidiary to Ontario Municipal Employees Retirement System (OMERS) Infrastructure.

- OMERS Infrastructure is the infrastructure investment wing of the Canadian pension fund OMERS.
- The restructure means investment isn't slowing down, as OMERS and FRV bankroll spending on solar and battery projects.

Wirsol Energy

Company Details

Industry Revenue (2023)	$90.6m
Industry Market Share (2023)	6.1%

Description

Wirsol Energy Pty Ltd is the domestic subsidiary of German based WIRSOL Solar AG, a global company specialising in constructing and operating solar power plants. The company entered the industry in April 2018 with the completion of the Gannawarra solar farm. This facility has a capacity of 60 MW and is based in Victoria, and is accompanied by a 25 MW Tesla battery system.

Company's Industry Revenue, Market Share, and Profit Margin Over Time

Year	Industry Revenue ($ million)	Market Share (%)
2017-18	7	5.1
2018-19	39	10.4
2019-20	45	9.4
2020-21	58	7.4
2021-22	80	6.1
2022-23	91	6.1

What's impacting Wirsol Energy's performance?

Wirsol joins forces with Edify Energy to deliver solar projects

- Wirsol completed the Whitsunday and Hamilton solar farms in March 2018. These facilities each have a capacity of 69 MW and are based in Queensland.
- The Whitsunday, Hamilton and Gannawarra projects were financed through a joint venture deal with Edify Energy Pty Ltd Australia. Wirsol owns 94.9% of these solar farms, with Edify Energy owning the remainder.
- As Wirsol's joint venture partner, Edify Energy is responsible for operating and maintaining solar farms.

Potential buyers circle as Wirsol looks to offload its assets

- Since 2022, Wirsol has put its Australian solar business up for sale. The firm is offloading its extensive solar and battery assets, along with a healthy development pipeline.
- Malaysian resources company Petronas has been touted as a potential suitor.
- Petronas set up the Gentari firm in 2022, to enable investments in renewable generation. Gentari is targeting 30-40 gigawatt capacity of renewable capacity by 2030.

- The completion of the sale will mark Gentari’s entry into the Australia market.

AGL

Company Details

Registered Name	AGL Energy Limited
Industry Revenue (2023)	$79.2m
Total Employees (2023)	3,735
Industry Market Share (2023)	5.3%

Description

AGL Energy Limited is a publicly listed Australian company that operates a range of power generation assets and sells energy to consumers. The company is vertically integrated along the entire energy supply chain. AGL Energy generates electricity through coal, gas, wind, solar and hydropower, and sells electricity to downstream retail customers.

Other Industries

- Hydro-Electricity Generation in Australia
- Wind and Other Electricity Generation in Australia
- Electricity Retailing in Australia
- Gas Supply in Australia
- Fossil Fuel Electricity Generation in Australia
- Boiler and Tank Manufacturing in Australia
- Coal Seam Gas Extraction in Australia

Company's Industry Revenue, Market Share, and Profit Margin Over Time

Year	Industry Revenue ($ million)	Market Share (%)
2014-15	4	60.3
2015-16	26	53.3
2016-17	41	45.7
2017-18	42	33.0
2018-19	46	12.2
2019-20	38	8.0
2020-21	49	6.3
2021-22	68	5.2
2022-23	79	5.3

What's impacting AGL's performance?

AGL firms up solar output with battery storage investment

- AGL is investing in battery storage to keep electricity flowing to Queensland's homes and businesses.
- AGL snapped up operational rights to Vena Energy Australia's Wandoan South Battery Energy Storage System (BESS) in 2022.
- Renewable generators are investing in energy storage technologies- pumped hydro schemes and big lithium-ion batteries - to back-up variable solar power.

Change is in the air as AGL targets strong renewable capacity investment

- In 2022, Mike Cannon-Brookes' Grok Ventures became AGL's biggest shareholder. The move represents a new direction, with the company shifting away from traditional fossil fuel generation.
- AGL's Climate Transition Action Plan came out in September 2022. As part of the transition, the firm is set to splurge $20 billion, to fund 12 gigawatts of new renewable and back-up capacity by 2036.

Enel Green Power Australia

Company Details

Industry Revenue (2023)	$76.2m
Industry Market Share (2023)	5.1%

Description

Enel Green Power Australia Pty Ltd is the local subsidiary of Italian company Enel Green Power S.p.A., a global developer of renewable energy infrastructure. Enel Green Power mainly operates the Bungala solar project. The project is split into two stages, which provide a total generation capacity of 275 MW. The first stage was completed in May 2018, and the second stage was completed in early 2019.

Company's Industry Revenue, Market Share, and Profit Margin Over Time

Year	Industry Revenue ($ million)	Market Share (%)
2017-18	15	11.8
2018-19	27	7.2
2019-20	33	6.9
2020-21	43	5.5
2021-22	59	4.5
2022-23	76	5.1

What's impacting Enel Green Power Australia Pty Ltd's performance?

Enel unveils the Cohuna solar farm

- The company developed its third solar farm in Cohuna, Victoria, with a capacity of 34 MW. Construction was completed in 2020, and the site began operations in 2021.
- The Cohuna farm has a 15-year contract with the Victorian Government. The solar farm will supply LGCs to Victoria, as part of a Power Purchase Agreement.
- The Cohuna farm uses photovoltaic modules which absorb light on both sides of the module. This picks up reflected light from the ground.

A hybrid project beckons for Enel's New South Wales portfolio

- Enel Green Power has received approval from the AEMO to establish a 96 MW capacity solar farm in New South Wales. The project will also feature a 20MW battery to firm up solar generation.
- Enel Green Power will start constructing the project in 2023.
- Housed in the Central West and Orana renewable region, the area is designated as a Renewable Energy Zone (REZ). These zones have abundant resources suited to renewable generation.

You can view and download company details on my.ibisworld.com.

External Environment

Understand the demographic, economic and regulatory factors positively and negatively affecting the industry.

8. External Environment

https://my.ibisworld.com/au/en/industry/D2619b/external-environment

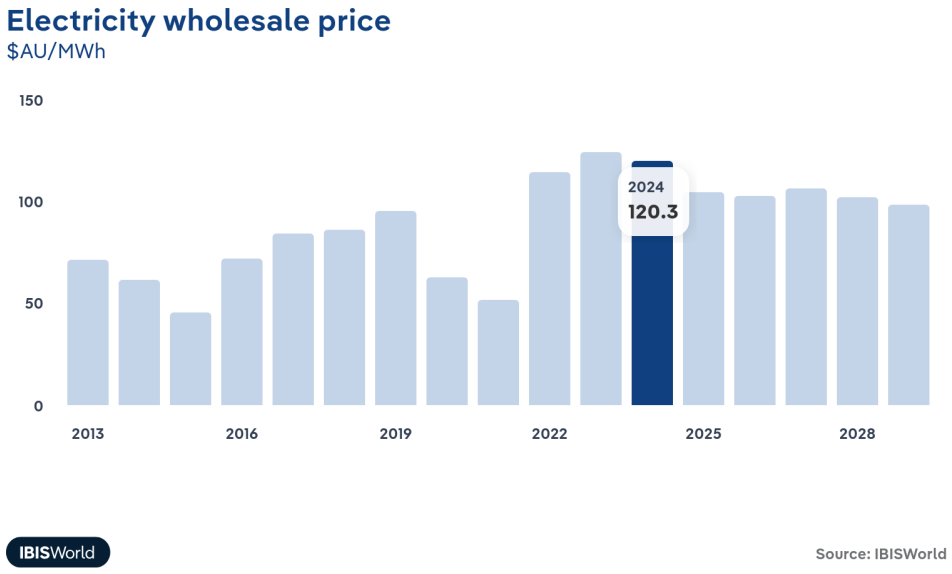
Regulation & Policy	Assistance
High Increasing	High Decreasing

Key Takeaways

- **Electricity generators face heavy regulation.** As part of the electricity supply chain, generators walk a regulatory tightrope to comply with legislation. The Australian Energy Market Operator oversees wholesale markets.
- **Government funding supports renewable generators.** Solar generators have taken advantage of extensive government funding programs. The Australian Renewable Energy Agency and Clean Energy Finance Corporation have complemented private investment.

External Drivers

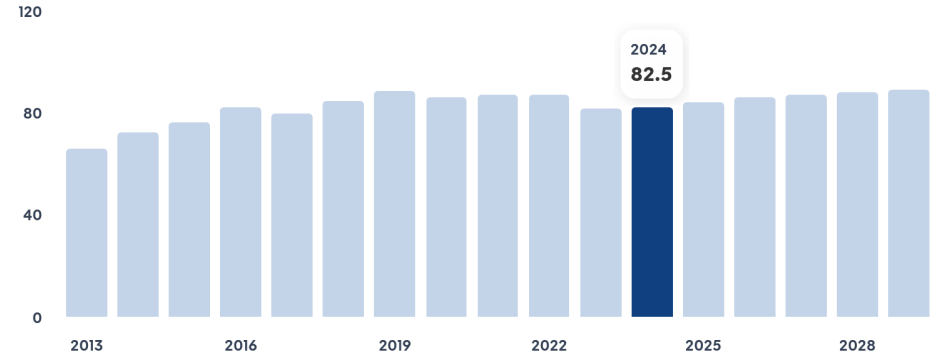
What demographic and macroeconomic factors impact the industry?



Most electricity generated is sold through wholesale spot markets, with regulators matching supply with demand depending on market conditions. The National Electricity Market is the major spot market and covers all states and territories, except Western Australia and the Northern Territory. Wholesale prices are volatile, as they respond dynamically to supply and demand conditions. The wholesale price of electricity is expected to fall but remain elevated in 2022-23.

Public concern over environmental issues

Percentage



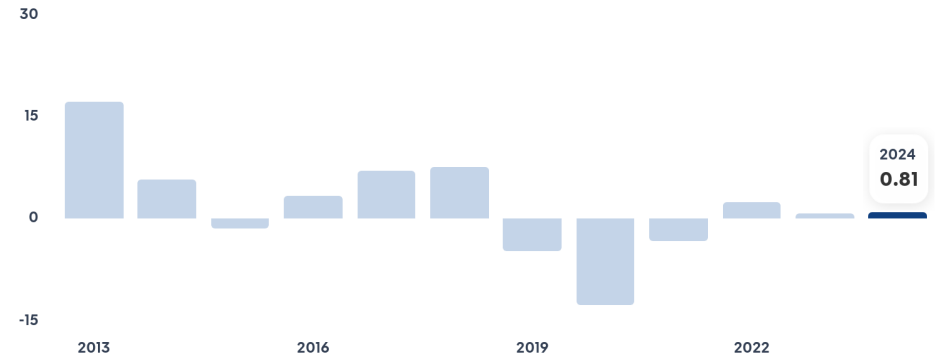
IBISWorld

Source: IBISWorld

Retailers purchase electricity from companies that generate it using either fossil fuels, like black coal, brown coal and gas, or renewable energy, like wind, water, sunlight and bioenergy. Enhanced demand from the Electricity Retailing industry boosts electricity generation. Retailers onsell electricity to consumers and businesses. Demand from electricity retailing is set to rise in 2022-23.

Demand from electricity retailing

Growth



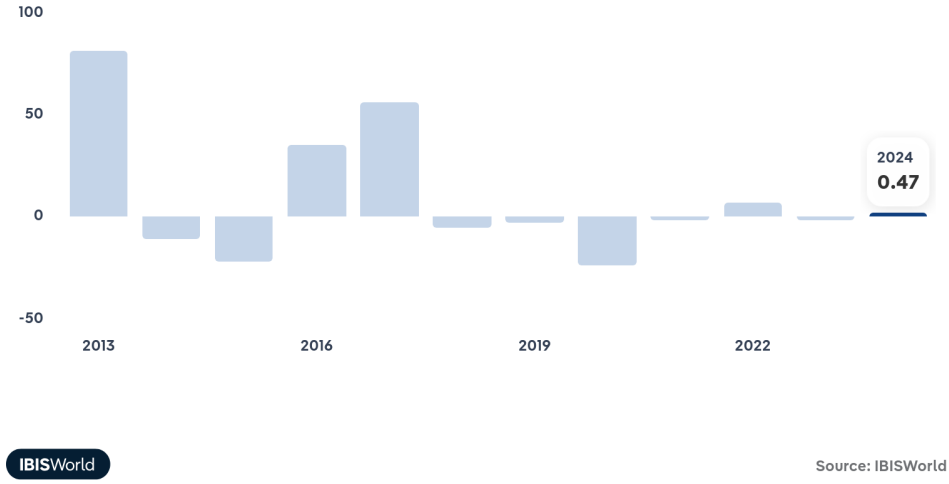
IBISWorld

Source: IBISWorld

Public concern over environmental issues has a significant impact on demand for renewable energy. Consumer demand for renewable energy rises as environmental concerns become more acute. Renewable electricity generation is considered less harmful to the environment than fossil fuel electricity generation. Public concern regarding environmental issues is projected to increase in 2022-23, presenting an opportunity for solar generators.

Demand from fossil fuel electricity generation

Growth



Solar generators compete with rival electricity generators, particularly those that use fossil fuels to produce electricity. If more fossil fuel generation is used, solar generators feel the pinch. Coal- and gas-fired generators don't rely on intermittent inputs, like sunlight. Demand from fossil fuel electricity generation is expected to rise in 2022-23, threatening solar generators.

Regulation & Policy

High	Increasing

What regulations impact the industry?

Australian Energy Market Operator (AEMO)

The AEMO controls the eastern seaboard's wholesale electricity market, the National Electricity Market (NEM). This reaches across Queensland, South Australia, Tasmania, Victoria, New South Wales and the Australian Capital Territory. Renewable and non-renewable generators submit price bids to the AEMO, which is aligned with demand from end markets. The AEMO regulator also oversees the Western Electricity Market.

Australian Energy Market Commission (AEMC)

As part of the National Electricity Law, the National Electricity Rules establish the legal architecture for wholesale electricity markets. The AEMC, as an independent statutory body, is tasked with managing these frameworks. Any amendments to these frameworks are integrated into the future operations of wholesale markets. The AEMC also gives government advice.

Australian Energy Regulator (AER)

The AER's central mandate is to help oversee Australia's electricity and gas markets. Since the AER falls under the Australian Competition and Consumer Commission (ACCC), its role includes enforcing the AEMC's frameworks. The AER also keeps an eye on price-gouging, and other practices that limit competition in retail markets, to protect consumers.

Assistance

High | Decreasing

What assistance is available to this industry?

Renewable Energy Target (RET)

The RET was introduced to get total renewable electricity production to 33,000 gigawatt hours by 2020. This milestone was reached, although the scheme is continuing with the same target until 2030. On the generation side, Large-scale Generation Certificates are awarded for every megawatt hour of electricity generated. For retailers, this sets a Renewable Power Percentage that mandates a minimum percentage of their electricity that must be from renewables, like solar.

Australian Renewable Energy Agency (ARENA)

ARENA is the Federal Government's research and development funding vehicle for renewable projects. Projects funded include innovative technologies and assessing the commercial viability of potential schemes. ARENA was created to assist Australia's transition from fossil fuels to renewable energy sources. Many renewable projects combine government financing with private sector investment.

Clean Energy Finance Corporation (CEFC)

The Federal Government's CEFC gives financial assistance to renewable electricity projects, like large-scale solar farms. The CEFC often complements private funding, to give traction to new renewable projects, like wind, bioenergy, solar and battery storage. The organisation was established as part of the Clean Energy Finance Corporation Act 2012. Beyond direct debt and equity financing, the CEFC also invests in green bond markets.

Private support doesn't apply to the industry

The Solar Electricity Generation industry doesn't receive any direct private assistance.

Financial Benchmarks

Understand average costs for industry operators and compare financial data against key ratios and financial benchmarks broken down by business size.

9. Financial Benchmarks

https://my.ibisworld.com/au/en/industry/D2619b/financial-benchmarks

Profit Margin	Average Wage	Largest Cost
23.4 %	**$77,114**	**Wages**
↑ Higher than sector	↓ Lower than sector	21.9% of Revenue

Key Takeaways

- **Inflated wholesale prices boost profit margins.** High wholesale prices have meant a big payday for solar generators, with a lack of material inputs averting steep supply costs.
- **Massive investment is expanding the labour force.** Strong solar investment has provided job opportunities, with employment keeping up steady wage costs. A skilled labour force is important for constructing new projects.

Cost Structure

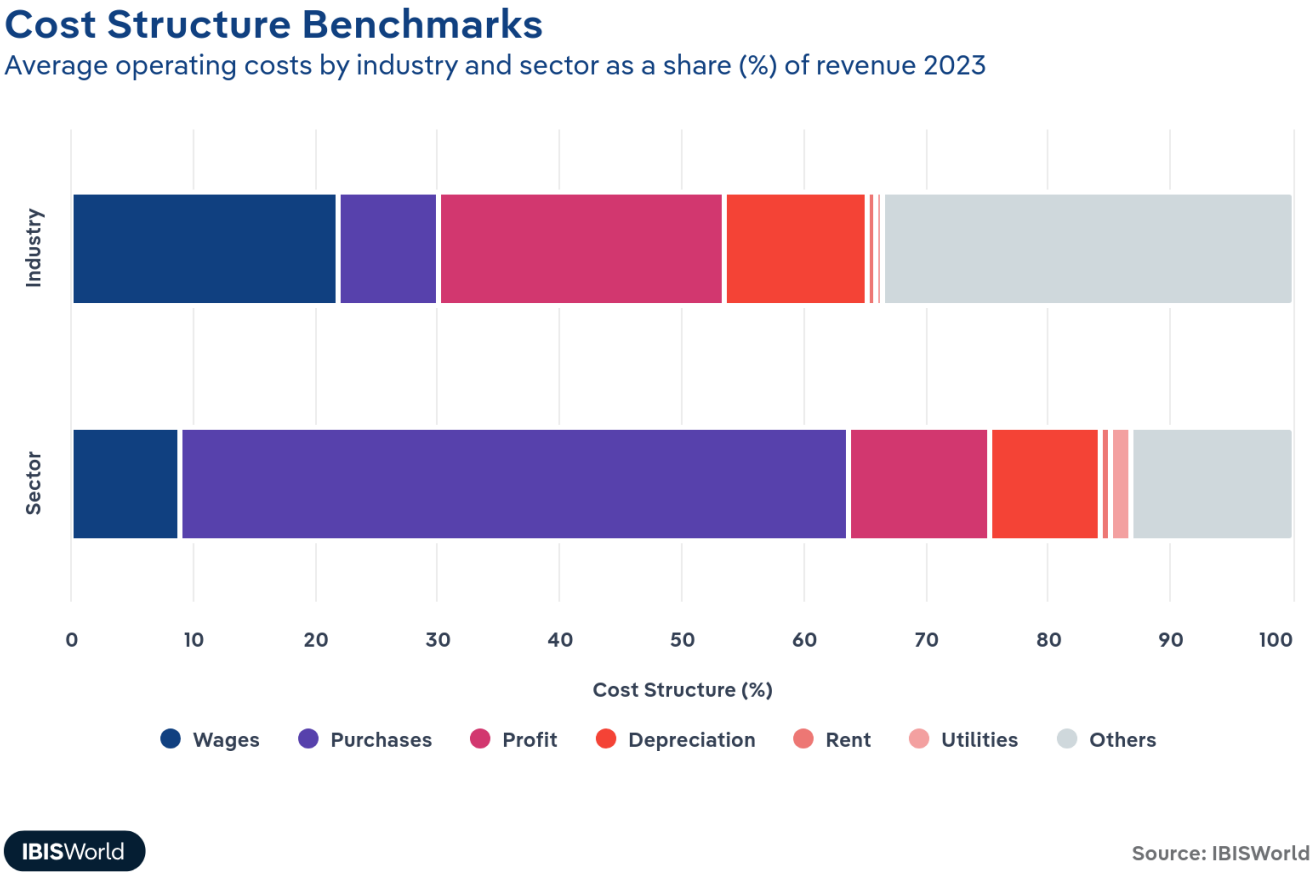


Chart displays current year only in the PDF version of this report. You can view and download chart for all other years associated with this industry on my.ibisworld.com.

What trends impact industry costs?

Investing in solar infrastructure brings costly depreciation

- Depreciation costs represent a significant expense for solar generators, hitting an estimated 11.7% in 2022-23.
- Investment in solar generation infrastructure has surged, as firms capitalise on government assistance and booming demand for renewable electricity.
- Capital investment is more heavily skewed towards construction than operation. Assets have a lifespan of between 20 and 30 years of operation, and upfront investment costs are recaptured over that time.

A growing labour force underpins wage costs

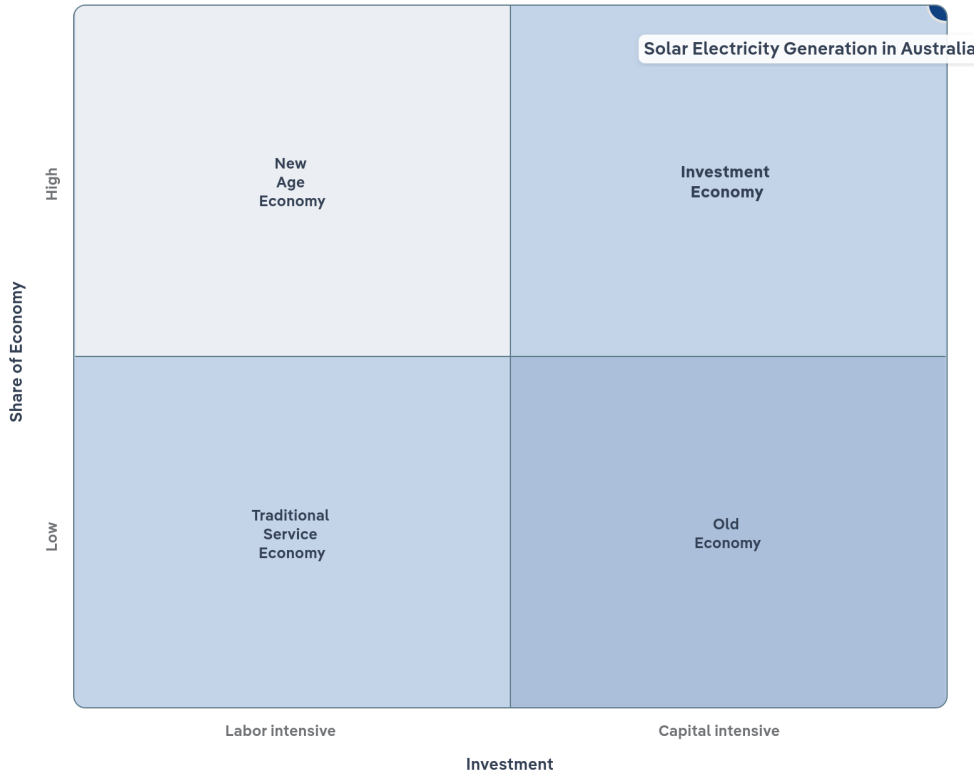
- Wage costs represent a significant cost for solar generators, coming to an estimated 21.9% in 2022-23.
- For a fully operational large-scale solar farm, wage costs are watered down, as solar panels have automated aspects. Generators hire electricians to maintain generation infrastructure and monitor performance.
- Small teams of electricians can operate and maintain large solar arrays, with labour focused on the initial development of the farms.
- Solar generators have expanded their workforces, in line with strong investment in new projects.

Strong wholesale prices boost solar generators' profit margins

- Solar generators have cashed in on surging wholesale prices, which have climbed in line with inflated coal and gas prices. Profit margins will reach an estimated 23.4% in 2022-23.
- Solar generation only requires sunlight as an input, which means purchases are significantly lower than fossil fuel generators.
- Subdued large-scale generation certificate (LGC) prices, with generators sourcing less LGC revenue per megawatt of eligible generation produced, have hurt profit margins.
- In recent years, voluntary submissions of LGCs, which effectively raises demand, have provided some relief for generators in LGC markets.

Capital investment drives growth

Share of economy vs. Investment



IBISWorld

Source: IBISWorld

Key Ratios

Year	Revenue per Employee ($)	Revenue per Enterprise ($ Million)	Employees per Estab. (Units)	Employees per Ent. (Units)	Average Wage ($)	Wages/ Revenue (%)	Estab. per Enterprise (Units)	IVA/ Revenue (%)
2013-14	112,501	1.1	9.5	9.5	50,000	44.4	1.0	63.9
2014-15	98,090	1.7	17.8	17.8	67,185	68.5	1.0	89.0
2015-16	291,568	10.0	25.6	34.2	54,559	18.7	1.3	36.4
2016-17	219,796	11.5	42.7	52.2	71,045	32.3	1.2	58.2
2017-18	155,107	9.7	31.4	62.8	63,711	41.1	2.0	76.6
2018-19	218,870	13.4	31.1	61.2	68,019	31.1	2.0	62.9
2019-20	251,368	11.5	23.1	45.7	71,098	28.3	2.0	54.3
2020-21	325,275	13.2	20.3	40.6	76,489	23.5	2.0	46.5
2021-22	368,216	19.7	25.3	53.6	79,502	21.6	2.1	56.4
2022-23	352,560	20.0	27.6	56.7	77,114	21.9	2.1	57.0
2023-24	353,558	19.0	25.9	53.7	77,082	21.8	2.1	53.0
2024-25	314,903	15.9	24.3	50.5	73,364	23.3	2.1	53.4
2025-26	322,154	17.0	25.6	52.9	74,082	23.0	2.1	53.9
2026-27	329,751	16.7	24.4	50.7	74,805	22.7	2.1	54.2
2027-28	319,826	16.3	24.6	51.0	73,844	23.1	2.1	54.2
2028-29	345,961	17.3	24.2	50.1	76,384	22.1	2.1	50.5

*Figures are inflation adjusted to 2023

Key Statistics

Discover 14 years of historical, current and forward-looking industry performance data in table format.

10. Key Statistics

https://my.ibisworld.com/au/en/industry/D2619b/key-statistics

Industry Data

Values

Year	Revenue ($ Million)	IVA ($ Million)	Establishments (Units)	Enterprises (Units)	Employment (Units)	Wages ($ Million)
2013-14	4.3	2.7	4	4	38	1.9
2014-15	8.7	7.8	5	5	89	6.0
2015-16	59.8	21.8	8	6	205	11.2
2016-17	103.3	60.2	11	9	470	33.4
2017-18	146.1	111.9	30	15	942	60.0
2018-19	415.0	261.0	61	31	1,896	129.0
2019-20	517.3	281.0	89	45	2,058	146.3
2020-21	818.4	380.6	124	62	2,516	192.4
2021-22	1,342.1	756.9	144	68	3,645	289.8
2022-23	1,480.4	843.8	152	74	4,199	323.8
2023-24	1,575.1	834.8	172	83	4,455	343.4
2024-25	1,559.4	832.7	204	98	4,952	363.3
2025-26	1,720.3	927.2	209	101	5,340	395.6
2026-27	1,773.4	961.2	220	106	5,378	402.3
2027-28	1,763.2	955.7	224	108	5,513	407.1
2028-29	1,905.9	962.5	228	110	5,509	420.8

*Figures are inflation adjusted to 2023

Annual Change

Year	Revenue %	IVA %	Establishments %	Enterprises %	Employment %	Wages %
2013-14	N/A	N/A	N/A	N/A	N/A	N/A
2014-15	104.2	184.6	25.0	25.0	134.2	214.7
2015-16	584.7	180.0	60.0	20.0	130.3	87.1
2016-17	72.8	176.4	37.5	50.0	129.3	198.5
2017-18	41.4	86.0	172.7	66.7	100.4	79.7
2018-19	184.0	133.2	103.3	106.7	101.3	114.9
2019-20	24.7	7.6	45.9	45.2	8.5	13.5
2020-21	58.2	35.5	39.3	37.8	22.3	31.5
2021-22	64.0	98.9	16.1	9.7	44.9	50.6
2022-23	10.3	11.5	5.6	8.8	15.2	11.7
2023-24	6.4	-1.1	13.2	12.2	6.1	6.1
2024-25	-1.0	-0.3	18.6	18.1	11.2	5.8
2025-26	10.3	11.3	2.5	3.1	7.8	8.9
2026-27	3.1	3.7	5.3	5.0	0.7	1.7
2027-28	-0.6	-0.6	1.8	1.9	2.5	1.2
2028-29	8.1	0.7	1.8	1.9	-0.1	3.4

*Figures are inflation adjusted to 2023

DISCLAIMER