



Australia

Asia & Pacific

Ease of doing Solar classification



Achiever

Electricity Consumption
in kWh/capita (2020)

10386.2

Average PVout in kWh/kWp/day
(2020)

4.7

Cumulative Solar Capacity in MW
(2021)

22867.0

Getting Electricity Score (2020)

82.3

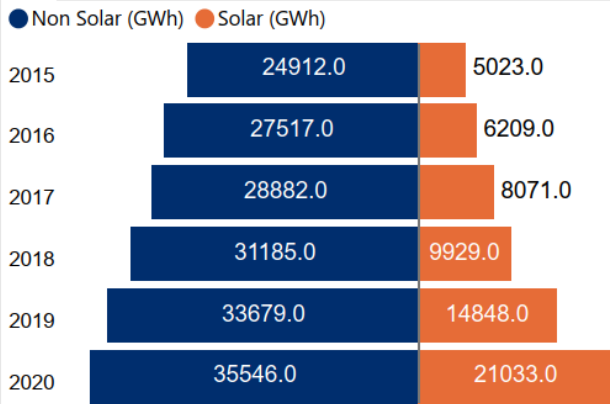
NDC Target by 2030 in %
(base year 2005)

43.0

Human Development Index (2021)

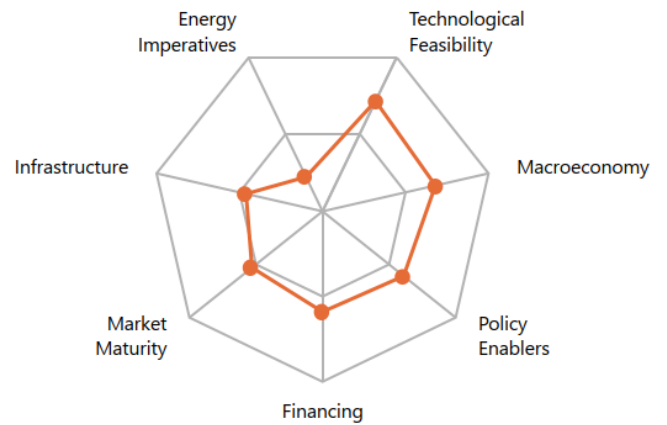
1.0

Renewable Energy Generation by Source

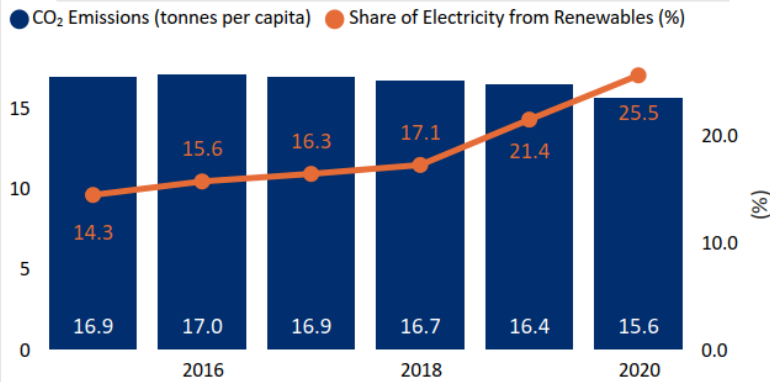


Non Solar RE includes Wind and Hydro;

Performance against 7 Drivers



CO₂ Emissions vs Electricity share from Renewables

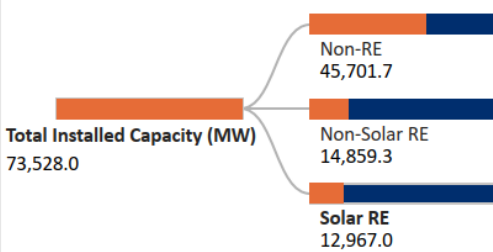


Fiscal Incentives & Public Financing for Renewables (2020)

Investment or production tax credits?
No

Public investment, loans, grants, capital subsidies or rebates?
Yes

Installed Capacity by Source (2019)



Non-Solar RE: Wind, Hydro, Biomass, Geothermal & Marine;

Non-RE: Coal, Natural Gas, Nuclear, Oil, etc.;

Other Solar: Utility Scale Solar, Rooftop etc.;

Data not available for other Solar RE segments;

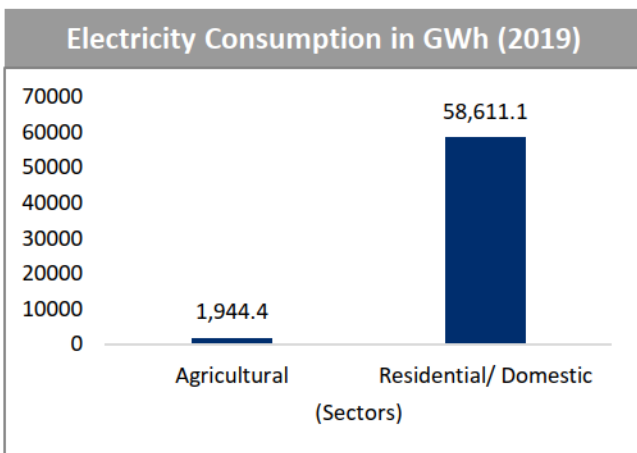
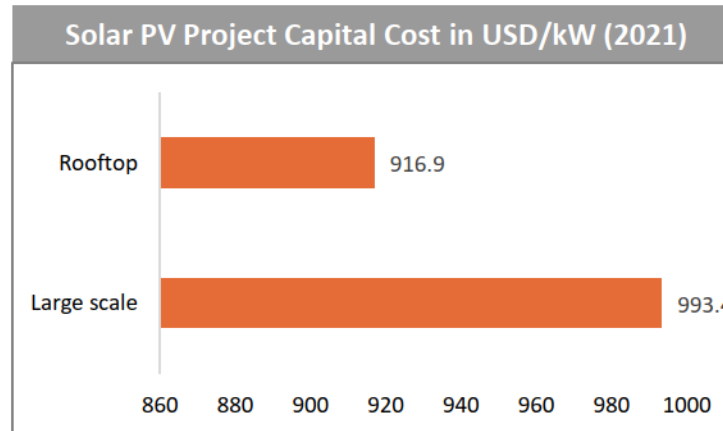
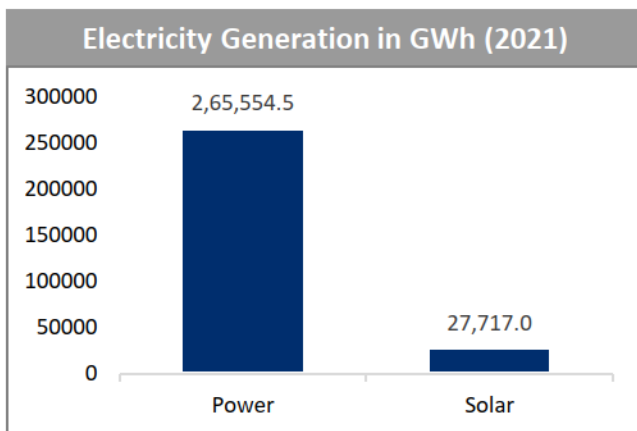
Support for Renewables (2020)

Feed-in-Tariffs for renewable energy supply to the grid? Yes	Net metering/Gross metering policies and regulations? Yes
Renewable Energy Certificates? Yes	Renewable Purchase Obligation? Yes

Peak Demand/Load in GW (2021)
31.9

Electricity Consumption CAGR in % (2022 - 2026)
1.4

Diesel based Electricity Generation in GWh (2021)
4,662.0



Financial Support Mechanisms (2021)

Duty waivers to solar developers for importing/procuring material from foreign land	No
Tax waivers for manufacturers of raw materials (modules, off grid appliances, etc.)	No
Credit facilitation for solar energy from financial institutions (FIs)	No
Viability Gap Funding (VGF) i.e. Grant to support RE projects that are economically justified but fall short of financial viability	No

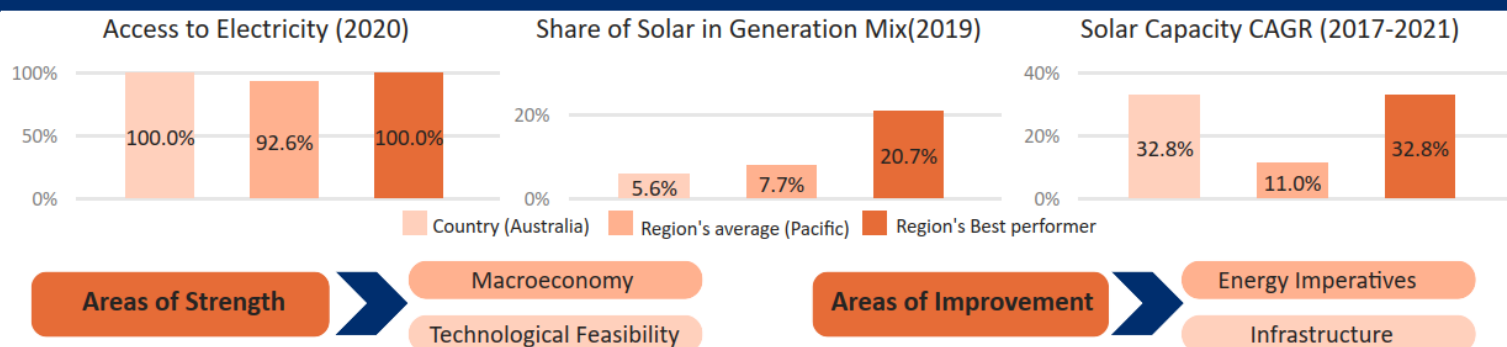
Policies/Schemes for Solar Segments (2021)

Rooftop Solar	Solar Mini Grids	Standalone solar systems	Utility scale solar	Solar Parks	Floating Solar	Solar heating and cooling system	Battery waste management	Green Hydrogen
Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

Emerging Technologies/Innovative Models (2021)

Hybrid technologies - combination of two or more technologies to achieve efficient systems (Example: wind + solar PV hybrid systems, solar + storage systems)	Yes
Emerging technologies - the next generation technologies (Example: Artificial Intelligence, Machine learning, Internet of Things, etc.)	Yes
E-mobility/Electric vehicles	Yes

Country's regional performance and characteristics



Key Insights

Drivers

Insights



Macroeconomy

- Australia is a high-income country¹ with GDP per capita (PPP) of USD 55,949 as of 2021. Service and manufacturing sectors are the major contributors to the economy with 72% and 26% of total GDP respectively.³
- GDP (Real) grew at an annual rate of 4.5% in 2021 and it is estimated that it will further grow at 4.2 % in 2022. ⁴
- Inflation rate in the country increased to 2.8% in 2021 from 0.9% levels in 2020 while the estimated public debt is at 59.81% of GDP as of 2021.^{5,6}



Policy enablers

- Australian Renewable Energy Agency (ARENA)⁷ is the nodal agency to support energy transition to net zero emissions.
- By 2030, the country aims to reduce GHG emissions by 43% below its 2005 levels and is slated to reach net zero emissions by 2050.²⁶
- The Ministry for Climate Change and Energy aims to increase the renewable electricity generation to 82% of total electricity generation by 2030.²⁶
- The Small-scale Renewable Energy Scheme (SRES) provides a financial incentive for households and businesses to install eligible small-scale renewable energy systems.⁹



Technological Feasibility

- The country receives very high levels of solar irradiation (GHI) of 5.8 kWh/m²/day and specific yield 4.7 kWh/kWp/day indicating a strong technical feasibility for solar in the country.¹¹
- The country typically receives 58 Mn petajoules of sunlight per annum.²⁶
- ARENA has supported Power Water Corporation in developing handbooks for solar/diesel mini grid to provide information about the key technical, design, implementation and operational considerations for planning solar/diesel hybrid mini-grid systems in remote Australia.¹²
- ARENA has funded two battery storage projects named as Yuri Renewable Hydrogen to Ammonia Project and Darlington Point Energy Storage System (both started in 2022) with USD 55.96 Mn and USD 20.77 Mn respectively.¹³



Market Maturity

- 100% of the population in the country has access to electricity as of 2020.¹⁴
- The power sector is vertically unbundled and there are separate entities for Generation, Transmission and Distribution¹⁵ with two national grids.¹⁶
- Australian Energy Regulator (AER) regulates energy network, retail energy market and wholesale energy market.¹⁷



Infrastructure

- The present transmission network length is 9,18,000 ckm²⁸ which is comprises of voltage levels from 11 kV to 500 kV with 99.5% availability of electricity grid.¹⁸
- In 2018-19, 26,850 jobs in renewable energy activities were created which was 27% more than previous year levels.¹⁹
- The seasonal/yearly peak demand for the National Electricity Market that has been met during 2021 is 32,761 MW (summer) and 31,945 MW (winter) respectively.²⁶



Financing

- The Clean Energy Finance Corporation (CEFC) is a state-owned green bank that facilitates finance to clean energy projects by investing USD 6.67 Bn on behalf of the Australian Government.²⁰
- The Australian Government with its Powering Australia Plan would invest USD 13.37 Mn to upgrade electricity grid and to support renewable power plan.²²



Energy Imperatives

- As per 2021 data, coal dominates the total installed capacity with a share of 31% followed by solar PV (22%) and natural gas (21%).²³
- The total installed capacity of rooftop solar and solar mini-grids are 16,500 MW and 30 MW in 2021.²⁶
- Of the total electricity generation of 2,65,554 GWh, solar electricity generation contributed 27,716 GWh in 2021.²⁶
- In 2020, the per capita electricity consumption stood at 10.4 MWh which is significantly higher in comparison to the global average of 3.31 MWh.²⁴