

IPA RESEARCH NOTE

The hidden green energy tax forcing Australians to prop up foreign owned renewables

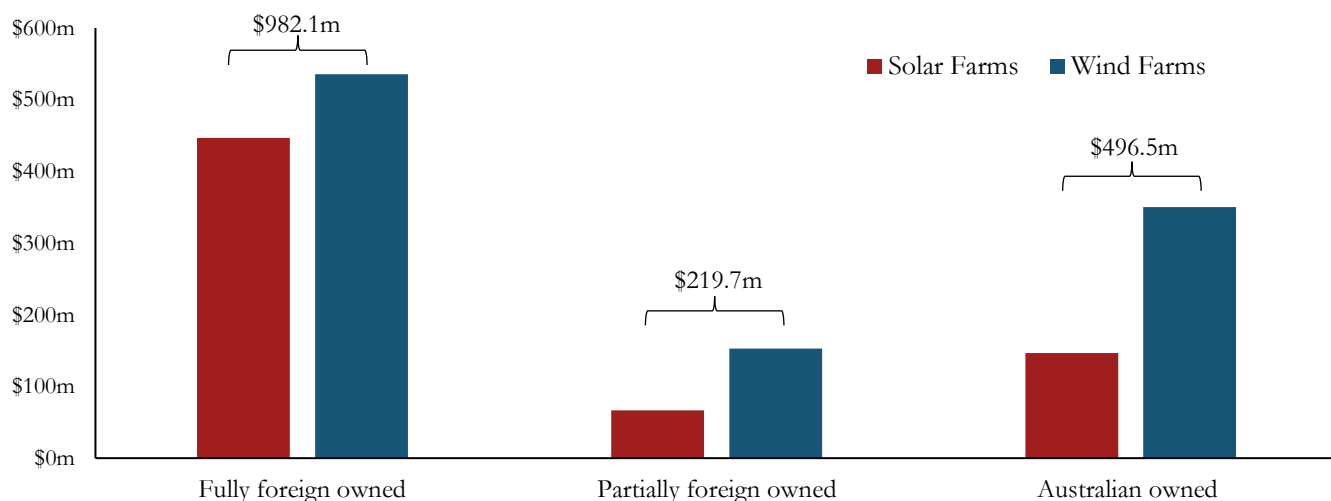
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Key findings

- The Large-scale Renewable Energy Target (LRET) operates as a subsidy scheme by mandating electricity retailers to purchase LGCs from renewable energy producers, guaranteeing a market for renewable energy, and transferring the costs to electricity consumers.
- In 2024, Australian electricity consumers were made to pay \$659.7 million in hidden charges on their electricity bills to the 50 largest operating solar generation facilities (solar farms) under the LRET.
- 36 of Australia's 50 largest solar farms, some 72 per cent, were foreign owned (either fully foreign owned or partially foreign owned). Just 14, or 28 per cent, were entirely Australian owned.
- In 2024, \$513.2 million was paid by Australian electricity consumers to solar farms which were foreign owned under the LRET alone.
- When added to previous IPA research calculating the effect of the LRET on wind farm operators, \$1.7 billion was paid by Australian electricity consumers to the 50 largest operating solar farms and 50 largest operating wind farms in 2024.
- Of the total subsidies paid, \$1.2 billion was given to solar and wind farms which were foreign owned.

Figure 1: LRET subsidies paid to the 50 largest operating solar farms and 50 largest operating wind farms in 2024



Source: IPA

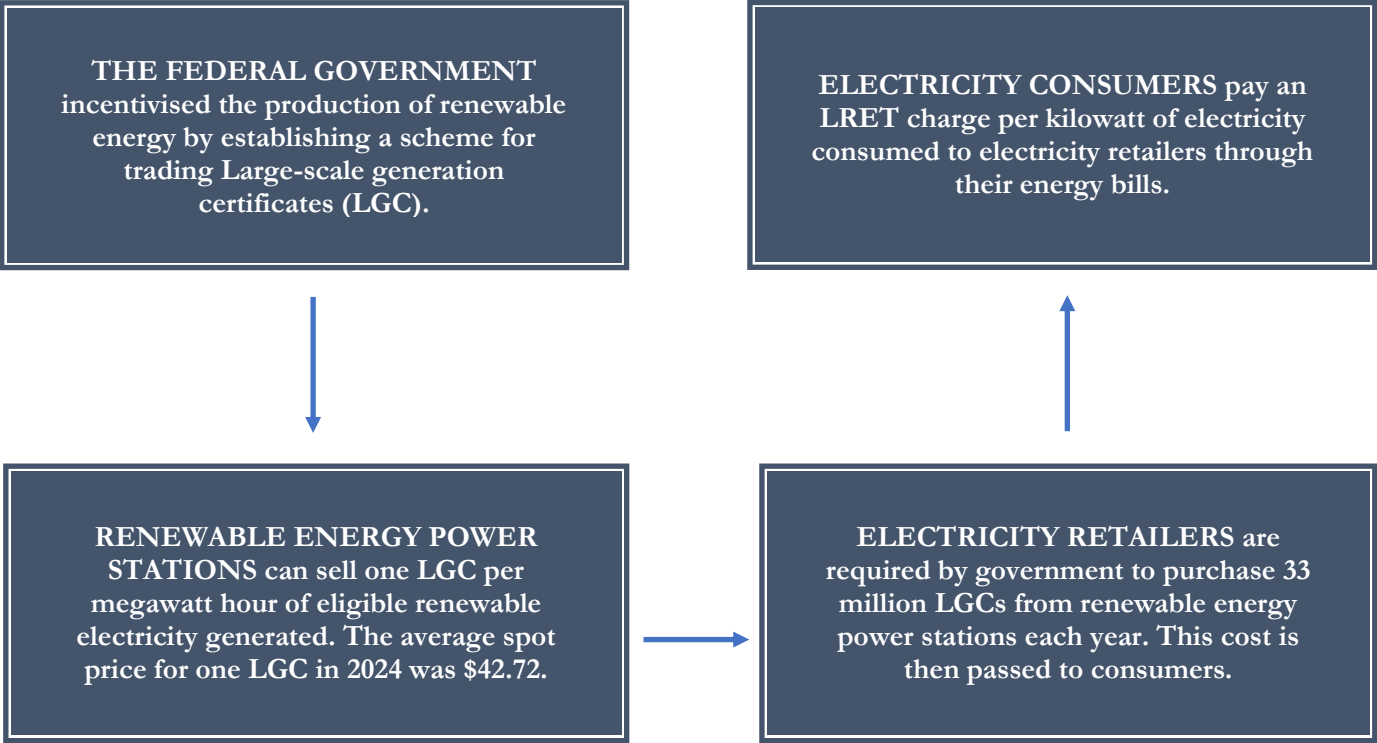
Background

As part of the Renewable Energy Target, the federal government has created a market to incentivise the generation and use of renewable energy.¹ At the core of the scheme are large-scale generation certificates (LGCs), tradeable assets created by accredited renewable energy power stations to be exchanged with ‘liable entities’ (electricity retailers).

Under the Large-scale Renewable Energy Target (LRET), the government requires electricity retailers to purchase LGCs annually from renewable energy power stations.² LGCs are created for every megawatt hour of electricity generated by an eligible facility, such as solar farms, wind farms, and hydroelectric facilities. The eligible facilities sell the LGCs in addition to the power they are able to sell on the wholesale market. The additional cost incurred by the retailers from purchasing LGCs is passed on to consumers, but is not shown on household bills.

This analysis does not cover additional renewables subsidies collected through alternate schemes.

Figure 2: How the Large-scale Renewable Energy Target subsidy scheme works



Subsidies for solar farms (Large-scale generation certificates)

Under the LRET, electricity retailers are required to purchase LGCs from renewable energy producers, thereby artificially inflating demand for renewables but at an added cost to retailers that is passed on to consumers as higher electricity prices. By mandating the redistribution of resources from consumers to the renewable sector, the LRET functions as an indirect subsidy for renewable power companies.

The annual target of renewable electricity that must be generated each year has been set by the federal government at 33,000,000 megawatt hours until 2030.³ One LGC can be created for each megawatt hour of eligible renewable electricity generated. The price of an LGC is determined by supply and demand, and therefore fluctuates. The average spot price for an LGC in 2024 was approximately \$42.72.⁴

The 50 largest operational solar farms in Australia together hold a power capacity of 6,854.4 MW. However, solar farms generate electricity as direct current (DC) and hence that power capacity is reported in DC terms. However, because the electricity grid operates on alternating current (AC), the DC power must be converted using inverters. This process involves some energy loss, so the amount of power delivered to the grid is lower. The efficiency of DC to AC conversion averages 90-95 percent, with a 5-10 per cent loss.⁵ Additionally, solar power is intermittent and therefore solar farms do not produce 100 per cent of their power capacity at all times. In Australia, the average capacity factor for a solar farm is approximately 27 per cent.⁶

Assuming a high inverter efficiency of 95 per cent and applying the average capacity factor of 27 per cent, the total combined power output from these solar farms would amount to approximately 15.443 million MWh each year. Therefore, these 50 solar farms received approximately \$659.7 million in LRET subsidies in 2024.

Solar farms in Australia

Across Australia, there are over 130 large scale solar farms in operation or under construction, of which approximately 110 are in operation.⁷

- Of the largest 50 solar farms in Australia, only 14 are wholly Australian owned.
- Of the largest 50 solar farms in Australia, 29 are entirely foreign owned or owned by subsidiaries of foreign companies.
- The remaining seven solar farms are under a shared ownership agreement between an Australian and a foreign company.

Subsidies for foreign-owned solar farms

In 2024, assuming a 27 per cent capacity factor across the largest 50 solar farms:

- Foreign owned solar farms generated approximately 10.45 million MWh of power, costing Australian electricity consumers approximately \$446.6 million in LRET subsidies.
- The joint foreign/Australian owned solar farms generated approximately 1.56 million MWh of power, costing Australian electricity consumers approximately \$66.6 million in LRET subsidies.
- The Australian owned solar farms generated approximately 3.43 million MWh of power, costing Australian electricity consumers approximately \$146.5 million in LRET subsidies.

Australian electricity consumers in 2024 paid \$513.2 million in subsidies to solar farms where the economic benefit was not received in its entirety by Australian businesses. Under the Large-scale Renewable Energy Target (LRET), 78 per cent of subsidies were given to either entirely or partially foreign owned solar farms.

Wind and solar subsidies under the LRET in 2024

Combining this data with previous IPA research into wind farm subsidies,⁸ finds that in 2024 across the 50 largest solar farms and 50 largest wind farms:

- 58 per cent were entirely foreign owned or owned by subsidiaries of foreign companies, costing Australian electricity consumers approximately \$982.1 million in LRET subsidies.
- 13 per cent were under a shared ownership agreement between an Australian and a foreign company, costing Australian electricity consumers approximately \$219.7 million in LRET subsidies.

- 29 per cent were wholly Australian owned, costing Australian electricity consumers approximately \$496.5 million in LRET subsidies.

Australian electricity consumers in 2024 paid \$1.7 billion in subsidies to the 50 largest operating solar and 50 largest operating wind farms in Australia. Of this, \$1.2 billion was paid in subsidies where the economic benefit was not received in its entirety by Australian businesses. Under the Large-scale Renewable Energy Target (LRET), 71 per cent of subsidies were given to either entirely or partially foreign owned solar farms.

Table 1: Ownership details for the 50 largest solar facilities in Australia

Solar facility	State	Total power (MW)	Owner	Ownership
Western Downs Green Power Hub	QLD	400	Neoen	Foreign owned
New England Solar	NSW	400	ACEN Corporation	Foreign owned
Limondale Solar Farm	NSW	349	RWE	Foreign owned
Darlington Point Solar Farm	NSW	333	Octopus Investments/Edify Energy	Australian owned
Bungala Solar Power Project	SA	276	Potentia Energy	Foreign owned
Sunraysia Solar Farm	NSW	228	Maoneng	Foreign owned
Wellington Solar Farm	NSW	213	Lightsource BP	Foreign owned
Blue Grass Solar	QLD	200	X-ELIO	Foreign owned
Kiamal Solar Farm	VIC	200	Flow Power	Foreign/Australian owned
Suntop Solar Farm	NSW	189	Canadian Solar	Foreign owned
Coleambally Solar Farm	NSW	188	Neoen	Foreign owned
Daydream Solar Farm	QLD	180	Edify Energy	Australian owned
Finley Solar Farm	NSW	175	John Laing Group	Foreign owned
Gunnedah Solar Farm	NSW	153	Canadian Solar	Foreign owned
Sun Metals Solar Farm	QLD	151	Sun Metals (Korea Zinc Group)	Foreign owned
Glenrowan West Solar Farm	VIC	149	Wirtgen Invest	Foreign owned
Ross River Solar Farm	QLD	148	Palisade Investment Partners	Australian owned
Darling Downs Solar Farm	QLD	137	APA Group	Australian owned
Merredin Solar Farm	WA	132	SUN Energy	Foreign owned
Nevertire Solar Farm	NSW	130	ATMOS Renewables	Australian owned
Numurkah Solar Farm	VIC	128	Neoen	Foreign owned
Clare Solar Farm	QLD	127	Fotowatio Renewable ventures (FRV)	Foreign owned
Tailem Bend Solar Power Project	SA	127	Vena Energy	Foreign owned
Lilyvale Solar Farm	QLD	126	Fotowatio Renewable ventures (FRV)	Foreign owned
Yarranlea Solar Farm	QLD	121.5	Risen Energy	Foreign owned
Bomen Solar Farm	NSW	120	Tenaga Nasional	Foreign owned
Karadoc Solar Farm	VIC	112.5	Flow Power	Foreign/Australian owned

Solar facility	State	Total power (MW)	Owner	Ownership
Bannerton Solar Park	VIC	110	Foresight Solar Fund	Foreign owned
Wemen Solar Farm	VIC	110	Gentari Solar	Foreign owned
Beryl Solar Farm	NSW	110	Banpu Energy	Foreign owned
Yatpool Solar Farm	VIC	106	Flow Power	Foreign/Australian owned
Nyngan Solar Plant	NSW	102	AGL Energy	Australian owned
Haughton Solar Farm	QLD	100	Pacific Hydro	Australian owned
Susan River Solar Farm	QLD	85	ATMOS Renewables	Australian owned
Clermont Solar Farm	QLD	75	Flow Power	Foreign/Australian owned
Emerald Solar Park	QLD	72	RES Group	Foreign owned
Whitsunday Solar Farm	QLD	70	Edify Energy, Gentari Solar	Foreign/Australian owned
Hamilton Solar Farm	QLD	69	Edify Energy, Gentari Solar	Foreign/Australian owned
Parkes Solar Farm	NSW	66	Neoen	Foreign owned
Rugby Run Solar Farm	QLD	65	Adani Group	Foreign owned
Gannawarra Solar Farm	VIC	60	Edify Energy, Gentari Solar	Foreign/Australian owned
Hayman Solar Farm	QLD	58	ATMOS Renewables	Australian owned
Childers Solar Farm	QLD	56	ATMOS Renewables	Australian owned
Moree Solar Farm	NSW	56	Fotowatio Renewable ventures (FRV)	Foreign owned
Manildra Solar Farm	NSW	55.9	Banpu Energy	Foreign owned
Broken Hill Solar Plant	NSW	53	AGL Energy	Australian owned
Jemalong Solar Farm	NSW	50	Genex Power	Australian owned
Kidston Solar Project KS1	QLD	50	Genex Power	Australian owned
Collinsville Solar PV	QLD	42.5	Ratch Group	Foreign owned
Greenough River Solar Farm	WA	40	Bright Energy Investments	Australian owned

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End Notes

1. Department of Climate Change, Energy, the Environment and Water, "Renewable Energy Target Scheme," accessed 10 February 2025: <https://www.dcccew.gov.au/energy/renewable/target-scheme>.
2. *Renewable Energy (Electricity) Amendment Act 2010* (Cth).
3. Clean Energy Regulator, "Renewable Energy Target," accessed 10 February 2025: <https://cer.gov.au/schemes/renewable-energy-target>.
4. Clean Energy Regulator, "Quarterly Carbon Market Reports," accessed 10 April 2025: <https://cer.gov.au/markets/reports-and-data/quarterly-carbon-market-reports>.
5. Department of Energy and Mineral Engineering, "Utility Solar Power and Concentration, Efficiency of Inverters," accessed 11 April 2025: <https://www.e-education.psu.edu/eme812/node/738#:~:text=where%20PAC%20is%20AC,efficient%20%2D%2075%2D85%25>.
6. Alberto Boretti, "High-frequency standard deviation of the capacity factor of renewable energy facilities: Part 1- Solar photovoltaic" (2019) Vol. 2 No. 1 Energy Storage 101.
7. Renew Economy, "Large Scale Solar Farm Map of Australia," accessed 11 April 2024: <https://reneweconomy.com.au/large-scale-solar-farm-map-of-australia/>.
8. Mia Schlicht, *How federal wind farm subsidies enrich foreign corporates and leave Australians worse off* (Institute of Public Affairs Research Note, March 2025).