Renewable energy is the real **jobs winner**

AUSTRALIAN CONSERVATION FOUNDATION

Front cover: James Thomas Photo.

Key **findings**

When it comes to jobs creation, a new tool has revealed renewable energy is the real winner for regional communities that are reliant on dying coal-fired power.

Replacing the energy output of Australia's biggest coal-fired power station, Eraring, which is scheduled to close early in 2025, with renewables would create thousands more construction jobs than replacing it with gas.

The tool shows replacing Eraring's 2880 megawatts of electricity with rooftop solar would create a whopping 63,562 jobs.

Building solar farms that generate the same amount of power would create 14,415 jobs, while building wind farms would create 13,339 jobs.

In contrast, construction jobs for new coal-fired power stations would create just 8,576 jobs, while gas plants that made that much power would mean just 1,566 jobs.

The tool reveals a 'gas-led recovery' is not in the best interests of the many thousands of construction workers who are looking to future-proof their income. Supply chain jobs associated with the construction of gas plants ranks the lowest in every energy example.

What is the energy construction jobs tool?

Tristan Edis, an experienced energy market analyst, has devised the energy construction jobs tool to work out how many construction jobs would be created by replacing the energy output from aging coal-fired power stations with wind, solar, rooftop solar, new coal or gas.

The tool uses historical data on the number of jobs involved in constructing relatively recently built coal power stations at Tarong, Millmerran and Kogan Creek, Snowy Hydro's estimates of job creation in constructing the Hunter/Kurri Kurri gas power plant and survey estimates of employment in the renewable energy sector developed by the University of Technology Sydney. These provide estimates of the number of jobs created from constructing different power plants in megawatts of rated maximum capacity and relative to the amount of electricity generation they could be expected to deliver when operating in a baseload mode.[1]

The tool can also be used to provide household comparisons. For example, if Australia chose to power one million homes with new rooftop solar systems, it would create 26,484 construction jobs. The next biggest jobs creator for this task would be solar farms, which would create 6,006 construction jobs. That much power generated by wind farms would create 5,558 jobs. Whereas the equivalent power from new coal would create just 3,573 jobs and new gas would create only 652 jobs.

The tool also provides a comparison of how many jobs would be created by moving to 100% renewables, compared to replacing existing coal power plants with new coal or gas.

1. For a coal-fired power station this equates to a capacity factor (utilisation of the installed capacity) of around 80%. For a gas power plant it equates to around a 70% capacity factor. Solar and wind plants tend to operate at the highest output possible given the available fuel supply provided by the wind and the sun. In the case of wind farms in the NEM this averages at around 35%, while for solar farms it is closer to 25%.

Replacing Eraring's 2880 megawatts of electricity with **rooftop solar would create a whopping 63,562 jobs**

Replace Eraring coal-fired power station

Origin Energy recently announced the Eraring coal-fired power station will close in 2025.

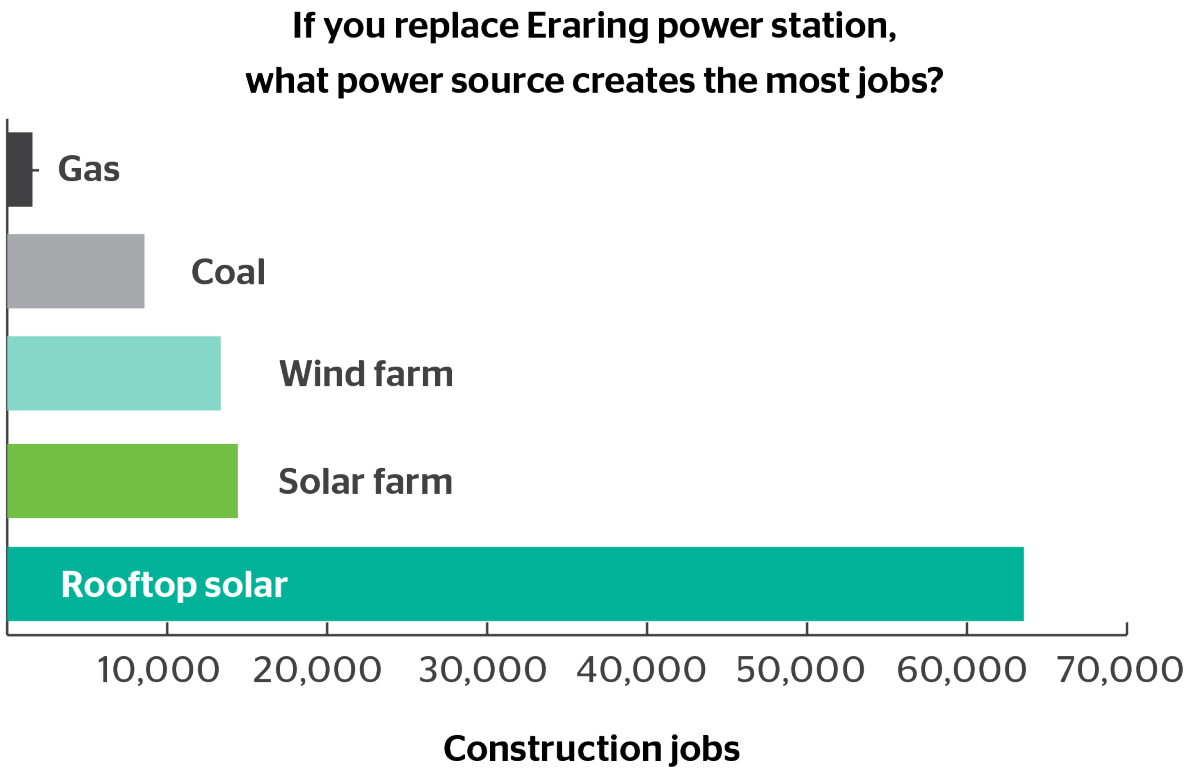
Eraring is a 2880 MW black coal plant on the shores of Lake Macquarie in NSW. It has four units and became fully operational in 1984. Before the announcement in March, Origin had been talking about closing Eraring in 2032.

Origin attributed early closure to the rapidly changing conditions in the National Electricity Market (NEM), which are 'increasingly not well suited to traditional baseload power stations and challenging their viability.'

There is a fast-approaching opportunity to fill the electricity gap created by Eraring's 2025 closure with zero emissions energy – and create jobs.

If Eraring were replaced with rooftop solar (noting that last year 3300 MW – or 3.3 GW – of rooftop solar was installed around Australia), it would create a whopping 63,562 jobs.

When we compare the construction jobs that would come from other replacement options we see 14,415 jobs could result from building the equivalent solar farms, 13,339 jobs from wind farms, 8,576 from coal fired power plants and only 1,566 for gas fired plants.



Source: *Green Energy Markets*

Power 1 million households

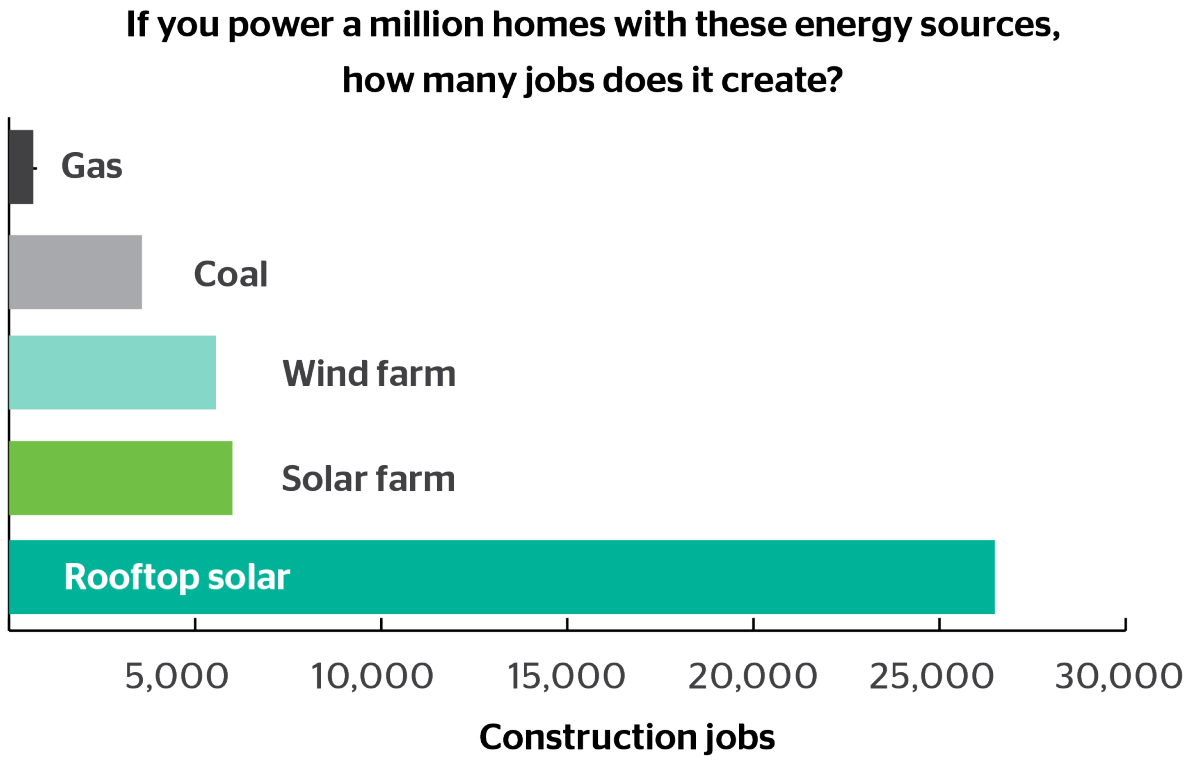
Renewable energies like rooftop solar, large-scale solar and wind power are the cheapest forms of new energy in Australia, even when combined with energy storage technologies such as batteries to create what's called 'firm' energy – power that's available on demand when it's needed.

Renewable energy is cheap and popular. Households across Australia have installed rooftop solar en masse, quickly achieving the world's highest per capita capacity of rooftop solar.

Australia's rooftop solar sector has had five record-breaking years in a row. A massive 3.3 GW of new rooftop solar capacity was installed in 2021 alone. The rooftop solar capacity installed in 2021 is more than enough to replace the entire Eraring coal plant and still have some left over.

In addition to being cheap, reliable, and popular, powering households with renewable energy creates jobs. Lots of jobs.

A jobs comparison based on the electricity needed to power one million households (on average) shows rooftop solar as the stand-out, generating 26,484 construction jobs. The next closest – solar farms – would create 6,006 construction jobs, while wind farms would create 5,558 jobs. Coal and gas are both much lower jobs generators with coal creating 3,573 jobs and gas generating only 652 jobs.



Source: *Green Energy Markets*

Kurri Kurri gas-fired power plant

The Morrison government has committed $600m to a new publicly funded 660 MW gas-fired power plant at Kurri Kurri in NSW, claiming it is needed to avoid a significant increase in wholesale electricity prices when the Liddell coal-fired plant shuts in 2023. The government has also said the new Kurri Kurri gas plant could be expanded as an option to replace retiring coal-fired power plants such as Eraring.

Experts say the new gas plant is not needed to maintain electricity supply and does not stack up commercially given the range of cheaper and cleaner alternatives available. Experts say the government interference in the market is likely to dampen private investment and reliance on expensive gas will lock in climate pollution and push up electricity prices. If it goes ahead as a 'peaking' plant the new plant is only expected to run at 2% of its full capacity annually.

There are many reasons for concern about public funding for new gas-fired power plants, not the least of which is the International Energy Agency's advice that there can be no new coal, oil or gas projects if the world is to meet the goal keeping global warming to 1.5°C.

All these concerns aside, does this new plant at least bring lots of new job opportunities?

If the plan to build the Kurri Kurri gas plant goes ahead and it is expanded to replace capacity that will be lost when coal-fired power stations close, then the result for jobs would be the same as the comparison for replacing Eraring, as in the example above. In other words, building an expanded Kurri Kurri gas plant would result in only around 1,566 jobs. Replacing that output with solar farms would provide 14,415 jobs and wind farms would provide 13,339 jobs. Adding that capacity to rooftops in the form or solar PV would provide 63,562 jobs.

If any of the renewable energy options were pursued, they would likely include some battery storage or pumped hydro, which would add even more jobs.

The International Energy Agency's advice is that **there can be no new coal, oil or gas projects** if the world is to meet the goal of keeping global warming to 1.5°C

A ‘gas-led' recovery is **not in the best interests of the many thousands of construction workers** who are looking to future-proof their income

About Green Energy Markets, the creator of the energy construction jobs tool.

Green Energy Markets is a research and advisory business that helps clients – including major power companies and developers of large renewable energy power projects – analyse renewable energy, energy efficiency and distributed generation opportunities.

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