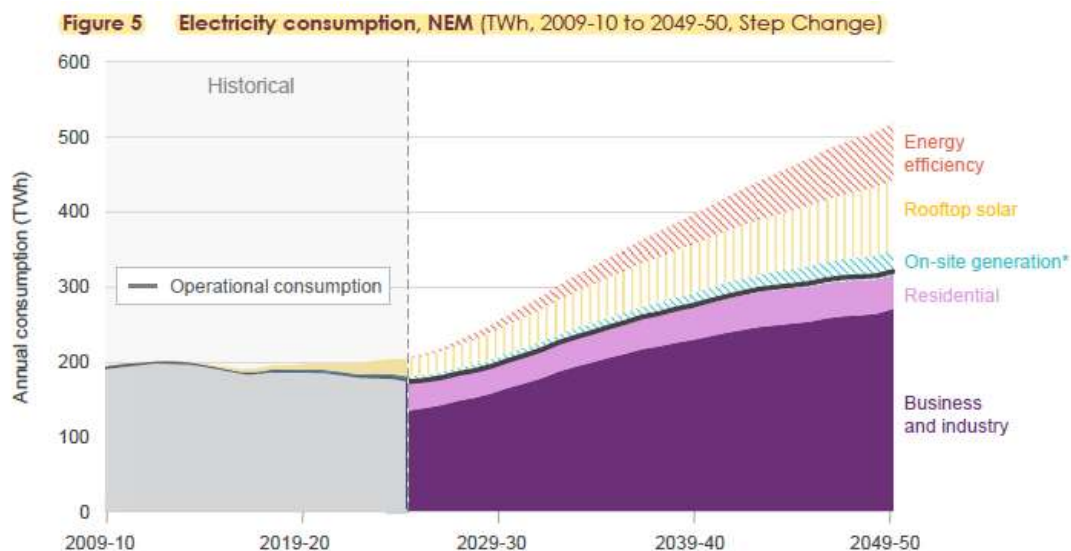


The draft 2024 Integrated System Plan has now been published – this is why you should care about it

The energy transition to renewables is a great thing – but should we be paying for it three times over? Once through the Rewiring the Nation package (\$20 billion +); yet again in our electricity bills and yet again through the [Capacity Investment Scheme](#) (the Government’s revenue safety net for large operators delivering 32 GW of new renewable energy projects.) And if consumer energy resources – rooftop solar, electric vehicles, battery and other types of household storage – are a big part of the solution, who’s in on that bundle and [who’s going to be locked out](#)? Should renters and families in social housing miss out if they don’t own the roof over their heads? If you want answers to these and other questions you may be interested in the draft 2024 Integrated System Plan (ISP) which is open for public consultation until 16 February 2024.

The ISP is the plan produced by the Australian Energy Market Operator (AEMO) modelling an optimal development pathway for the transition to renewable energy through to 2050 – the who, what, where, when and how of the renewable energy transition. It’s an ambitious document aiming to triple installed renewable energy capacity in less than 30 years and to meet an anticipated doubling of demand for renewable electricity by 2050 (under the Step Change scenario). The ISP argues renewable energy connected with transmission, firmed with storage and backed up by gas-powered generation is the lowest cost way to supply electricity to homes and businesses in Australia’s net zero carbon economy (2023:9).

Every two years the ISP is revisited and refined. The draft 2024 ISP predicts the demand for grid based electricity will rise approximately 108% by 2050, largely driven by business and industry needs. Demand for grid based electricity in the residential sector is predicted to remain largely unchanged at about 40 terawatt hours (TWh) per annum, with rooftop solar and other CER catering for the rest of our demand (2023:25). The ISP graph copied below illustrates the anticipated composition of total demand for electricity through to 2050 with grid based demand shown as “operational demand”.



Note: On-site generation (or “non-scheduled generation”) is non-utility generation that includes on-the-ground PV and small wind and biomass, typically for industrial use.

Compared to previous iterations, the draft 2024 ISP has elevated the role of CER. For instance, the draft 2024 ISP increases the level of ambition for rooftop solar, forecasting a grand total of 72 GW of rooftop solar generation by 2050 (2023:11). That's an increase of at least 50 GW on our existing solar rooftop capacity (about 20 GW). The draft 2024 ISP also anticipates strong growth in household and commercial batteries taking us from 1 GW of capacity today to 7 GW by 2030 and 34 GW by 2050 (2023:47). Significantly, the capacity of coordinated CER storage – which is CER capacity that is connected to the grid including from electric vehicles (EVs) - is forecast to rise from today's 0.2 GW to 3.7 GW in 2029-30, and to 37 GW in 2049-50 (2023:63).

AEMO has taken on board existing, higher than previously forecast, growth in CER and revised its forecasts accordingly – but does it go far enough? Should we be taking CER *even more* seriously? Although the revised forecasts look ambitious, there is good evidence AEMO is still seriously underestimating CER's potential – especially in the crucial next decade. Rooftop solar and battery storage – specifically electric vehicles (EVs) – have even more to offer than AEMO concedes.

Take, for example, rooftop solar. In 2019 an [independent report to the CEFC](#) calculated our existing rooftops (as of 2019) have 179 GW of solar capacity capable of supplying up to 245 terawatt-hours of electricity per annum. And, as we all know, new buildings are being built all the time! Roof top solar sidesteps many of the system wide risks identified by AEMO - slow moving approval processes; rising costs (particularly associated with transmission infrastructure); community backlash; supply chain issues and workforce shortages (2023:14). It provides the cheapest, most readily available form of power generation available. It is also the most resilient and least environmentally intrusive form of power generation we have. The advent of battery storage and two way network capacity allows us to unleash the full potential of rooftop solar to generate electricity throughout the day and into peak periods.

Although AEMO's 2024 Step Change prediction for roof top solar – an additional 50 GW by 2050 or just under 2 GW per annum - looks ambitious, it actually assumes a *slow-down* in current growth rates. In 2022, [Australian roof tops](#) actually increased the supply of renewable energy to the grid by 2.7 GW and in the previous year that increase was 3.3 GW. So, while utility scale renewables are floundering in paperwork, community backlash and other delays, the AEMO is suggesting we should actually be aiming for a *slowdown* in the growth of rooftop solar!

If our leaders and decision-makers opted to *seriously promote* rooftop solar on *all* buildings not just owner occupied, detached residential homes — the goal of reaching 72 GW of rooftop solar capacity by 2050 could easily be met and surpassed in no time at all. With no new hard infrastructure required, rooftop solar is easily the cheapest, (potentially) most equitable and most ready to go form of renewable energy available to the community at the current time – so why are we setting the bar for rooftop solar so *LOW* and so *SLOW*?

The 2024 draft ISP also adopts a pretty conservative forecast for EV battery storage and bi-directional charging. A recent [report by ARENA](#) demonstrates what a game changer this is. It estimates that, by 2050, the usable storage in Australia's EV fleet will be 2,359 GWh – nearly four times AEMO's predicted *total* NEM storage requirements. Flexible bidirectional charging from only 10% of this capacity could provide 37% of total NEM storage needs, offsetting around \$94 billion of large-scale battery storage investment. We don't need to wait too long for this development either. By the early 2030's, ARENA estimates Australia's EV fleet battery capacity will surpass all other forms of storage in the NEM, including Snowy 2.0. And, needless to say, EV storage is the cheapest form of battery storage we have – because it comes with the car!

EV charging into the grid barely gets a mention in the draft 2024 ISP but within a few years it could be operating at a scale that would dwarf all other storage options and be capable of providing power over a significantly longer duration than household batteries. An EV typically has 50-60 KW of storage, more than five times the average household battery and more than enough to power individual households through the evening peak demand - with spare left over. With the right policy settings and a good price for bi-directional feed-in during peak hours, we can power our homes 24/7 with spare left over to return to the grid. So here's another opportunity for the community to really cash in on the incredible, low cost benefits solar power can deliver and for our decision-makers to ensure we get a cheaper energy transition overall.

Although the draft 2024 ISP contemplates an expanded role for CER, it's still tracking a very modest trajectory compared to our huge potential in this space. A comparison of the draft 2024 ISP's goals for CER with what's actually available according to independent, credible research commissioned by CEFC and ARENA suggests the draft ISP 2024 is still seriously missing the mark on CER's potential. This is regrettable because, not only does CER provide the cheapest route for our energy transition, it also overcomes many if not all of the risks to rapid progress identified by AEMO in its draft 2024 ISP. In the light of these concerns, it should be a no-brainer to anyone that we need to aim - (a) more ambitiously on CER; (b) more cautiously on expensive infrastructure; and (c) with huge enthusiasm for EVs and bi-directional charging. So if you want to save the world, enjoy lower electricity bills or see a fairer transition to renewable energy across our country, then get in on the action and start asking some big questions of our decision-makers who set the policy parameters within which AEMO operates.

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