



SOLAR OUR LEARNING:
Saving millions for the
early learning sector



**PARENTS FOR
CLIMATE**



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Executive summary

Energy bills are rising, eating into budgets in the early childhood education and care (ECEC) sector. Those funds are desperately needed to pay educators and provide affordable childcare for children.

The ECEC sector spent an estimated \$110-130 million on electricity bills in 2023.¹ Based on 14.7% to 28.9% price rises in the Default Market Offer for small businesses at July 1, 2023, we estimate ECEC centres have experienced significant increases in electricity bills - many times the rate of inflation.²

Where ECEC centres increase fees to cover this, it drives up costs for families already facing a well-documented cost of living crisis. Where they can't, it adds to the financial pressures faced by centres. This pressure is felt most strongly in those smaller centres servicing areas undersupplied by the for-profit chains, since for-profit chains tend to cluster their centres in large population centres.

Babies and young children are less able to regulate their own body temperature and are more susceptible to heat-related illness.³ Hotter summers require ECEC centres to use air conditioners more often, increasing the financial obstacles to providing a safe environment for babies and young children.

Clean energy solutions like rooftop solar, batteries and energy efficiency measures can permanently reduce energy costs for the ECEC sector. Savings from these measures can fund desperately-needed wages for educators, and prevent fee increases for families who are already struggling.

Rooftop solar on all ECEC centres, alongside a full rollout on state schools would be the largest renewable energy project in Australia⁴ - many times the size of any individual solar or wind farm. And it can be built now, using existing supply chains, and without requiring additional land.

The benefits are compelling. A small number of centres are already installing solar and saving money. But the vast majority of centres lack the capacity to access clean energy upgrades. Already facing a workforce crisis, most centres simply don't have the time and expertise to navigate the options without assistance. Many cite initial costs as a further obstacle.

In preparing this report Parents for Climate spoke to and surveyed stakeholders in the ECEC sector from around Australia to understand

- The makeup of the sector and the incentives and challenges faced by different stakeholder types
- Challenges preventing higher installation of rooftop solar
- How our proposals aligned with the sector's own advocacy

And our recommendations are entirely aligned with the Energy Security Board's February 2023 report, 'Consumer Energy Resources and the transformation of the NEM'.^{5 6}

Parents for Climate's Solar Our Learning campaign calls for state and federal governments to support solar, batteries and energy efficiency measures for every school and ECEC centre across Australia. Working together, we have the opportunity to:

- slash school and early childhood centre energy bills, freeing up more funds for learning resources and childcare places
 - Save large schools \$114,000 in energy bills per year,⁷
 - Save small schools \$12,700 in energy bills per year⁸
 - Save early childhood centres up to \$12,400 in energy bills per year
- protect schools and early childhood centres from future energy price rises, reducing financial pressures on services and families alike
- create at least 6,870 renewable energy jobs, spread across all regions of Australia.⁹
- save 1.35 million tonnes of carbon emissions per year.¹⁰

1 Utilizer Energy Consultants; see Appendix 1 - Estimating electricity use in the ECEC sector

2 The independent Australian Energy Regulator's DMO sets an annual price cap on how much energy retailers can charge electricity consumers on default plans, see <https://www.aer.gov.au/news/articles/news-releases/aer-releases-final-determination-2023-24-default-market-offer>

3 <https://www.health.nsw.gov.au/environment/beattheheat/Pages/babies-children-hot-weather.aspx#:~:text=Babies%20and%20young%20children%20are,choices%20to%20stop%20themselves%20overheating;https://www.scientificamerican.com/article/heat-waves-affect-children-more-severely/>.

4 See below, The largest renewables project in the country

5 <https://www.energy.gov.au/sites/default/files/2024-02/ESB%20report%20-%20CONSUMER%20ENERGY%20RESOURCES%20AND%20THE%20TRANSFORMATION%20OF%20THE%20NEM.pdf>

6 <https://www.afr.com/policy/energy-and-climate/energy-distribution-companies-need-radical-reform-report-20240208-p5f3cv>

7 <https://www.bze.org.au/research/report/million-jobs-plan>

8 Ibid

9 Ibid

10 Ibid

The Problem

Rising temperatures and energy prices threaten safe, affordable early education and care.



Rising energy prices make early childhood education and care less financially viable

Energy bills are rising, eating into education budgets during a crisis of access to affordable early education and care.¹¹

The ECEC sector spent an estimated \$113-130 million on electricity in 2023.¹² Based on rises in the Default Market Offer, this spending is up approximately 11 per cent from 2022, an increase more than twice the rate of inflation.¹³

What does \$113-\$133 million mean to the early childhood education sector?

1,255-1,625 full-time educator wages (based on current pay rates).¹⁴

1,625 full-time educators could support 5,020 full-time places for babies or up to 24,375 full-time places for older children (using current educator-to-child ratios in the ACECQA National Quality Framework).

Some centres raise fees to cover the increased cost of electricity. But this adds financial pressure to parents already struggling with cost of living pressures.

"Childcare in Australia is less affordable compared to most other OECD countries. In 2022, an Australian couple on average wages with two children spent 16 per cent of their net household income on net childcare costs, compared to the OECD average of 9 per cent."¹⁵

“

Having solar would support many services across Australia as the cost of electricity has impacted the sector across the board, affecting fees and wages. Solar would also provide a meaningful learning opportunity for children working towards a more sustainable future.

-LORI FAYE,
Executive Service Manager, Nido Early School
Ocean Grove

LORI FAYE

1. Do you want Solar?
Yes
2. Have rising energy prices added financial stress to your centre?
Yes
3. Have rising energy prices been a factor in increasing fees?
Yes in 2023 and 2024
4. What kinds of government support would you find helpful in getting solar?
Government grants

¹¹ <https://www.accc.gov.au/system/files/ACCC%20Childcare%20Inquiry-final%20report%20December%202023.pdf>

¹² Appendix 1 - Estimating electricity use in the ECEC sector

¹³ The independent Australian Energy Regulator's DMO sets an annual price cap on how much energy retailers can charge electricity consumers on default plans, see <https://www.aer.gov.au/news/articles/news-releases/aer-releases-final-determination-2023-24-default-market-offer>

¹⁴ <https://www.seek.com.au/career-advice/role/early-childhood-teacher/salary>

¹⁵ <https://www.accc.gov.au/media-release/review-of-childcare-policy-to-better-meet-the-needs-of-families>

Where centres are subject to fee caps, increasing electricity costs add financial strain and limit the ability of a centre to attract and retain staff. As the sector is regulated to require a ratio of educators to children, fewer educators means fewer childcare places and reduced income. The ACCC interim report into childcare found the ability to attract and retain staff was a key driver of financial viability.¹⁶

While the ACCC found the sector is broadly profitable, this is truest in the for-profit part of the sector, which tends to supply more densely populated areas. The not-for-profit and community-run segment of the sector is more likely to service less profitable areas. Parents for Climate consulted a wide range of ECEC centres. Many services named financial viability as an important issue. For example, KU Children's Services, a not-for-profit providing ECEC to more than 10,000 children across 126 centres spread throughout New South Wales, Australian Capital Territory, Victoria and Queensland, is operating in deficit for the first time in its 128-year history.¹⁷

Rising temperatures increase costs even further

Excessive heat negatively impacts children's health and educational attainment.¹⁸ Babies and young children are more vulnerable to heat extremes than older children.¹⁹ ECEC centres are required under the Education and Care Services National Law Act 2010 to maintain a safe temperature.²⁰ But rising energy prices are a financial obstacle to providing a safe environment as temperatures increase.²¹

The New South Wales and Queensland governments are piloting programs in state schools to install air conditioning powered by rooftop solar.²² But the ECEC sector enjoys no such targeted support.

Air conditioning will become increasingly important for the health, wellbeing and safety of babies and young children as average temperatures rise, and more expensive for centres reliant on grid power.

¹⁶ <https://www.accc.gov.au/inquiries-and-consultations/childcare-inquiry-2023/september-2023-interim-report-p-122>, draft finding 12

¹⁷ <https://www.ku.com.au/uploads/KU-Financial-Report-for-the-Financial-Year-Ended-31-December-2022.pdf>

¹⁸ Xu, Z., Sheffield, P.E., Su, H. et al. 'The impact of heatwaves on children's health: a systematic review. *Int J Biometeorol* 58, 239–247 (2014). <https://doi.org/10.1007/s00484-013-0655-x>

¹⁹ <https://www.health.nsw.gov.au/environment/factsheets/Pages/beat-the-heat-children.aspx>

²⁰ Education and Care Services National Regulations (2011 SI 653)

²¹ https://www.westernsydney.edu.au/newscentre/news_centre/research_success_stories/research_reveals_the_dangerous_impact_increasing_temperatures_are_having_on_our_children

²² Cooler Classrooms Program; Cooler Cleaner Schools Program



The Solution

Solar, batteries, ground heat pumps and energy efficiency to protect ECEC centres from rising temperatures and power bills



Solar saves centres money

The energy profile of the ECEC sector is perfect for rooftop solar. Centres largely operate during daylight hours.



The energy profile of childcare centres is mostly in heating and cooling. This means most childcare centres do suit solar, even in winter. In winter, childcare centres use less power during the middle of the day (more at the start of the day), owing to reduced cooling requirements - particularly in the northern states.

-COHEN ROBINSON
Utilizer Energy Consultants



Operating largely in daylight hours between about eight in the morning to six in the early evening, these buildings with large roof spaces offer a great opportunity to reduce carbon emissions, reduce operational costs and possibly provide excess energy for community use if connected to a community battery or just made available back into the grid.

-DEB WATSON
Sustainability Manager, KU Childrens Services

Adding solar is an upfront capital cost which can reduce power bills for ECECs for decades. At current system prices the average system pays for itself in four to six years²³, though this figure can grow higher for retrofits in the ECEC sector since safety requirements can mean out-of-hours installation is necessary, increasing the labour component of the system cost. (See 'New builds without solar are a missed opportunity', page 20)

²³ <https://www.finder.com.au/solar-power-payback-calculator>

Reducing operating costs increases social equity

Power prices act as a regressive tax, impacting poorer families far more than wealthier ones. The same is true for ECEC centres in lower socioeconomic areas who, without help, will be paying more for electricity than wealthier centres or larger chains with the capacity to install solar.

Fifth Road Child Care Centre provides long-day care in Armadale, WA. It is located in one of the lowest in Socio-Economic Indexes for Areas in Australia:



Rising energy prices have certainly impacted our centre, though the rebate helps. We've tried many times over many years to get solar, but our landlord has flatly refused each time. But the way things are now we couldn't afford it without help anyway.

The government needs to help landlords see the benefits, and help pay for a system, or it's just not an option for a centre like ours."

-COLLEEN, MANAGER

Fifth Road Child Care Centre, Armadale WA

The barriers to accessing clean energy solutions exacerbate social inequality, with real implications for the future of children across Australia. Without action the situation will get worse, because higher operating costs means less money for staff and less access to affordable childcare and education for all families.

Reducing operating costs can help increase supply and equity

Reducing operating costs helps existing ECEC centres provide more places and be more financially viable. It also increases the viability for ECEC centres in underserved areas. The Choiceless report from The Parenthood highlights the plight of parents in regional, rural and remote areas who are unable to access early childhood education and care for their children.²⁴

While electricity prices are not the only factor reducing supply, an average cost saving of \$13,000 a year is significant, particularly for smaller centres already struggling with financial viability.

The role of batteries

At current prices, batteries are not yet cost effective for ECEC centres whose primary incentive is to save money. This will change with the introduction of two-way electricity tariffs. These start in 2024 in NSW and later in other states, where consumers are charged a penalty for power exported to the grid in peak times, but are paid a bonus for power exported outside peak times.

The main benefits of batteries until then are for centres who want to further reduce emissions, or who want protection from power outages and surges.



Having solar and a battery would ensure stability and consistency of provision. As communities, particularly those located in high summer temperature areas such as Sydney's Penrith and Western suburbs areas, find themselves experiencing brown or black outages as demand increases in summer, they will experience service closures that will inconvenience many working families.

-DEB WATSON

Sustainability Manager, KU Childrens Services

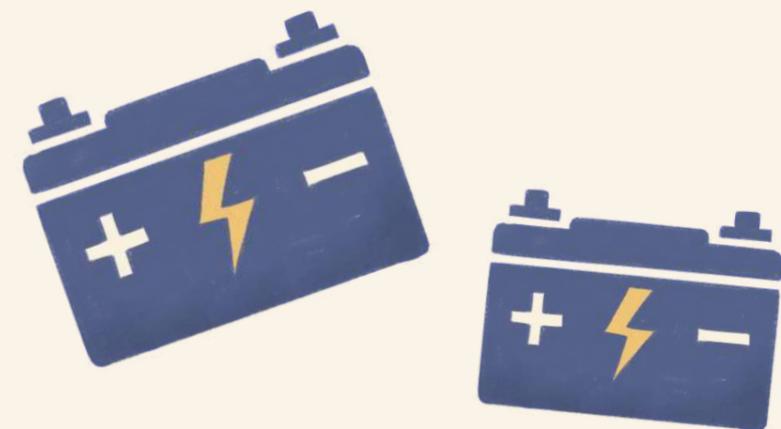
Using a battery system to provide backup power in the case of grid interruption requires reserving some of its capacity solely for the purpose, and centres would have to assess the importance of doing so against other factors. But given the sector is required to maintain safe operating temperatures, this option will likely become more important to centres who want to be able to continue to run air conditioning during heat events as average temperatures rise, heatwaves grow in frequency and intensity, and older thermal power generators fail more often.

A system configured to provide backup capacity can also protect centres from power disruptions from other causes.

Virtual Power Plants would enable ECEC centres to sell excess power to communities

Working with Virtual Power Plant (VPP) operators, ECEC centres can also operate as VPPs, allowing households and businesses in the area to purchase their excess solar power.

ECEC centres are closed during many peak electricity demand events, including weekends and hot evenings, when they can provide extra power to their communities. With tiered pricing incentives, the addition of batteries to rooftop solar systems would allow the sale of electricity into the evening peak power timeframes.



Energy efficiency measures cut bills with the fastest payback times



"All our new centres only have LED lighting, and replacing other lights with LEDs is about the quickest payback you can get for an energy efficiency measure, around 12 months."

-KARL CLEMENTS

Head of Property, Goodstart Early Learning

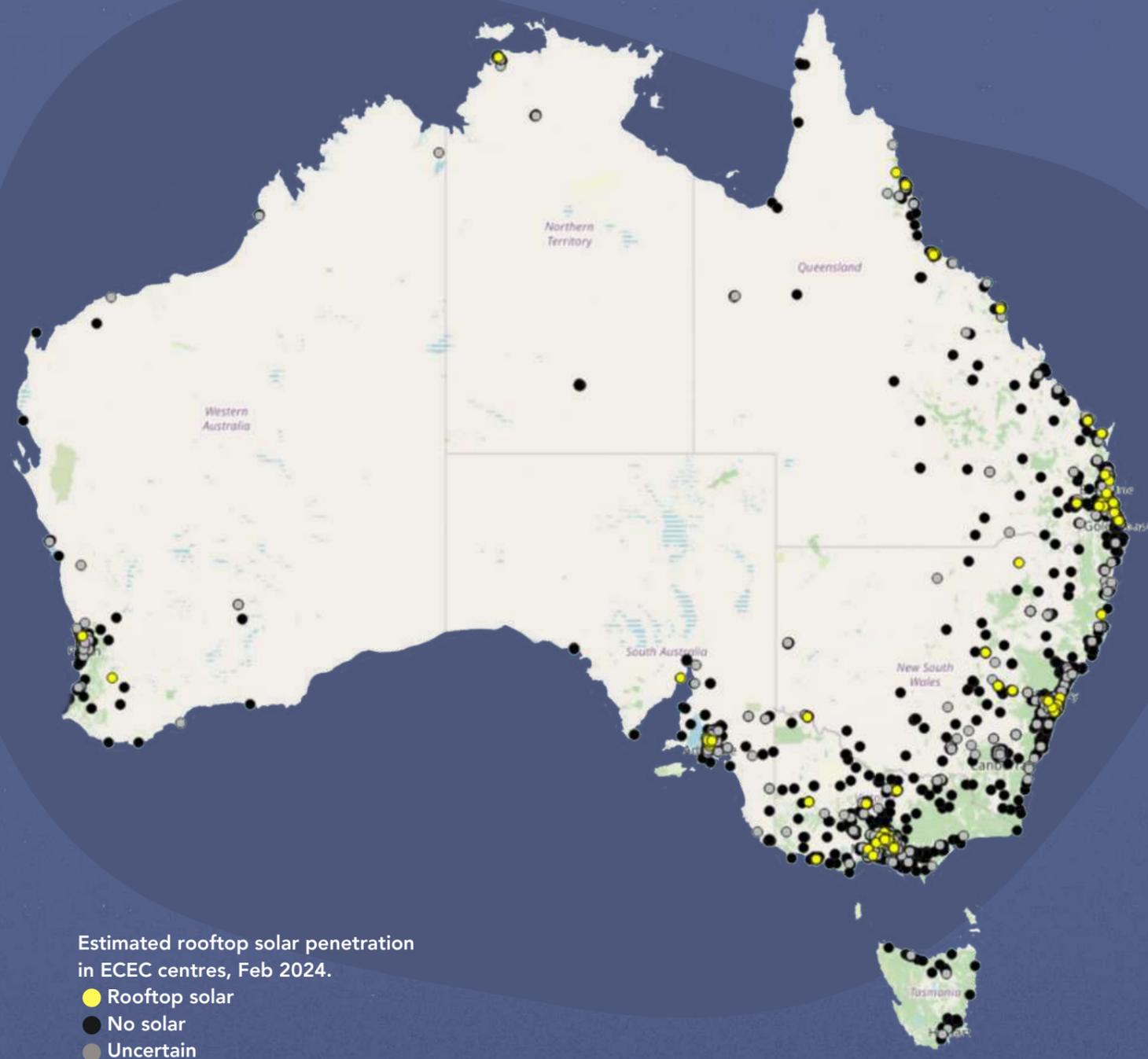
Australia needs to address building code standards to ensure comprehensive NatHERS (Nationwide House Energy Rating Scheme) and NABERS (National Australian Built Environment Rating System) standards are progressively upgraded to ensure the progressive retrofit of existing builds to incorporate insulation, awnings, double glazing and electrification of all appliances as a clear complement to the installation of rooftop solar and then behind the meter battery systems. Our proposed rooftop solar program is entirely complementary to the expanding Federal Government programs to drive Small and Medium Enterprises to improve energy efficiency, as per the announcement by Senator Jenny McAllister in February 2024.²⁵

²⁴ <https://www.theparenthood.org.au/choiceless>

²⁵ <https://minister.dcceew.gov.au/mcallister/media-releases/joint-media-release-further-41-million-small-and-medium-businesses-lower-energy-bills>

Other benefits of action

The largest renewables project in the country



Estimated rooftop solar penetration in ECEC centres, Feb 2024.

- Rooftop solar
- No solar
- Uncertain



The rooftop solar potential of the ECEC and school sectors should be a key part of the national effort to at least treble the existing 20GW of cumulative rooftop solar capacity to the 60GW target for the NEM by 2040 (and 85GW by 2050, ~100GW including West Australia and the NT) modelled in the Australian Energy Market Operator's Integrated System Plan.

This is an \$80 billion investment in our futures for Australia nationally by 2050, or as much as \$150 billion if we include the associated batteries, electrification of everything and EV chargers. DER should be rolled out systematically at speed and scale, with monthly or quarterly caps to any subsidy program to ensure longevity and consistency of the program. We need to avoid the solar coaster cycle of boom then bust, so supply chains and local capacities are systemically built. This ECEC analysis is just one small sector. Every golf course, school (public and private), retirement village, community sporting facilities (particularly pools) and even big box warehouse retailer with hectares of suburban car parks (by overcoming the split incentive of landlords and electricity consumers) could represent the ultimate distributed solar and EV charging setup. In rolling out 100GW of DER by 2050 nationally, we would avoid tens of billions of grid T&D capital investment, reducing energy poverty pressures across Australia.

A full rollout of solar on school and early learning centres would be the largest renewables project in Australia's history, providing grid orchestration and distribution-level grid stability opportunities, particularly as battery systems become more cost competitive.

The [NSW Solar Schools program](#) commenced in 2022 and highlighted there was a collective 8 million square metres of roofspace available on 21,700 buildings across 2,200 public schools. Replicating this nationally and into private schools and/or ECEC would expand this coverage potential 5-10 fold, illustrating the magnitude of the collective opportunity for Australia. But financial support for the up-front capital cost is needed to leverage the economies of scale and unlock the rapid payback benefits, particularly at a time of 10-20 per cent annual electricity price rises evident over FY2023 and FY2024.

As the February 2024 Climate Energy Finance case study of the Northern Beaches Indoor Sports Centre Ltd in Sydney illustrates, the multiphase installation of 60kW rooftop solar and electrification program since 2016 has delivered in excess of 15 per cent annual returns to this community run basketball centre as an illustration of the financial returns available for a similar but dramatically larger scale rollout across education facilities.²⁶

Larger than any existing project, it can also begin to be assembled immediately, and pilot testing has already been done for the last two years. Unlike the years-long processes involved in designing and approving a major utility scale wind or solar facility, this project makes use of existing supply chains and local expertise. The panels are available in solar installation businesses around the country, as are skilled installers. The total project would create thousands of regional and local jobs.

At a time when major renewables projects are facing community opposition due to concerns over land use and access, it makes sense to also invest in capacity that can be progressed immediately, benefiting every community with a school or early childhood centre.

This is also entirely consistent with the new Consumer Energy Strategy that was agreed to at the November 2023 Energy and Climate Ministerial Council session to encourage the uptake of electricity efficiency, distributed energy resources and flexible demand and storage in line with the net zero transition. It is noteworthy in this plan the focus on coordinating distributed energy resources to better match demand and supply and raise safety, quality, performance, reliability, affordability, consumer empowerment and consumer protection standards in the process.²⁷

Grid stability

At a time when major renewables projects can face community opposition due to concerns over land use and access, and be constrained by the need to wait for new grid transmission capacity to be built, it makes sense to also invest in larger scale distributed energy resources capacity that can be progressed immediately and leverage existing grid transmission and distribution infrastructure, benefiting every community with a school or early childhood centre. This would significantly increase the supply of low cost zero emissions generation capacity, particularly needed as Australia's end of life coal fired power plants are increasingly expensive and unreliable. Increased supply of electricity generation will lower the average wholesale price of electricity, and in leveraging the existing grid distribution infrastructure, avoid inflationary retail electricity price pressures by reducing the need for the **\$20bn Rewiring the Nation** grid transmission investment, benefiting the whole community.

Getting the sector future-ready

The acceleration of rooftop solar installations can enhance the retraining and expansion of the existing workforce, particularly in terms of electricians, giving greater job certainty which in turn would complement the rebuilding of our TAFE and apprenticeship schemes. The trebling of our national rooftop solar installation base to over 60GW by 2040 in turn provides the expanded resource to leverage the ongoing technology improvements in battery systems, and expected ongoing capital cost reductions. Recent US reports flag a further 18 per cent reduction in battery system costs in 2024,²⁸ building on the 14 per cent cost reductions BNEF estimates for 2023.²⁹

Likewise the Clean Energy Regulator has highlighted that in NSW in the first nine months of 2023, air source heat pump installations for air conditioning grew a staggering 700 per cent year-on-year to a record 60,000 units.³⁰

Australia needs a clear ambitious plan to ensure the right supply chain structures and associated workforce development plan are enabled here in advance of this multi-decade work program. Installing smart meters and rooftop solar progressively over the coming five years lays the foundations for the subsequent installation of air source heat pumps and battery storage, combined with EV charging, solar hot water systems and induction cooktops, so we can accelerate the electrification of everything, allow grid orchestration (the management of individual systems collectively to enhance and underpin grid reliability by allowing more flexible electricity demand to accommodate increasingly variable electricity system supply as reliance on low cost, zero emissions but intermittent wind and solar supply invariably increases) and phase out the growing cost of maintaining the system duplication of gas networks across our towns and cities. The energy transition is accelerating globally, as is the climate crisis, and we need to future proof our entire economy. The education sector is ripe to lead this transformation in Australia.

Creating jobs

In 2020, thinktank Beyond Zero Emissions (BZE) estimated investing in the rollout would create 6,870 jobs in the renewable energy industry. Additionally, based on the figures in the BZE report, Parents for Climate estimates savings from a full rollout of these measures across schools and early childhood centres who currently lack rooftop solar could equate to several thousand teachers and early childhood educator positions.³¹

Cutting pollution

BZE estimates a full rollout of rooftop solar in schools and early learning centres would cut approximately 1.35 million tonnes of greenhouse emissions per year and contribute to the Australian Government's goal of generating 82 per cent of our power from renewable energy.³²

Teaching opportunities

“Recent updates to the Early Years Learning Framework now include a sustainability principle that highlights the important and active role children and educators have in creating and promoting sustainable communities. The installation of solar panels is a wonderful opportunity to engage children, families, and team members in authentic learning experiences around engaging in ongoing actions that support the health of the planet.

When a centre is going to get solar installed, we send through materials for the staff explaining how to communicate it to the kids - panels are coming, here's how they generate energy and so on.

Centre staff have had a really positive experience with this, and say the kids are really interested and love learning about it! And we also prompt centres to engage parents and staff around solar too.”

**-FRASER STOWERS
Head of Procurement, G8 Education**

“

Our next phase is to create appropriate screens to help our children understand what is happening in our system at any time, and allow them to investigate what might be causing power consumption. In addition we will show how our system shares back our clean energy and how battery storage can be so helpful for other users of the electrical grid.

Those steps have received grant funding and we are hoping to have many educational opportunities for our children and our community alongside the financial and environmental benefits.”

**-BRODY KENRICK
The Point Preschool, Oyster Bay NSW**



27 <https://www.energy.gov.au/energy-and-climate-change-ministerial-council/meetings-and-communications>

28 <https://www.energy-storage.news/bess-prices-in-us-market-to-fall-a-further-18-in-2024-says-cea/>

29 <https://evmarketsreports.com/bnef-reports-14-drop-in-battery-prices-in-2023/>

30 [https://www.cleanenergyregulator.gov.au/Infohub/Markets/Pages/qcqr/september-quarter-2023/Small-scale-technology-certificates-\(STCs\).aspx](https://www.cleanenergyregulator.gov.au/Infohub/Markets/Pages/qcqr/september-quarter-2023/Small-scale-technology-certificates-(STCs).aspx)

31 <https://www.bze.org.au/research/report/million-jobs-plan>

32 <https://www.bze.org.au/research/report/million-jobs-plan>

33 <https://www.bze.org.au/research/report/million-jobs-plan>

Barriers to action

A high rate of private ownership

Unlike state schools, which a state government owns and for which it can easily approve and fund the installation of rooftop solar systems, centres in the childcare sector have a much higher rate of private ownership.

State governments can own and run pre-schools and kindergartens, and can therefore intervene to install rooftop solar on those properties. But most facilities in the sector are private for-profit enterprises, with a large minority of centres in private not-for-profit chains like Goodstart, Guardian and KU, and very many small independent services making up the remainder.

Obstacles presented by the sector's high rate of private ownership are primarily connected to their status as commercial renters, and the hesitation governments might have to spend public money on upgrades for private businesses. Both problems will need action if the sector is to install rooftop solar at any scale.

The landlord problem

Most ECECs are commercial renters. The childcare sector is strongly impacted by the willingness of landlords to have solar panels installed.



As part of G8 Education's Education, Social, Governance (ESG) roadmap we are working hard to reduce our energy consumption and have embarked on this initial solar program, which we are in the final stages of, to install rooftop solar on 60 of our centres. It aligns with our commitment to embed sustainable practices across our network to reduce our scope 1 and 2 emissions, and to mitigate the effects of power price volatility. **It's a no-brainer really - we use most of our power in daylight hours, and systems pay for themselves quickly.**

A challenge we've had to work through though is appetite from landlords. Like most long day care providers, our centres are commercial tenants, and with over 430 centres, we have a wide range of landlord types from institutional to mum and dad investors.

Large institutional landlords with many properties often have the same kind of ESG aspirations as us, so they're typically keen - sometimes they're even the ones suggesting it first. **Where it's been hard for us is with the smaller landlords - the mum and dad investors who might have one or two properties.** Whilst most will understand the benefits and are receptive, there are others who are concerned with the potential impact of the installation on the integrity of the roof, particularly where they are not otherwise responsible for the cost of electricity to the premises.

There needs to be better incentives for smaller landlords.

- FRASER STOWERS
Head of Procurement, G8 Education

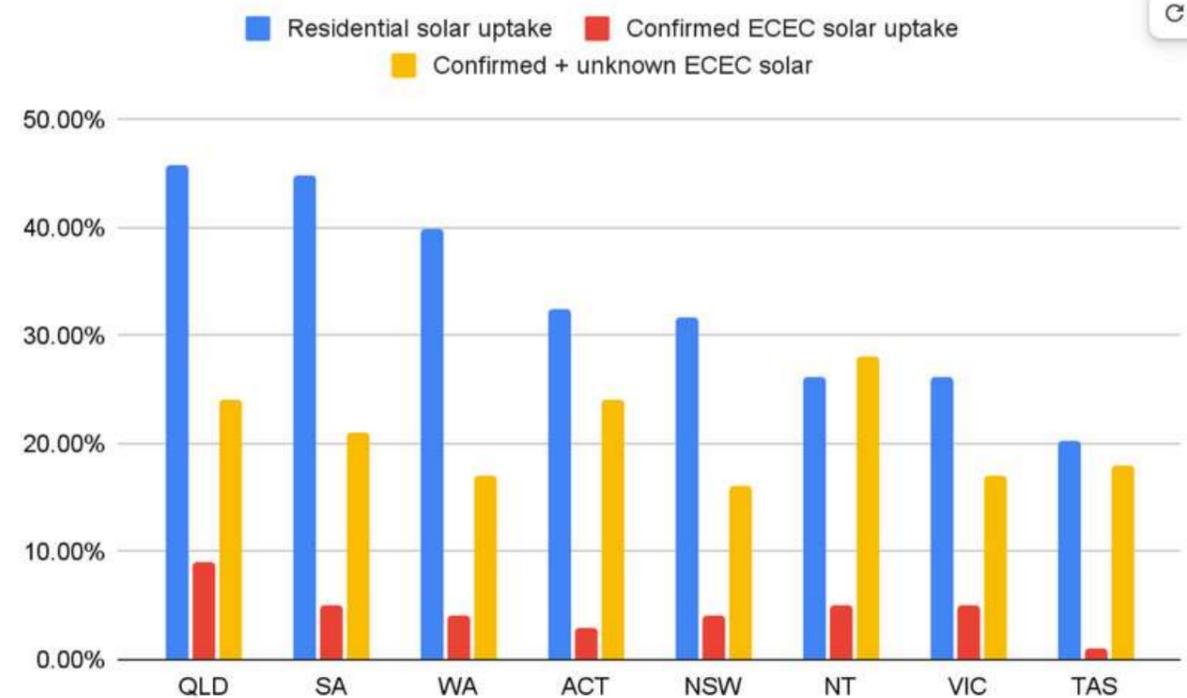


"There has not been enough work done communicating the influence of solar on property value, on telling that story to landlords. That's one reason the big institutional landlords like it - having a high NABERS ([National Australian Built Environment Rating System]³⁴) rating makes property more valuable."

- COHEN ROBINSON
Utilizer Energy Consultants

No comprehensive data exists for the rate of rooftop solar uptake in the ECEC sector. Using a combination of machine learning and manual classification to analyse satellite photos of every long day care and pre-school/kinder in the country, Parents for Climate found that in every state and territory, the uptake of rooftop solar in the ECEC is significantly lower than for residential households, presenting a massive opportunity for Australia.³⁵

Starting low: ECEC rooftop solar uptake is far below residential uptake



³⁴ <https://www.nabers.gov.au/about/what-nabers>

³⁵ Appendix 2 - Estimating rooftop solar coverage in the ECEC sector

Centre capacity in a staffing crisis

Already facing a workforce crisis,³⁶ most early childhood centres lack the capacity to get solar or energy efficiency measures installed owing to time and knowledge constraints, with even less capacity in schools and ECECs in low socio-economic areas. This is despite solar panels and most energy efficiency measures providing a quick return on investment and often being easy to finance.³⁷

Initial cost



Since Victoria introduced free kindergarten in 2022, meaning centres were no longer able to charge gap payments, we've struggled to cover the costs of running our service, and would struggle to pay for the cost and installation of solar panels and batteries at our community-run kindergarten. If the government provided funding, even subsidised, the opportunity to install solar panels and batteries would be greatly enhanced. This would also be a terrific learning opportunity for our children to understand how we can produce our own energy in an environmentally sustainable manner.

- SUE
Fordham Avenue Kindergarten, Camberwell, Vic

Despite the benefits of existing programs to fund solar on schools, there has not been government funding to date targeted to ECECs to get solar or energy efficiency retrofits. All centres we consulted who were not part of large chains, and who had also installed solar, had received a grant to do so, with the exception of Point Preschool (see case study). But there are not enough grants to install solar on the nation's 11,754 childcare centres.

New builds without solar are a missed opportunity

New ECECs are being approved and built without solar and batteries. While retrofitting solar and energy efficiency measures is cost-effective, it is more expensive and time-consuming than including them in initial builds.

This is truest for rooftop solar, because the regulated requirements for a certain amount of unencumbered outdoor space per child mean that it may not be viable to install panels during operating hours.

Large non-profit chain Goodstart, for example, reported that when they retrofitted solar on 110 existing centres, all of the work had to be done on weekends. This doubled the labour component of the system cost, raising the overall cost of systems by nearly 60 per cent. A system that would have cost \$12,000 in standard operating hours would cost around \$19,000 because it was installed on a weekend.





Successful precedents

Centres with solar

We've had rooftop solar for four or five years. We were partly motivated by sustainability, and staff had been advocating for it for a while in staff meetings - it was in line with our values and other things we'd been doing to lower our impact.

But the constant electricity price rises were a big factor, too. We're in the top of a high-rise building with limited airflow, so while we have an alfresco area on the top floor, on our main floor we need to keep the aircon on all the time for airflow.

We got a government grant to pay for the system - we really couldn't have afforded it otherwise.

There are other tenants in the building, but we're the only ones with solar, and I know the landlord was mortified when he got his last bill! He went through the building trying to work out if there was something unusual consuming more power, but the energy company confirmed the usage wasn't anything unusual - he was just seeing the price rises that are hitting everyone without solar.

We couldn't have done it without the grant, but otherwise the process was straightforward. We'd had a few providers reach out to us over the years, and the one we went with when we got the grant was very efficient and made the whole thing easy and achievable.

**ANN CHIRILLO,
OWL AND THE PUSSYCAT BROOKVALE**



The Point Preschool is a community pre-school in Oyster Bay on Dharawal land (Sutherland Shire), and I'm the president of the parents' committee.

We're a fortunate centre in a well-to-do suburb with engaged parents who don't have pressing funding concerns. We also have great staff with good staffing ratios and a beautiful location.

My family has over the last three years made our own household carbon negative, electrifying everything in it, adding lots of solar and a big battery, and eliminating fossil-fuels from our lives. We have what some might call a ridiculous amount of monitoring installed for a domestic home, but we live somewhere where people can afford solar and batteries and generally don't have financial barriers to installing it. We wanted to show people in our community how achievable it is and what the benefits are so that people who have the means can do their part.

After those few years of being carbon negative, we understood well how to achieve good energy outcomes. When our preschool had done the "standard" sustainability things, I was keen for our centre to investigate ways to reduce our carbon footprint by installing rooftop solar, and potentially also go carbon negative by installing a battery, too.

We explored a variety of options. If we'd only wanted to save some money and limit our initial outlay, we'd only have put the solar on. Batteries are still not as cost-beneficial if your main motivation is financial. The payback on PV is known and short. Batteries are more challenging to pay back so are more easily justified on environmental grounds (but there are ways to make a battery "work harder" and bring its payback down significantly).



If our state and federal governments were to get off their butts to help make them more affordable the environmental and energy system benefits would be immense.

We decided we wanted to go the extra steps and completely eliminate our net carbon emissions from electricity, and without a battery that is very difficult.

Our conversations in the parents committee then explored how much effort would be involved in the extra step to get to absolute zero or negative emissions, and would it be a sensible use of the centre's money. In the end, everyone was motivated to achieve substantially negative emissions, and we went for a fairly large solar system and battery.

We were also lucky to have some cash reserves from a few years of good management and the good luck to not need to spend those funds on major building costs, so we didn't need to apply for a grant for installation.

But for the average centre, it is understandably not as easy without access to expertise. For example, we save so much money and should achieve payback under seven years because we've done something quite unusual. We have exposed our preschool to the wholesale electricity price - both the highs and the lows. It makes so much sense for a preschool (or any school) - we pretty much only use power in daylight hours when it's cheap because of solar (both on our roof or in the grid), and we don't typically use energy when it is dirty and expensive in the evenings.

The first electricity bill we received after we installed the system was only \$75! We are presently \$240 in credit with our retailer after a few months. Prior to these changes we would be spending about \$1500 a year.

We also have eliminated our emissions and displace a good deal on top of those.

**BRODY KENRICK, POINT PRESCHOOL,
OYSTER BAY, NSW**



Government programs for rooftop solar for state schools

The Solar Our Schools campaign was developed by Parents for Climate as a stimulus proposal in response to the economic downturn caused by the COVID pandemic.

Over 12,000 parents mobilised, signing petitions, organising in their communities, speaking to the media and advocating with their members of parliament. Subsequently, state government programs were announced in NSW, Tasmania and WA.

- In 2020, the New South Wales Government announced the Smart Energy Schools Pilot Project³⁸ with an initial investment of \$20 million to fund solar and battery installations in 50 schools. The initial pilot was later expanded to 79 schools by 2023. Now in the project's final stage, the NSW Government is considering tenders for all 2,200 school rooftops - the largest solar tendering of sites and rooftop capacity in Australia's history.
- In 2021, the Western Australian Government established a \$44.6 million Schools Clean Energy Technology Fund (SCETF)³⁹ to fund the installation of new energy technologies in public schools over four years. This includes supporting 208 schools with solar panels, and the expansion of Synergy's Virtual Power Plant pilot program, to provide optimised batteries for 17 schools. Round 3 is now supporting 60 schools to enhance energy efficiency.
- In 2021, the Tasmanian Government created the \$5 million Renewable Energy Schools Fund⁴⁰ to fund solar panels at more than 100 schools over four years.

Similarly, other state and territory governments have recognised the potential for renewable energy, battery, and energy efficiency upgrades to schools.

- In 2016, the Northern Territory Government committed \$5 million to its Rooftop Solar in Schools program⁴¹ to see solar panels installed at 25 schools in every Territory region over three years.
- In 2022, the Queensland Government completed its Advancing Clean Energy Schools (ACES) program⁴². The program exceeded its original target of 180,000 solar panels and energy efficiency upgrades for 872 schools, instead delivering 200,000 panels and upgrading 912 schools. The initial combined investment of \$168.1 million is delivering approximately 61.4 megawatts of solar energy. A further \$71.1 million was announced in 2020 to expand solar installations under the Cooler Cleaner Schools Program to meet the energy needs of air conditioners in schools.
- In the Australian Capital Territory, solar panels have been installed on all public schools. In 2020, two public schools were chosen to be fitted with solar batteries.⁴³
- The South Australian Government began installing solar on 50 schools as early as 2003. It committed a further \$15 million to installing solar on 40 schools in 2017, with a further 200 schools receiving funds for lighting efficiency upgrades.
- The Victorian Government established the Greener Government School Buildings program, supporting 276 to install solar panels on schools. The government provides upfront funding to install solar power systems and the schools pay the cost of the system back over 5 years, with schools retaining 50 per cent of the savings from then on.

⁴⁴

³⁹ <https://www.education.wa.edu.au/our-organisation/schools-clean-energy-technology-fund>

⁴⁰ https://www.premier.tas.gov.au/site_resources_2015/additional_releases/more-tasmanian-schools-to-be-powered-by-solar

⁴¹ <https://newsroom.nt.gov.au/article?id=33461>

⁴² <https://statements.qld.gov.au/statements/95839>

⁴³ https://www.cmtedd.act.gov.au/open_government/inform/act_government_media_releases/yvette-berry-mla-media-releases/2020/public-school-solar-batteries-get-fast-tracked

⁴⁴ <https://www.schoolbuildings.vic.gov.au/greener-government-school-buildings-program>





Fixing the landlord problem

Like the majority of ECECs, Vinnies retail op shops are commercial renters. Gavin Dufty, from the Vinnies Social Policy Unit, spoke to us about how the organisation managed to install solar on many of its Victorian op shops, and what lessons the ECEC sector might be able to take from their experience.

How did you manage to install solar on your Victorian op shops, given they are commercial renters?

We have *lots* of op shops.

We wanted rooftop solar on them, and went to tender for a Power Purchase Agreement (PPA).

AGL won the tender, and we got 10-year lease-to-buy arrangements for solar systems for all suitable properties. The systems were all different sizes depending on the building size, all the way from 2kw-60kw.

Then we just looked at where we had the best properties.

Some we owned, that was easy.

Some we rented. We approached that in one of two ways.

First, by treating it as a commercial fit-out - that means restoring the property when we leave.

Or, second, by working with the residual value of the lease-to-buy arrangement when we finish the lease.

We can either "make good", by paying out the remaining contract, selling it to the next tenant, or taking it with us - we're constantly opening new op shops and can move systems from one to another.

Or we can get the landlord to take over the lease-to-buy.

Half the landlords said yes, if Vinnies can't move it on we'll take over the lease-to-buy. With the rest, we'd make good.

Any tips for the early childhood sector?

First, **solar for commercial renters is simpler than everyone treats it. It's just fitting out a building!**

It's like putting fridges or ovens in for a hospitality business - it's a chattel. Just in this case it produces energy rather than consuming it.

You put it in when you lease because you need it, and at the end of the lease you sell it or otherwise deal with it, and in the meantime you maximise its use. If you're putting ovens in, you run them as full as you can; if you're putting solar in you want to use the capacity as much as possible.

Once asset managers look at it like that, they're not so scared of stranded assets.

Second, in the long term, energy prices won't go down.

So from now, we'll sweat the assets as much as we can. Our op shops are open 9am to 5pm, and feed-in tariffs are going to be worth nothing, so we're going to put EV chargers in and have our fleets charge during the day.

You want to maximise it the way you'd maximise any other chattel, so you get a return on it quicker. The stranded asset problem is mitigated that way.

Third, **culture is a huge determinant.**

If you can get people's heads around the *idea*, you're fine. And our op shops are commercial, so they're much less risk averse than other parts of our organisation.

Ideally you can find a go-getter asset manager - people who manage the fit-outs and so on.

Any last words?

It's a potential point of difference. For example when you're going for state or federal contracts, now that all governments have targets to meet, *your* business has a reduced carbon footprint. And also parents who care about cutting emissions will prefer your centre over others.



Financing programs for clean energy upgrades

In the absence of dedicated funding for clean energy upgrades for the ECEC sector, centres with the capacity to navigate competitive grant application processes with no guarantee of success can apply for local or other grants.

Additionally, centres can explore aggregating their demand via Power Purchase Agreements, though this also requires the capacity and knowledge to do so.

One place where local governments can intervene is to join the [Environmental Upgrade Finance scheme](https://sustainableaustraliafund.com.au/where-its-available/), currently only available to businesses in 77 of Australia's 566 Local Government Areas. This scheme began in Victoria and has strongest coverage in local governments there, though it has spread to some local governments in New South Wales and South Australia.⁴⁵

Environmental Upgrade Finance (EUF) is an agreement where a building owner borrows money for environmental building upgrades from a financier and makes the repayments through the local council rates system. These repayments are known as an Environmental Upgrade Charge (EUC).⁴⁶

One advantage of this model is that the repayments attach to the property, rather than to an individual business, mitigating the problem of stranded assets. If a building is sold before the contract is complete, the new owner continues paying for it via their rates.

While this is not targeted funding for the ECEC sector, nor does it account for the sector's capacity issues, it is an intervention which could raise the uptake of clean energy upgrades for commercial properties more generally.



⁴⁵ <https://sustainableaustraliafund.com.au/where-its-available/>

⁴⁶ Sustainable Australia Fund

What can state and federal governments do?

A comprehensive rollout of solar in the early learning sector, driving savings of \$100 million p.a., would underpin a \$1 billion investment, with all the associated benefits of starting to address the climate crisis at speed and scale.

But Federal and State governments need to work together to get the economies of scale and central focus on this as a key priority, rather than leaving it to the education department or individual private centre operators, particularly when they rent the premises, creating all sorts of split incentives.

“

The Federal Government can also overcome individual capital constraints by providing a central financing facility managed by the Clean Energy Finance Corporation (CEFC), and tie the interest and capital returns to the utility bill savings that are generated, minimising the cost of capital incurred.

**-TIM BUCKLEY
Energy Analyst, Climate Energy Finance**

- Fund nationwide pilots to learn lessons in the 2024-25 financial year that can inform a broader national roll-out from 2025 for solar, batteries and energy efficiency upgrades to ECEC centres, prioritising those in lower socio-economic areas
- Support solar, batteries and energy efficiency retrofits for every school and ECEC centre in Australia with means-tested grants
- Require inclusion of solar and batteries in new builds of ECEC centres and schools
 - The Child Care Planning Guideline⁴⁷ requires compliance with the Education and Care Services National Regulations 2011 ('National Regulations')⁴⁸ under the Education and Care Services National Law.⁴⁹ Inclusion of a solar requirement in the National Regulations would not only require consent authorities to consider the incorporation of rooftop solar PV systems, but also empower them to impose enforceable conditions of consent.
 - This could also be achieved through updates to the National Construction Code (next edition due in 2025) and/or NABERS
 - Where public funds are sought for new builds, such as in the Commonwealth Limited Supply grant, or the Victorian State Government's Building Block's grant, make inclusion of rooftop solar a requirement for grant approval
- Support schools and ECEC centres to work with Virtual Power Plant operators to sell their excess capacity
- Educate landlords on the advantages of rooftop solar to commercial property value

⁴⁷ Child Care Planning Guideline 23.

⁴⁸ Education and Care Services National Regulations 2011 (NSW) reg 25 ('National Regulations').

⁴⁹ Education and Care Services National Law 2010 (NSW) s 43.

What can local governments do?

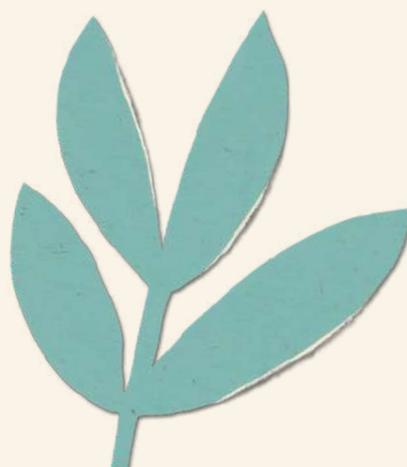
- Pass a resolution approving participation in the Environmental Upgrade Finance for business
- Where state planning laws allow, make planning approval require a pro rata installation of rooftop solar in all social infrastructure: schools, ECEC centres, shopping centres, police stations and so on
- Add rooftop solar to council-owned ECEC buildings

What can the ECEC sector do?

- [Endorse the campaign's organisational open letter](#), and share it with your networks
- Share your experience of the benefits of solar, or the obstacles you face in installing it, in [our survey for ECEC services and multi-service providers](#)
- Register your interest in our forthcoming guide to navigating rooftop solar decisions for ECEC centres
- Explore ways to aggregate demand into Power Purchase Agreements
- Advocate to governments to support the sector to install solar, batteries and energy efficiency upgrades

What can parents and allies do?

- [Sign the individual open letter and share with your networks](#)
- Share this report with your state and federal members of parliament
- Share this report with the ECEC centres your child or children attend



The costs of inaction

The case for action is compelling, but a compelling case alone will not guarantee action. What will happen if governments fail to act?

- Without significant change in the ECEC sector, rooftop solar uptake will remain low. As at present, uptake will be higher in larger multi-service providers who have the staff capacity and project management expertise to manage the process; and in ECEC centres where staff or parents happen to be skilled at either navigating the solar market or applying for grants, or both. As at present, the majority of centres will lack the time and staff capacity to organise solar, even though it would save them money to do so.
- Rising temperatures, combined with the requirement to maintain safe temperatures for children, will increase ECEC centre cooling and energy demands.
- While energy prices will vary, over the long term the impact of rising energy costs on education budgets will only increase, acting as a continued handbrake on employing more teachers and

educators, and on improving access to early childhood education in existing "childcare deserts". All other factors being equal, an increasing share of ECEC budgets will go towards energy.

- Failing to take advantage of social infrastructure sites - schools, childcares, police stations, shopping centres etc⁵⁰ for distributed generation forces more reliance on large-scale generation sites, which take much longer to approve and build than school- or ECEC-scale projects. Unless other easy-to-begin distributed energy projects of equivalent scale can be found and resourced, progress towards renewable energy targets will be slower than otherwise.
- New ECEC centres will continue to be built without rooftop solar, and installing panels later will cost whoever owns them more.
- And ECEC centres will remain vulnerable to power disruptions. This is most problematic when grid supply is disrupted by heat events or fires, when ideally these facilities would act as a safe place of refuge for children.

⁵⁰ <https://auo.org.au/portal/metadata/social-infrastructure-mix-index> lists the following as types of social infrastructure: Museum/Art gallery, Cinema/Theatre, Libraries, Childcare, Out of school hours care, Government primary schools, Government secondary schools, Residential aged care facilities, Dentists, General practitioners (GP), Maternal, child and family health centers, Other community health care centers, Pharmacies, Public swimming pools, Sports facilities

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 Helena Read
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Appendix 1 - Estimating electricity use in the ECEC sector

"Taking a random sample of 500 centres across our childcare portfolio, we found an average annual consumption of 34,841 kWh/annum.

Using each state's default or standing offer (i.e. "the Maximum Price"), then taking a "Competitive Price" being 15 per cent below the Maximum Price and the most recent figure for the number of centre-based day care services in the September 2023 [report](#)⁵¹ (9,127 centres), we found:

- The Childcare Sector spends between \$113-133m on electricity per year, with \$133m being the "Maximum Price" under the local default or standing tariffs and \$113m being a "Competitive Price" at a 15 per cent discount.

- Each centre, on average, will spend between \$12.4-14.6k on electricity per annum.
- Centres individually can consume materially more or less than the average (as little as 4,000kWh/annum and as much as 110,000kWh/annum).
- These figures only include electricity and exclude LPG, gas and other fuels."

- Utilizer Energy Management Consultants

⁵¹ <https://www.education.gov.au/early-childhood/early-childhood-data-and-reports/quarterly-reports-usage-services-fees-and-subsidies/child-care-subsidy-data-report-september-quarter-2023>

Appendix 2 - Estimating rooftop solar coverage in the ECEC sector

No comprehensive data exist for rooftop solar uptake in the ECEC sector.

Machine learning was used to classify satellite photos of every registered Long Day Care and Pre-school/Kinder in the country. Family Day Care centres were excluded because of the overlap with residential households, and OOSHC centres excluded because of the overlap with schools.

The machine learning algorithm was more successful at detecting sites with no solar, due to the difficulty of eliminating rooftop solar on neighbouring properties in the same image. False negatives were also detected approximately 10 per cent of the time. Manual checking was performed on many of the uncertain sites, but the size of the task means these data remain broad estimates.

State	Residential solar uptake	Confirmed ECEC solar uptake	Confirmed + unknown ECEC solar
QLD	46%	9%	24%
SA	45%	5%	21%
WA	40%	4%	17%
ACT	33%	R	24%
NSW	32%	4%	16%
NT	26%	5%	28%
VIC	26%	5%	17%
TAS	20%	1%	18%

ECEC centres without rooftop solar by socio-economic status

