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10 July 2026

COP 29 and 30 Presidents, COP 31 President-Designate

By email: presidencies@unfccc.int

Call for Submissions - Belem Mission to 1.5

Thank you for the opportunity to provide input into the above report.

Solar Citizens is an independent charity based in Australia working to bring down energy bills and reduce carbon emissions by growing uptake of renewable energy and clean transport. Established in 2013, we have grown to have more than 200,000 supporters, and we represent the 10 million Australians (one-third of the population) living in homes powered by rooftop solar, the 500,000+ who have adopted clean transport, and the many more who remain locked out of consumer energy resources¹ (CER). Australia had the highest rooftop solar per capita in the world, and the only federal home battery rebate.

Solar Citizens attended COP30 in Belém, Brazil, to champion scaling the implementation of rooftop solar and storage internationally, as a key plank to address climate mitigation, energy security and human rights through energy affordability and reliability. Australia has had extraordinary success in generating energy from rooftop solar and battery storage, contributing 14.2% of the nation's energy mix in the second half of 2025 and more than 60% of new renewable generation. Australia now has the highest per capita installation rate of rooftop solar in the world. Solar Citizens is advocating to the Australian Government to commit to doubling rooftop solar with storage by 2035, particularly utilising commercial, industrial and public rooftop spaces, and providing policy mechanisms to enable solar for locked out cohorts like renters and apartment-dwellers.

At COP30, Solar Citizens formed a partnership with the Global Solar Council and the Global

¹CER refers to Consumer-owned Energy Resources. CER are energy resources that are invested in and owned by customers and typically connected to the distribution network behind-the-meter. Originally, rooftop solar PV fell under the category of Distributed Energy Resources (DER), encompassing any energy source linked to the distribution network, including those in front of the meter (e.g., community batteries). However, the Australian industry's shift from DER to CER in the early 2020s signified a greater consideration of the consumer.



Covenant of Mayors for Climate & Energy to support the rollout of 300 Million Solar Homes by 2030, an increase of 150 million solar rooftops on current projections.. This campaign will mobilise communities around the world to deliver a democratic, citizen-driven energy transition away from fossil fuels. It is consistent with the COP31 action agenda for electrification.

We welcome the Belem Mission 1.5 call for submissions and we address the following points from the call:

- 1. What action areas and solutions have the highest impact potential to support the submission, ambition and implementation of NDCs and NAPs. This could include consideration of: a. priority solutions and innovations across policies, technologies, practices and investments, b. finance, technology, capacity building, and institutional opportunities, and c. the most significant barriers.*
- 2. What is required to further strengthen international cooperation to enhance ambition and enable the effective implementation of NDCs and NAPs?*

This submission presents the potential of rooftop solar and household storage as levers that can be used to accelerate the transition away from fossil fuels and deliver both climate mitigation and the COP31 goal for clean electrification.

Further, the submission argues CER is the form of energy generation that has the most potential to simultaneously address the just energy transition principles of the Belem Mission statement. CER including rooftop solar is a cheaper energy path, able to scale quickly, providing energy affordability and energy access quickly, with social license. CER can also enable speedier improvements to human rights including the impact of solar energy and electrification on subsistence agriculture, health including healthy cooking fuels, and education including access to lighting and internet services.

We make the following **proposal to Belem Mission to 1.5** to include CER as a critical solution in its recommendations:

- 1. Endorse and promote** to governments, a **Global Rooftop and Household Solar Pledge** (see Appendix 2) as a mechanism to elevate CER diplomacy, educate nation states and build commitments to adopt rooftop solar PV as a flexible, adaptable, cheaper solution to meeting both UN climate and SDGs commitments.
- 2. Recommend** a new global initiative to **drive national level taskforces to bring together government, solar industry, city level leaders, consumer advocates to incentivise the uptake of CER.** Ensure communities excluded from electricity affordability or access, are included to address just energy transition principles.
- 3. Recommend climate finance requirements** to incentivise CER adoption for low income countries, particularly in Africa and Oceania (excluding Australia and New Zealand/Aotearoa) which CER is suitable in many contexts.



4. **Connect to global initiatives as collaborators** including the **300 million solar homes and Electrify Now** initiatives.

We welcome the opportunity to further discuss any aspect of our submission.

Heidi Lee Douglas

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Call for Submissions - Belem Mission to 1.5

1. Introduction

Rooftop solar is one of the most successful and socially beneficial technological energy and climate mitigation solutions available globally. However, **rooftop solar and household battery storage remains under-recognised in global climate diplomacy**. Rooftop solar should be elevated as a central climate mitigation solution and an affordable and accessible energy solution that can support just transition principles including human rights for food, water and health, and that has minimal impact on nature and on other land uses such as agriculture.

Consumer energy resources (CER) can help deliver just transition goals of international climate negotiations by increasing clean energy **accessibility, affordability and reliability**, as well as **increasing the speed of clean energy implementation**. Rooftop solar can lower household energy costs, increase energy security by shielding consumers from price shocks and blackouts, strengthen national security by relying less on fossil fuel imports, and deliver local economic benefits to households and communities. Rooftop solar backed by storage offers immediate emissions reductions, greater energy autonomy, and avoids social license issues associated with large-scale energy generation.

Rooftop solar is a gateway to further electrification by households and businesses. Appendix 1 of our submission demonstrates 21 case studies to this effect. Once households and businesses see the cost-saving benefits of rooftop solar, they are motivated to find other ways to electrify their homes and make further savings, for example through battery storage, electric vehicles and heat pumps.

Ensuring the transition is orderly requires active government leadership to plan, enable and support this shift—empowering households to participate directly in the energy transition. The Australian experience shows that government leadership in supporting rooftop solar and battery storage enabled a major upswing in the installation of rooftop solar and storage batteries².

In 2024, 40 per cent of Australia's total electricity generation was from renewable energy and rooftop solar was the largest category of new renewable energy generation capacity added. National electricity emissions in the year to September 2025 declined by 3 per cent, and the emissions intensity of electricity fell to its lowest ever level, all while electricity demand reached record high levels. Reduced electricity sector emissions was "driven by the

²<https://cleanenergycouncil.org.au/news-resources/record-home-battery-surge-charges-up-australia-s-biggest-power-station-on-aussie-rooftops>



emergence and rapid expansion of renewable energy, particularly rooftop solar”.³ By January 2026, over 50% of the country’s electricity generation was from renewable energy.⁴

Calls for an urgent transition from fossil fuel use are escalating. On 17 April 2026, the group of Pacific Island nations called for the sub region of Pacific Island countries to be supported to transition to a 100% Renewable Energy Pacific in its Tassikiri Call⁵. Further, on 26 April 2026, civil society has called for governments to “prioritize the expansion of community and publicly owned, democratically managed, decentralized, and distributed renewable energy systems that give primacy to people and the environment” in the declaration made at the first international meeting to transition from fossil fuels in Santa Marta, Colombia.⁶

2. Evidence of CER as high impact technology for NDCs and NAPs

In 2025, the International Renewable Energy Agency (IRENA)⁷ confirmed that renewable energy is the most cost competitive, maintaining its price advantage over fossil fuels due to technological innovation, competitive supply chains, and economies of scale. In 2024, solar photovoltaics (PV) were, on average, 41% cheaper than the lowest-cost fossil fuel alternatives, while onshore wind projects were 53% cheaper. There is evidence that large-scale renewable projects such as on-shore wind can face community opposition^{8 9} and in this case, rooftop solar PV has a clear advantage, managing social license and providing the consumer an opportunity to be in roles of both consumer and producer of energy, thereby reducing opposition.

The Global Solar Council estimates that with an additional 150 million solar rooftops (homes and small businesses) globally, over **500 GW of new distributed clean energy capacity** can be generated (equivalent to roughly 500 large coal plants replaced with solar + storage on homes and small businesses) and around **700 million tonnes of CO₂ emissions avoided annually** by 2030.

³<https://www.dcceew.gov.au/sites/default/files/documents/quarterly-update-australias-national-greenhouse-gas-inventory-september-2025.pdf>

⁴<https://www.abc.net.au/news/2026-01-29/australia-hits-power-demand-record-as-renewables-pass-50pc/106280246>

⁵ <https://www.fossilfueeltreaty.org/tassiriki-call>

⁶ <https://fossilfreerising.org/declaration>

⁷<https://www.irena.org/News/pressreleases/2025/Jul/91-Percent-of-New-Renewable-Projects-Now-Cheaper-Than-Fossil-Fuels-Alternatives>

⁸ <https://www.sciencedirect.com/science/article/pii/S2214629625000763>

⁹<https://theconversation.com/do-we-want-a-wind-farm-outside-our-window-what-australians-think-about-the-net-zero-transition-214712>



Clear climate mitigation impacts of rooftop solar can be demonstrated in, for example, Australia¹⁰, Pakistan¹¹ and India¹².

CER has delivered significant emissions reductions for Australia's electricity sector, displacing fossil fuel generation from the system. Transitioning away from fossil fuels will require the substantial replacement of energy supply to billions of people around the world, and CER has a critical role to play. The Belem Mission should elevate the solution of rooftop solar which is currently undervalued by governments.

In a June 2026 report from Renewables First and Ember¹³ shows how in just two years, the rooftop solar transition in Pakistan, was consumer-driven from both households and business. The report demonstrates this also drove a broader electrification agenda, demonstrating that rooftop solar is a gateway to electrification. The key elements of the report has significant implications for the Belem agenda, and provide clear evidence for why CER (in the report referred to as distributed energy) should be a top action area for implementation of NDCs and NAPs:

1. Total electricity demand in Pakistan rose by 21% in two years, and was met entirely by CER;
2. CER has accelerated electrification - non-electricity energy demand increased by only 2%.
3. Four sectors were studied and all experienced solar displacing gas, diesel and coal - in agriculture, industry, commercial and residential sectors.
4. 27 GW of CER was introduced over two years equivalent to GW of all the fossil fuel plants ever built in Pakistan and was cheaper at PKR 20 per kWh, half the PKR 40 cost of grid electricity. Pakistan's rooftop solar eliminated daytime loadshedding, avoided more than \$12 billion USD in oil and gas imports by February 2026, reduced CO2 and air pollution and saved transmission and distribution losses.

3. CER allows for electricity affordability and reliability which supports just transition

At a time when the world is in 'the largest supply disruption in the history of oil markets',¹⁴ access to reliable, affordable clean electricity in low income countries is a key tenet of a just energy transition, as it enables access to education, employment, health services, food and nutrition. The 2026 fuel crisis in the Strait of Hormuz curtailed access to fuel in countries

¹⁰<https://cleanenergycouncil.org.au/news-resources/record-home-battery-surge-charges-up-australia-s-biggest-power-station-on-aussie-rooftops>

¹¹ <https://energytracker.asia/solar-power-shields-pakistan-from-the-hormuz-energy-crisis/>

¹² https://ejsss.net.in/article_html.php?did=16103&issueno=0

¹³ <https://uploads.renewablesfirst.org/The%20solarisation%20of%20Pakistan%E2%80%99s%20energy%20economy.pdf>

¹⁴ <https://www.iea.org/reports/sheltering-from-oil-shocks>



which are still highly dependent on fossil fuels, and with subsequent energy price volatility negatively impacting economic growth as well as the daily needs of people and social development such as access to work or education¹⁵. For example, schools in Lao PDR and Sri Lanka were closed or operated on reduced days¹⁶ during the height of the crisis.

Grid unreliability has hampered low income countries in meeting basic conditions of social, cultural and economic development. Pakistan's recent surge in uptake of CER, particularly rooftop solar PV, has demonstrated community desire for reliability in energy and has been a key factor in the race to install household solar PV, allowing its population to circumvent this unreliability while also meeting energy needs at an affordable price.¹⁷

4. CER enables universal electricity access

Lack of access to electricity perpetuates or exacerbates poverty. The 2025 report of the Sustainable Development Goals¹⁸ states that in 2023, 666 million people globally still lived without electricity. Despite the solutions being available to enable energy access, inadequate attention is being given to the solutions afforded through CER especially household and rooftop solar PV.

The UN (via the Sustainable Development Goals reporting) has identified the African and Oceania regions (excluding Australia and New Zealand) as having the least progress towards reaching universal electricity coverage. CER is likely the only form of energy that can reach many marginalised communities, often in remote islands, highland areas, or in countries without the finances to extend grid coverage.

5. CER supports democratisation models for energy

CER democratises energy by giving people agency in their engagement with electricity networks - people can increase their self reliance, shifting from being only energy consumers to also becoming energy producers. This not only increases autonomy, but can also strengthen communities where solar electricity generation and storage can be shared across households. Micro-grids, community-owned power generation and urban renewable energy zones are all models that enable this energy democratisation and power sharing.

¹⁵<https://news.un.org/en/story/2026/04/1167243>

¹⁶<https://www.iea.org/data-and-statistics/data-tools/2026-energy-crisis-policy-response-tracker?tab=Energy+conservation>

¹⁷<https://www.theguardian.com/environment/2026/mar/17/pakistan-people-led-solar-boom-middle-east-energy-crisis>

¹⁸ <https://unstats.un.org/sdgs/report/2025/The-Sustainable-Development-Goals-Report-2025.pdf>



The global transition to renewable energy has come with negative human rights impacts. The goal of delivering large-scale renewable projects, in Australia in some cases, is coming at the expense of community engagement and land-use autonomy, creating significant conflict between communities, governments and large-scale renewable energy projects.^{19 20} These challenges need to be addressed in order to meet both climate and community goals.

CER, particularly rooftop solar, enables the use of existing roofs, both household and commercial, and thus providing less competition to available land space, less infringement on indigenous rights to land and ownership of land. Further, the energy benefits of solar can be accessed by the owner or renter of the roof space, enhancing access to energy that may not otherwise be available.

However, CER development has documented harmful human rights impacts. For example, the majority of solar PV manufacture and assembly is in China, where forced labour has been documented amongst Uyghur and other Muslim minorities assembling solar panels²¹. Modern slavery laws and action by governments, NGOs and industry bodies have worked to document, challenge and avoid supply chains which are exploitative.^{22 23} Ongoing monitoring and improvement of supply chains must be prioritised with the continued rollout of renewable energy.

6. Conclusion

Forums of governments and civil society are escalating the call for an urgent transition away from fossil fuels and the widespread use of renewable energy, particularly distributed energies such as rooftop solar which can be deployed quickly and with cost-effectiveness on homes, commercial, industrial and public buildings and have less negative community impacts than many alternative modes.

Evidence from countries where there has been rapid scaling of CER (for example, Australia and Pakistan) demonstrates the potential for rooftop solar to 'leapfrog' challenges of energy affordability, reliability and emissions reduction. With the climate crisis at an urgent point of new escalation²⁴, the Belem Mission to 1.5 report should advocate CER as a primary energy model for an urgent and just energy transition.

¹⁹ <https://www.openforum.com.au/the-renewables-backlash/>

²⁰ <https://www.sciencedirect.com/science/article/pii/S2214629626000174>

²¹ <https://www.nytimes.com/2021/01/08/business/economy/china-solar-companies-forced-labor-xinjiang.html>

²² <https://cdn.walkfree.org/content/uploads/2023/09/20162158/WF-Beyond-Compliance-Renewable-Energy-Sector.pdf>

²³ <https://assets.cleanenergycouncil.org.au/documents/resources/reports/Addressing-Modern-Slavery-in-the-Clean-Energy-Sector.pdf>

²⁴ <https://www.theguardian.com/environment/2026/apr/15/critical-atlantic-current-significantly-more-likely-to-collapse-than-thought>



APPENDIX 1

Rooftop Solar as the 'gateway' to electrification

Stories from Solar Citizen supporters, data collected in June 2026

We have collected stories from our supporters to demonstrate the power of rooftop solar in spurring the electrification journey. This data was collected from a survey inviting Australians to provide their story on this journey. Here we provide 20 stories from people on the eastern seaboard of Australia as well as one story of a commercial business owner who has moved from installing rooftop solar to extending electrification.

Chiara, Sydney, NSW:

We did the panels first as they were cost effective and straight forward. Then we replaced the house gas heater and installed air conditioning. We also did roof insulation. We have since also done an electric car and a household battery. The battery has had the most impact in terms of building a deep awareness about use and time of use charging. It's made us more aware of the cost of electricity as we have variable pricing and an app to see use and inputs in real time. We might install more panels once we have a longer period to see how we use power. We will hopefully replace the gas hot water when that system needs to be replaced and finally the cook top. Getting off gas is a huge motivation for us for sustainability reasons. The ability to generate power at home and understand how it's used in the home better has been a real education.

Ellie, Sydney, NSW:

Solar panels were the turning point for us. We were lucky that we moved into a house that already has induction stove tops, and we don't have any gas connection. It was driven by the huge electricity bill initially (we have a big 5 bedroom multilevel house, plus a spa which we took out eventually). Solar panels saved some money initially but the winter bills quickly eroded any gains made in summer with a declining feed in tariffs and an extremely complicated retail distribution pricing for smart home meters. So we decided to be as independent as possible from the system. We got an electric vehicle 2 years ago, and installed our large battery and a heat pump hot water system this year. Being on the Efficient Electric Homes Facebook group has helped us with our electrifying journey.

Gay, 2229, NSW:

With major renovations we started with adding a Solar Hot Water (2011), with 2 connector panels on the roof and induction cooking . Then later added a 7.92kw system with Inverter and 24 solar panels (2020). We had the solar hot water connected to our solar system via a switch device to be able to access more solar for hot water. Next was an electric mower, then an electric vehicle (2023). As soon as the Battery rebates commenced we added another 22 solar panels (now total of 10.45kw), a new inverter and a 19.2kw battery (July 2025). We have never looked back and have peace of mind knowing we are doing the best we can using



clean energy to protect our planet AND we are saving heaps of money and not supporting fossil fuels including petrol!

Ian, Hunter region, NSW:

When I moved house 5 years ago I immediately installed a 10kW solar system, using microinverters and that system has performed well. I recently added a 50kWh battery, heavily encouraged by the Federal battery subsidy scheme, and I have just switched my energy retailer. I am interested and tech-savvy enough to manage the timing of various loads, as well as battery charge/discharge and hope to maintain power bills at around \$1000 to \$1500 a year, for a large (4 beds etc) detached home with ducted air (10 zones), swimming pool requiring 4 to 10kWh of pumping/filtration per day and currently two plug in hybrid vehicles consuming virtually no petrol except on long trips (one of which will be replaced by an electric vehicle in time). I also have the whole home except the 3 big power circuits (aircon, HWS and cooking) on no-break backup power, which was one of the drivers for the battery (especially its size).

Maria, Hunter region, NSW:

In 2022, we were building a living unit for our daughter and granddaughter on the same block as ours, and (installing) solar roof panels to share between two households made sense, seeing the sky-high electricity bill. We also disconnected our gas connection, changed to an electric stove (unfortunately not induction), and a pump system for hot water. A year later, we bought a battery, which had come down in price and had the federal government subsidy. In 2023 we were also able to buy an electric car. Our electricity fell to a fraction of the pre-solar bills, and there is a feel-good overall sensation that we are part of Australians' transition to renewables and reducing our family emissions.

Michael, ACT region:

We installed 10 solar panels 16 years ago to save on the cost of electricity. 2 years later we added another 22 panels, which meant that the rebate from the electricity supplier covered the cost of our electricity AND our gas bill (hot water and heating). In 2021 we bought an electric car and most of the time we charge it from an ordinary power point in the car port. In 2023 we installed reverse cycle air-conditioning and stopped using the gas heater. In February this year (2026) we installed a heat pump hot water system and had the gas supply disconnected. We are now an 'all electric' home and are waiting to replace our second car (diesel) with a second electric vehicle.

Piers, Central West, NSW:

In 2014 we retired from our farm, where we had 6kW of solar panels on the homestead roof, and moved into a town house. Here we changed our gas cooktop for an induction cooktop and at the same time we upgraded the ducted reverse cycle heating/cooling system so that we could stop using the gas fireplaces. ***In 2017 we installed 5kW of solar panels and a 5kWh battery*** and soon realised that the battery was not big enough but were unable to obtain a compatible battery to add to our system. In 2023 we installed another 5kW of solar



panels and a 15kWh battery from a different manufacturer. At the same time we installed an electric hot water system in place of the old gas one. We hope to buy an electric vehicle.

Walter, Melbourne, Victoria:

Our first 8 panels were installed in 2010. We had a feed in tariff of \$0.60 then and hardly paid for electricity. In fact we always had a surplus credit in our account. About 2 years ago I upgraded the system to 24 panels. We have panels facing East, North and West. This was followed by installing a heat pump. Still later I installed a home battery and installed 4 reverse cycle heating/cooling units and electric cooking. I had to settle for a normal electric cook top rather than an induction cook top, as my wife wears a pace maker. All this was done prior to the provision of government incentives. Around two years ago we purchased a hybrid vehicle. Since then the electric vehicle prices have reduced by around \$10,000. No regrets though. Our fuel bill is almost zero because as retirees our travel is limited to mainly local. Occasionally we run on petrol to keep the petrol motor running. Currently we pay no gas bills and our electricity bill has been zero, but in the last few months we have been paying around \$10.00 or less due to winter. Unfortunately our West facing panels are blocked due to a tall tree, otherwise it may have been unnecessary to pay at all. I have been motivated to act on climate change for nearly 15 years as I realised the dire future our grand kids were facing. Further, I have encouraged several friends and family to install solar to avail themselves of the benefits we enjoy.

Frank, Mid North Coast, NSW:

I upgraded a 1.5kW solar array to 6kW with a 10kWh battery 6 years ago. Then immediately replaced the gas cooktop with induction and instant gas hot water with heat pump. About the same time invested in a long range electric vehicle which is charged whenever the solar generation is exporting. Then added a heat pump to heat (sometimes cool) the house. The location has unreliable power, so this also gives us independence from the grid when it goes down. Have done 180,000km in the electric vehicle since then with very low power and maintenance costs.

Brett, Brisbane, Queensland:

We expanded our 6 kW solar system adding batteries and another 8 kW of panels. This gave us the ability to charge the electric vehicle and we are confident that we can replace the gas storage hot water system with an electric system. And all this with no power bills. Plus helping others have cheaper power due to the reduced evening peak load.

Sandra, Brisbane, Queensland:

After the solar panels in 2020, a heat pump replaced gas hot water, then in 2023, an induction cooktop replaced gas and in 2024 an electric vehicle and home charger in 2025. We installed a home battery in 2026.

Michelle, Gold Coast, Queensland:



The house already had panels when we bought it but we replaced them with more. Added a battery to give us resilience in Southeast Queensland storms. It was great during Cyclone Alfred! Added more battery using the scheme. Replaced gas-boosted solar hot water with a heat pump. Replaced gas stove during kitchen renovation. Added reverse cycle air conditioning and improved thermal performance of the building. Bought an electric vehicle 3 years ago. Now I have zero energy costs!

Ian, Sunshine Coast, Queensland:

We found that on most days, our solar panels were filling out batteries by 10am each morning, so, rather than feed electricity into the grid for a pittance, we bought 2 EVs. We no longer buy petrol.

Bob, Sunshine Coast, Queensland:

We upgraded our existing 1.5kw solar panel system to a 6.6kw one about 3.5 years ago. Working from home we were able to take advantage of using the daytime solar. Now with the battery incentive we have just added a 24kw battery plus an extra 9 solar panels giving us a total of 10.8kw of solar. This will reduce our peak electricity demand and provide us with blackout protection that can occur living in Southeast Queensland.

Tom, Far North Queensland:

Nearly 5 years ago our neighbour had a 6.6kWh system installed, I was so impressed by how the installers worked that I asked for their business card. 6 months later I rang them to come out and discuss what I wanted. We own a duplex with 2 separate meters. On our section we installed a 6.6kW system and a 4kWh battery module which could be expanded in the future and a 2.5kW on the rental. Our tenant straight away had a reduction in cost. We managed to just get credits and with careful use during the winter our battery stopped us using coal power at night. After being so impressed by what we had achieved, we upgraded seriously. Our 6.6kW system was wired into our rental unit along with 12 kWh batteries then we added more solar panels and a 10kW inverter with 13.2kWh of batteries. What a difference that has made to our lives, neither of the units use any coal power and the credits pay for half of our rates. During the full year of 2025 we exported 21MWh to the grid, working out the number of houses that would have helped power our near neighbours. And, in this new year, has contributed to slightly lower power bills. Oh, 2 years ago we bought an electric vehicle, we used to have a diesel 4x4 which we towed a big 2.6t caravan with, but we sold them sold both once we got the electric vehicle, we then bought a small caravan (13ft) which I converted also to be fully electric, no gas. We have done 2 trips of 6000km (roundtrips) with our electric vehicle, so easy. In an emergency we can add an extra 20-30km from the power of the caravan.

Mel, North Queensland:

My parents had solar from very early days and I saw first hand how much impact it had on the electric bill - even in Melbourne! So I was already on board from way back then. We rented for so long in Melbourne and Townsville, and suffered through hot and humid summers, limiting our airconditioning usage to keep costs down. So naturally, ***when we bought our place, we***



saved and put solar on. Batteries were out of our reach at that time so we saved. But once the rebate was announced, we were able to afford a battery. While for us it hasn't entirely negated our electricity bill, it has made a significant impact. On average, our bills went from around \$150/month pre-solar to \$50/month post solar and battery and most of that is the service charge! Aside from the cost benefits, for our family, it's an environmental benefit and safety net. Our family is very environmentally conscious and we do make an effort to make better choices beyond just recycling. We don't have an electric vehicle or hybrid as yet due to cost, but we will go that way (and buy one). We also live in Townsville. Natural disasters are a part of life in Northern Australia. Having solar and a battery insulates us somewhat from the inevitable loss of power following events and enables us to support our neighbours.

Karen, Adelaide, South Australia:

Considering all we had to do in order to electrify, **we started by upgrading our solar, keeping the old panels and adding new ones.** Then we converted our ducted gas air conditioning to ducted reverse cycle electric a year later. Our winter bill was reduced. Within the next year we replaced our gas cooktop and oven with electric. Our bills dropped further. The hot water service collapsed and had to be replaced a year later so that ended gas for us, as we bought a heat pump. Government rebates on batteries were going to end, so we bit the bullet and got a battery last year. While our energy bills are maybe \$3000 per year less, the rising costs of electricity and reducing credit for feed-in have meant that we still have bills, where we hoped to have none. I'd initially calculated that it would take 8-12 years to recoup the costs of our electrification, but that looks more like 12, due to rising fees and charges. We're still glad we've done this - it's the right thing to do. And our biggest bill in the last 6 years has been less than \$100/month, so we're doing ok. All bills in the last year have been less than \$30. We're hopeful and would like to buy an electric vehicle.

John, Sydney, NSW:

I installed 3 kW solar panels on the roof of my townhouse in a strata block of 8 townhouses in 2011. The installation was approved by the Body Corporate based on a specially prepared By-law. Since the installation I have generated nearly 60,000 kWh of electricity, some of which has been used in the townhouse and the remainder exported to the grid. In the near future I will replace the panels with a 16 kW system and a battery that I hope will cover virtually all of our power needs. All of our heating is electrical. Both of our cars are hybrids.

Tony, Central Victoria:

Our original roof top solar was a 5kW system in 2014. We upgraded to a 9.5kW system in 2019 rather than invest in a battery. Gas prices were rising so we firstly installed electric and extra air conditioning/heating downstairs to reduce reliance on gas heating. Gas prices continued to rise so we then replaced a gas hot water system with a heat pump, then gas stove top with induction hot plates. This year we bought an EV which will probably be our final upgrade as we are in our 70s.

Adam, Southeast Queensland:



I was an early adopter, my first solar system was in 2010. I've just installed my fourth solar panel system. They've all paid for themselves quickly and I am living my lowest carbon life. I am on my second induction cook top and I love how fast and clean it is. I recently installed a heat pump hot water system when my old one sprung a leak. Living my lowest carbon life is definitely my goal, but the efficiency and savings are great.

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Australian Business case study - Rooftop solar as a gateway to electrification

David Stuart, Managing Director of Colormaker Industries and supporter of Solar Citizens

Excerpt from SBS News online - 15 November 2025

<https://www.sbs.com.au/news/podcast-episode/as-power-prices-surge-david-has-found-ways-to-cut-running-costs-by-thousands/b8175zrzi>



David Stuart has adapted his paint business to save thousands on running costs Source: SBS News / Spencer Austad

David Stuart runs a paint business on Sydney's northern beaches and when it comes to cutting electricity costs, he's ahead of the curve.



"Our factory here in Brookvale is powered 100 per cent with solar energy. Before we went solar, we were spending \$24,000 a year on electricity. All that was being wasted. We took the plunge, we went solar, we got a bank loan to do it. That bank loan is now paid off. Our power bills are now negative."

As managing director of Colormaker Industries, Mr Stuart has combined sustainability and innovation to beat rising prices.

"Electricity is an inescapable cost for most small businesses. We're an Australian manufacturer, trying to be competitive on a world stage. As power prices rise, that takes money out of the bottom line."

Mr Stuart's paint factory now runs entirely on renewable energy, powered by a 100-kilowatt rooftop array backed by a custom-built battery.

"Our big battery is Australian designed and built. It can take the surplus solar that we produce during the course of the day, store it overnight, then we can run all of our morning production with it. Had you told me six years ago we'd be where we are now, I would never have believed you."

More Australians are buying big batteries as upfront prices fall, by around 20 per cent last year alone, according to the Climate Council's Greg Bourne.

"Initially the cost of batteries was too high and the payback period didn't really work, but that crossover point has really occurred right now and there's many more batteries available, whether it be at the residential level or at the small business level."

As power prices soar, up by 9 per cent last quarter according to the Australian Bureau of Statistics, Mr Bourne urges more people to get on board with battery storage.

"We have 4 million homes already with solar panels, but it's a much smaller percentage have got batteries. I would want it to double and double and double again."

Electricity prices are driving up Australia's inflation figures.



The cost of living (CPI) rose by 3.2 per cent in the year to September.

According to a new report from the Australian Chamber of Commerce and Industry, these rising costs are hurting Australia's 2.5 million small business owners.

But with profits under pressure, Mr Stuart says making small changes can make a big difference to the bottom line.

"We bought in an energy efficiency engineer, he did an audit of the entire site and found that 26 per cent of our electricity was being used to make compressed air and a third of that was being wasted. So, we bought a new compressor and over the 12 months after that was introduced, we saw a 23 per cent drop in entire energy usage. We also bought an electric forklift. So that means we've got no more LPG on site. We changed our lighting to LEDs. That's something that any company can do, at surprisingly little cost. And we also bought a mega shredder. So, a lot of the cardboard that we had previously sent out to be recycled we can now use on site and give it a second life. Since we introduced solar and the other enhancements, we're now saving somewhere between \$35,000 and \$50,000 a year every year. That's baked in!"

Business failure rates are forecast to stay above 5 per cent for the next year, and Mr Stuart has this advice for those struggling.

"You don't need a big budget to innovate. You just start where you can, and go from there".



APPENDIX 2 - Global Rooftop and Household Solar Pledge

Global Rooftop and Household Solar Pledge

Draft voluntary political declaration – for discussion as part of the UNFCCC COP negotiations

This Pledge is a voluntary, non-binding declaration through which Participants commit to work together to accelerate the deployment of rooftop and household solar energy solutions by 2030 - especially rooftop solar photovoltaics (PV), including where appropriate paired with storage - as a practical, people-centered contribution to enabling the transition from fossil fuel use, as well as energy affordability, and energy security.

We recognise that,

- rapidly scaling household and rooftop solar can deliver immediate emissions reductions while improving energy affordability and resilience for households, reducing their vulnerability and supporting socio-economic development.
- in the context of energy security challenges, rooftop and household solar provides clear cost-competitive and availability advantages, limiting reliance on international fuel markets.
- household and rooftop solar can expand energy autonomy and deliver clean electricity without the land-use conflicts associated with some forms of large-scale generation.
- accelerating household and rooftop solar deployment generates local jobs and community-wide economic benefits, including through installation and maintenance services.
- current global solar deployment trajectories remain insufficient to meet mitigation, adaptation, and energy-resilience goals, leaving substantial clean-energy potential unrealised
- household and rooftop solar deployment benefits from enabling policy, streamlined approvals, safe and timely grid connection, and consumer protection to build public confidence.



- household and rooftop solar acceleration should complement and supplement—not replace—other actions to reduce greenhouse gas emissions, including decarbonising industry, transport, and the broader electricity system.
- improving the transparency, accuracy, and comparability of data on household solar deployment, grid integration, and emissions impacts can support more ambitious action.
- sub-national governments, cities, local communities, utilities, and the private sector play essential roles in enabling and delivering household solar power at scale.

The Participants in the Global Rooftop and Household Solar Pledge commit to,

- work together to accelerate rooftop and household solar deployment and collectively strive to deliver at least 300 million households to be served by solar rooftops by 2030, thereby enabling energy equity and consistent with national circumstances and capacities.
- work cooperatively to share lessons learned nationally, provide technical assistance, and share best practice - including through encouraging links between industry associations and sub-national governments to accelerate implementation.
- take domestic actions to achieve this ambition, including establishing or strengthening enabling policy settings, targeted incentives for households, and partnerships with local and regional governments.
- reduce non-financial barriers by streamlining permitting and approvals, improving consumer information, and supporting safe and timely grid connection processes, including appropriate metering and interconnection arrangements.
- strengthen grid readiness for distributed energy resources through planning, standards, and operational practices that support high penetrations of household solar, including where appropriate paired storage and demand management.
- mobilise public and private finance by promoting accessible household finance options, in the context of the UNFCCC's pledge to treble finance to developing countries by 2035.
- support workforce development and quality assurance - including training, certification, labour protections and safety to ensure installations are reliable, affordable, and create quality jobs.



We resolve to review progress towards the ambition of the Global Rooftop and Household Solar Pledge on an annual basis until 2030, including through a dedicated ministerial or high-level meeting, and to strengthen cooperation based on evidence and experience.

We call on other states and relevant stakeholders to join the *Global Rooftop and Household Solar Pledge* and to support practical implementation pathways that expand household and community-level access to affordable, clean energy.