

Community solar

Energy from the ground up



With support resources now readily available, Taryn Lane from Embark explains how individuals, groups and businesses can work together and benefit from setting up community solar projects.

ALREADY a mainstream model internationally in countries such as Denmark, USA, Germany and Scotland, community solar is about to hit Australia in a big way. There are around 50 active projects in Australia and it is a tangible pathway for all communities—whether they be urban, regional or remote—to participate in transforming their energy supply.

Community solar can take on a myriad of identities, depending on a community's exact needs and opportunities. From community bulk-buy rooftop models, through to small crowd-funded systems, up to more sizable solar parks, they provide real opportunities for installation efficiencies and more inclusive ownership.

Several models of community-owned solar projects feasible within Australia's current legislative and energy market boundaries will be explored in this article. Although we can learn from international models, we also have unique restrictions in the Australian landscape that we all need to navigate. Our aim at Embark is to both create innovative business models and collate from the broader sector what's been learnt from the first generation of systems—thereby accelerating the uptake of, and social licence for, renewable energy in communities in Australia.

Why community solar?

The move to a low-carbon economy requires a magnitude of capital that charity alone cannot provide: community investment with reasonable returns will provide a necessary part of the solution.

There is still a significant portion of the community who can't invest in solar



↑ Donation model: Corena's first installation at Tulgeen Disability Services in Bega, NSW, of a 7kW system, in 2013. The repayments on the loan to install the system have been put into purchasing another system for Gawler Community House in SA.

technology. This includes renters, apartment owners, those living in homes with shaded roofs or heritage overlays, and those who can't afford to install a residential system on their own home.

Community solar projects enable neighbourhoods to develop and own their own renewable energy infrastructure. It answers the calls for social equity for solar in Australia, as renters, apartment dwellers and low-income households can have the opportunity to make a direct investment in solar PV.

Shared ownership schemes will soon drive significant growth in the medium-scale solar space. A business installing 100kW on a factory roof will result in the same abatement as a community that installs 100kW in the same location, but the latter has the opportunity to engage a hundred (or more) community members on an ongoing basis.

What can it look like?

For example: A large data centre creates a

prototype urban solar park in conjunction with a climate action group. The data centre company signs a 25-year lease for the rooftop of the data centre with the climate action group, to enable installation of a 100kW PV array and agrees to purchase all of the power. A digital sign outside the data centre shows production statistics and advertises the availability of any opportunities to buy into the solar park. A community energy company is established, with shares marketed to members of the climate action group and employees of the data centre. The data centre does not need to access their own (expensive) capital in order to cover their roof with solar panels, and the community investors get a return on their investment.

Benefits of community solar

There are a myriad of benefits for both investors and hosts. Community solar projects empower both local communities and also the host sites to be active in pollution reduction, at the same time as delivering

many regional and urban economic benefits. They can accelerate the development of the renewables industry and its impact through tapping a new funding source—the community investor—and bridging the gap between individual and corporate action.

BENEFITS TO SUPPORTERS/INVESTORS

Currently there are very few direct investment opportunities in renewable energy. What is clear from projects such as Hepburn Wind and Denmark Community Wind Farm is that communities are ready and often keen to invest in local energy enterprises. Community solar is an opportunity for people to connect and engage with other locals with common values and feel that they are actively contributing to and supporting a move to a lower-carbon economy—and potentially getting a financial return on their investment as well.

BENEFITS TO HOSTS

Community solar projects can differentiate a business or site, leading to favourable PR and potentially attracting high-value tenants. At the same time the host gets access to capital at very competitive rates and reduces bills at the site over the long term. The project is also a tool to engage with a chosen demographic in the community: residents, customers, supporters or staff can be engaged in sustainability dialogue, resulting in them feeling like 'co-owners' rather than just customers, staff, etc.

Common barriers

The currently flagged changes in federal government policies are impacting the project feasibility for many larger planned community solar projects. Many community business models rely on the Renewable Energy Target (RET) to be viable. The absence, dilution or further review of the RET will depress LGC (large-scale generation certificate) prices. Depressed LGC prices lower potential revenues, and some community business models are unlikely to be viable in such an environment. Current ways to mitigate the effects of these changing conditions are via a 'behind the meter' approach (see explanation below) for larger projects, to size projects under the 99kW cap, or to use the smaller donation model approach.



Photo: Lisbeth Inthar

← Repower Shoalhaven spreading their message at the World Environment Day fair in Huskisson, NSW, in 2014. Repower has just built Australia's largest community solar power system to date (99kW), hosted by the Shoalhaven Heads Bowling & Recreation Club and 80% funded by the community.

The most common barrier facing communities is securing a viable host. Finding the right site is critical for the initial concept. At this stage, the most feasible option is to find a site where the generated energy can sit 'behind the meter' of an existing business; in this approach, the host agrees to purchase the energy over the life of the project, thus avoiding the issue of selling the energy into the energy market. The scale needs to be less than the minimum load profile to minimise grid connection issues and costs.

Legal and governance costs are another key barrier. There are a number of significant set-up and operational costs related to governance, compliance, accounting and IT that need to be dramatically reduced to make projects feasible. Organisations such as Embark and The Difference Incubator are working to lower these costs by developing templates that community groups can use, rather than having to work through these issues from scratch.

Australian community solar models and toolkits

It's vital that this emerging sector doesn't reinvent the wheel. Developing a successful community solar project requires solving a Rubik's Cube of factors. There isn't a 'one size fits all' solution given the current diverse and relatively unsupportive policy context.

Most community energy projects being

pursued in Australia today fit into one of four models in terms of ownership and energy trading. These are the bulk-buy model, the donation model, the loan-based model and the power purchase agreement model (see examples below).

Organisations such as Embark, ATA, The Difference Incubator and many others (see list of resources, below) are working to provide support for community groups exploring the feasibility of a particular model and the size/type of system.

There are lessons to be learnt from existing and almost-built models. Much work is being done to create toolkits (such as the ATA's Sunulator), replicate proven models and share IP to bring down costs and enable a more rapid rollout of community solar projects.

1. Bulk-buy model

The most common model to date, with many successful examples all around the country, is the bulk-buy model. In this model, a group (often a council or community group) arranges discounted installations for individuals via a bulk-buy of a particular system, thus providing a financial benefit to those purchasers. There are often also benefits for the organising community group. For example, a supplier might install a free system on a community building, in exchange for a certain number of paid installations.



↑ Farming the Sun's first solar tracker installation in Armidale, NSW, back in 2009. The group has since facilitated 479 solar installations. Its current focus is community solar farms, with a goal of installing at least 1MW. They are looking for hosts and investors in the region, including around the Lismore area in association with Embark. Starfish Initiatives coordinates the collaboration of suppliers, partners and supporters who together make up the Farming the Sun group. Pictured here are Starfish Executive Director Adam Blakester, property owner John Davidson, designer/installer Jamie Reardon of AusEnergy and Liz Gardiner, Farming the Sun coordinator.

Some groups retain part or all of the value of the LGCs and use this to cover administration costs or provide seed funding for other projects. See Moreland Energy Foundation or Mt Alexander Sustainability Group in Castlemaine for examples.

2. Donation model

The donation model has been championed by Energy for the People and Corena Fund. The systems they install tend to be small-scale (less than 30kW) and are funded by grants and donations. The funding can be just a straight donation for the system (as in the Kangaroo Valley solar installation financed by community donations), or could be paid back over time (via savings on energy bills due to the solar install) and then used to fund another project, as in the Corena model. These sorts of projects are generally run by volunteers and based on a not-for-profit structure, using a trust. Ownership of the system resides with the host site.

3. Power purchase model

One workable approach is where the renewable energy system sits 'behind the meter' of a business. Energy generated on site is primarily sold to the host business, but any excess can be sold to an energy retailer. Capital is raised from the local community or a relevant stakeholder (e.g. the local council). The result is a solar array installed on the

roof of the host business but owned by the community. The community group signs a power purchase agreement with the host which commits them to indexed prices over the project life (usually 25 years) and receives a return from their investment. ClearSky Solar is championing this currently with three projects already built and over \$200,000 invested.

Embark has developed resources for larger power purchase projects. These include a model to help calculate the business case,



↑ This solar panel installation on the Royal Hotel, Boggabri, in regional NSW, was Australia's first loan-based community-owned solar power project. ClearSky Solar Investments facilitated this project in 2013, as well as five others (over 150kW) since, and there are more in the pipeline. In their model, community members and self-managed super funds can invest in a project by purchasing units in a trust, which runs for a fixed term, typically seven years. During this time the community members share in the proceeds of electricity sales to the end user. After that, the panels provide free power for the business.

a suite of template legal documents and a community company model with a co-operative constitution.

The Difference Incubator has developed a toolkit for smaller-scale solar projects—installations below 100kW. These sized systems are still eligible for small-scale technology certificates (STCs), which can be redeemed up front and thus effectively reduce the capital cost.

CLEANAS

One such example is CLEANaS (Clean Energy Association of Newcastle and Surrounds), a not-for-profit association which is launching the Lighthouse Community Renewable Energy power purchase model based on solar systems of around 70kW to 200kW and a crowd-funding model, with a toolkit of templates that will be available to other groups in Newcastle and surrounding areas.

4. Loan-based model

A slightly different iteration of the power purchase model is the loan-based model. A loan-based model will generally have a lower level of complexity in regards to legal documents, a shorter term period (7 to 10 years) and less variable income generation in contrast to a power purchase model. ClearSky Solar installed the first example of this on the Boggabri Pub in 2013. A larger system is the just-built 99kW Repower Shoalhaven project titled Repower One. Twenty percent of the

system is funded and owned by Shoalhaven Heads Bowling and Recreation Club, with the remaining 80% fully funded and owned by community shareholders. The Difference Incubator has aided them with legal templates which are now available for use by other groups. Embark has templates and assistance available for projects over 100kW.

FARMING THE SUN

Embark is working on a loan-based model for the Farming the Sun project led by Starfish Initiatives in partnership with Lismore City Council. The council has a 100% renewable mandate and is developing a renewable energy master plan. Feasibility studies have been undertaken at three sites in the Northern Rivers area for a loan-based business model which would lend at 7% pa and deliver a community return of 5% pa. A minimum \$500,000/250kW project is required to cover core administration and governance. The project has links with the local Lock the Gate movement.

Emerging trends

Local governments around Australia are now emerging as leaders in developing community energy in their regions. Communities are ready to participate in projects so it is heartening to see councils, developers and community groups collaborating to explore

different models of community energy. If projects align with council strategic goals, councils are exploring their ability to provide capacity to help develop projects, provide initial funding or access to council sites and their ability to buy the power generated.

Another emerging opportunity lies in energy stressed regions in regional and remote areas of Australia. Low Carbon Kimberley, the Environment Centre NT and Arid Lands Environment Centre are three organisations exploring models in these locations.

How do you get involved?

Sign up to the Embark e-newsletter, read the wiki at www.embark.com.au or contact taryn@embark.com.au to be put in contact with a local group in your area. Of particular need is for suitable hosts to be partnered with community groups, so please consider who you know in your local area who might be a viable host. *

Embark is a not-for-profit organisation focused on accelerating the uptake of community renewables. Their wiki operates under Creative Commons to provide a comprehensive overview of community renewable energy, with over 150 articles, including toolkits and practical capacity-building tools such as Embark's community engagement methodology. See www.embark.com.au



Photo: Cathy Gorman

↑ Repower Shoalhaven's first community-funded solar project—a 9kW system on top of the Kangaroo Valley community centre and ambulance station, opened in February 2014 thanks to donations from 32 members of the local community.

Interested in membership, investing, campaigning or learning more? Below are the websites, and brief information, for organisations mentioned in this article, among others. A search on 'community energy Australia' will also bring up a plethora of sites to explore. Also look up the Coalition for Community Energy (www.c4ce.net.au), a purpose-built governance system enabling a vibrant community energy sector and movement around Australia.

Arid Lands Environment Centre (www.alec.org.au)—for over 30 years developing and delivering sustainability initiatives in Central Australia; currently developing the business case for community solar in Alice Springs.

CLEANaS (www.cleanas.org.au)—established by locals in 2012, dedicated to driving the uptake of clean energy use and generation in the region around Newcastle, NSW.

ClearSky Solar Investments (www.clearskysolar.com.au)—linking community investors with solar projects since 2013.

Community Power Agency (www.cpagency.org.au)—workshops, research, and advice to help

advance community energy projects. Corena Fund (www.corenafund.org.au)—bringing together funding to support renewable energy installations nationwide.

Embark (www.embark.com.au)—provides an online wiki eliminating the barriers to a growing and powerful community energy sector in Australia.

Energy for the People (www.energyforthepeople.com.au)—developing and implementing commercially viable clean energy projects for residential and community buildings.

Environment Centre NT (www.ecnt.org)—working to protect the environment since 1983, it runs various initiatives and campaigns to advance solar power in the Northern Territory.

Farming the Sun (www.farmingthesun.net)—facilitating the take-up of solar energy in NSW's New England region since 2008; the 'solar energy' page of their website also has a long list of links to community solar projects around Australia.

Low Carbon Kimberley (www.facebook.com/LowCarbonKimberley)—seeking to develop

community-owned solar energy projects, promote energy efficiency and support indigenous employment and community across the Kimberley.

MASG—Mt Alexander Sustainability Group (www.masg.org.au)—working to improve energy efficiency and increase the supply of renewable energy, in and around Castlemaine, VIC.

Moreland Energy Foundation (www.mefl.com.au)—creating connections between the City of Moreland in Melbourne's inner northwest and the climate change movement; currently embarking on its first community solar project as part of MC Solar.

Repower (www.repower.net.au)—since 2013, developing community energy projects across the Shoalhaven region.

Starfish Initiatives (www.starfish-initiatives.org)—creating and supporting regional sustainability, including community solar projects and partnerships.

The Difference Incubator (www.thedifferenceincubator.com)—helping to develop promising social enterprises into viable, investable social enterprises.