National Community Energy Strategy

Appendix E

Behind the Meter Community Solar Models

C4CE

TABLE OF CONTENTS

1 Introduction and overview 3

1.1 What is 'behind the meter' solar? 3

1.2 Why behind the meter solar? 4

2 Community solar models that work in the current context 7

2.1 Summary 7

2.2 ClearSky Model 9

2.3 CORENA Quick Win Project Model 13

2.4 Embark's Mid-Sized Solarfarms Model 19

2.5 Darebin Solar Saver 22

2.6 REpower Shoalhaven & Difference Incubator's Small-Scale Solarfarm Model 25

3 Deciding the most appropriate model for your community 29

4 Host Site Pre-screening Checklist 31

Characteristics of a good site for behind the meter community solar 31

4.1 Technical Characteristics 31

4.2 Economic Characteristics 31

4.3 Investment Security Characteristics 32

4.4 Next steps 33

Authors and Acknowledgements

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Cover photo: Repower Shoalhaven. Icons designed by Freepik.

Disclaimer: The views and opinions expressed in this document are those of the authors and do not necessarily represent all C4CE member organisations.

1 INTRODUCTION AND OVERVIEW

This set of resources outlines what you need to know to get a behind the meter community solar project off the ground. Specifically, these resources aims to help community energy groups to understand:

- The models of community solar that we know work in the current context
- The reasons why they do work in the current context
- The constraints that make alternative models challenging
- Which if any of these models is appropriate for your community group
- The first steps to undertake to start implementing the most appropriate model.

The current energy market context and regulatory environment makes setting up a community energy project challenging. The behind the meter community solar models outlined are the only models we know of that will work in the current context. Noting of course that each model has specific requirements, so may not work in your community, or may need to be adapted to suit your local context.

This should not dissuade your community energy groups from innovating and trying to create other models of community energy generally and community solar specifically. But rather, these resources are intended to help groups learn from others, provide options to choose from and make it easier to navigate the complexity of setting up your own project.

This resource has been developed as part of the National Community Energy Strategy project, which outlines over 30 initiatives that intend to change structures to remove constraints and increase the viability of a range of models of community energy.

1.1 WHAT IS 'BEHIND THE METER' SOLAR?

The models of community solar outlined below are what we call “behind the meter, below the load” models which are currently the most feasible for community energy. In this approach, the host site 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.

A typology of different types of models of community energy has been developed (details can be found in the Community-Owned Renewable Energy How To Guide, 2014)[1]:

Donation/community organisation models – these models of community energy involve a community raising funds through donations (either using a crowdfunding platform or more traditional fundraising) to install renewable energy or undertake energy efficiency measures. Typically, the host site and beneficiary of this model is a community organisation such as a school, surf-lifesaving club, fire station etc. Examples of groups who are using community energy donation/community organisation models include CORENA, The People’s Solar and Clean Energy for Eternity

Community investment models – these models are where an organisation develops a sustainable energy project and raise funds through opening up the project to community investors, on the expectation that these investors will receive a certain return on their investment. Examples of a community solar investment model is the Repower Shoalhaven model.

[1] See Section 2 for a summary description of the models outlined here or the respective websites for further detail.

Commercial-community partnership models – those where a community group partners with a commercial energy developer (or similar organisation) to deliver a community energy project. This can result in duel ownership between the community and the developer or other structures such as those developed by Clearsky Solar Investments.

Multi-household models of community energy – are about aggregating households to deliver sustainable energy solutions. Examples of such models include solar bulk-buys which were popular around 2009 and the Moreland Energy Foundation has developed a rates-backed solar model for low income households with the City of Darebin.

1.2 WHY BEHIND THE METER SOLAR?

There are many challenges and barriers facing the community energy sector (see Challenges and Opportunities Report) as there are with any new sector. The constraints focused on in this document are those that significantly affect the financial viability of community solar projects currently – wholesale electricity price, retail price, the status of the Federal Renewable Energy Target policy, and a number of legal requirements associated with raising investment. Note many of these constraints apply to community energy projects more broadly across all technologies.

Financial Considerations

Community energy models are motivated by more than commercial success. While community energy projects need to be financially sound and many (though not all) provide a return on investment, they are not purely commercial projects. That is, community energy projects will include outcomes and benefits beyond just financial returns. As such, community energy models all require a degree of volunteer time and pro-bono and in-kind contributions. In order to achieve the non-financial benefits of community solar, a community energy organisation must harness non-financial support. If you are in this just for the money, community energy isn't for you.

There are some key components that contribute to the financial viability of a community energy project:

- Costs to get a project operational
- How funds are raised to get the project operational
- Costs once the project is operational
- Income once the project is operational.

The wholesale electricity price, retail price, the status of the Federal Renewable Energy Target policy all affect the income of a project once it is operational (the Embark wiki provides articles with more detail on these).

So how do these pricing mechanisms work?

Wholesale price

The wholesale price is the price a project receives when exporting electricity to the grid. It is low, currently somewhere between 4-7c/kWh. Recently, demand reduction has increased competition in the wholesale market and thus reduced the wholesale price. With only a couple of exceptions there are currently no Feed-in Tariffs available for new solar installations and particularly not at the scale of a typical community energy project (>10kW). If a project sells electricity to a retailer, 4-7c/kWh is the maximum likely to be received per unit of electricity generated and this is unlikely to cover the cost of the actual renewable energy technology, let alone all the other costs in developing a community solar project.

Retail price

The retail price is the price a home or business pays for electricity. This includes the wholesale cost, network chargers, retail charges and margin and more. Currently, residential customers and small business customers pay a relatively high retail price (for residential to semi-large energy users it ranges from 12-30+c/kWh). The most costly component of this is network charges.

Renewable energy certificates

The Federal Renewable Energy Target (RET) creates two markets for renewable energy generation. Systems smaller than 100kW (and even smaller for non-solar PV technologies) are eligible for Small-Scale Technology Certificates (STCs) and renewable energy systems greater than 100kW can sell Large-Scale Generation Certificates (LGCs).

- STCs for <100kW solar PV installations receive an upfront payment of approximately $35 per unit of electricity predicted to be generated by the solar panels over 1, 5 or 15 years (deeming period depends on the installation) See the Clean Energy Regulator website for more information.

  If the size of a project is eligible and the process doesn't change, it increases your financial certainty and decreases the amount of investment or donations you need to raise.
- LGCs for systems greater than 100kW sell LGCs in a market. The current market price is low and with current policy uncertainty the future price extremely hard to predict – thus there is both significant uncertainty and currently a low price.

GreenPower

The National GreenPower Accreditation Program is a voluntary Program for providing accredited renewable electricity to consumers. It is governed by state governments and funded by industry. GreenPower Providers use LGCs created through the RET to demonstrate they have purchased sufficient renewable energy to supply their GreenPower Products. LGCs used to meet GreenPower obligations cannot then be used to meet RET obligations. GreenPower does not currently accept STCs created under the SRES. During 2014 and 2015 the GreenPower Program has been under review. A number of options for the future of the program are under consideration which may impact community energy projects seeking to leverage GreenPower LGCs. Community Climate Chest is an example of a community group that provides 100% accredited GreenPower to communities at a reduced rate while supporting broader community interests through a percentage donation of sales.


Photo: Jarra Hicks

Given these current electricity market realities, it is clear that if a community solar project can reduce an organisation's import of electricity from the grid, thus reducing the amount of money that organisation pays for electricity at retail rates, the financial case for the community solar project will be much stronger than if a project relies on selling electricity to the grid at wholesale price. Further, if a project is smaller than 100kW it has greater financial certainty through the RET by receiving upfront STCs.

Legal considerations

Seeking investment is a highly regulated process. To seek investment from more than 20 investors, your project most likely will need to be covered by an Australian Financial Services Licence, have a Prospectus, and undertake significant annual reporting. All of these add to the upfront and ongoing costs of a community solar project. For <100kW projects the income generated from the sale of electricity is unlikely to cover these additional costs.

These legal requirements affect both the cost of a project (in the development and operation phases) and a group's ability to raise funds.

Two options currently work:

1. Twenty investors or less, which reduces the community ownership and means that you need investors that can invest larger amounts in many cases $5000 or greater.
2. More than twenty investors and pay the extra costs, meaning you need a larger renewable energy system (>400kW). This in turn restricts the number of possible host sites as there are few energy users in Australia that use the amount of electricity generated from a 400kW solar system during the day every day of the year. These large energy users usually have a very low electricity tariff. See more in the Characteristics of Good Host Sites in Section 4.

Photo: NSW Office of Environment and Heritage

2 COMMUNITY SOLAR MODELS THAT WORK IN THE CURRENT CONTEXT

2.1 SUMMARY

Based on this contextual analysis, five models of community solar that will work in the current context are showcased here. These models are:

- **Repower Shoalhaven (also known as The Difference Incubator model)** – This small-scale community solarfarm model uses a proprietary limited company Special Purpose Vehicle (SPV) legal structure to enable up to 50 community members to co-invest in a project. REPower Shoalhaven is a successful example of this model.
- **ClearSky Solar Investments (CSSI) model** - CSSI is effectively a peer-to-peer lending broker. An end user is identified who wants to benefit from solar power but, for whatever reason, does not want to make a capital purchase. ClearSky investors lend the money and have their capital repaid with interest via by selling the electricity generated by the system at an agreed price over an agreed term. At the end of the term the panels become the property of the end-user.
- **Embark/Sydney Renewable Power Company (SRPC) model** - Embark's mid-sized community solarfarm model uses an unlisted public company legal structure to enable medium-to-large numbers of community members to co-invest in a project.
- **CORENA's Donation Revolving Fund model** – Donation-based models such as CORENA's use voluntary contributions of any amount from citizens to provide a zero interest loan to install solar PV on and undertaken energy efficiency at a community organisation's building. The loan repayments are used to fund even more community energy projects.
- **Darebin Solar Savers (Moreland Energy Foundation Ltd) low-income rates model** – this model supporting solar PV uptake in the residential sector, particularly households that cannot afford to put solar on their roof through upfront payments. It does this through utilisation of Council rates scheme to support financing and a community organisation providing trusted brokering.

The following sections include:

- A table that compares these models by key elements,
- More detailed explanations of each of these models.
- A decision tree diagram to help you decide which model would work best for your community.

The key features of the five community solar models introduced above are compared in the following table.

	SRPC	REPower	CSSI	CORENA	Solar Savers
Aims	Allowing many people to participate in a community solar project.	Develop community energy projects local people can benefit from.	People without a suitable roof get the benefits of solar PV.	Increase uptake of renewables, see benefits go to good organisations.	Low income household access to solar PV.
Legal structure	Public company	Special purpose vehicle (SPV), could be pty ltd or trust.	Trust and NFP Association	NFP Association	Must include a statutory body e.g. a council as a partner
Where the money comes from	More than 20/50 investor limit	<20 investors per year/project Max 50 investors/project	Projects have between 1 and 20 investors	Any number of donations, plus the loan repayments from other solar PV installations	Debt carried by council
Where the money goes	Return to investors	Return to investors	Return to investors	Reduced power bills to host site. To fund other solar PV installations	Reduced power bills. To repay debt to council
Size	>400kW	<100kW	15-100kW	~5-10kWs	Many 1-3kW systems
Legal relationship with host	Likely loan, not PPA	Lease/Loan/PPAs	None. Loan from Trust to a commercial partner	Loan	Rates based repayment mechanism
Project period	25 yrs	7-10 yr term	7-10 yrs	5years loan is repaid	10 yrs
Best locations (All need to be un-shaded etc)	Large energy using site, likely in an urban area. Shopping centers could be good.	Sites with high insolation and high electricity retail prices where electricity used 7 days a week, 52 weeks a year	Sites with high insolation and high electricity retail prices where electricity used 7 days a week, 52 weeks a year	The building of an organization that is “doing good/charitable work”.	Residences and small buildings

2.2 CLEARSKY MODEL

ClearSky Solar Investments Ltd is a not for profit company that was established by the community environmental group Clean Energy for Eternity Inc to provide opportunities for community members to invest in solar power. The motivation for establishing the company was that there were many in the community wanting to invest in clean energy who did not have a suitable roof, or a roof of sufficient size. This assumption has been proven correct as we have no shortage of investors.

Clearsky is effectively a peer-to-peer lending broker. An end user is identified who wants to benefit from solar power but, for whatever reason, does not want to make a capital purchase. ClearSky investors lend the money and have their capital repaid with interest via by selling the electricity generated by the system at an agreed price over an agreed term. At the end of the term the panels become the property of the end-user.

We thought hard and long about how to do this in a way that was sustainable in the long term and the answer we came up with was that we could best achieve our objective by working in close and exclusive collaboration with a carefully selected commercial partner. This has allowed us to develop streamlined administrative procedures which don't have to be reinvented each project, and the volunteer component is easily within our capacity over the long term.

What it is[2]

Aims / values / purpose	Accelerate the uptake of solar PV in Australia. Provide a source of low cost finance for solar PV installations, thus eliminating profiteering by banks who might wish to exploit an individual's desire to do the right thing. Provide individuals committed to cutting greenhouse gas emissions with the opportunity to shift their investments from fossil fuel to clean energy. Provide opportunities for local communities to invest in clean energy in their own community.
Technology	- Solar PV between 15 and 100 kW - Behind end-user's meter - System size carefully scaled to minimise export to grid - Energy generation data accessible over internet.
Finances	Money comes from community investors. Maximum of twenty investors. Offered first to immediate community and then to anyone in Australia. Money is used to provide a loan to our commercial partner to finance the installation.
Community involvement	The investors come from the community. ClearSky is a community based social enterprise.
Organisation/ Governance	A Trust and a Trustee company is set up for each projects. Investors purchase units in the Trust. ClearSky Solar Investments (CSSI) is a not for profit company limited by guarantee. CSSI contracts with each Trustee company to provide administrative services on a cost recovery basis. CSSI has three directors who act in the own right but in practice consult with the membership of the Northern beaches Chapter of Clean Energy for Eternity. The CSSI directors are unpaid. They work closely with the MD of the Commercial Partner solar installation company about potential projects, negotiating the details of

[2] Model available online at http://embark.com.au/display/public/content/ClearSky+model+description

the end-user agreement and ultimately signing an agreement as directors of the trustee company covering the responsibilities of all parties, including the term and the price the end-user must pay for the energy generated by the system.

Our Commercial Partner takes care of installation, monitoring, maintenance and billing. ClearSky has a contract with each trustee company to undertake all administrative and compliance tasks including billing our commercial partner for energy generated, distributing the proceeds to investors according to their unit holding, keeping accounts, and submitting the annual tax return. To streamline operations two of the directors of each trustee company are also directors of CSSI.

What it isn't

ClearSky provides finance for PAYG solar systems. The investors don't own the installation. They simply provide finance to the partner installation company in return for specified $ amount per kWh for the energy generated by the system over the contract term.

What is this model most fit for purpose for?

Where a community organisation decides that its aims can best be met by partnering with a commercial organisation and where the intention is to get projects underway quickly and get an income stream coming in reliably to investors with a minimum of volunteer effort.

Essential requirements for viability

There is a balance to be struck between efficiency, which means concentrating decision making power and day to day management in a few hands, and community buy-in, which means giving as many in the community the opportunity to become involved in decision making. ClearSky needs a network of supporters to ensure that when projects come up, news of the investment opportunity can be spread as widely as possible. (It is not permitted to publicly advertise an investment opportunity as we are relying on an exemption in the Corporations Act which avoids the cost of obtaining a Financial Services Licence or the need to have a Prospectus formally registered.). This network of supporters is our larger community, but they have no role in day-to-day management. To keep the operation efficient we have a custom designed web-based administrative and records system and a small number of individuals who are well versed in its use. For viability, we need ensure that on the retirement of one of our trained administrator there is always another fully trained an able to take over, drawn from our investor pool.

Constraints

Cash flow is a constraint. At present we don't seek investment capital until it is needed, i.e. when the system is about to start routine generation. We thus have a short time to raise the capital. To date we overcome this problem by having a network of potential investors (those who have registered on our website) who we keep informed about upcoming projects. One of our members has agreed to take up in full each investment on a temporary basis so that funds are available to pay our Commercial Partner on completion of the installation. As funds come in from the permanent investors the temporary investor transfers their unit holding to those investors. This may not be viable in the long term.

Other constraints are firstly that we work exclusively with a single commercial partner and as outlined above and secondly that we may ultimately find it difficult to get investors given we cannot advertise. We to speak at community group events when we need to spread the word further about what we do and how to get involved.

How to utilise this model

Phase 1 - Setting Up

1. Select a Commercial Partner. A long list could be provided of criteria that should be used in selecting a commercial partner
2. Agree with the Commercial Partner on a method for calculating the return to investors
3. Agree with commercial partner on terms of End-User-Agreement. This will be commercial in confidence
4. Get a lawyer to draw up a pro-forma Trust deed. ClearSky's can be used as a template
5. Get a lawyer to draw up a pro-forma Investment Agreement between Trustee Co and the commercial partner
6. Set up a not profit company limited by guarantee to be the Administration Company
7. Establish a bank account for the Administration Company
8. Get a lawyer to draw up a pro-forma Operations Agreement between Trustee Co and the Administration Company
9. Reach agreement with the Commercial Partner on the process to be used for exchanging information on potential projects, on signing-off on a project, of keeping records, of monitoring power generated, of billing for power generated, of dealing with the breakdown between capital repayment and interest, of transferring funds to the Admin Company for distribution to investors, of monitoring end user insurance cover and dealing with any issues that arise. Very likely that this will involve some shared records in the cloud.
10. Develop a web-based admin system for handling project announcement, registration of investors, investor expression of interest, investor application for units, unit allocation, electricity sales revenue recording, unit holder payment record keeping,
11. Prepare pro-forma information memorandum.

Phase 2 – Project Initiation

1. Reach agreement with Commercial Partner on terms of agreement
2. Use accounting firm to cookie-cutter set up new trust and trustee company
3. Set up bank account for trust
4. Customise Investment Agreement
5. Customise Operations Agreement
6. Customise Information Memorandum
7. Customise Application form
8. Augment record system to accommodate new project
9. Set up Project on website
10. Email out applications to interested investors
11. Allocate units once funds deposited
12. Pay invoice from Commercial Partner from investor deposits
13. Remove project from public view once fully subscribed

Phase 3 – Project Administration

Monthly

1. Record power generation

Quarterly

1. Invoice commercial partner for generation
2. Use web based system to calculate payments to each investor
3. Transfer funds into investor bank accounts
4. Email investors with details of capital repayment and interest components

Annually

1. ASIC compliance form and payment
2. Prepare financial statements
3. Submit tax return

What not to do:

- Don’t be tempted to add complexity. Keep things simple.

Key lessons from other groups using this model:

- Consider using ClearSky for your project rather than setting up an equivalent. You can help find the host-site and the investors can still be local.

Getting Assistance and Finding out More

Contact Warren Yates on 0408 111 931 or Christina Kirsch on 0411 699 266 or email us at admin@clearskysolar.com.au. They are happy to talk with you.

Intellectual Property

The End User agreement and the design of the web based administrative system are the property of our Commercial Partner and ClearSky respectively.

2.3 CORENA QUICK WIN PROJECT MODEL

The Quick Win project model from CORENA (Citizens Own Renewable Energy Network Australia Inc.) is a donation-based model featuring a revolving funding pool.

What it is[3]

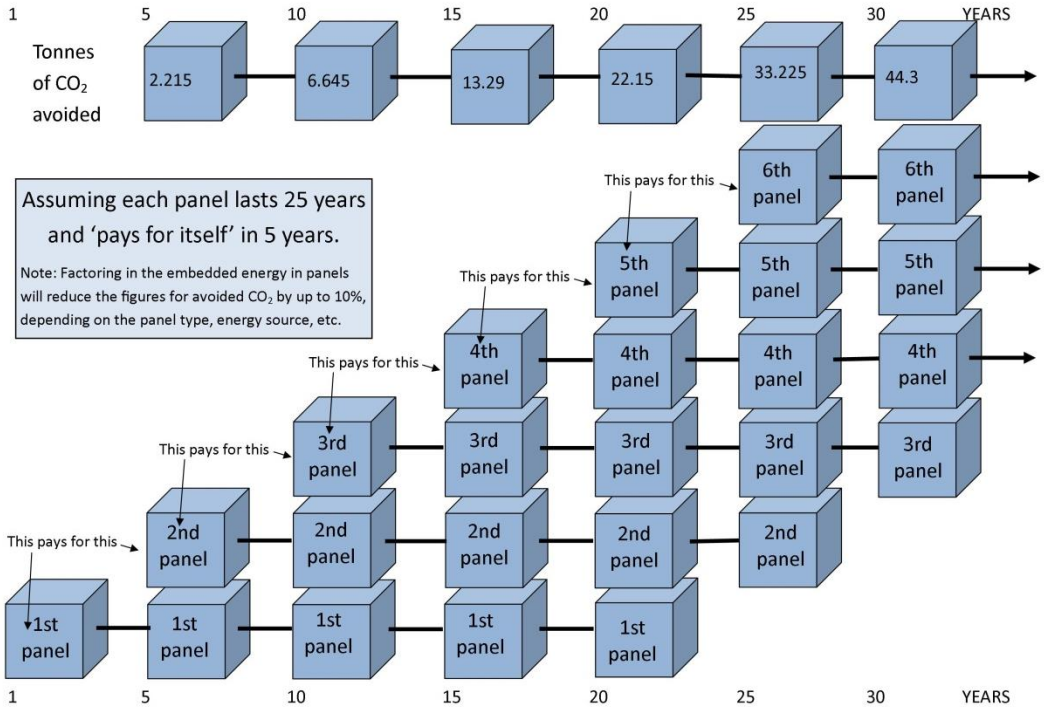
The model relies on voluntary funding contributions of any amount from citizens who wish to take an active part in tangible climate action (reduction of carbon emissions) for the sake of the common good. The funds are used to provide interest-free loans to non-profit community organisations to pay for solar PV, solar H/W, and/or energy efficiency measures. The loans are repaid into the Quick Win revolving funding pool just out of savings on power bills, and are then used over and over again to help fund subsequent Quick Win projects.

The main strengths and benefits of this model are:

- Project hosts are relatively easy to find because particular tariff circumstances enabling specific levels of return on investment (ROI) are not required.
- Projects can be implemented by any incorporated association.
- Relatively little time, effort, or specialised skills are required to find suitable project hosts, raise funds, and implement the project.
- Anyone, anywhere in Australia (or overseas) can be part of achieving the project outcome (and empowered by that).
- The only required legal instrument is a sound loan agreement template. (CORENA is happy to share the one we had drawn up for us.)
- Many community organisations cannot install solar because they simply do not have the capital. This model makes it easy for even the poorest organisation to do so.
- Since repaid funds revolve into subsequent projects, over time any particular donated amount achieves roughly 5 times as much as it achieves in its first project. For example, if someone donates the cost of one solar panel, that panel will 'pay for itself' in around 5 years and that money is then used for another panel, then another, and so on. By the time the first panel reaches the end of its lifespan, there'll be a 6th panel installed, so there will always be approximately 5 panels worth of benefit going forward in perpetuity (see Figure 1).
- Projects will eventually become financially self-replicating (see Figure 2).

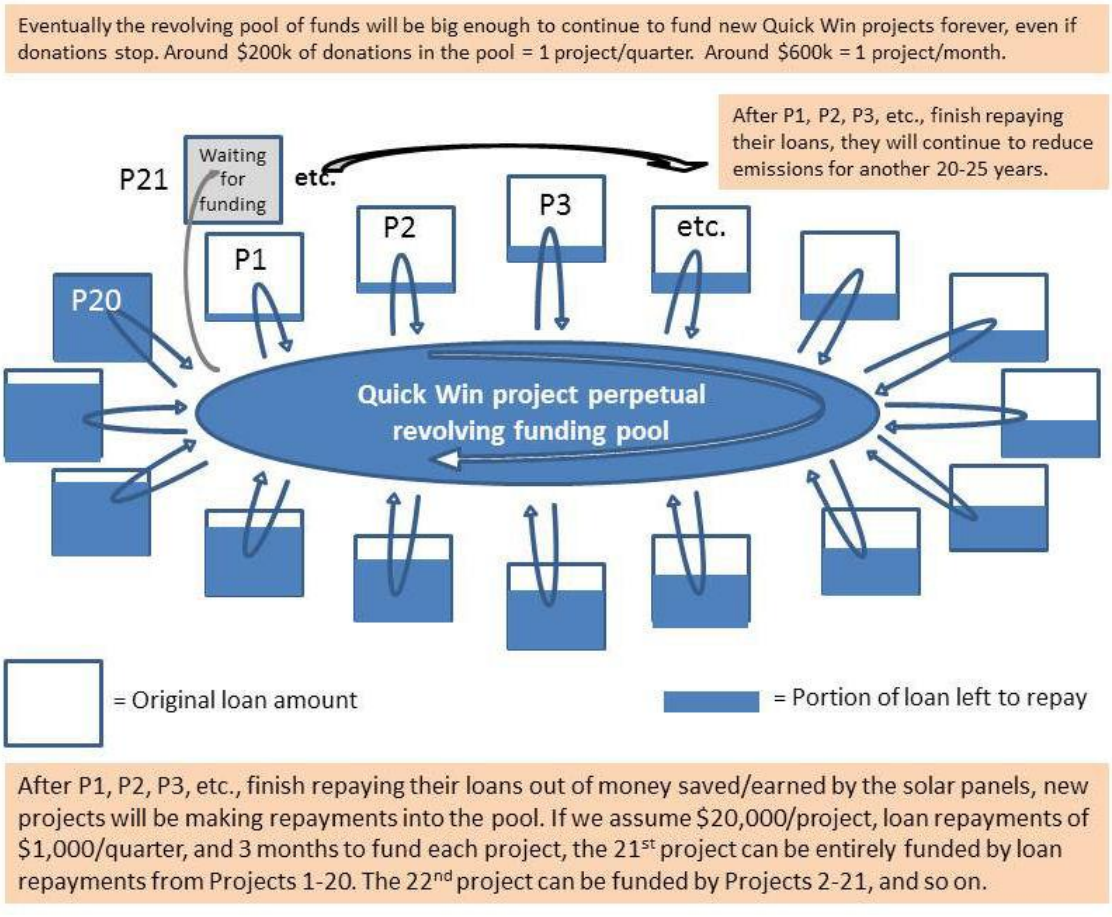
[3] Model available online at http://embark.com.au/display/public/content/CORENA+model+description

Figure 1. How one panel grows into approximately 5 panels



Source: CORENA (http://corenafund.org.au/quick-win-projects/)

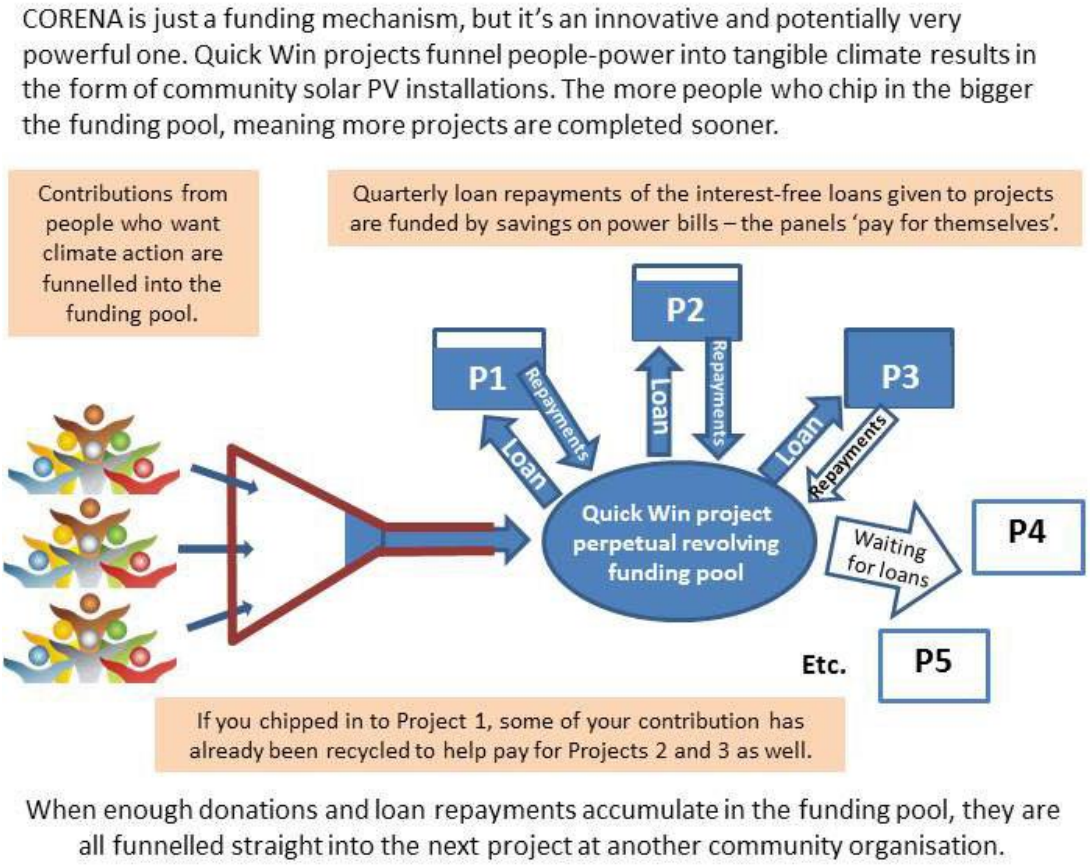
Figure 2. How the revolving pool keeps funding new projects



Source: CORENA (http://corenafund.org.au/quick-win-projects/)

The installation and any energy efficiency work is owned and maintained by the community organisation from the outset. After the loan is repaid (approx. 4-5 years), all subsequent savings on power bills for the remaining lifespan of the installation simply reduce the organisation's overheads so that they have more money available to fund the community services they provide. Thus, community organisations can install solar at no cost to themselves, and everyone receives the benefit of lower carbon emissions (see Figure 3).

Figure 3. Overview of CORENA Quick Win project model



Source: CORENA (http://corenafund.org.au/quick-win-projects/)

What it isn't

It isn't an investment-based project model. This means funds can be used over and over again rather than being returned to individual investors, and specific ROI requirements need not be met for the model to be viable.

It's also not purely a gift model even though it doesn't cost the recipient organisation a cent. The solar installation or similar 'pays for itself', and the money earned/saved by the project is what pays back the interest-free loan into the revolving funding pool.

This model is not crowd-funding in the usual sense. Crowdfunding platforms have numerous disadvantages and no real advantages for a long-term revolving funding model that will potentially involve large sums of money.

What is this model most fit for purpose for?

This model is most fit for solar installations and energy efficiency measures for 'deserving causes' where a significant portion of their electricity use is during the day (at least 5 days/week). Solar PV installations of up to 10kW are ideal - less if on-site usage is low or donated funds are likely to be limited. Most of the generated solar power should be used on site rather than exported to the grid to minimise payback times and maximise the amount of money available in the revolving fund for subsequent projects.

The model will suit any incorporated group who want to implement a series of small Quick Win projects over a period of years. For example, if the group can attract enough donations to fund one project a year, after 5 years (assuming a payback period of 5 years) the loan repayments alone will continue to fund one new project every year, forever.

Theoretically this revolving fund model could also be used to fund projects for businesses or homeowners, but it is obviously easier to attract voluntary contributions if the project recipient is considered to be a deserving cause.

Essential requirements for viability

The essential requirements for this model to be viable are:

- A series of project hosts with suitable roof space and regular daytime electricity use
- A mechanism for soliciting and receiving donations, and an account for depositing donations, issuing loans, and receiving loan repayments
- Access to professional product and installation advice to ensure high project quality
- Admin people (preferably volunteer) to promote project fundraising, manage and report donations and loan repayments, and assess and liaise with prospective project hosts
- Transparent financial and project reporting so that the public can see how donated money is used, and preferably annual financial audits (essential if the group implementing the project has DGR status).

Constraints

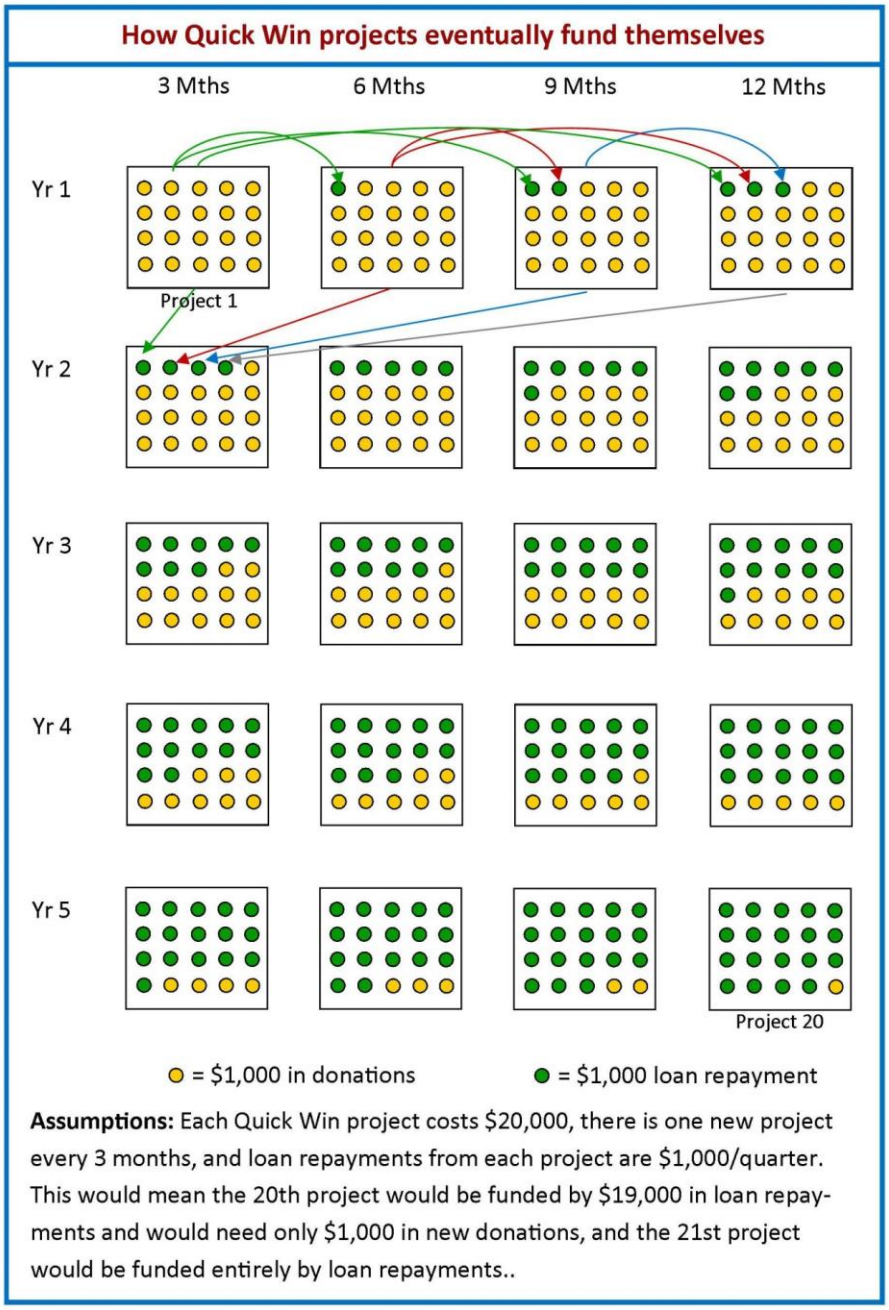
This model is most suitable for projects for community organisations that own their own building, although ones with secure long-term leases are possible with permission of the owner (generally council- or state-owned premises).

The ability of the host to reliably repay the loan should be considered, with contingency clauses included in the loan agreement, since there is a responsibility to donors to maximise the benefit of their contributions by having funds revolve through to future projects.

This model is theoretically suitable for projects of any size, but the size/cost of projects should be in balance with the amount of money that can be raised quickly enough to be a 'quick win'. Donors want their money to be used in a project and start reducing emissions reasonably soon after they donate it.

A first project is the hardest to fund because all funds must be donated. Subsequent projects get progressively easier to fund as more and more projects start making quarterly loan repayments back into the funding pool (see Figure 4).

Figure 4. How the project proportion funded by loan repayments grows



Source: CORENA (http://corenafund.org.au/quick-win-projects)

How to utilise this model

Regional renewable energy groups or climate action groups typically have members who are impatient for tangible outcomes. Such a group can apply this model at whatever scale suits them in order to achieve some quick outcomes, perhaps while they work through the process of setting up a larger more complex investment-based project.

The model could be tweaked to suit the aims of the group. For example, this model could be used until a larger investment-based project is ready to start seeking investors. At that point the plan (publicised in advance) could be to start directing all Quick Win loan repayments to the larger investment-based project. The initial Quick Win projects would provide a good opportunity for involvement by people who could donate a small amount but could not afford to invest directly in the larger project. It would give all

supporters something they could help achieve, not just those with the specialist skills required for setting up a large investment project.

Alternatively, any renewable energy group is welcome to partner with CORENA to fund a Quick Win project in their local community. The local group would initiate the project and liaise with the host organisation, and help build local interest in and support for the project. CORENA would provide the admin role and promote the fundraising effort nationally. Since loan repayments and donations from other areas of Australia would help reach the funding target, this would be a relatively quick and simple way to achieve a one-off small local project.

Note: CORENA currently has a couple of projects in the funding queue, and we'll need to finish funding those before starting to fund a new project, but we are happy to add new projects to the queue. In fact, our preferred way of operating is to partner with a local group, particularly for projects in communities a long way from Adelaide were the core of the CORENA team are based.

What not to do:

- Don't forget to check for possible energy efficiency measures at the host site. A combination of energy efficiency and a small solar PV installation can be more cost effective than spending all the project funds on solar.
- Don't risk damaging your group's public credibility by using cheap and possibly unreliable components.
- Don't try to fund more than one project at once. Finish one, then move onto the next so that donated funds are put to use as promptly as possible.

Key lessons from other groups using this model

There was no direct model for us to learn from for donation-based funding of renewable energy projects, but we did extrapolate from several key observations concerning the Hepburn Wind project.

- We noted that some investors in that project were motivated primarily by the desire to see the tangible outcome rather than by a particular desire for a financial return on their investment, suggesting that a donation-based model could work.
- We noted that it was very involving and empowering for the local community but left people in other states and territories out in the cold, so we wanted to develop a model that could involve and empower everyone regardless of where they live.
- To us it seemed a pity that such a wonderful project, which took years of dedicated effort to achieve, did not somehow automatically help fund subsequent projects.

Getting Assistance and Finding Out More

CORENA is happy to answer any questions about how to implement the Quick Win model. A lot of detail can be gleaned simply from a thorough read of our website (http://corenafund.org.au), but if anything is not clear feel free to ask us what we do, or why we do things the way we do.

Intellectual Property

A copy of our loan agreement template is available on request. There are no restrictions over copying the Quick Win project model or methods.

2.4 EMBARK'S MID-SIZED SOLARFARMS MODEL

Embark's mid-sized community solarfarm model uses an unlisted public company legal structure to enable medium-to-large numbers of community members to co-invest in a project.

The most advanced project using this model is Embark's Sydney Renewable Power Company 400kW project to be built on the Sydney International Convention, Exhibition and Entertainment Precinct at Darling Harbour.

What it is[4]

This model is especially suited to where community investors fund a solarfarm which is installed on the premises of a medium-to-large electricity user.

The model can be either on the basis of the community company selling power to the host of the solarfarm (power purchase agreement) or lending the money to the host for a solarfarm.

The main strengths and benefits of this model are:

- The ability to involve a large number of community investors (i.e. greater than 50).
- Public company structure is widely used, as compared with less common legal models such as cooperatives. This can make accessing professional advice – such as legal, financial and taxation – easier and more affordable.
- The constitution can be tailored to incorporate community purposes and principles, fore example by using the Benefit Corporation certification.

The Embark model includes the following templates:

- Financial spreadsheets to forecast income, solarfarm power output, expenses and returns for investors
- Company constitution, which can be tailored to embed a community purpose in much the same way as more traditional legal models like cooperatives (such as a one-shareholder-one-vote democratic rule rather than the usual one-share-one-vote rule)
- Company disclosure documents, for offering shares to the community
- Key legal agreements such as roof leasing for installation, power purchase, loan, etc.
- Pre-legal agreements such as Memorandums of Understanding
- Presentations and fact sheets for marketing and communications.

What it isn't

Being 'unlisted' refers to the fact that the shares are not listed on a public stock-exchange for trading (buying and selling). As such, shares can only be sold directly between sellers and buyers on a bilateral basis.

What is this model most fit for purpose for?

This model is most fit for community energy projects of $1m in value or greater. This minimum financial project size is required so as to ensure that the costs of establishing and operating the model can be covered while still achieving a fair financial return for the community shareholders.

[4] Model available online at http://embark.com.au/display/public/content/Embark+mid-scale+solar+model+description

To date, Embark has focussed on using the model for medium sized community solarfarms. The model could be applied to other renewable energy technologies though, such as hydro or even funding energy efficiency upgrades.

Essential requirements for viability

The essential requirements for this model to be viable currently are:

- A solarfarm host who is able to consume all of the electricity at the time it is produced. This is often described as the solarfarm being 'behind the meter' or 'under the load'. It means that the host uses a significant amount of electricity in the day time, every day of the year (i.e. including weekends and holiday periods). This is key because the value of electricity saved (retail price) is much higher than the price for selling electricity sold through the electricity grid or network (wholesale price).
- High certainty in being able to sell the renewable energy certificates (RECs) generated by the solarfarm for the period of the project (7-12 years). This is because the RECs account for approximately one-third of the project's income.
- Professionals with relevant skills willing to be Directors and/or assist voluntarily with governing and operating the community company. The company is likely to be able to afford to pay for core professional services (e.g. annual financial audit) and basic administration.

Constraints

This model is generally suited to large metropolitan areas where there are suitable solarfarm hosts as well as interested community investors. There are however, still many regional or rural centres that may meet these requirements.

How to utilise this model

Developing a mid-sized solarfarm project takes effort, time and cash. There is a considerable body of work to do before a project is ready for community investment. Having a core leadership group is key. They need to be both willing and able to conduct negotiations with prospective solarfarm hosts as well as engaging with the community and other key stakeholders to build sufficient support.

The core components of this model - financial and legal structure and agreements - are likely to be similar across different communities and projects. The choice of a debt-based or power-sale arrangement is a key choice - with Embark's strong preference being for the former.

The purpose of the project over and above the solarfarm operation itself is likely to vary between communities. It is important to involve a range of community investors and stakeholders in developing the core purpose and principles for the initiative.

Lastly, it goes without saying that the identity of your project - it's brand, look, feel, style and so on - need to reflect your project. Australia's community energy movement aims to create a network of unique and complementary projects rather than a new national franchise!

What not to do

The current policy uncertainty in respect of the Renewable Energy Target largely can make this model unviable. This is because around one-third of the income of a solarfarm larger than 100kW arises from the sale of renewable energy certificates (RECs) year-by-year into the future. The riskiness of this income today makes it nearly impossible, if not unethical, to seek community investment and provide reasonable financial returns.

The one exception to this is if it is possible to negotiate an arrangement that includes a long-term purchaser for the RECs, such as by an organisation aiming to be carbon-neutral or sustainable.

Key lessons from other groups using this model

- In addition to the SRPC usage of this model, Starfish, through its solar energy collaboration Farming the Sun, has worked with Embark for three years on this model. In that time the specific requirements for a viable project have become much clearer, and challenging. The external political context has shifted, as has the increasingly competitive renewable energy sector.
- The upshot of this though is that Farming the Sun has assessed more than 120 prospective hosts to only yet have one viable project - with Lismore City Council.
- Suffice to say that pursuing this model requires time, a level of financial backing, professional nous as well as passion for community energy.

Getting Assistance and Finding out More

Embark is the key organisation to approach for assistance. Their website includes extensive details about community energy generally as well as unlisted public companies and solarfarms.

Starfish have developed and delivered training on this model for other community groups including CROW (Climate Rescue of Wagga) and Manilla Community Solar Co.

Intellectual Property

Embark and Starfish both make their intellectual property available under a Creative Commons licensing agreement for non-commercial use.

Simple written agreements are required to ensure that any party utilising the model is fully responsible for seeking their own independent legal and financial advice.

2.5 DAREBIN SOLAR SAVER

Supporting solar PV roll out across the residential sector through utilisation of Council rates scheme to support financing and community sector capacity to provide trusted brokering. The program has supported 300 pensioners in the City of Darebin to install solar PV, with no upfront cost and match repayments with savings on electricity bills. The model is similar to the Property Assessed Clean Energy (PACE) schemes that have operated successfully in USA.

What it is[5]

Aims / values / purpose	The model establishes a structure to better support residents invest in solar PV by engagement through trusted stakeholders and low interest finance to offset upfront cost.
Technology	Standard small scale residential PV systems.
Finances	Council finance capital cost through bulk purchase from supplier/installer and recover cost through rates charge over 10 years.
Community involvement	The project is delivered by Local Council in partnership with Positive Charge (a Social Enterprise of not-for-profit community organisation Moreland Energy Foundation ltd.).
Organisation/ Governance	Council provide promotion and finance mechanism. Positive Charge provides project management, household advice, solar assessment and brokers specifications and contracts on behalf of a solar PV supplier and Council.

Council
- Debt w' property
- Administration
- Low interest

Finance
- Council budget
- Private finance
- Low interest

Broker
- Trusted advocate
- Technical capacity
- Call centre capability

Supplier
- Quality
- 10 yr + warranty
- Volume capability

What it isn't

While similar to environmental upgrade agreements (EUA), utilising the *Special Charges* (which may only exist in Victoria) requires Council to directly bear the cost of capital (debt), whereas EUA requires the Council to collect the debt though does not have direct financial liability.

What is this model most fit for purpose for?

- Large scale roll out of residential and small business solar utilising Council rates scheme to build participant trust, access low cost finance and manage ownership transfer.
- Opening up the benefits of solar PV to low-income households.

[5] Model available online at http://embark.com.au/display/public/content/Darebin+Solar+Savers+model+description

Essential requirements for viability

To deliver the model effectively there needs to be a strong partnership between Council, a community interface (broker) and the equipment supplier. Council needs to be proactive in promoting the project, willing to undertake upfront investment and able to manage administrative requirements to utilise the rates scheme to recover investment.

A broker is essential to provide a clear and straightforward process for participating households and businesses and reduce administration for Councils and lending institutions. The broker is able bring together the participant's needs, supplier specifications, lending conditions and Council requirements. MEFL through its Positive Charge initiative delivered the Solar $aver program for Darebin City Council as a broker, providing independent assessment of viability, quotation on behalf of a supplier and contract issuing on behalf of the Council.

The benefits of this model allow a technically qualified team to engage with participants, provide independent advice and make arrangements on their behalf to streamline the process. Given the additional requirements to liaise with tenant and landlord in the majority of business arrangements a clear brokering functionality is critical for rates based schemes to genuinely realise the potential environmental benefits. The cost of the role can be integrated into the end cost for the service.

Solar installations on recipient roofs should be scaled to ensure that savings on a household or business electricity bill are greater than the rate repayment.

Constraints

a. Legal and political uncertainty

The Darebin Council's Solar $aver program pioneers a rates based finance approach for residential buildings. Further legal advice and regional pilots in early 2015 will further clarify legal and political support for this approach. Rates based finance is becoming increasingly certain for the business sector due to current utilisation of EUAs in the City of Melbourne, NSW and South Australia and bipartisan support for EUA legislation to be extended to the Victorian Local Government Act. To utilise the Local Government Act in Victoria currently requires Council to directly finance the projects which may limit capacity depending on Council's other finance commitments. It is unclear whether the NSW Local Government Act or similar legislation in other states are able to support such a scheme due to a narrow definition of Special Charges.

b. Administrative burden

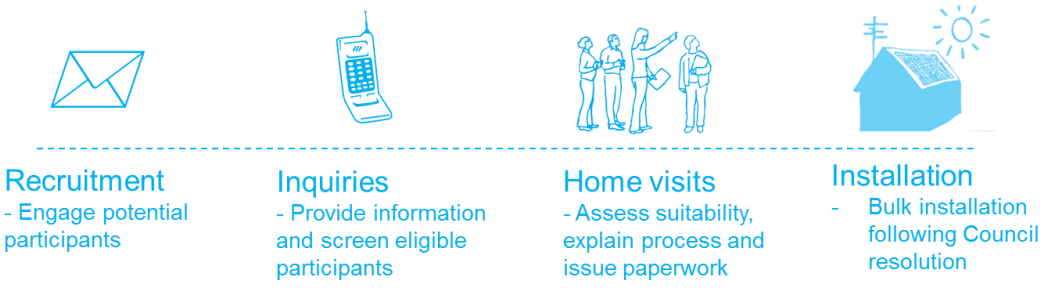
Implementing rates based schemes will require administrative support to establish a scheme and process rates charges over time. For the scheme to be both effective for participants and efficient for Councils, there needs to be a clear process for establishing participant eligibility, lender and supplier accreditation, and routine collection and processing of payments.

How to utilise this model

Community Engagement

Engaging participants effectively and efficiently is key to the impact and viability of the model. Managing recruitment, screening eligibility and issuing contracts are critical stages that need to be coordinated.

Figure 5. Engagement process for Darebin Solar Savers Model



Council Process

Having recruited participants, Council must declare its intention to utilise the *Special Charges* mechanism through public notice (note may only currently be available in Victoria), allow 28 days for concerns to be lodged and considered and then a Council resolution to implement the *Special Charge*. As part of the process, Council is required to keep participants up to date and informed of the process.

Finance

Council bulk purchases solar PV equipment for all participants from a supplier and then recovers the cost through individual rates charges for each participant. Council could itself borrow funds or finance from internal reserves.

Figure 6. Finance model underpinning Darebin Solar Savers

Getting Assistance and Finding out More

Visit: http://www.mefl.com.au/news-and-events/item/1146-darebin-solar-aver.html

Intellectual Property

No intellectual property applies or is required.

2.6 REPOWER SHOALHAVEN & DIFFERENCE INCUBATOR'S SMALL-SCALE SOLARFARM MODEL

The Difference Incubator's (TDI) small-scale community solarfarm model uses a proprietary limited company Special Purpose Vehicle (SPV) legal structure to enable up to 50 community members to co-invest in a project (though no more than 20 per year). This model is especially suited to a solarfarm that is installed on the premises of a medium-to-large electricity user.

The best example of this model being utilised is REpower One - a 100kW solarfarm created in partnership between REpower Shoalhaven Inc (RSI) (community energy group) and Shoalhaven Heads Bowling Club (host site).

What it is[6]

Community investors can provide capital either by way of being a lender or shareholder to the SPV. The model is based on the SPV owning and operating the solarfarm for a period of 7-10 years, with a power purchase or rental agreement in place with the host. Following this period of time, or sooner if negotiated, the host becomes the owner of the solarfarm. The agreements include a methodology for the buy-out value.

As the owner-operator of the solarfarm, either the SPV or parent community organisation is responsible for metering electricity and regularly invoicing the host for their consumption.

What it isn't

The SPV is not an entirely independent community entity. While the SPV is entirely owned by community members who are shareholders, it is governed by the board of the parent community organisation through a special shareholding that gives them voting power but no dividend rights.

What is this model most fit for purpose for?

The TDi model is well suited to an existing community organisation looking to develop a number of community solarfarm projects. REpower Shoalhaven are looking to do this.

The limit on the number of investors (see Constraints section below), and their financial capacity to invest, will affect the total financial value of possible projects. This factor, combined with the current political uncertainty surrounding the Renewable Energy Target, makes the model most fit for solarfarms of up to 100kW in size.

The main strengths and benefits of this model are:

- Availability of the existing templates
- Demonstrated track-record with REpower One

[6] Model available online at http://embark.com.au/display/public/content/RePower+TDI+model+description

Essential requirements for viability

The essential requirements for this model to be viable currently are:

- A solarfarm host who is able to purchase (or pay for via a rental agreement) all of the electricity at the time it is produced (as well as insurance of the solarfarm). This is often described as the solarfarm being 'behind the meter' or 'under the load'. It means that the host uses a significant amount of electricity in the day time, every day of the year (i.e. including weekends and holiday periods). This is key because the value of electricity saved (retail price) is much higher than the price for selling electricity sold through the electricity grid or network (wholesale price)
- High certainty in being able to sell the renewable energy certificates (REC) generated by the solarfarm either up-front (for renewable energy generation of less than 100kW in size) or throughout the period of the project (7-12 years) for projects larger than 100kW. This is because the RECs account for approximately one-third of the project's up-front capital or ongoing income respectively.
- Either of the following to satisfy the governance, compliance and operating requirements (invoicing the host, financial distributions to investors) of the governing community organisation and SPV:
    - Professionals with relevant skills willing to be Directors and/or assist voluntarily, or
    - Financial viability purchasing fee-for-service support from REpower Shoalhaven

Constraints

As the owner-operator of the solarfarm, the SPV (and so investors) carry the risk of something going wrong with the performance of the solarfarm. Any sub-optimal performance of the solarfarm will directly affect, and reduce, the income of the SPV from selling electricity and/or renewable energy certificates (for projects larger than 100kW in size).

The SPV can have up to 50 investors in total, however no more than 20 in any 12 month period. As noted above, this can constrain the total financial value of possible projects (depending upon the financial capacity of the investors of course).

It may be possible to secure bridging finance for a project to be able to make available two rounds of investment (i.e. two blocks of up to 20 investors). The second tranche of community investors could pay out the bridging loan.

Lastly, there is the risk of host experiencing financial difficulty and being unable to pay for the electricity, rental and/or buy-out of the solarfarm.

How to utilise this model

Developing a community solarfarm project takes effort, time and cash. There is a considerable body of work to do ***before*** a project is ready for community investment.

A core leadership group is key. They need to be both willing and able of negotiations with prospective solarfarm hosts, assessing the suitability and viability of prospective sites, as well as engaging with the community and other key stakeholders to build sufficient support.

The templates have been designed as a general legal starting point, however legal and financial advice is likely to be required to fully understand and utilise the model.

As noted, there is potential to engage fee-for-service support from REpower Shoalhaven.

What not to do

As noted above, the current political policy uncertainty in respect of the Renewable Energy Target makes solarfarms larger than 100kW unviable for the moment. This is because around one-third of the income of a solarfarm larger than 100kW arises from the sale of renewable energy certificates (RECs) year-by-year into the future. The riskiness of this income today makes it nearly impossible, if not unethical, to seek community investment and provide reasonable financial returns.

The one exception to this is if it is possible to negotiate an arrangement which includes a long-term purchaser for the RECs, such as by an organisation aiming to be carbon-neutral or sustainable.

Key lessons from other groups using this model

REpower Shoalhaven were closely involved with the development of the TDi model, which was in fact developed specifically with the purpose of enabling their REpower One project. They have developed knowledge, systems and templates which are key to the successful use of this model:

- Advice to clarify taxation treatment of different aspects of the model
- Investment offer documentation
- Automated processes for quarterly billing of the host, accounting and annual reporting

As the governing organisation, REpower have structured their project to have one annual meeting and financial distribution for the community investors.

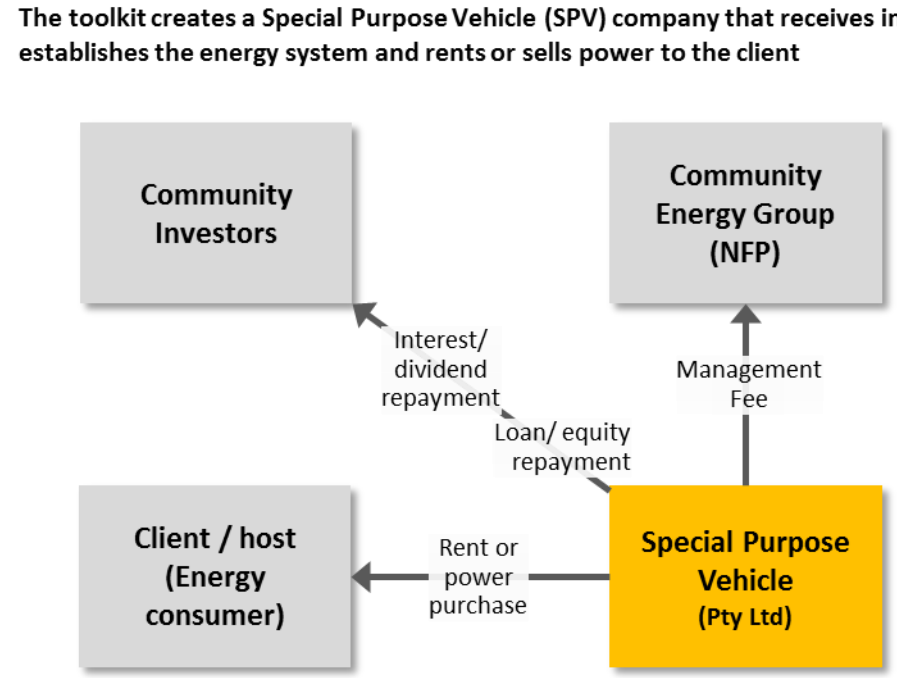
Getting Assistance and Finding out More

REpower Shoalhaven are your first port of call for advice on this model. The REpower Shoalhaven/TDi model includes templates for:

- Power Purchase Agreement for the sale of solar power to the host (which requires the parent community organisation to hold a retail electricity licence or exemption
- Solar System Rental and Power Purchase Agreements
- Management Agreement between the community organisation and the SPV
- Community investor documents:
    - Loan Agreement plus Letter of Comfort (which is between the community investors and the parent community organisation since in the loan-based arrangement they have no decision-making authority with the SPV)
    - Shareholder Agreement where use in the shareholder-based structure
- Fact sheet and guide to registering the SPV through Cleardocs

You can also find out more about this model in a Fact Sheet on the Embark Wiki.

Figure 7. Key elements of the TDI Model



Source: TDI toolkit accessed at:
http://embark.com.au/display/public/content/TDI+small+scale+community+solar+legal+toolkit

Intellectual Property

The various templates listed above are available for free from TDI with the requirement of signing a simple Memorandum of Understanding before accessing the documents. For details email toolkit@tdi.org.au.

3 DECIDING THE MOST APPROPRIATE MODEL FOR YOUR COMMUNITY

The table above and the summary of each model should help you choose the most appropriate model for your community.

A web-based model decision guide has been created[7] to provide a visual step by step guide to identifying which community solar model will work best for your group and local community. A static version is included on the follow page and in a downloadable A3 pdf.

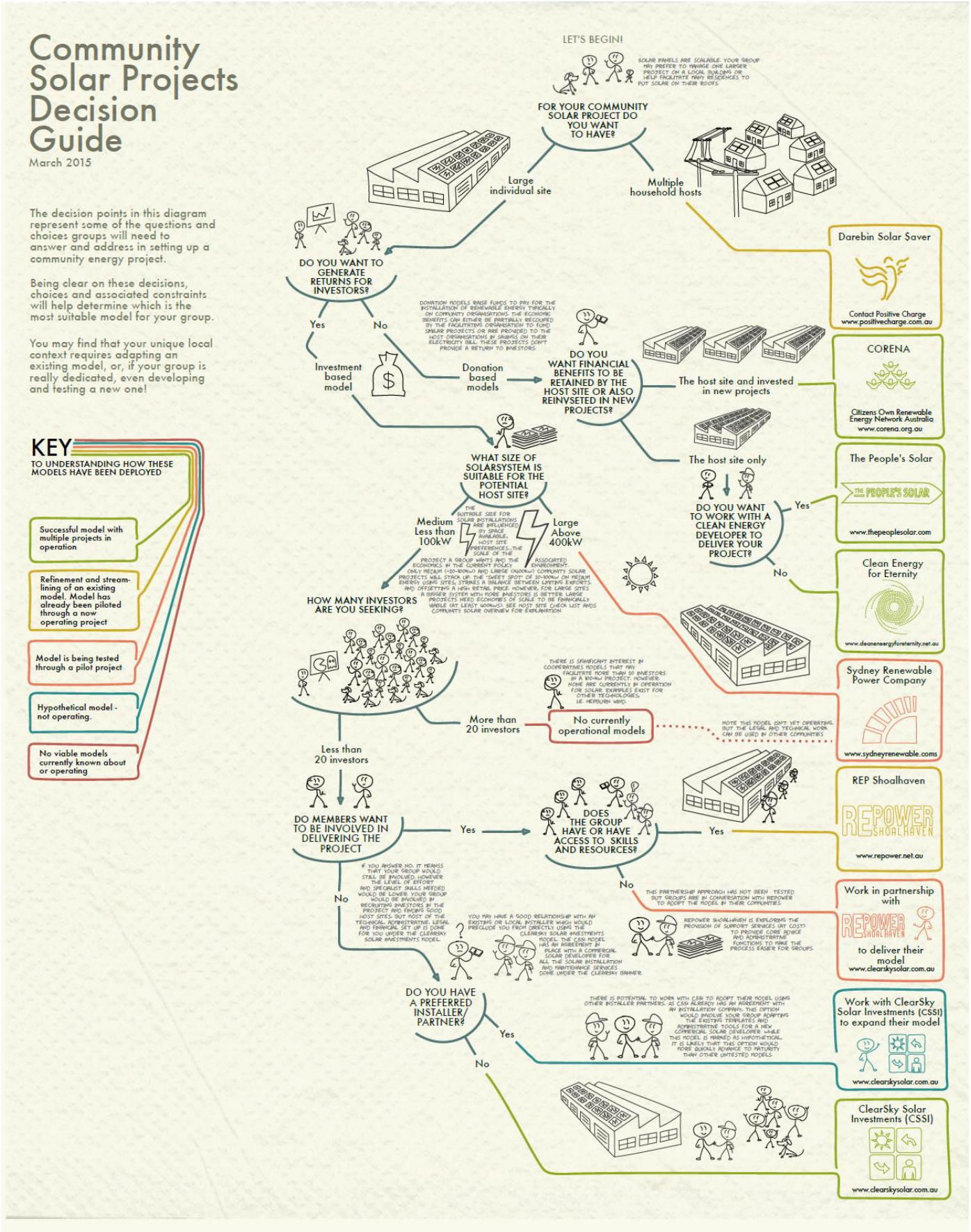
The decision points in the diagram below represent some of the questions and choices groups will need to answer and address in setting up a community energy project.

Being clear on these decisions, choices and associated constraints will help determine which is the most suitable model for your group.

You may find that your unique local context requires adapting an existing model, or, if your group is really dedicated, even developing and testing a new one!

[7] Please note the web-version of Appendix E allows for interactivity and connection to other documents and information.

Figure 8. Decision Tree for choosing a community solar project model



4 HOST SITE PRE-SCREENING CHECKLIST

CHARACTERISTICS OF A GOOD SITE FOR BEHIND THE METER COMMUNITY SOLAR

This guide is designed to provide a community group with the preliminary information to quickly assess whether a business or organisation is potentially suitable for a community solar project. This guide is most relevant for investment-based behind-the-meter community solar projects from 20-100kW or > 400kW on commercial premises (RePower Shoalhaven, ClearSky and SRPC models).

Below is a checklist for the **pre-screening of possible host sites**. If the site passes most of the conditions below, only then it is worthwhile approaching the possible host site to appraise their interest before conducting a full feasibility assessment.

4.1 TECHNICAL CHARACTERISTICS

1. Is there space on the roof (or in adjacent land) for a solar array[8]?

- Each kW of solar requires 6-10m2 for flush mounted systems and 12-18m2 for raise mounted systems depending on a number of factors such as the module efficiency, array configuration, roof inclination, longitude, etc.
- Solar can't be installed on roof surfaces that are transparent, have vents or antennas
- Solar should be ideally installed facing north, although some commercial premises may benefit from slight deviation of NE or NW.

2. Is shading an issue?

- If the roof has substantial shading on the north, east, or west side of the array location, it could substantially impact the viability of the array. Take into consideration growth of nearby trees over the investment life of the project (7-25 years) and what type of development is permissible on adjacent sites under applicable Local Environment Plan (LEP) zoning and development controls.

3. Is the roof structure sound?

- If the roof structure cannot support the panels, or the roof will need to be repaired over the investment life of the project (7-25 years), this may add costs, potentially making the project unviable.

4.2 ECONOMIC CHARACTERISTICS

4. Is this customer likely to have sufficiently high minimum demand during daytime hours?

- To be economic, solar must be offsetting onsite electricity consumption at the time of generation, year round. This is because electricity customers gain little value, if any, from exporting solar energy into the grid.

[8] A number of calculators can be found online for individuals and groups to help determine whether there is sufficient roof space (these vary in level of detail of inputs and outputs, whether they are commercial products or freely available).

- To quickly assess whether their demand may be suitable, does this site utilise any of the following electronic processes during the day?
    - large heating, ventilation and cooling systems
    - cool rooms and commercial refrigeration
    - pumps and/or motors which are in constant use
    - a large quantity of lights
- The more diversity of processes in operation, the steadier the demand load will be, and hence the more suitable the building will be for community solar.
- Ideally the site should operate 7 days a week 52 weeks a year. Consider if the business has downtime where the demand falls below its typical daily use, for example, weekends or holiday periods. Insufficiently high load at these times (leading to greater exports) may negatively impact the financial viability of the project.

5. Does the business pay a sufficiently high price for its electricity?

- The higher the electricity price, the more economic it will be for the business to install solar.
- Typically the more electricity a business uses, the lower their price and vice-versa. This means that buildings which often have sufficient demand load for a community solar power facility often have very low electricity prices, and therefore they attain less value by installing community solar. Alternatively, buildings with high electricity prices often have insufficient demand or roof space for a community solar facility.
- Therefore, appropriate buildings are often medium sized businesses or organisations which fall into the ‘sweet spot’ of having sufficiently high electricity price and steady daytime demand.

4.3 INVESTMENT SECURITY CHARACTERISTICS

6. One of the biggest risks to a community solar project is if the host site business defaults on their payments. Therefore, the viability of the business should be taken into consideration at the outset.

- Typically safe host sites include government buildings such as council facilities, or other public buildings such as police, health or education buildings.
- When assessing a business, consider how established the business is and how resilient the business might be to possible risks in the medium to long term. These include sensitivity to enhanced competition, foreign exchange rates, regulatory change and trends such as the changing retail economy, or changing demographics. A more diverse income stream often means more inbuilt resilience.
- To provide project and investor confidence, you may need to request financial account records from the possible host site. Depending on the business type, this information may be commercially sensitive and may not necessarily be available for release to the community group or prospective investors.

4.4 NEXT STEPS

If the host site has passed these basic pre-screening tests, you may feel ready to approach them to see whether they are interested in community solar.

It is vital to note that the experience of community energy groups to date has been that while hosting a community energy project can be an attractive financial proposition, it is unlikely to be able to 'compete' in purely financial terms with self-financed PV system installation (for businesses with access to funds to purchase the system), or commercial solar leasing (for businesses who want a no upfront cost option).

If the motivation of a business are strictly financial, there is a high risk that the community group will expend time working with the organisation, after which they decide to pursue a self-financed or commercial leasing model. As such, when contacting the organisation, it is important to quickly establish whether their motivations align with some the following characteristics.

Organisational Motivations

- To engage with local community or constituent/customer base for marketing, public relations or other benefits
- Interest in innovation, particularly with regard to technology and social enterprise
- Willingness to pay a small financial premium for the opportunity to work with the community
- Reduction of carbon emissions for social good, or marketing and public relations benefits
- Provide opportunities for members, employees and supporters of the organisation that will use the power generated to invest in their own organisation and their own local community
- Provide a renewable energy investment alternative for those wishing to divest their fossil fuel investments
- Increase the long term resilience of the organisation that will use the power by dramatically reducing electricity costs once the system has been paid off (typically 7-10 years).