Moreland Energy Foundation

Wodonga Community Solar Business Case

December 2017

ATA

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Contents

1 Executive summary

The transition away from fossil fuels to renewable energy sources has gathered significant momentum and increasing diversity across Australia in recent years. Strong Victorian Government support for community-based organisations pioneering new energy delivery models is further stimulating a strong 'community energy' (CE) sector that is seeking to help shape our energy system by creating locally beneficial models for renewable energy generation.

The appetite for community investment in renewable energy projects is strong and there is currently a larger appetite than is a pipeline of projects available in the market. Recent testing for a community co-investment into Sapphire Wind Farm (NSW) at $5.4M demonstrates this demand for moderate returns, low risk opportunities which have a demonstrated community benefit and enable broader participation in the transition.

Moreland Energy Foundation (MEFL) and our partners the Alternative Technology Association (ATA) and Akin Consulting developed this business case on behalf of the City of Wodonga (Council) and Renewable Albury Wodonga (RAW). The purpose was to investigate the potential for a mid-scale community solar project to be developed within the municipality with the community benefit of the project directed to low income households and community education within Wodonga.

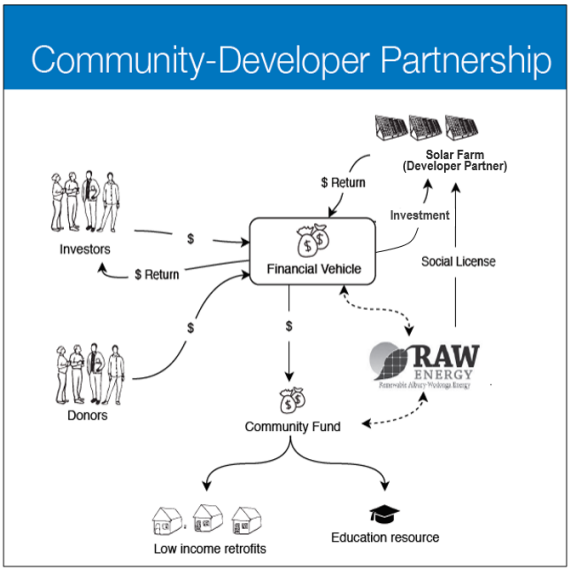
The Wodonga community, through local CE group Renewable Albury Wodonga (RAW) is interested in testing the conditions in which a community-developer partnership (an emerging CE model) can be successful to demonstrate that a partnership model can work locally.

This business case explores the opportunity for the community to co-invest in a portion of a larger solar project through a community-developer partnership (CDP).

This model was selected as it most closely aligned to the objectives of the project – namely to undertake an approximate 2MW solar project with the benefit delivered through energy literacy education and energy projects benefiting low income householders. Crucially, the CDP model was also selected during the feasibility phase following local stakeholder engagement that successfully identified multiple local potential developer partners willing to participate in this scoping study.

There are at least two local partners who are interested in the opportunity for co-investment and the benefits that can bring to their organisations and the local community more broadly. This business case provides guidance on the conditions a commercial arrangement with a developer partner would need to meet in order for a project to be viable from a community entity perspective.

Diagram 1 below illustrates some key stakeholders that would commonly participate in this type of CE model.



In this diagram scenario, the 'Financial Vehicle' and the 'Community Fund' are all controlled by the community entity (initiated by RAW Energy) – an incorporated entity run by members of the local community. Their goal is to use the project to generate a community fund to meet project objectives

The 'Solar Farm' in the top right represents the renewable energy developer, or 'developer partner'. Motivating this stakeholder to parter with the CE group, could be meeting organisational community partnership goals, corporate social responsibility objectives, gaining social license, and their own carbon reduction targets.

The community investors / donors are motivated by a range of personal, financial, community and environment related factors.

As project partnerships are to be further explored going forward, and the business case is targeted for RAW/Council, the business case scenarios developed are focused on the minimum conditions that would be required to make the project financially viable from a community entity perspective. This is benchmarked at a $15,000 - $20,000 surplus each year from the project, which is enough to meet the minimum objectives of a community fund (focussed to benefit low income households in the region and modest education resources for improving energy literacy).

Two variations are explored, one where a single energy price (per kWh) is used, reflecting a potential 'willingness to pay' by either a developer partner or an energy retailer and the other in which funds are loaned to a developer partner for a fixed rate of return (which is a higher rate than what is then offered back to community investors).

The scenarios are developed from the point of view of the community entity as outlined below:

- A base case scenario; which has a high administration cost, a higher return (akin to impact investing) and the community entity sharing all costs at full commercial rates
- A middle case; which includes low administration costs, a moderate return and a moderate position on shared costs with the developer partner
- An optimistic case; which includes some grant or donor funding, low administration cost, lower rate of return to investors and the most advantageous position on shared costs with the developer partner
- A loan model; which envisages a larger portion of a much larger project and adopts the most advantageous position on shared costs

In all cases, the investment (community-funded portion of the solar installation) is transferred to the developer partner at the conclusion of the contract period, which varies by scenario.

Further sensitivity analysis was undertaken to determine the most sensitive inputs to the financial model.

The business case acknowledges the need for technical feasibility to be undertaken in relation to any solar farm project, however in the community-developer model, technical feasibility is generally undertaken by the developer partner. The technical feasibility would be a pre-requisite to the project being explored with a partner and may influence costs.

The carbon reduction associated with a project of this type and its ability to meet the social needs of the local community are central to the business case. The business case also explored the significant non-financial benefit that a project such as this can deliver. This includes:

- The community benefit delivered from the community fund generated (low income retrofits and community education)
- The benefit to the developer partner; for example meeting community partnership goals, meeting corporate social responsibility objectives and meeting their own carbon reduction targets
- Local economic development
- The leadership value of the project and the replicability for other communities

Findings

The study found that the business case for the project is challenging and relies on favourable conditions for one or more inputs to the financial model.

The study found that Scenario 1 (base case):

- Is the starting point for exploring the financial viability of the project
- In absorbing full commercial cost and benefit inputs and a more realistic PPA price, demonstrates that the financial viability of a megawatt-scale, community owned solar farm in the Wodonga region is very challenging.

The study found that Scenario 2 (middle case):

- was the most practical in terms of balancing a moderate investor return with moderate cost of administration;
- requires a minimum purchase price for the energy generated of 16 cents per kWh, which is likely at the upper range a commercial partner may be currently purchasing grid-supplied energy on a large customer contract, and compares extremely poorly with what would be offered on a long term PPA by an energy retailer.

The study found that Scenario 3 (optimistic case):

- is highly dependent on grant or donor capital to work (the level of grant funding required to make this scenario 'work' is greater than the overall surplus over the duration of the project, which would infer that funding would be better provided directly to benefit low income households and community education rather than through a complex partnership model which makes a loss if the grant capital is removed);
- requires a minimum purchase price for the energy generated of 12 cents per kWh, which is within the range that a commercial partner may currently be purchasing grid-supplied energy for on a large customer contract. This is not however reflective of the level at which energy retailers will purchase electricity exported to the grid (current PPA's are typically in the order of 6 to 8 cents per kWh); and
- has a very low cost of capital, which may prove challenging to achieve (a lower return to community investors will reduce the willingness to invest and the size of individual investments).

The study found that Scenario 4 (loan model):

- Benefits from being a smaller proportion of the overall project which may allow for greater flexibility in developer partner contributions to the community entity for capital and operating costs.
- That it is the financing rate between what the community entity secures capital at, and what the developer partner pays, that determines the annual surplus. These rates need be set at a level that makes project goals achievable for both parties.
- From the developer partner's perspective, their willingness to pay is likely to be based on what rate they could otherwise obtain finance at. From an investor or debt finance

provider's perspective, they will also have expectations as to a rate of return for the capital they have invested into the community entity.

In all scenarios the project offers financial benefit back to the community entity (as it was structured to provide minimum viability). Given that the PPA price required to deliver this financial benefit may be higher than a partner's reference point for energy costs, the value to the developer partner must also be established on the basis of non-financial benefits, especially where the energy produced by the community investment component is not consumed in any part 'behind the meter'. In the case of the loan model the financial arrangement must be balanced with the non-financial benefits.

The business case for the majority of scenarios would be improved by any further declines in the installed cost of ground mounted solar or if some of the investment required was offset by donations and/or grants, however these latter inputs affect the replicability of the model.

There is a financial benefit returned back to investors in the model, however most investors in CE projects are not driven purely by financial benefit. The available pool of investment or the rate of take up in the investment opportunity may however be impacted by lower rates of return.

The business case for the community entity and the developer partner may be improved if conducted over a longer investment timeframe, but the ability to lock in investors over this time frame may compromise the ability to raise capital especially if the rate of return is low.

In all scenarios, the non-financial benefits (explored in detail in Section 7) are very strong, so the success of a future project will depend largely on a commercial partner favourably viewing:

- the renewable status of the energy generated, ie the project's ability to help the partner meet its own carbon reduction or community engagement/educational goals
- the longer term benefit associated with the transfer of ownership of the solar installation at the end of the defined term of agreement

In this context, we recommend the following next steps for RAW Energy and City of Wodonga:

- Actively pursue alignment with local partners, with a focus on clearly articulating the non-financial benefit of the project to partners based on the 'middle' case or loan model scenario which reduces reliance on grants or donations and makes the model more replicable;
- Continue to seek feedback from the community on their appetite for community investment and under what conditions;
- Resolve, if partnership conditions are met, the preferred community entity structure and investment raising mechanism.

2 Introduction

Moreland Energy Foundation (MEFL) and our partners the Alternative Technology Association (ATA) and Akin Consulting developed this business case on behalf of the City of Wodonga (Council) and Renewable Albury Wodonga (RAW). The purpose was to investigate the potential for a mid-scale community solar project to be developed within the municipality with the community benefit of the project directed to low income households and community education within the Wodonga region.

The Wodonga community, through local community energy group Renewable Albury Wodonga (RAW) is interested in testing the conditions in which a community-developer partnership (a type of community energy model) can be successful to demonstrate that a partnership model can work locally.

There are at least two local partners who are interested in the opportunity for co-investment and the benefits that can bring to their organisations and the local community more broadly. This business case provides guidance on the conditions a commercial arrangement with a developer partner would need to meet in order for a project to be viable from a community entity perspective.

This report summarises the Phase 2 business case assessment stage. MEFL and partners previously undertook Phase 1 of the project which developed a feasibility study for two different community energy models. The community-developer partnership model was chosen to be explored further through this business case stage.

Multiple local stakeholders have been engaged through the project in addition to Council and RAW. These include several potential local delivery partners, potential developer partners for a community co-investment solar project, as well as a broad range of local, regional and national stakeholders.

2.1 Project context and objectives

The transition away from fossil fuels to renewable energy sources has gathered significant momentum and increasing diversity in Australia in recent years. Strong Victorian Government support for community-based organisations pioneering new energy delivery models is further stimulating a strong ‘community energy’ (CE) sector that is seeking to help shape our energy system by creating fairer, locally beneficial models for renewable energy generation.

RAW and the City of Wodonga (CW) previously commissioned a feasibility study to install 2MW of renewable energy in Wodonga, which would be used to improve energy outcomes for local low-income households. That feasibility and this business case work (Phase 2) is funded through Victorian Government’s New Energy Jobs Fund (NEJF).

‘CE’ – whereby a community owns, leads or benefits from a local renewable energy development – is an emerging sector that is experiencing strong growth and national interest, however gaps around the role of local communities in large scale and commercial renewable projects needs to be expanded as the sector evolves.

Growing in stature, the Australian CE sector in Australia currently has approximately 85 community energy groups developing projects across a range of technologies and scales, and 55 projects already generating in Australia – most of which can be classed as ‘community solar’.

The model being developed by City of Wodonga and RAW, is one of several models which are currently in development. Collectively, they have the potential to unlock significant community investment in medium and large-scale solar and wind, while increasing community participation in the energy transition. Given the scale of the current renewables boom and the Victorian Government's commitment to supporting effective, innovative climate change action, this community-focused and highly beneficial form of renewable energy partnership is a key model.

The appetite for community investment in renewable energy projects is strong and there is simply a larger appetite than is available in the market. Recent testing for a community investment component into Sapphire Wind Farm (NSW) which showed $5.4M of interest, demonstrates this demand for moderate return, low risk opportunities which have a demonstrated community benefit and participation.

The project objectives are as follows:

1. Investigate feasibility and deliver a business case to scope viable options for an iconic 2MW community solar project in the region
2. Link the project to a tangible improvement in the energy outcomes for low income households
3. Raise energy awareness and literacy in the community through the project's education initiatives
4. Be a catalyst for energy transition in the wider region

This phase undertakes the business case which can be applied to a range of potential community-developer partnership projects.

Community energy model selection

Through the feasibility study process, five potential CE models were presented to RAW and Council by the project team and from these, three were selected as best fit potential models to deliver the project objectives. The selected models were:

- Behind the meter solar
- Grid-connected solar farm
- Community-Developer Partnership (CDP) model

Following a series of stakeholder engagements conducted by RAW and Council, assisted by the consulting team, the CDP Partnership model was chosen as the preferred model for the business case phase as it was the best fit for use with several potential local 'developer-partners' willing to participate in this scoping study. These key stakeholders are currently planning medium to large-scale solar projects in the region and have been engaged throughout the business case project to explore the interest and viability of a delivery partnership with RAW.

The CDP model was also selected for the business case as it most closely responded to the objectives of the project – namely to undertake a 2MW solar project with the benefit delivered through energy literacy education and energy projects benefiting low income householders.

The model being developed through the Wodonga Community Solar Project has the potential to provide tangible economic, social and environmental benefit and provide increased social license for large scale renewable projects.

2.2 Project scope

The scope of the business case project is outlined below. It includes the evaluation of the following:

- Value proposition
- Financial viability

- Social desirability
- Detailed energy use model, including methodology to pass on benefits to low income households
- Assumptions
- Governance/identification and detail of potential system ownership arrangements
- Project implementation plan to address regulatory barriers (addressed in section 6)
- Model to establish community renewable energy and energy efficiency education associated with the project
- Site assessment
- Sensitivity cost analysis
- Risk analysis
- Identification of project financing model and project financing sources

The business case acknowledges the need for technical feasibility to be undertaken in relation to any solar farm project, however in the CDP model, technical feasibility is undertaken by the developer partner. The technical feasibility would be a pre-requisite to a specific project being explored with a partner and may influence costs. It is not evaluated in this business case report.

2.3 Purpose of this report

This report outlines the findings of the business case phase of the project.

The report is structured as follows:

- Chapter 1 – an executive summary which outlines the key findings of the business case stage of the project
- Chapter 2 – outlines the background and purpose of the project and report (current chapter)
- Chapter 3 – documents the rationale and methods utilised to establish and test a range of potential project scenarios
- Chapter 4 – which discusses the key considerations of the business case and the components of the business model
- Chapter 5 – details the financial feasibility of selected project scenarios, sensitivity analysis, and outlines key financial benefits
- Chapter 6 – provides a brief comment of the technical feasibility of potential project options
- Chapter 7 – which details the non-financial benefits to all parties and the social desirability for this type of project
- Chapter 8 – which discusses options for community benefit delivery – the proposed operation of the community fund
- Chapter 9 – outlines key recommendations and next steps for the project.

2.4 Key partners

MEFL and its key partners in this project, ATA and Akin Consulting bring decades of experience in renewable energy, community engagement and business case development to this project.

MEFL works with a wide range of CE groups, communities and key energy and social support sector stakeholders to help design and deliver on-the-ground strategies and solutions to the energy transition. These collaborations range from the residential and SME scale, to community, regional and beyond.

ATA are regarded as leaders in delivering technical assessments and solar financial modelling while Akin Consulting have significant experience in the complex area of community-developer partnerships, CE, project governance and benefit models. MEFL has also subcontracted Point Advisory to deliver a peer review of the business case.

The project has also initiated new partnerships including a strong working relationship with RAW and Council, and with local utilities and electricity distribution businesses.

3 Method

The project team have adopted an approach to the project which provides Council and RAW with a robust business case that is grounded in commercial reality with significant industry input via multiple engagements across phases 1 & 2 of the project, including a half-day stakeholder engagement session in Wodonga on 3 March 2017 . MEFL and partners subsequently developed the methodology for this business case. The brief was challenging in that the business case was not testing the merits of a specific project, but rather a model which could be applied to multiple sites and partner arrangements.

This business case explores the opportunity for the community to co-invest in a larger solar project through a community-developer partnership. Specifically, the business case tests variations of the CDP across scale and repayment structures.

For an overview of the CDP model refer to Section 4.

3.1 Project phases

3.1.1 Desktop Review

A desktop review was undertaken on previous work in the feasibility study and the supporting data. In addition, a thorough sense-check of the existing proposed CDP model was undertaken to ensure it was still the preferred model for analysis.

3.1.2 Engagement

Using the model developed for the feasibility stage, the following stakeholders critical to the project were engaged or re-engaged:

- City of Wodonga
- RAW
- Host Site(s) e.g. local organisation as potential ‘developer partner’
- Installers / suppliers
- Distribution business (Ausnet)
- Retailers (partnership potential)
- Potential investors
- Delivery partners (to help distribute benefit)
- Wodonga community

Initially, our engagement was focused on the proposed host site(s) as determined by the inception meeting to revisit their level of commitment, and understand their objectives and requirements moving forward. A memorandum of understanding (MoU) was established with one potential developer partner and subsequent technical and feasibility elements were conducted by both the project team and potential developer partner as part of the early business case investigations. This partner will remain anonymous throughout this document but will be referred to generically as the ‘commercial partner’ or ‘developer’ where appropriate.

The secondary stage of the process addressed relationships with stakeholders such as the local distribution business to understand any significant barriers to a project of this type in the region.

To ground the business case in real world scenarios, MEFL and partners engaged existing commercial solar providers to obtain their commercial view and commitment to the preferred project (basic market testing) and to understand the ability to interact with them and what can be provided to the project as part of their standard business. Options for value adds such as sponsorships and partnership benefit were also explored. Further, other service providers and existing operational CE projects were analysed to provide firm inputs, including Hepburn Wind, SolarShare, Sydney Renewable Power Company, Lismore Community Solar, share registry providers and legal firms with existing CE project experience.

Electricity retailers, ethical investment vehicles, and other engagement

Potential delivery partners were re-engaged as well as a number of new local organisations interested in the project. This engagement extended to understand the interest of some stakeholders to be involved in the distribution of benefit from the project. Smaller retailers were engaged to understand any value adds a retailer partnership could provide to the commercial proposition of the project.

The team also engaged ethical investment funds to gauge their potential appetite for investment in this type of project and to fully understand the ability to leverage funding from other institutions and the possible level of investment and return that would be expected from investors in a particular project scenario.

Administration and Financial Partners

Potential administration and financial partners in the project were investigated locally by RAW and Council. Potential partnerships with Border Trust and WAW (a local credit union) were highlighted as having potential to undertake some of the administration and financial tasks associated with establishing and operating a financial entity and community fund.

Community engagement event – Albury Wodonga Sustainable Living Festival

The project team sought to engage directly with the community as part of the project. The key elements were to test the community acceptance of the preferred project type, how should benefit be directed from the project, and the appetite of community members to become investors. In partnership with Council and RAW, the project team held an information stall at the Albury Wodonga Sustainable Living Festival on November 18, 2017. In addition to face-to-face conversations with community members, an online survey was launched to gain key public feedback in to the elements mentioned above. At the time of writing, 95 responses had been obtained and the survey will remain open.

3.1.3 Business Case Development

The business case was undertaken with a clear description of the preferred project type and an exploration of three scenarios. These scenarios include different governance and financial arrangements to guide selection to the most positive business case. Sensitivity analysis was undertaken to understand the most important levers in determining the financial case and inform the risk assessment.

The financial evaluation of scenarios in Section 5 examines the full range of possible project costs and benefits through a financial model. The financial model was built from the perspective of the community entity and explored the following range of costs:

- capital raising and developing the community entity
- the Capex investment
- operating the community entity (including shared operating costs with a developer partner)

The financial model explored a range of financial benefits including:

- Income from the sale of energy to a developer partner or retailer
- Income from the loan of capital to a developer partner
- Ability to deliver surplus into a community fund
- The financial return to investors in the project

The costs and benefits vary for each of the scenarios and have been modelled and documented.

A number of non-financial benefits were also explored, including:

- Greenhouse gas emission reductions
- Benefit to developer partners from community co-investment
- Community education opportunities specific to the preferred project – including enhancing energy literacy
- Social benefit to low income households targeted through delivery (for example through improved health and comfort)
- Pilot value of an innovative model to other communities
- Ability to fulfil community need – social desirability of the project established through the engagement phase.

4 Factors for consideration

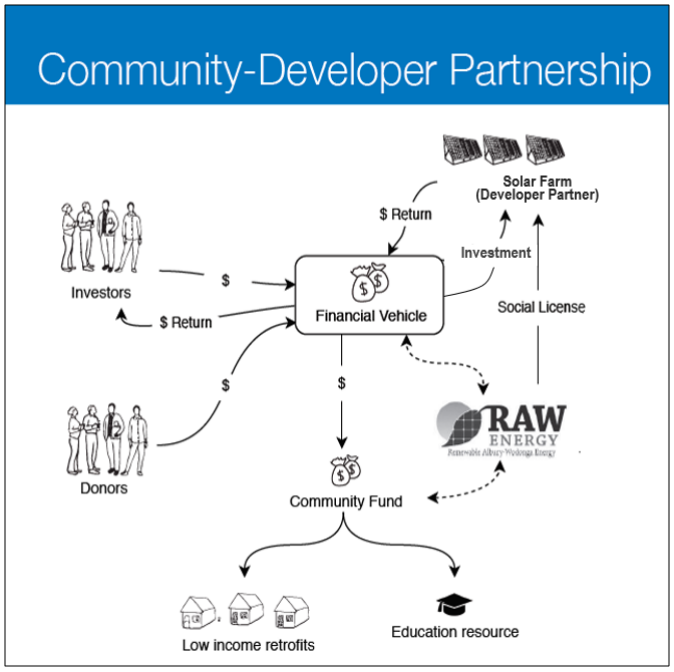
4.1 Overview

This business case report relates to the community investment as part of a CDP, an emerging CE model that several community groups and industry partners are exploring.

CDPs are where a community or renewable energy developer initiates a renewable energy project and both parties agree to deliver aspects of it in partnership. This structure is used typically for mid to large-scale (multi-MW) renewable energy projects where a community investment vehicle is part owner/investor, along with the renewable energy developer and possibly other entities. In many cases, the developer owns a majority of shares and holds most if not all of the decision-making power.[1]

The business model has been developed based on a long history of European models of community co-investment in large scale renewable developments across all technologies. These models are new in Australia, but as the ambition of CE groups grow they are likely to become more prevalent.

Below is the diagrammatic representation of the CDP model



In this case, the 'Financial Vehicle' and the 'Community Fund' are all controlled by the community entity (initiated by 'RAW Energy' – an incorporated entity run by members of the local community). Their goal is to use the project to generate a community fund to meet project objectives (as outlined).

[1] Lane, T., Hicks, J., Memery, C. and Thompson, B. (2015) *Guide to Community-Owned Renewable Energy for Victorians*. Department of Economic Development, Jobs, Transport and Resources, Victorian Government, Melbourne. Available: https://www.business.vic.gov.au/__data/assets/pdf_file/0007/1407751/Community- Energy-Projects-Guidelines-Booklet.pdf

The ‘Solar Farm’ in the top right represents the renewable energy developer, or ‘Developer Partner’. Motivating this stakeholder could be meeting community partnership goals, corporate social responsibility objectives, gaining social license, and their own carbon reduction targets.

The community investors or donors are motivated by a range of personal, financial, community and environment related factors.

The project team recommends the term ‘community co-investment’ (rather than co-ownership). This is when a community investment vehicle buys rights to a portion of the earnings of the renewable energy project but has no decision-making power or control over the operation of the asset. The community investment vehicle could be a company, cooperative, association or trust. In this arrangement, the community has no formal ownership or responsibility over the project[2].

The proposed structure must allow the community investment vehicle to raise capital from investors to support the solar farm and pay dividends to these investors. However, this is an investment opportunity, rather than an ownership opportunity.

Costs of establishing the community investment vehicle will vary widely depending on a number of factors. A key factor is whether the choice is made to adapt existing collateral or models. Another key factor is leveraging reduced fee and pro bono work in regards to the IP being able to be shared under Creative Commons Copyright. If this is a model that can be shared then there is greater ability for fee reduction from commercial partners that would need to be involved in its development.

As project partnerships are still being explored, the business case scenarios developed are focused on the minimum conditions that would be required to make the project financially viable from a community entity perspective.

As noted above, the original brief for this work outlined the need to examine technical requirements, however as these are managed by the developer in a community–developer partnership they are not examined here in detail (refer Section 6). This will not have an impact on the robustness of the business case analysis.

These components were based on a business model canvas activity. It is provided as an appendix to this business case and can be found in **Section 11.1**. This includes analysis of the following in addition to customer segmentation, channels etc:

- Resourcing
- Costs
- Revenue

Together these constitute the financial viability of a project.

4.2 Financial consideration (viability) – model

To assist with the analysis, the financial viability has been segmented as follows:

- Preliminaries and Capex – what will it take to get a project going?
- Operation – what will it take to keep it going?

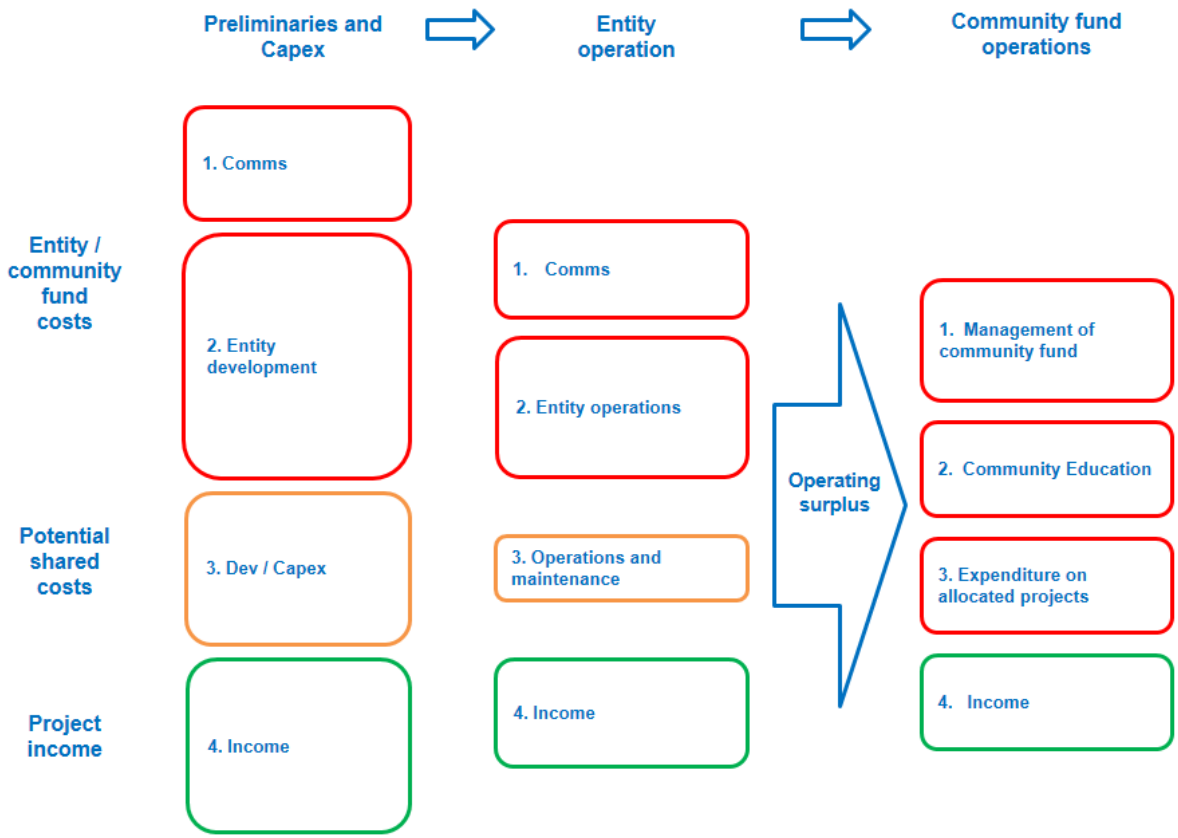
[2] Lane, T. and Hicks, J (2017) *Community Engagement and Benefit Sharing in Renewable Energy Development: A Guide for Applicants to the Victorian Renewable Energy Target Auction.* Department of Environment, Land, Water and Planning, Victorian Government, Melbourne.

- Benefit delivery – how should the community benefit (profit) of the project be best delivered?

The following diagram steps out these components. In a CDP the operations and maintenance costs are shared with the developer partner either at full market cost or reduced / gifted as part of a community contribution.

The following sections break down these business model components in detail.

Diagram 2: Financial model (simple) – Wodonga Community Solar Business Case, 2017



4.2.1 Preliminaries and Capex phase

According to the financial model diagram above, the Preliminaries and Capex stage considers the resourcing and costs associated with the communications and entity development, the development and capex investment and revenue (primarily from community investment).

How the entity development and communications are resourced (and the ramifications on cost) is dependent on the entity structure or community investment vehicle.

The feasibility study presented the two possible models for the community investment vehicle, an unlisted public company limited by shares or a trading co-operative. These are described in **Section 11.2** in detail, including the ongoing responsibilities for each classification of entity.

Based on existing CE projects in the Australian landscape, the project team has determined the most appropriate model to be an unlisted public company limited by shares, however further legal advice would be required to confirm this approach. A lean approach has been taken by the project team for the following stages: preliminaries and capex, operations and community benefit delivery (discussed separately).

For the establishment of the community entity and the capital raising phase, it is essential to understand the different roles and expertise needed throughout.

Developing a community investment vehicle takes a complexity of human resource skills, adherence to legislation and outputs that need to come together which are unlikely to exist in one individual. They are explained below.

Communications

The resources required in communications component during the investment raising (Preliminaries and Capex phase) are as follows:

- Prospectus: Draft / prepare share equity documents for equity fundraising (Note: includes public offer documents)
- IPO: Running the IPO capital raising back end (share registry provider with AFSL)
- Marketing: 9-12 month marketing schedule, graphic design, social media, staff time, FAQ, events, info sessions, printing. For first time capital raising, this would likely require light strategic support (consultant), comprise back bone support (local part time staff capacity) and volunteer contribution
- General comms: website set up, branding

The engagement required in this first phase would largely be a marketing activity and would need significant communications, graphic design, social media, events and info sessions. In regards to the community entity establishment, it is recommended that a legal firm with existing experience in community energy be hired. In addition financial and community engagement skills are necessary.

Entity Development

For the Entity Development component during the investment raising (Preliminaries and Capex phase) the components are as follows:

- Governance structure: Advice and structuring for a community investment (Note: to be confirmed whether this is the equity vehicle or a loan facility). Preparation of constitutions/trust deeds, registration, director appointments etc.
- Registrations: Incorporation of Funding Vehicle (public company) and/or ProjectCo (proprietary company)
- Legals: Preparation of a simple shareholders agreement between community entity and the partners
- Financial set-up: Setting up automated processes, annual billing cycle
- Off-take contracts: If a separate meter is to be used for the project. Drafting, but not negotiating, solar offtake contracts for a proprietary company (Note: contracts may include PPA, lease or access agreement if offtaker is not owner/occupier)

The financial viability section outlines the costs associated with these resources.

Crowd Funding legislation impact

The model proposed is likely to be eligible for the new “crowd funding” exemption under the Corporations Amendment (Crowd Sourced Funding) Act 2017 passed earlier this year, which means only an offer booklet (rather than prospectus) will be required. However, to be eligible for this exemption RAW (or the community entity) will need to engage an Crowd Source Funding (CSF) intermediary that holds an AFS licence with an authorisation to provide a crowd-funding service. This will of course add cost to the funding project. The first round of intermediary accreditation occurred in late 2017, therefore the process and associated costs are still very emergent. For intermediaries such as Birchal, their standard offer is 6% however, they are willing to negotiate capped fees and discounted fees for community organisations.

Some of the rules include that: retail clients can not invest more than the investor cap ($10,000) per company in any 12-month period; a CSF intermediary holds an AFSL and offers crowd-funding services; they have a separate registration process and licensing arrangement under ASIC; the CSF intermediary is used as a platform to raise funds and make offers on the company's behalf.

Under the CSF regime, unlisted public companies with less than $25 million in assets and annual revenue can make offers of ordinary shares to retail clients, through an AFS licensed CSF intermediary's platform, using a CSF offer document. Eligible companies can raise up to $5 million in any 12- month period under the CSF regime.

If RAW was to consider the CSF pathway, the share offer would be more affordable than the standard prospectus, however the intermediary fee would need to be considered. The intermediary, such as a platform like Birchal, would provide marketing services that would reduce the costs in this regard. In discussion with Birchal, it was also noted that if an investor wanted to invest more than the $10,000 limit, they could do so if they have a net worth >$2.5M or had earnt >$200,000 p/a for two years. They would do this via signing a form stating they were a sophisticated investor, which wouldn't have any other financial implications.

Service providers are also key, regardless of the model chosen, a component of the administration of the community investment vehicle would be the share registry. The share register provider would hold the AFSL and manage most of the process. The share registery would run the back end of the capital raising in this phase.

Development / Capex

The cost of human resources required for the Development / Capex component (procurement, planning, design) are shared with the developer – as is the capital investment in the solar farm itself. It is highly likely that in a community developer partnership such as that envisaged, the developer partner would assume (or source) all of these roles based on their technical experience. The community entity may have a minor role in procurement where there is the potential of this adding value. For example, a solar supplier may be willing to reduce cost of installation for the community component in exchange for co-promotion of household solar offers or as a way of meeting a corporate social responsibility commitment.

The financial viability section outlines the costs associated with these human resources and capital infrastructure.

Revenue: community investment

Project revenue during this phase is based on investments by the community, donations or grants, and co-contributions from other commercial partners (for example by a retailer for customer aggregation).

Experience demonstrates that Australian communities are prepared to invest significant capital in local infrastructure, provided that local benefits are created. Successful community energy projects have engaged a new class of investor, the community investor, who may be characterised as having:

- modest return expectations — prepared to accept a slightly lower rate of financial return than institutional investors, offset by an increased expectation of non-financial returns
- generally modest sums to invest — notwithstanding that a significant proportion of funds came from self-managed superannuation
- low appetite for risk
- high levels of patience
- a high requirement for communication

- a high expectation of transparency[3]

Recent experience demonstrates the appetite of the community investor for community energy projects.

- In May 2016, RePower Three, Anderson and Sons Dairy Farm (30kW), Milkwood Bakery (12.5kW), John Hills Signs (20kW) and South Pacific Roof and Trusses (30kW) were able to raise $143,500 from community investors in just seven days.
- In June 2016, Lismore Community Solar was oversubscribed within ten days of opening for its two 99kW sites totalling $360,000. They had enough funding promised to build another project.
- In August 2016, Pingala was subscribed within nine minutes with $17,500 for its Young Henry's site.
- In April 2017, Sydney Renewable Power Company finished raising $1.4M from 150 community investors in just three months.

Given the scope of the investment (~$1.7M), the lead time to establish the community investment entity, market the capital raising and secure investment would need to be well planned.

The potential for donations or grants is also available to the project. A grant submission which responds to the costs of the capital raising phase has already been submitted, however as an emerging model the pilot value of the project may be attractive to research funders or even attract donations based on the innovation or community value of the project. To be replicable however, project proponents may seek to limit donations or grant funding to 'the cost of being first' to allow others to follow the lead of a successful project without reliance on external funding.

If established, the community investment vehicle could grow its project portfolio over time, which could be a significant legacy for the local area.

Key aspects to be considered in regards to this business case:

- the success of capital raising is largely dependant on the marketing and communications campaign delivered
- Higher rates of return are likely to attract a greater range of investors for higher amounts
- Investors may be willing to trade a lower rate of return if community benefit is tangible
- Donations to this model are less likely
- Research or grant funding possible but factored into the best case scenario only

Underwriting of equity

The underwriting of equity is also an important consideration in order to not hold up the timeline of the local commercial partner. Several organisations such as government agencies, superannuation companies and community banks are interested in providing underwriting services which could be paid down as the community capital raising occurs. This could be in the form of project finance for the construction period. Further, they can potentially guarantee a source of equity funding if the general share offering is not filled. Repower Shoalhaven has utilised underwriting in its more recent projects. Larger projects such as Hepburn Wind have suffered a drawn out capital raising stage over many years, before the project could move into construction. This can be very taxing for a small community group and incur additional unplanned for costs.

Working with an underwriting facility would enable the project to be constructed by renewable energy developers, whilst the community focuses on setting up their community investment vehicle, doing community engagement and then opening up for community investment.

[3] http://embark.com.au/display/public/content/Hepburn+Community+Wind+Park+Co-operative?src=search&src=search

4.2.2 Operation

The resourcing required to operate the entity is a subset of the skill set required to set up the entity as outlined above – and broadly falls into categories of communications and entity operation. The financial viability section outlines the cost associated with these resources.

Communications

The resources required in Communications component during the Entity Operations Phase are as follows:

- Investor: AGM, dividend, Annual Report e-communications
- General communications: bi-monthly newsletters, Mailchimp, website

Ongoing governance

The resources required for the Operations component during the Entity Operations Phase are as follows:

- Governance costs: AGM and directors insurance
- Financial administration and reporting: Annual Report, Stat Accounts, 6 monthly management accounts, bank fees
- Project management: Potential part time role, however this is optional given coverage by service providers and can be volunteer managed. Desirable if future projects are to be developed
- Share registry provider and return to investors: Management of share registry by share registry provider, processing member returns

The most significant resource is the skilled human resource needed to undertake the activities. It should be noted, that for similar sized projects (such as Sydney Renewable Power Company) the ongoing administration is undertaken by a volunteer board. It is possible that equipment and office materials could be avoided if costs need to be minimised.

Operational costs

The operations and maintenance costs (including insurance) must also be resourced and may be gifted, offered as a trade-off by the developer, or be a shared cost. It is highly unlikely that technical operation and maintenance would be undertaken by the community entity but the commercial arrangement negotiated with the developer may require a contribution to the operating costs. The scenarios developed explore a range of options.

A solar farm also partially reduces the ability to use land for agricultural activity or alternative purpose. A land owner (this may be the developer or a separate entity) may charge a lease fee relating to the opportunity cost of the land. This may range from a ‘peppercorn lease’ or alternatively be charged to the community entity at commercial rates.

Operating revenue

The revenue available to the community entity relates to the price paid for the energy generated by the community investment component of the overall solar farm. This would usually be governed by a contractual agreement (power purchase agreement) at a price per kWh. This price is a major determinant of the financial case.

An alternative scenario is that the invested capital is returned to the community entity through a loan repayment by the developer partner. Although not explored in detail in this business case report it has some advantage in relation to certainty for participants in the project.

The operating surplus associated with the operating phase is translated into community benefit delivery.

4.2.3 Community Benefit delivery

The community benefit delivery phase relates to the operation of a community fund which would share the benefits of the operating surplus from the project according to agreed objectives, principally energy literacy education and energy projects benefiting low income householders. Management of a community fund has some unavoidable resource costs, including:

- Project management: which may include the selection of grant recipients: 10% admin fee from total fund income
- Governance: committee coordination, Guidelines
- Financial administration

The operation of a benefit sharing model is considered in Section 8 separately, including opportunities for the fund to replenished through a revolving fund.

5 Financial Viability

In order to explore the financial viability of a community developer partnership project model in the Wodonga region, four scenarios have been developed. They have been selected for diversity in capital raising approach, investor return, revenue structure, volunteer effort and fee reduction, availability of grant funding and variance in the level of contribution to the project by the potential developer partner.

Each scenario documents all of the costs and revenues for the project, with each scenario varying the different cost and revenue assumptions in order to test financial viability.

The input assumptions cover all of the capital costs (capex) and potential capital revenues associated with entity establishment, along with annual operational costs and revenues for the project's asset life. This analysis does not include consideration of the benefit delivery, it is discussed separately in Section 8.

To explore high level financial viability, operational costs and revenues have been presented as a single year (i.e. Year 1). It should be noted however that annual costs and revenues will change over time and commentary is provided as to the key scenario inputs in this regard.

The scenarios are briefly described below. In the absence of a confirmed developer partner at this stage, the scenarios have been developed not in relation to a specific project, but generically, such that they can be applied to multiple project opportunities and/or sites in the future. Equally, the financial model can be modified to meet the needs of a specific project. The scenarios are described in the table below.

Scenario 1: Base Case

Scenario 1 assumes a "base" or most realistic commercial case for the community entity with regard to the overall costs and benefits for the project. Specifically, Scenario 1 assumes:

- no grant funding is available to assist in funding the capital costs of entity development;
- no discounts in the costs of resourcing of key activities;
- financial arrangements are undertaken through an ASIC capital raising process;
- shared system cost arrangements with the developer are at full (i.e. equal) commercial cost to all parties. This includes the cost of grid connection;
- the highest cost of capital[4] of the four scenarios, in line with social impact investment finance, and the shortest contract period (10 years); and
- a PPA price (see below for further details) paid by the developer partner for the energy generated that is at the lower end of typical tariffs that large energy customers currently pay in Victoria.

Scenario 1 results in a net annual loss to the community entity and is a starting point for exploring the alternative scenarios and the key inputs that need to be improved to achieve the overall goal of an annual surpus for further community benefit distribution.

[4] The term "Cost of Capital" has been used throughout this chapter as the financial model has been put together from the perspective of the community entity. Irrespective of where the funds come from (e.g. investors, debt finance (bank), donors or other, it always presents a cost of capital/finance to the community entity.

Scenario 2: Middle Case

Scenario 2 assumes a moderate or “middle” case for the community entity with no grant funding available to offset the costs of entity development or system installation, but relatively low cost resourcing of key activities in place.

Scenario 2 also assumes financial arrangements are undertaken through an ASIC capital raising process and that shared cost arrangements with the developer are at reduced cost but not gratis.

Finally, Scenario 2 assumes the cost of grid connection is gifted to the community group and a more modest cost of capital with a slightly longer contract period (of 12.5 years).

Scenario 3: Optimistic Case

Scenario 3 assumes the best, or “most optimistic” case for the community entity with regard to:

- significant grant or donor funding available to assist in funding the capital costs of entity development;
- low cost resourcing of key activities;
- the most advantageous arrangements for shared capital and operational costs with the developer partner;
- a capex discount available to the community entity. This could take the form of sponsorship or as part of Corporate Social Responsibility investments by other corporate organisations;
- the cost of grid connection being gifted to the community group by the developer partner as part of the larger project; and
- a low rate of return to investors (in line with a typical term deposit rate) and the equal shortest contract period (10 years) across the scenarios.

Scenario 4: Loan Model

Rather than the development of the project through a PPA contract between the developer partner and the community entity, Scenario 4 envisages the project is structured primarlly on the basis of a loan provided by the community entity to the developer partner.

To make this project structure work, the cost of capital borne by the community entity must be lower than the interest rate at which the capital is lent to the developer partner to absorb the cost of capital raising and entity operations.

Scenario 4 also envisages a larger community solar installation than the first three scenarios, but one that is part of a large overall project. This model makes the proportionate part of the overall project of the community solar component much smaller and lends itself to more of the community entity’s upfront and ongoing costs being met (in full or in part) by the developer partner.

Table 1: Summary of Scenario Inputs:

	Scenario 1 Base Case	Scenario 2 Middle Case	Scenario 3 Optimistic Case	Scenario 4 Loan Model
Cost of Capital	High	Medium	Low	Variable
Grant funding/sponsorship available for Capex	Nil	Nil	Yes	Nil
Discounts included for key activities	Nil	Yes	Yes	Yes
Full ASIC capital raising compliant process	Full	Full	No (Exempt)	Full
Developer Partner covering shared costs	Nil	Partial	Majority	Majority
PPA Price	Low to Medium	Medium to High	Medium	N/A

To retain some consistency across the scenarios:

- the first three scenarios involve a community component of the system of one megawatt out of three megawatts of installed capacity (Scenarios 2 and 3 could involve larger overall installed capacities, however Scenario 1 is specifically based on a three megawatt project). Scenario 4 envisages the community component being three megawatts out of 50 megawatts of installed capacity;
- the community component of the overall system is assumed to be gifted to the developer partner at the conclusion of the contract period (the period varying as outlined above); and,
- each scenario (apart from Scenario 1) has been structured with the objective of achieving in the order of $15,000 - $20,000 annual surplus. This is achieved by a threshold PPA price for Scenarios 2 and 3, and the difference in costs of capital between the community entity and developer partner in Scenario 4.

This approach allows other cost and revenue inputs to be varied, in line with the characterisation of each scenario, to understand specific thresholds beyond which that scenario cannot deliver the desired minimum annual surplus.

Significant variables influencing financial viability are:

- the price, and the term (i.e. length), for which a developer partner or an energy retailer will purchase the electricity generation from the community portion of the system (for Scenarios 1 to 3);
- the contract term and cost of capital to relevant parties used in the development of the project; and
- the level of return expected by investors from the project and their willingness to potentially receive a lower than commercial return on the basis of being involved in a community project with broader local benefits.

These variables need to be balanced against the desire of the community entity to achieve a specific annual surplus, to for example, seed fund other local energy projects.

Energy Purchaser

Scenarios 1 to 3 assume that 100% of the annual generation from the system will be purchased by the developer partner. It may be consumed, shared or on-sold to an energy retailer.

Where there is significant on-site load at the host site, and/or the ability to share any excess solar generation (i.e. that would otherwise be exported to the grid) with other energy consuming sites owned and operated by that same developer partner – all of the solar generation from the community project could be sold at a rate that is broadly reflective of the retail tariff currently being paid by the developer partner for electricity imported from the grid.

Regarding sharing, where developer partner sites are physically separate and have their own individual point of grid connection, meter and retail bills, the only way to facilitate the purchase of shared solar electricity across multplie other sites is via an electricity retailer.

The electricity retailer would match any excess solar generation exported from the host site with consumption at one or more other sites and apply a specifc tariff that includes the PPA price along with the remaining electricity supply chain costs (i.e. transmission and distribution use of system charges and retailer margin).

Where there is no on-site load and retail tariff to offset, all solar generation would be exported directly into the grid and purchased by an energy retailer. The major contract would sit between the developer partner and the energy retailer, with a smaller PPA contract between the community entity and the developer (for the community investment component of the project).

The 'willingness to pay' on behalf of the developer partner will be a product of the value they place on the non-financial benefits of the project, the medium term transfer of the asset and the value of the energy generated from the community investment component over the contract period.

PPA Price

It should be noted that sites with the level of electricity consumption envisaged in this Business Case are typically classified as "Large Customers" by the distribution network service provider (these sites consume over 160 megawatt hours per year in Victoria). Large customers pay less per kilowatt hour consumed than smaller customers (such as homes and small businesses).

In Victoria, it is relatively common for a large customer to pay in the order of $0.10 to $0.16 per kilowatt hour for energy and other kilowatt hour based charges. There is the potential for a long term contract for energy to be even lower.

Obviously the relationship between what the host site currently pays for energy and the PPA price required by the solar project will have a significant influence over the host site's willingness to partner with the community entity on the project.

As an example, the host site may not wish to pay more than they would otherwise pay for their electricity imports from the grid. Alternatively, the host site may be willing to pay a premium in recognition of the GreenPower price that they would otherwise face in sourcing off-site renewable energy.

Where there is no on-site load and all solar generation is being sold to an energy retailer, the PPA price is typically less than the level of a host site's retail tariff. A PPA with an energy retailer will broadly be reflective of the value of the energy to that retailer, which in part will be based on the average wholesale price of energy over time (the wholesale market being where that retailer would otherwise be souring their electricity to provide their customer base).

Typical PPA prices from energy retailers for energy projects are in the range of $0.06 to $0.08 per kilowatt hour. Scenario 1 considers a PPA price of $0.10 per kilowatt hour – and demonstrates the difficulty of achieving financial viability at this PPA price level (all other things being equal).

In addition, a developer partner may be willing to also pay a premium above their current tariff rate on the basis that ownership of the community component of the overall system is "gifted" to them

at the end of the contract term. The developer partner would then experience the full financial benefit of the entire system for the remaining asset life of the project.

Loan Model

Under a loan arrangement (Scenario 4), the developer partner is not buying the energy under a PPA contract from the community entity. Instead, the community entity loans the capital required for the community component of the project to the developer partner at an agreed rate and over an agreed contract term.

This approach has potential benefits in that:

- it can lower the risk to the community entity, as future generation can vary; and
- it may be administratively simpler than establishing a PPA.

The energy produced by the community component of the project is either consumed on-site by the developer partner or may be exported to the grid and purchased by an energy retailer as part of a larger PPA for the entire project.

Where all/most of the solar electricity is exported, the PPA price between the developer partner and the retailer, and the loan repayments by the developer partner need to ensure that the overall cost increase to the developer partner for the community proportion of the project is in the range of the $15,000 - $20,000 annual surplus (otherwise the developer partner is likely to just be happy to make a donation in this range to the community rather than incur a higher cost through the project financing).

Generation

In order to estimate annual project revenue, the annual electricity generation of the system must first be calculated (relevant to Scenarios 1, 2 and 3).

This Business Case has calculated average daily generation using the ATA's *"Sunulator"* solar simulation model.

The Sunulator contains 19 years of Bureau of Meteorology (BoM) solar irradiance data locationally specific to Wodonga. The model calculates hourly solar electricity generation estimates from this BoM data.

Sunulator predicts an average of 4.12 kilowatt hours will be generated by a fixed (i.e. non-tracking) solar system[5] in Wodonga for every one kilowatt of solar capacity installed.

A 1.0 megwatt solar PV system will therefore generate just over 1.5 million kilowatt hours (or 1,500 megawatt hours) of solar electricity generation over one year. A 3.0 megwatt solar PV system will generate approximately 4.6 million kilowatt hours over one year.

Systems with solar tracking capability will improve the generation from the project, but at a higher installed cost. Data from one ARENA-funded project in NSW (Moree[6]) suggests that a single-axis tracking system can deliver an approximate 35% increase in generation – all other things being equal. This would need to be balanced against the additional cost of installation in order to understand project value. A further consideration will be potential additional revenue that may be available for exporting energy to the grid later in the afternoon where the output more closely matches peak demand or increasing the level of self consumption through a more even distribution during daylight hours.

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[5] Facing due north at a tilt of 22 degrees. The optimal tilt angle in Wodonga would be the angle of latitude – i.e. approximately 36 degrees. As such, this generation estimate can be considered conservative.

[6] "Moree Solar Farm starts feeding into the grid" (2017) Retrieved from: http://www.moreesolarfarm.com.au/announcements/moree-solar-farm-starts-feeding-into-the-grid

The following table outlines the four scenarios and their detailed capex, opex and revenue assumptions.

Table 2: Scenario Inputs, RAW Community Energy Project

	Scenario 1 Base Case	Scenario 2 Middle Case	Scenario 3 Optimistic Case	Scenario 4 Loan Model
Cost of Capital	6%	4%	2.5%	4%
Return to Community Entity (Cost of Capital to Developer Partner)				5.5%
Capex				
System Installed Cost	1,783,333	1,700,000	1,700,000	5,100,000
Communications				
Share offer / Prospectus	60,000	60,000	25,000	60,000
Capital Raising	3,000	3,000	3,000	3,000
Marketing	25,000	25,000	25,000	40,000
General Comms	2,500	2,500	2,500	2,500
Project Officer	35,000	30,000	25,000	40,000
Entity Development				
Governance, Registrations & Legals	24,000	24,000	21,000	24,000
Financial Setup	2,000	2,000	2,000	2,000
Contractual Arrangements w Partner	14,000	14,000	14,000	14,000
Total Capex	1,948,833	1,860,500	1,817,500	5,285,500
Discounts		49,000	30,000	49,000
Grant Capital	-	-	*425,000*	-
Investment Capital	*1,948,833*	*1,811,500*	*1,362,500*	*5,236,500*
Opex				
Entity Operation Costs	30,000	15,000	11,000	30,000
Lease Arrangements	20,000	10,000	-	-
System Maintenance/Monitoring	35,000	17,500	-	-
Total Opex	85,000	42,500	11,000	30,000
Generation				
kWh/yr	1,533,000	1,533,000	1,533,000	4,599,000
Revenue				
PPA Price per kWh	0.10	0.16	0.12	-
% Generation sold to dev partner	100%	100%	100%	100%
PPA Contract Term (yrs)	10	12.5	10	10
Annual Income to RAW	153,300	245,280	183,960	694,715
Net Annual Income after Opex	68,300	202,780	172,960	664,715
RAW Repayments				
Annual Payments to Investors	264,784	186,978	155,678	645,613
RAW Annual Surplus	- 196,484	15,802	17,282	19,102
RAW Project Income (contract term)	- 1,964,840	197,525	172,824	191,017

5.1 The Model – 3 Scenarios

5.1.1 Scenario 1: "Base Case"

Scenario 1 assumes a 'base' or most realistic case for the community entity with regard to the overall costs and benefits of the project.

Capex

System Installed Costs

System installed costs have been set at $1.70 per watt[7]. One-third of the total grid connection cost is also assumed to be met by the community entity. This results in a total installed system cost of $1.783 million for the 1.0 megawatt (MW) system.

Communications

The Base Case assumes that full fees associated with the Share Offer and Prospectus, Capital Raising, paid Project Officer time, marketing and general communications are met by the community entity. These total $125,500.

Entity Development

Establishment of financial accounts and contractual documentation with the developer partner/energy purchaser, along with the costs for establishing governance, registration and legal documentation for the entity itself are assumed to be fully met by the community entity. These total $40,000 for Scenario 1.

Total Investment

On the basis of these assumptions, the total investment requirement for Scenario 1 is $1.949 million (M). This is assumed to be fully met by investor or debt finance only (i.e. no grant or donor capital available).

Opex

Entity Operation Costs

These annual costs include reporting to relevant authorities and investors/stakeholders, project distributions, project management and governance and general project communications and website administration.

Scenario 1 assumes the full cost (i.e. $30,000) of day to day entity operations is met by the community entity. Paid staff time is assumed for the general project management and communications tasks.

[7] Sourced from a range of solar installers with experience of large system installations in Victoria.

Lease Arrangements

Typically, community entities seeking to house a community energy installation on a host site would be liable for some level of leasing costs to that host for the use of their roof space or site area.

Scenario 1 assumes that the use of roof space or ground area (for a ground mount system) is leased at full cost (i.e. an annual cost of $20,000) to the community entity.

System Maintenance/Monitoring

Ongoing remote monitoring of system performance and on-site annual maintenance by qualified engineers is a critical requirement of all large community energy installations.

Scenario 1 also assumes that the full cost of their share of remote monitoring and annual system maintenance is met by the community entitiy (i.e. $35,000).

With regard to maintenance, all scenarios also assume the cost of inverter replacement (typically some time around 10 to 12 years after system installation) is included under a service contract as part of the original system installed cost; or is undertaken at the cost of the developer partner. If in reality the community entity has to bear the cost of future inverter replacement, this will have an impact on a future annual surplus in the model.

Opex total

On the basis of these assumptions, the total annual opex requirement for Scenario 1 is $85,000. This is the largest annual operating cost envisaged across the scenarios.

Revenue

Generation

The generation predicted for the 1.0 MW system as part of Scenario 1 is 1.533 million kilowatt hours (or 1,533 megawatt hours) over one year.

PPA Price

A PPA price of $0.10 per kilowatt hour (kWh), or $100 per megawatt hour MWh), has been assumed for Scenario 1. This is reflective of typical retail tariff prices currently paid by large customers in Victoria[8].

Contract Term

The contract term is the timeframe over which the PPA exists and the community entity can obtain revenue certainty for the project. At the completion of the contract term, the community solar system may be gifted to the host site, a new PPA may be negotiated, or the system is de-commissioned and potentially transported and re-commissioned at another site.

Scenario 1 envisages a typical contract term of 10 years, with the system being “gifted” to the host site at the end of that period.

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[8] It should be noted that Large (and Small) Customer tariffs have increased since the closure of Hazelwood. However forecasts by AEMO do not envisage such high tariff levels persisting for more than approximately three years: https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning_and_Forecasting/EFI/Jacobs-Retail-electricity-price-history-and-projections_Final-Public-Report-June-2017.pdf (Page 4)

Gross Annual Income

The annual project income is based simply on 100% of the generation being sold to the developer partner at the full PPA price – irrespective of which site the solar electricity is “consumed” at.

Based on the contract term and the PPA price, Scenario 1 results in a gross annual income of $153,300.

Net Annual Income

The net annual income is the resultant income to the project once all operating costs have been met. These include:

- entity operating costs;
- site lease costs;
- remote monitoring and system maintenance costs; and
- returns/payments to investors.

Scenario 1 assumes a realistic, but higher, cost of capital than for the other scenarios (6%). This rate is reflective of the type of finance currently available through social impact investor funds (e.g. the Sustainable Melbourne Fund[9] or SEFA[10]). Some community banks may also lend to community projects at or around this rate.

The benefit of using this type of debt finance is that the significant time, effort and potential expense associated with raising investor funds from hundreds and/or thousands of individual/small investors is avoided.

Given this cost of capital, and the higher operating costs, the total operating costs for this scenario are more than $333,000. This results in an annual loss of just under $200,000.

Key Message

The study found that Scenario 1:

- Is the starting point for exploring the financial viability of the project
- In absorbing full commercial cost and benefit inputs and a more realistic PPA price, demonstrates that the financial viability of a megawatt-scale, community owned solar farm in the Wodonga region, and in turn other regions of Victoria, is very challenging.

[9] http://sustainablemelbournefund.com.au/
[10] http://sefa.com.au/

5.1.2 Scenario 2: “Middle Case”

Scenario 2 assumes a modest (or “middle”) case for the community entity with regard to grant funding, resource costs, developer partner contributions and investor returns.

Capex

System Installed Costs

System installed costs have been set at $1.70 per watt[11] (i.e. $1.7 million for 1.0 MW) for Scenario 2. This is slightly lower than for Scenario 1 as it is assumed that the cost of grid connection for the community component is paid for by the developer partner as part of the total system.

Communications

Scenario 2 assumes that discounted fees (see below) associated with the Share Offer and Prospectus (as required by ASIC) are met by the community entity. Slightly less Project Officer time has been allocated for Scenario 2 than compared with Scenario 1.

Fees associated with the capital raising, marketing and general communications are as per Scenario 1.

Entity Development

Establishment of financial accounts and contractual documentation with developer partner and energy purchaser are also consistent with Scenario 1. Costs for establishing governance, registration and legal documentation for the entity itself are assumed to be met by the community entity.

The costs associated with the preparation of all legal documentation for the above tasks (i.e. the Share Offer, Prospectus, developer partner and energy purchaser agreements, and entity governance and registration documentation) has been discounted by 50% (i.e. by $49,000) on the basis of discounted legal costs supplied by one of the many law firms that specialise in, and provide assistance to, community energy projects.

Total Investment

On the basis of these assumptions, the total investment required for Scenario 2 is $1.81 million. This is assumed to be fully met by investment funds only (i.e. no grant or donor capital available).

Opex

Entity Operation Costs

Scenario 2 assumes that half of these costs (i.e. $15,000 out of $30,000) are incurred by the community entity with the developer partner covering the remainder. Paid staff time is assumed for a limited amount of general project management and communications tasks.

[11] Sourced from a range of solar installers with experience of large system installations in Victoria.

Lease Arrangements

Scenario 2 assumes that the use of roof space or ground area (for a ground mount system) is provided at a discount of 50% (i.e. an annual cost of $10,000) to the community entity.

System Maintenance/Monitoring

Scenario 2 also assumes that 50% of the cost of remote monitoring and annual maintenance is paid for by the developer partner, with the remaining 50% met by the community entity.

As per Scenario 1, the cost of inverter replacement (typically some time around 10 to 12 years after system installation) is assumed under a service contract as part of the original system installed cost.

Opex Total

On the basis of these assumptions, the total annual opex requirement for Scenario 2 is $42,500 per year. This is half that envisaged under Scenario 1.

Revenue

Generation

Once again, the Scenario 2 generation predicted for the 1.0 MW system remains 1.533 million kWh (or 1,533 MWh) over one year.

PPA Price

Given the capital and operating cost assumptions, and the need to demonstrate a scenario that can meet the desired annual surplus, a higher PPA price is required for Scenario 2.

As such, a PPA price of $0.16 per kWh ($160 per MWh) has been assumed for Scenario 2. This may be at the higher end of the price range that large market customers currently pays for energy imported from the grid. Of note, it is also approximately double the value of a direct PPA with an energy retailer.

Contract Term

As per the PPA price, the contract term is also required to be longer for Scenario 2 to achieve the desired annual surplus. This has been set at 12.5 years, with the system being “gifted” to the host site at the end of the contract term.

Gross Annual Income

Given the higher PPA price and the longer contract term, Scenario 2 results in a higher gross annual income of $245,280.

Net Annual Income

Scenario 2 assumes a lower cost of capital than for Scenario 1 (4%). Given this, and the lower operating costs, the total operating costs for Scenario 2 are $229,478. This leaves an annual surplus of just under $16,000.

Over the 12.5 year contract term, this equates to just under $200,000 (non-discounted). Applying a discount rate of 2.5% (to reflect CPI), this reflects a present value of $167,000 in today’s dollars.

Key Messages

The study found that Scenario 2:

- was the most practical in terms of balancing a moderate investor return with moderate cost of administration;

requires a minimum purchase price for the energy generated of 16 cents per kWh, which is likely at the upper range a commercial partner may be currently purchasing grid-supplied energy on a large customer contract, and compares extremely poorly with what would be offered on a long term PPA by an energy retailer.

5.1.3 Scenario 3: "Optimistic Case"

Scenario 3 assumes the best (or most "optimistic") case for the community entity with regard to grant funding, resource costs, developer partner contributions and investor returns.

Capex

System Installed Costs

System installed costs have again been set at $1.70 per watt[12] (i.e. $1.7 million for 1.0 MW) for Scenario 3, assuming that the cost of grid connection for the community component is paid for by the developer partner.

Communications

Fees associated with the capital raising, marketing and general communications are consistent across the three scenarios. Scenario 3 assumes that fees associated with the Share Offer are eligible for the new "crowd funding" exemption under the Corporations Act (meaning only an offer booklet (rather than prospectus) will be required. For more details, refer to **Section 4.2.1**. Project officer time has been allocated slightly lower as compared with Scenario 2.

The costs associated with the preparation all of legal documentation for the Share Offer have been discounted by one of the many law firms that specialise in, and provide support to, community energy projects.

Entity Development

Establishment of financial accounts and contractual documentation with developer partner and energy purchaser are also consistent across the three scenarios. A small reduction ($3,000) to the cost of establishing governance, registration and legal documentation for the entity itself has been included in Scenario 3 (based on availability of crowd funding).

The costs associated with the preparation all of legal documentation for the above tasks (i.e. the developer partner and energy purchaser agreements, entity governance and registration documentation) has been discounted by 50% (i.e. $30,000) on the basis of discounted legal assistance by one of the many law firms that specialise in, and provide support to, community energy projects.

Total Investment

On the basis of these assumptions, the total capital required for Scenario 3 is $1.7875 million. This is assumed to be met by a combination of:

- Grant funding or donations – 25% of the installed system cost (i.e. $425,000) is assumed to come from a relevant grant source such as the Victorian Government's *New Energy Jobs Fund* or ARENA or alternative source; and
- Investment capital – the remaining $1.3625 million.

[12] Sourced from a range of solar installers with experience of large system installations in Victoria.

Opex

Communication and Entity Operation Costs

Scenario 3 assumes only 30% of these total costs (i.e. $11,000 out of $30,000) are incurred by the community entity with volunteer time (as opposed to paid staff time) being assumed for the general project management and communications tasks.

Lease Arrangements

Scenario 3 assumes that the use of roof space or ground area (for a ground mount system) is provided gratis by the host to the community entity.

System Maintenance/Monitoring

Scenario 3 assumes that the cost of remote monitoring and annual maintenance is paid for by the developer partner, as part of the provision of these services for the entire system installation. With regard to maintenance, Scenario 3 again assumes the cost of inverter replacement (typically some time around 10 to 12 years after system installation) is included under a service contract as part of the original system installed cost.

Opex Total

On the basis of these assumptions, the total annual opex requirement for Scenario 3 is $11,000. This can be considered a very low annual operating cost for a project of this size.

Revenue

Generation

Once again, the Scenario 3 generation predicted for the 1.0 MW system remains 1.533 million kWh (or 1,533 MWh) over one year.

PPA Price

Given the capital and operating cost assumptions, and the need to demonstrate a scenario that can meet the desired annual surplus, a PPA price between that of Scenario 1 and 2 can be used for Scenario 3. As such, a PPA price of $0.12 per kWh ($120 per MWh) has been assumed for Scenario 3.

Contract Term

As per Scenario 1, the contract term for Scenario 3 has been again set at 10 years, with the system being “gifted” to the host site at the end of the contract term.

Gross Annual Income

Scenario 3 results in the lowest gross annual income of $183,960.

Net Annual Income

Scenario 3 assumes the lowest operating costs and the lowest cost of capital possible (2.5%).This is typically reflective of a rate at which the public sector, and potentially some large corporations, may be able to acquire debt finance. It is not typically reflective of an attractive rate of return to individual or institutional investors.

This results in total operating costs of $166,678, leaving an annual surplus of just over $17,000.

Over the 10 year contract term, this equates to approximately $173,000 (non-discounted). Applying a discount rate of 2.5% (to reflect CPI), this reflects a present value of $148,00 in today's dollars.

Key Messages

Specifically, the study found that Scenario 3:

- is highly dependent on grant or donor capital to work; the level of grant funding required to make this Scenario financially sustainable is greater than the overall surplus over the duration of the project, which would infer that funding would be better provided directly to benefit low income households and community education rather than through a complex partnership model which makes a loss if the grant capital is removed;

- requires a minimum purchase price for the energy generated of 12 cents per kWh, which is within the range that a commercial partner may currently be purchasing grid-supplied energy for on a large customer contract. This is not however reflective of the level at which energy retailers will purchase electricity exported to the grid (current PPA's are typically in the order of 6 to 8 cents per kWh); and

- has a very low cost of capital, which may prove challenging to achieve (a lower return to community investors will reduce the willingness to invest and the size of individual investments).

5.1.4 Scenario 4: “Loan Model”

Scenario 4 is structured differently from the first three scenarios in that rather than selling the energy from the community solar system to a host site/developer partner, the community entity uses the acquired capital to advance a loan to the developer partner. The developer partner then uses the funds from the loan to pay for the capital costs associated with the community component of the project.

Scenario 4 is also different in that it envisages a much larger overall project – i.e. the community component would be 3.0 MW out of a notional 50 MW solar installation. This makes a number of the capital and operational cost items associated with the community component of the project much smaller in proportion to the overall project capex and opex.

The rationale for why a large renewable energy developer would want a relatively small portion of a project funded through a community loan is explored in detail in Section 7 and other areas of this report, however common motivators would be increased and deeper levels of engagement with the local community, benefit sharing and increased social license.

Capex

System Installed Costs

System installed costs remain at $1.70 per watt[13]. It is assumed that the developer partner meets the cost of grid connection as part of the overall project. This results in a total installed system cost of $5.1 million for the 3.0 MW system. It is possible that the scale of the project may result in reduced installed costs per watt, but this would not affect the outcome materially (because there is no relationship between revenue and the generation outcome from the community investment portion in this scenario).

Communications

Scenario 4 assumes the same fees associated with the Share Offer and Prospectus, Capital Raising and general communications as per the other scenarios ($65,500), with their full cost met by the community entity (albeit some of the legal costs are discounted, as per below).

Scenario 4 allows for more paid Project Officer time ($40,000) and higher marketing expenses ($40,000) given the increased size of the community component of the project.

Entity Development

Establishment of financial accounts and contractual documentation with the developer partner/energy purchaser, along with the costs for establishing governance, registration and legal documentation for the entity itself are assumed to be fully met by the community entity. These again total $40,000.

The costs associated with the preparation all of legal documentation for the above tasks (i.e. the Share Offer, Prospectus, developer partner and energy purchaser agreements and entity governance and registration documentation) has been discounted by 50% (i.e. by $49,000) on the basis of discounted legal costs supplied by one of the many law firms that specialise in, and provide assistance to, community energy projects.

[13] Sourced from a range of solar installers with experience of large system installations in Victoria.

Total Investment

On the basis of these assumptions, the total investment requirement for Scenario 4 is $5.237 million. This is assumed to be fully met by investor or debt finance only (i.e. no grant capital available).

Opex

Entity Operation Costs

Scenario 4 assumes the cost (i.e. $30,000) of day-to-day entity operations is met by the community entity. Paid staff time is assumed for the general project management and communications tasks. The cost of these project management and communication tasks is presented at a small discount on full commercial rates.

Lease Arrangements

Given its small proportion of the overall project installation (i.e. 6% of the installed capacity), Scenario 4 assumes that the use of roof space or ground area (for a ground mount system) is provided gratis by the developer partner to the community entity.

System Maintenance/Monitoring

Again given its small proportion of the overall project installation (i.e. 6% of the installed capacity), Scenario 4 also assumes that the community components share of the cost of remote monitoring and annual system maintenance is met by the developer partner as part of the overall project. This includes the costs associated with future inverter replacement.

Opex total

On the basis of these assumptions, the total annual opex requirement for Scenario 4 is $30,000.

Revenue

Generation

The generation predicted for the 3.0 MW system as part of Scenario 4 is approximately 4.6 million kWh (or 4.6 MWh) over one year. The community entity is not paid for this generation, rather they are paid a fixed rate based on the loan as outlined below.

Loan Arrangements

Scenario 4 envisages the community entity using the acquired capital (from community investors) to advance a loan to the developer partner for the community component of the system. Ultimately it is the difference in the financing rates between the cost of capital to the community entity, and the rate at which this is on-lent to the developer partner, that is the major determinant of the annual surplus of the project.

Scenario 4 envisages:

- a cost of capital to the community entity of 4% (in line with potential community investor funds); and
- an interest rate from the community entity to the developer partner of 5.5%.

It should be noted that a cost of capital of 5.5% may be above the financing expectations of a very large developer partner, who may otherwise be able to secure debt financing at a lower rate. This rate is well above the rate at which a government agency could borrow.

However given these assumptions, the annual income to the community entity over 10 years from the repayments by the developer partner is just under $695,000 per year.

Contract Term

Scenario 4 again envisages a contract term of 10 years.

Gross Annual Income

Under Scenario 4, the annual project income is based on the loan repayments from the developer partner to the community entity. Based on the borrowed amount, the contract term and the interest rate, this results in a gross annual income of just under $695,000.

Net Annual Income

Given the annual operating costs ($30,000) and the community entity's repayments on their capital borrowed ($5.237 million at 4% over 10 years), the total operating costs for this scenario are just over $675,000. This results in an annual surplus of just under $20,000.

Over the 10 year contract term, this equates to $191,017 (non-discounted). Applying a discount rate of 2.5% (to reflect CPI), this reflects a present value of $166,630 in today's dollars.

Key Messages:

The study found that Scenario 4:

- Benefits from being a smaller proportion of the overall project which may allow for greater flexibility in developer partner contribtutions to the community entity for capital and operating costs.
- It is the financing rates between what the community entity secures capital at, and what the developer partner pays, that determines the annual surplus. These rates need be set at a level that makes project goals achievable for both parties.
- From the developer partner's perspective, their willingness to pay the cost of capital to the community entitiy is likely to be based on what rate they could otherwise obtain finance at. From an investor or debt finance provider's perspective, they will also have expectations as to a rate of return for the capital advanced to the community entity.

5.2 Sensitivity Analysis

There are a number of key, variable inputs to the model that significantly impact the overall financial viability of the project. In order to understand the impact of changes in these inputs, sensitivity analysis has been undertaken. Sensitivity analysis was undertaken on the following inputs:

- the cost of capital to the community entity;
- the PPA price;
- the installed cost of the system (i.e. $ per watt); and
- the loan rate differential (for Scenario 4 only).

5.2.1 Cost of Capital

The current cost of capital asumptions are based on:

- Scenario 1 (the “Base Case” acquiring capital at a rate comparable with social impact investment finance (i.e. 6%);
- Scenario 3 (the “Optimistic Case”) acquiring capital at a rate comparable with public sector debt finance (i.e. 2.5%); and
- Scenario 2 (the “Middle Case”) being a mid point.

A broader range of possible cost of capital assumptions would include commercially provided finance – something in the order of 8-9%. However, none of the scenarios tested could accommodate commercial rate finance and retain the desired annual surplus.

As such, this sensitivity analysis has included the following tests:

- The impact on the annual surplus of Scenario 1 with a cost of capital of 4%;
- The impact on the annual surplus of Scenario 1 with a cost of capital of 2.5%;
- The impact on the annual surplus of Scenario 3 with a cost of capital of 4%;
- The impact on the annual surplus of Scenario 3 with a cost of capital of 6%;.

The following figure outlines the impact of these different costs of capital on the annual surplus for the scenarios tested.

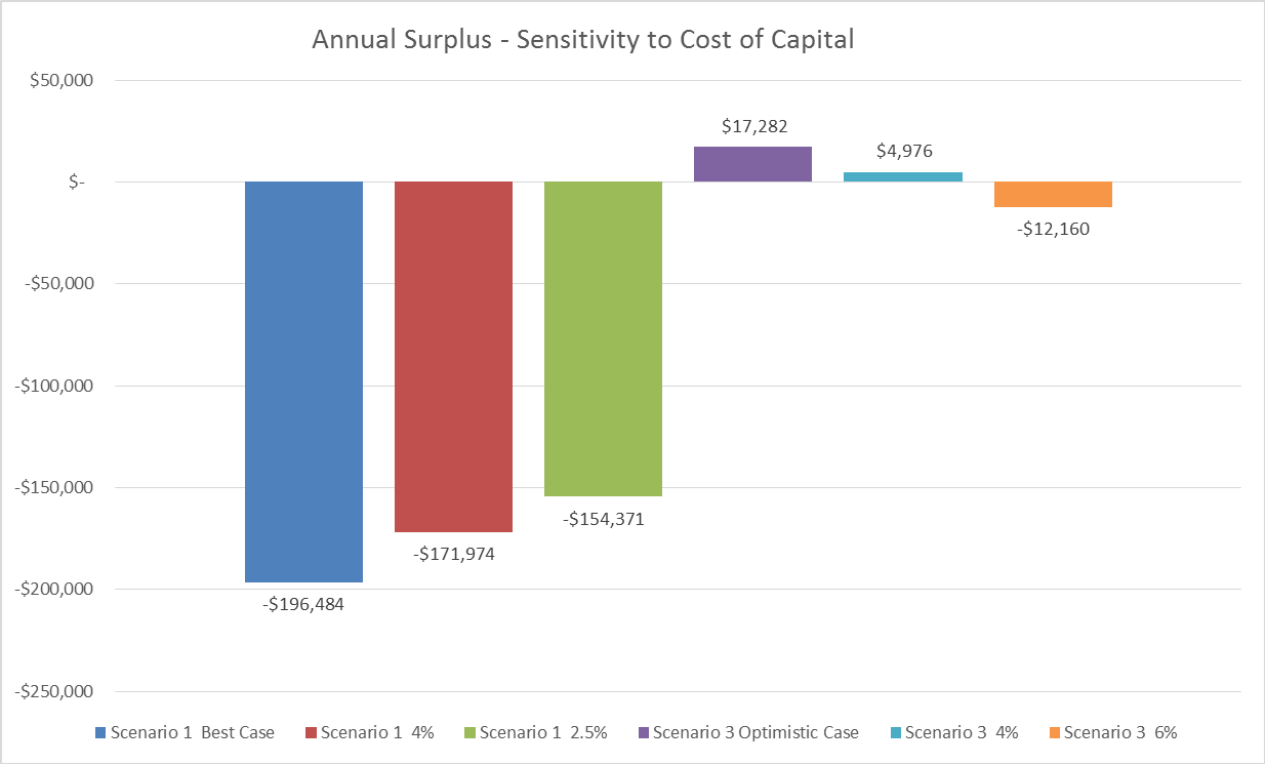
As can be seen:

- reducing the cost of capital for Scenario 1 to 4% and 2.5% does not deliver an annual surplus anywhere close to the desired amount. At 2.5%, the annual surplus for Scenario 1 is still over $154,000;

- increasing the cost of capital for Scenario 3 to 4% and 6% quickly erodes the desired annual surplus. Increasing the rate to 4% leaves less than $5,000 annual surplus, whilst a 6% rate turns this into a $12,000 per annum loss.

This sensitivity test suggests that the financial model is highly sensitive to the community entity’s cost of capital, and that there is little flexibility to vary this without also varying a corresponding input.

Figure 1: Annual Surplus Sensitivity to Cost of Capital



5.2.2 PPA Price

For a large energy customer in Victoria, the total energy tariff is typically between $0.10 and $0.16 per kilowatt hour[14]. This is likely to be the benchmark guiding what they would be prepared to pay a community energy project for solar electricity.

The following sensitivity tests were conducted with regard to the PPA price:

- The required PPA price for Scenario 1 to achieve an annual surplus of between $15,000 to $20,000;
- The impact on the annual surplus of Scenario 2 of a drop in the PPA price of one cent per kWh (i.e. to $0.15); and

The impact on the annual surplus of Scenario 3 of a rise and drop in the PPA price of one cent per kWh (i.e. to $0.11 and $0.13).

The following figure outlines the impact of these changes in the PPA price on the annual surplus for the scenarios tested. As can be seen:

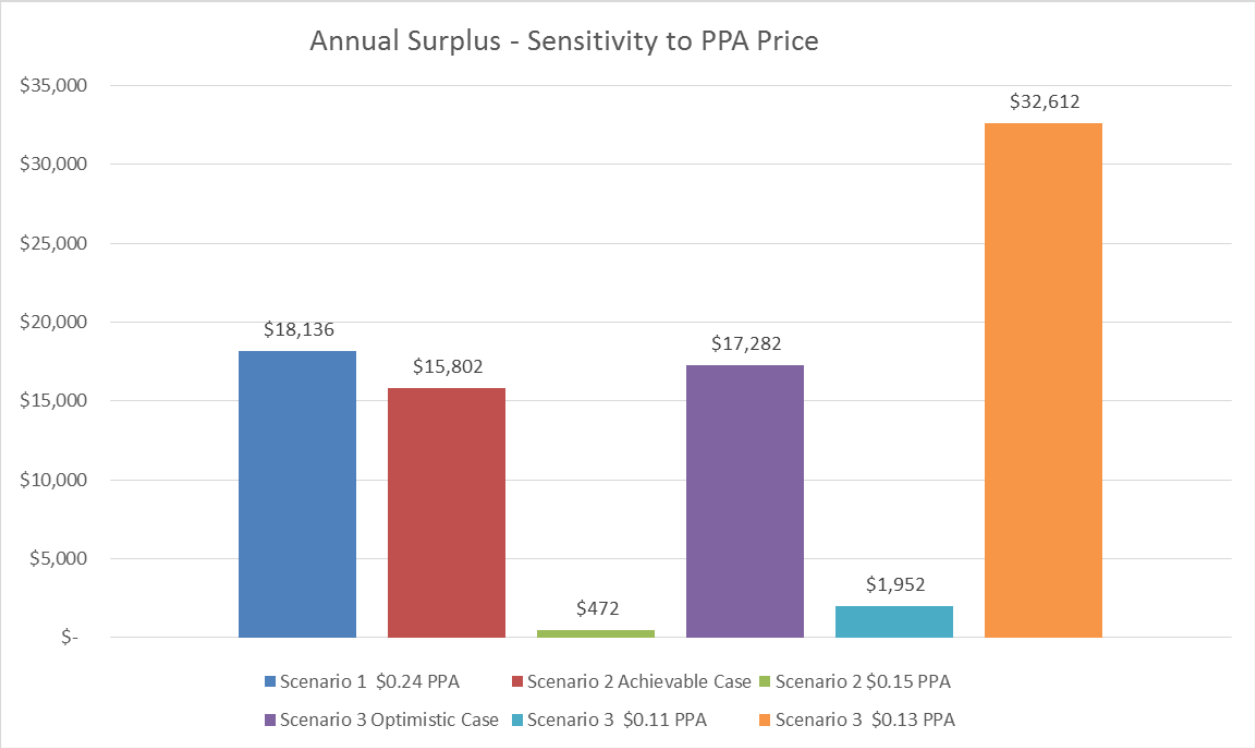
- Scenario 1 requires a PPA price of $0.24 per kWh to achieve an $18,000 annual surplus. $0.24 is in the order of 150% to double large customer tariffs in Victoria;
- reducing the PPA price by one cent per kWh for Scenarios 2 and 3 erodes virtually all of the annual surplus for each scenario; and

[14] ATA experience based on hundreds of tariff analyses for commercial clients. It should be noted that energy charges for both large and small customers have risen recently due to the closure of Hazelwood.

- increasing the PPA price for Scenario 3 by one cent per kWh increases the annual surplus to over $32,000.

On the basis of the above analysis, it can be considered that the financial viability of this project is also highly sensitive to PPA price.

Figure 2: Annual Surplus Sensitivity to PPA Price



5.2.3 Installed Cost

On the basis of feedback from solar suppliers[15], the installed cost figure of $1.70 per watt for each of the scenarios can be considered a reasonable estimate for a fixed, ground mount system.

Given the community nature of the project however, the potential for project sponsorship from a solar installer should be considered.

At the same time, the business case should consider the circumstance where no sponsorship or grant funding is available and a higher installed cost is required.

On this basis, the following sensitivity tests were conducted with regard to installed costs:

- The impact on the annual surplus of Scenario 1 with an installed cost of $1.00 per watt (to test the lowest installed cost possible);
- The impact on the annual surplus of Scenario 2 with installed costs of $1.50 per watt and $2.00 per watt; and

[15] Engagement undertaken by ATA & MEFL – three prominent solar suppliers were consulted and numbers were cross-checked to provide an average installation cost.

- The impact on the annual surplus of Scenario 4 with an installed cost of $1.50 per watt and $2.00 per watt.

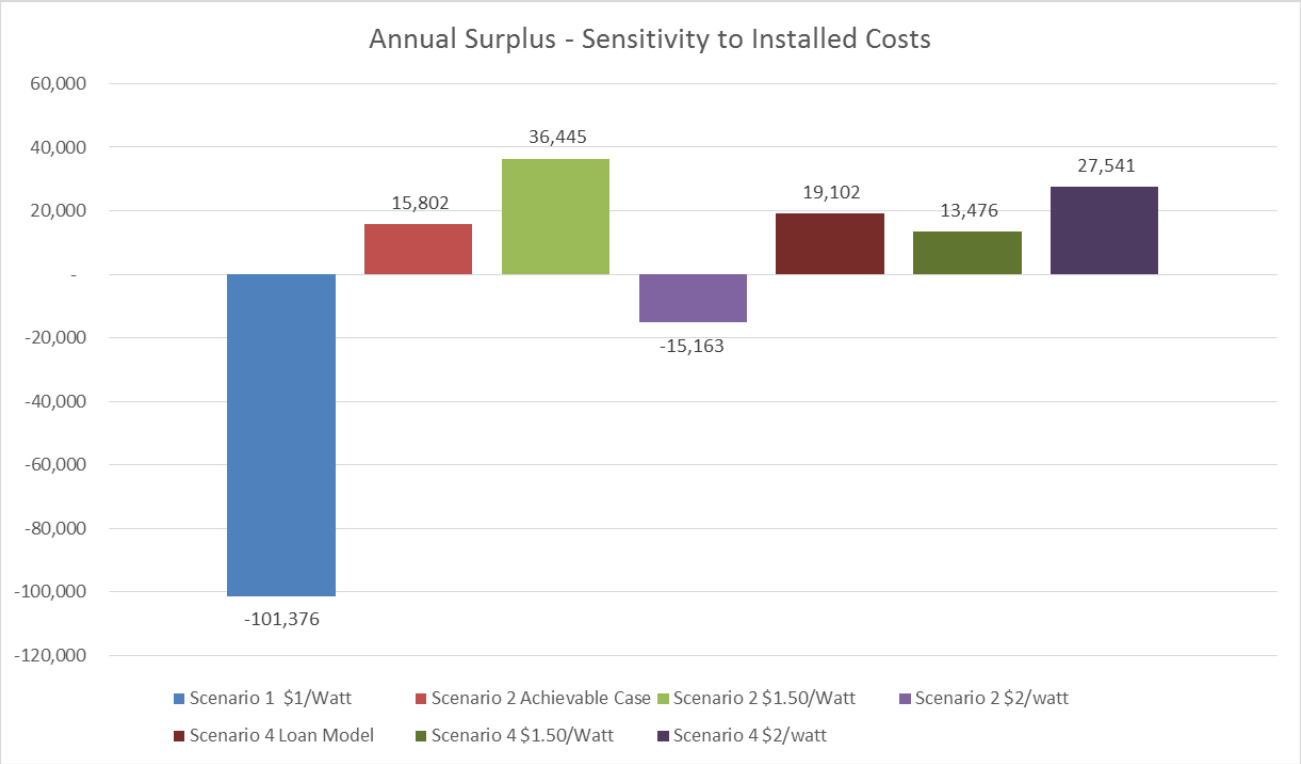
The table below outlines the new installed costs, as compared with their original case, for the scenarios tested:

Table 3: Installed Costs Under Different Sensitivity Test Assumptions

	Scenario 1	Scenario 1	Scenario 2	Scenario 2	Scenario 2	Scenario 4	Scenario 4	Scenario 4
	Base Case	$1/Watt	Middle Case	$1.50/Watt	$2/watt	Loan Model	$1.50/Watt	$2/watt
System Installed Cost	1,783,333	1,083,333	1,700,000	1,500,000	2,000,000	5,100,000	4,500,000	6,000,000

The following table outlines the impact of these changes in installed costs on the annual surplus for the scenarios tested:

Figure 3: Annual Surplus Sensitivity to Installed Cost



As can be seen:

- an installed price of $1 per watt still leaves an annual loss of over $100,000 for Scenario 1;
- an installed price of $1.50 per watt increases the annual surplus of Scenario 2 to over $36,000;

- an installed price of $2.00 per watt for Scenario 2 results in an annual loss of over $15,000;
- an installed price of $1.50 per watt actually decreases the annual surplus of Scenario 4 by around $5,500; and
- an installed price of $2.00 per watt for Scenario 4 actually increases the annual surplus by over $8,000.

The result for Scenario 4 is somewhat counter-intuitive, with an increase in installed costs actually leading to an increase in annual surplus (and vice versa). This is due to the repayments on the larger amount borrowed by the developer partner from the community entity (to fund all capital costs) growing larger than the increase in repayement costs for the community entity from the original case under Scenario 4.

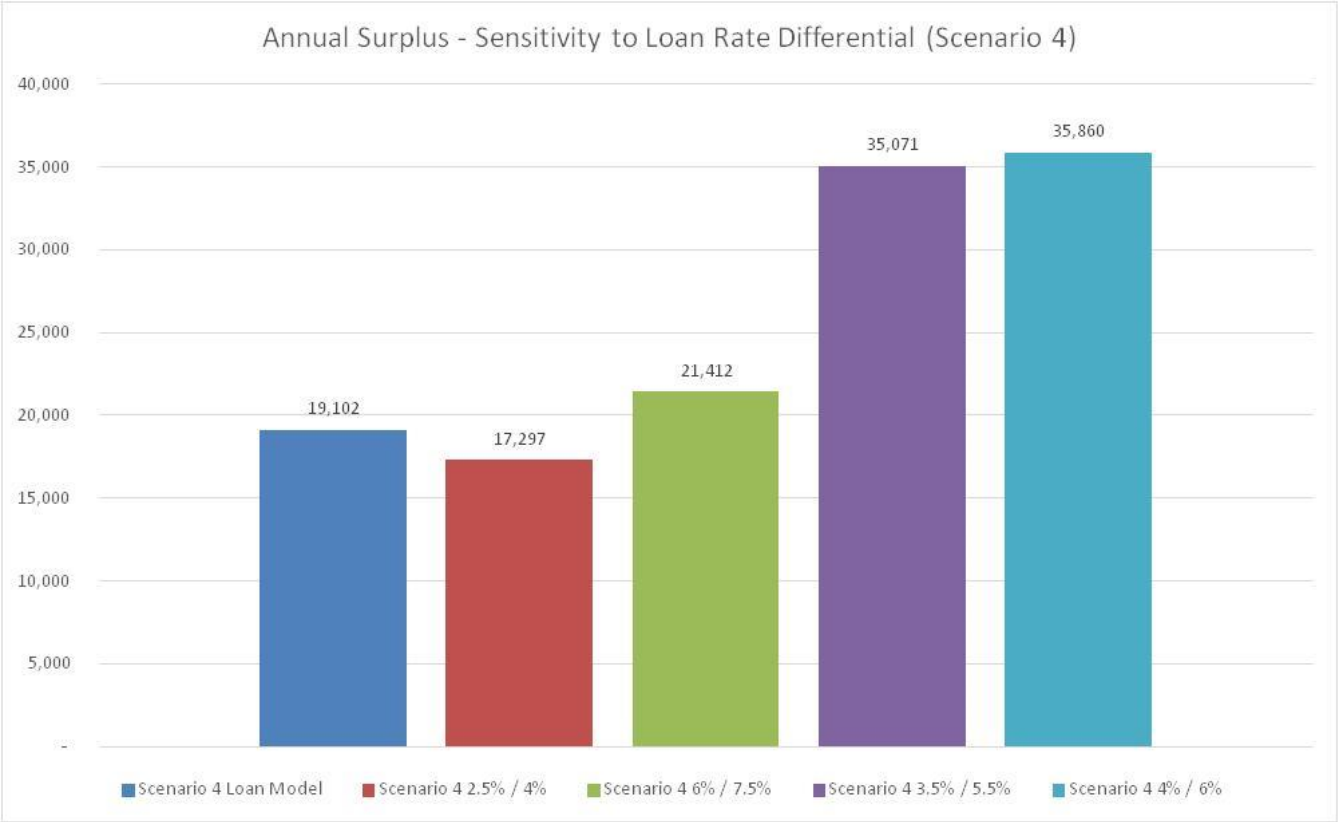
5.2.4 Loan Rate Differential

The final sensitivity analysis explores the impact on the annual surplus of Scenario 4 only (the "Loan" model) of:

- a higher and lower cost of capital to both the community entity and the developer partner, but maintaining the same differential of 1.5% between the two as per the original case for Scenario 4; and
- a higher cost of capital to the developer partner, whilst maintaining the same cost of capital to the community entity; and
- a higher cost of capital to the community entity, whilst maintaining the same cost of capital to the developer partner.

The following table outlines the impact of these changes in the cost of finance for the relevant parties under Scenario 4:

Figure 4: Annual Surplus Sensitivity to Loan Rate Differential (Scenario 4)



As can be seen:

- maintaining the same 1.5% differential between the community entity and the developer partner's cost of capital, but either lowering it (to 2.5% and 4% respectively) or increasing it (to 6% and 7.5% respectively), does not result in significant changes to the annual surplus as compared with the original Scenario 4 case. The annual surplus is either reduced or increased by around $2,000 in either case;
- increasing the differential between the two costs of capital by only 0.5% makes a significant difference:
    - lowering the community entity's cost of capital to 3.5% whilst maintaining the developer partner's existing cost of capital (5.5%) almost doubles the annual surplus (to $35k); whilst
    - maintaining the community entity's existing cost of capital (4%) whilst increasing the developer partner's existing cost of capital (to 6%) also nearly doubles the annual surplus (to almost $36k).

5.3 Discussion of financial benefits

As per the structure of the model, all scenarios deliver a surplus of approximately $15K to $20K. The distribution of this financial benefit is discussed in Section 8.

In all scenarios the project offers financial benefit to the community entity (as it was structured to provide minimum viability). Given that the PPA price required to deliver this financial benefit may be higher than a partner's reference point for energy costs, the value to the developer partner must

be clearly established on the basis of non-financial benefits, especially where the energy produced by the community investment component is not consumed in any part ‘behind the meter’. In the case of the loan model the financial arrangement must be balanced with the non-financial benefits.

The business case for the majority of scenarios would be improved by any further declines in the installed cost of ground mounted solar or if some of the investment required was offset by donations and/or grants, however these latter inputs affect the replicability of the model.

There is a financial benefit derived to investors in the model, although most investors in these sorts of projects are not driven purely by the financial benefit. The pool of investment may be compromised by lower rates of return however.

The business case to the community entity and the developer partner may be more improved if conducted over a longer investment timeframe, but the ability to lock in investors over this time frame may compromise capital raising especially if the rate of return is low.

Projects such as these do also contribute to local economic growth, however many factors such as the nature of the workforce and speed of construct dictate the actual financial benefit to the local community.

6 Technical feasibility

The nature of a community-developer partnership is that the developer of the renewable energy installation assumes control for technical feasibility for the project. For the purposes of this business case, we assume that projects for which a developer may seek or be willing to consider a community investment would have already had a positive technical feasibility assessment.

Ultimately, if the project is not technically feasible there cannot be a partnership, but this is a pre-requisite to the community entity being involved. The feasibility report sets out the process the developer of a project would undertake to satisfy technical requirements.

This is one of the advantages of the CDP model as the community entity does not need to undertake this technical component at their own risk.

The costs of technical components of the planning and design of installations have been factored into the Capex which are part of shared costs between the developer and the community entity.

A project implementation plan to ensure that all regulatory barriers are addressed was included in the original plan as part of the feasibility study and at the commencement of this business case.

A project implementation plan is typically necessary once a project is selected however this is not able to take place at this time due to the lack of a current specific project in this case. At this stage, barriers to success are non-regulatory and therefore the focus has been on developing models which may be able to overcome the financial challenges facing a project.

7 Social desirability

A project will not be successful unless it meets financial viability, technical feasibility and social desirability criteria. There is very strong support for a project of this type in the region based on evidence available.

With the support of Wodonga Council, Albury City and the local Chambers of Commerce, RAW Energy convened a community conversation in November 2015 to further the aim of connecting households, community groups and businesses to local renewable energy projects, and to drive growth in the generation of renewable energy in the region. At the event, with around 70 community members in attendance, there was a clear preference for a mid-scale solar farm project to be pursued.

The RAW Energy Vision was established to be: "Locally generated renewable energy meeting community needs." The current focus for RAW is to: "Bring partners together to develop renewable energy projects in Albury Wodonga."[16]

This project is a merging of the highly supported Option 1 and Option 7 from the forum held in 2015.

Option 1 - A community-funded solar farm selling energy to the grid

14 responses

I love this idea	I like this idea	I can see this is alright	I don't think this is OK	I loathe this idea	*I'm confused about this*
7	6		1		

Strengths & Opportunities	Concerns & Weaknesses
• Ownership (community) • Builds community solidarity • To educate for the further generations to benefit • Real solid, nuts and bolts action	• Money to fund • Lack of education into having solar installed onto a roof and the cost • Problem will be getting a reasonable payment per kwh

[16] http://renewablealburywodonga.com.au/wp-content/uploads/2017/03/RAW_Energy_Forum_Report_Dec15_Final.pdf

Option 7 - A community fund to invest in solar energy projects

18 responses

I love this idea	I like this idea	I can see this is alright	I don't think this is OK	I loathe this idea	*I'm confused about this*
9	5	3	1		

Strengths & Opportunities	Concerns & Weaknesses
• The community to feel that we are investing in the new generation/s • Need to be transparent, open and efficient in investing not little bits here and there with lots of admin • Education for Sustainability	• Could be hard to pick the right project • Probably a very long road to achieve this

Innovative financing for commercial projects with community partners is emerging internationally as a strong social acceptance pathway, however it is yet to be widely tested in Australia. Innovative financing refers to a public offering for co-investment in a portion of the renewable energy project[17].

In regards to solar technology acceptance some social risks that will need to be considered in relevance to the development and how the community may respond are important for the community entity as they would be a 'face' of the project are:

- land use and community perceptions: is it an appropriate location?
- visual amenity of the generator facility (including fencing and lighting)
- benefits flow to the community: are there only a few stakeholders benefiting or is it broader?
- impacts on sites of significance to local Aboriginal and Traditional Owner groups
- impacts on the site ecosystem: flora and fauna (short and long term)
- perception of how the project will impact local energy prices
- dust and road access concerns
- fire hazard concerns glare from reflective surfaces and how that will be mitigated
- land use and productivity of land as well as the potential footprint and density of the project[18]

Local community survey results

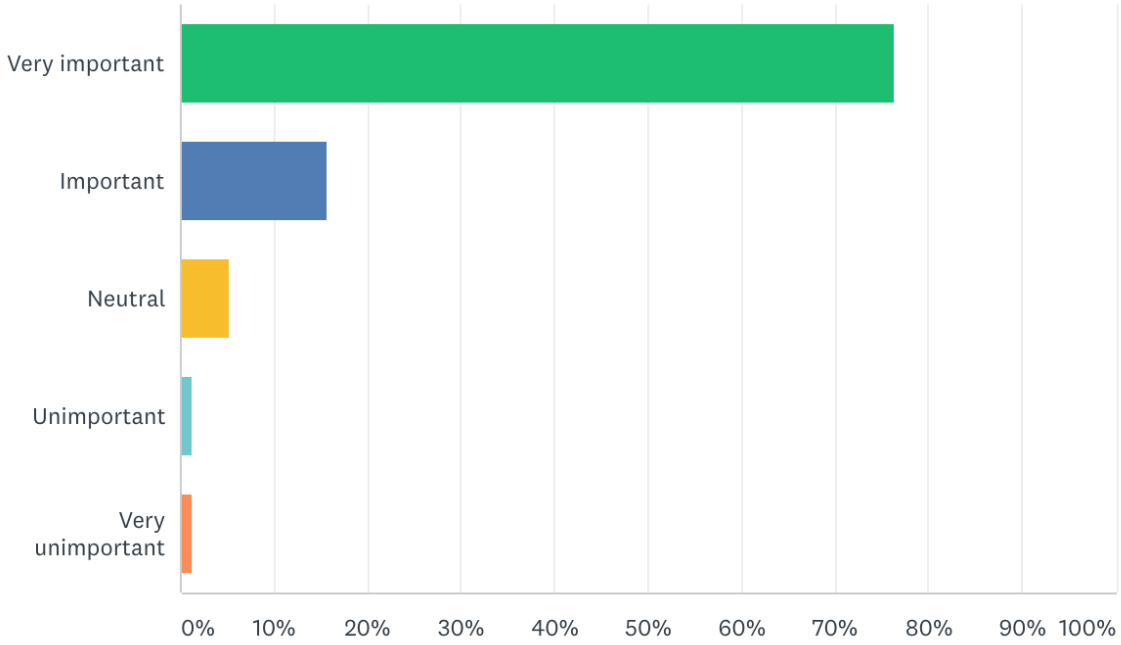
The RAW Community Survey launched on 18 November 2017 at the Sustainable Living Festival and the data analysis was collected through to 7 December. It is intended that the survey will remain open as a community engagement tool going forward, however, an analysis snapshot is offered of the key important questions for this purposes of this report of the existing 90 participants.

[17] Ibid. Lane, T & Hicks, J (2017)

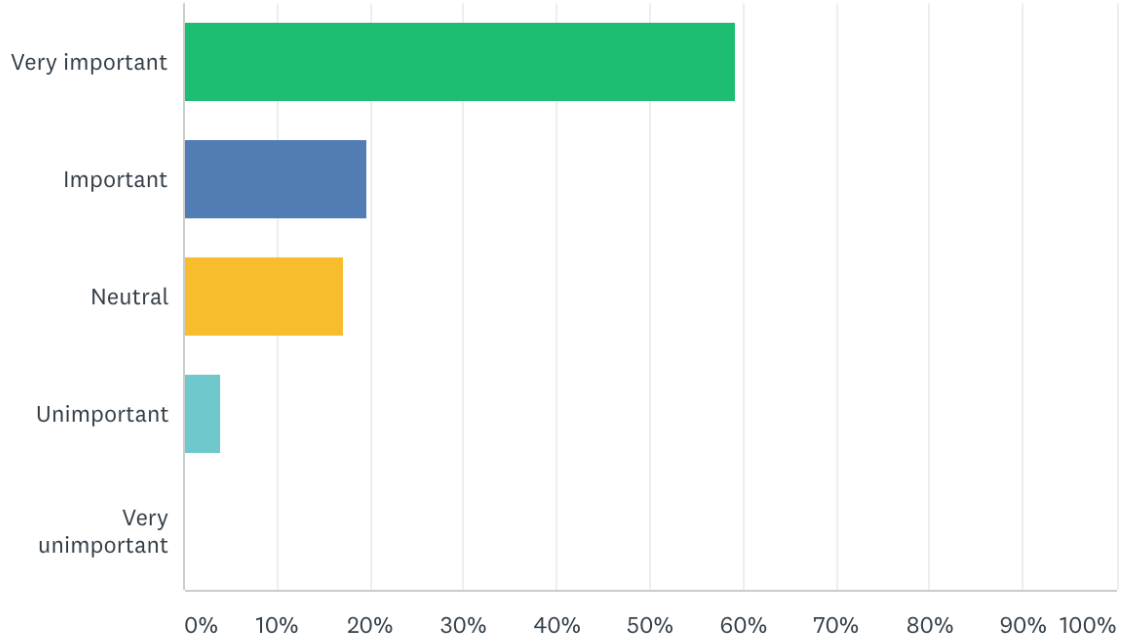
[18] Ibid Lane, T and Hicks, J 2017.

It should not be viewed as statistically significant due to a self-selection bias, but never-the-less provides insight.

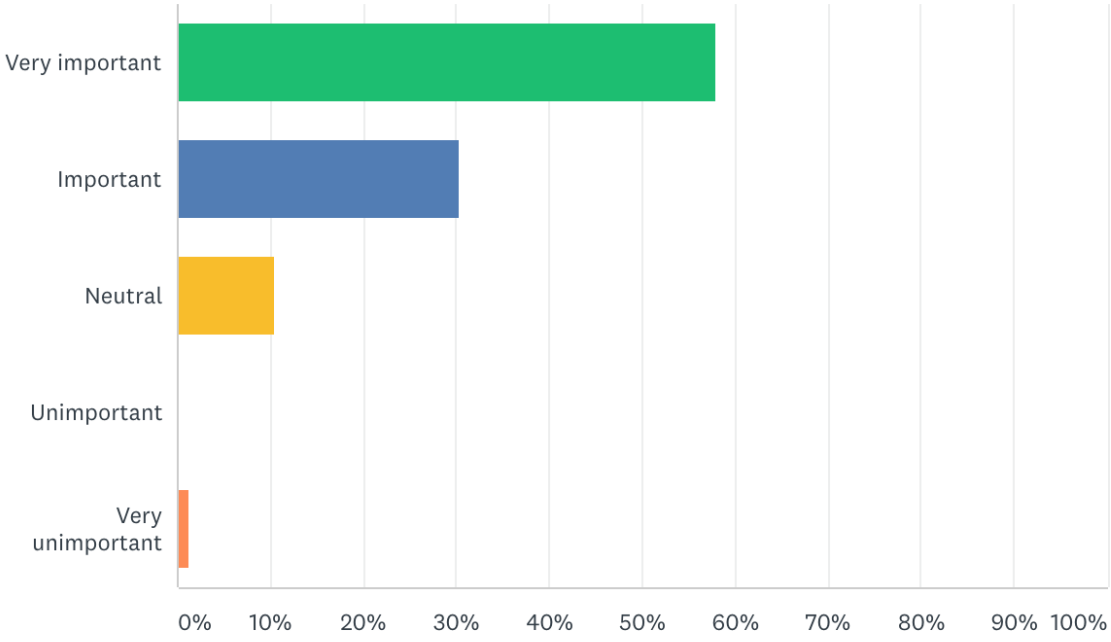
Participants were asked how important it is to source, produce and use energy available in or close to the region. Responses are below.



Participants were asked how important is it for participants to have the opportunity to purchase electricity from a local solar farm that provides green energy and returns benefits to the community.



Participants were asked how important it is for participants to have direct community investment in the transformation of the Wodonga area into a renewable energy region, as opposed to purely by institutional, corporate investors and financiers.

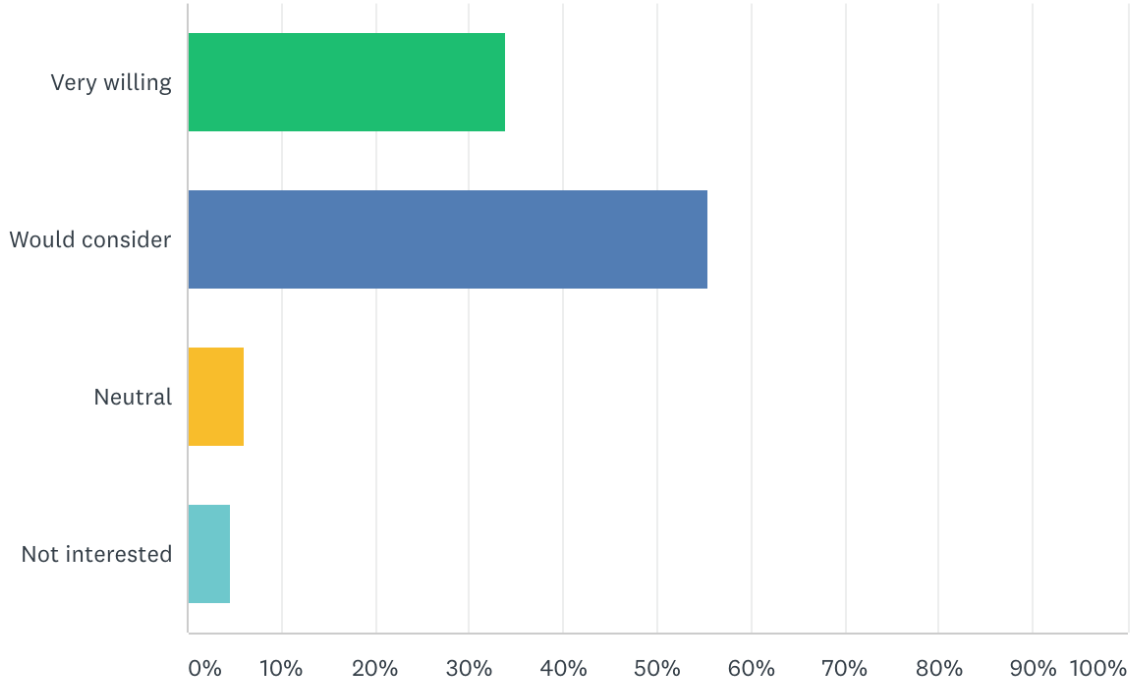


Participants were asked who should have the opportunity to invest in a solar farm in partnership with RAW and a developer:

- 79% stated local residents of Wodonga and Albury Municipalities
- 67% stated businesses owned by Wodonga/Albury residents

- 66% stated Local Government
- 61% stated Private/Family Superannuation or Trusts of Wodonga/Albury
- 55% stated businesses based or with a presence in Wodonga/Albury
- 34% stated all individuals living in Victoria
- 30% stated all individual living anywhere in Australia

Participants were asked about how willing participants would be to invest in a community investment opportunity for renewable energy within the Albury/Wodonga region.



Participants were asked for each investor 'rate of return' below - how much participants would be willing to invest. Investment (by purchasing shares) in the community solar farm would have a likely length of term of 7-15 years, a commercial return between 2.5 and 6%.

	$0	UP TO $1,000	$1,000 TO $5,000	$5,001 TO $10,000	$10,001 TO $25,000	$25,001 TO $50,000	ABOVE $50,000
1-2%	20.93% 9	41.86% 18	32.56% 14	4.65% 2	0.00% 0	0.00% 0	0.00% 0
3-4%	14.63% 6	21.95% 9	48.78% 20	12.20% 5	0.00% 0	0.00% 0	2.44% 1
5-6%	6.82% 3	18.18% 8	47.73% 21	20.45% 9	2.27% 1	2.27% 1	2.27% 1
7-8%	7.50% 3	15.00% 6	42.50% 17	22.50% 9	2.50% 1	10.00% 4	0.00% 0
9-10%	4.88% 2	9.76% 4	46.34% 19	19.51% 8	4.88% 2	9.76% 4	4.88% 2

Just on this survey alone there indicates that reasonable demand exists for community investment in a local solar farm, however as would be expected the appetite for large investment grows in response to the return available to investors. This indicates latent investor demand if the conditions are met.

Part of establishing a value proposition to investors is meeting their non-financial needs. Participants were asked whether they would consider investing and what aspects would be important to them.

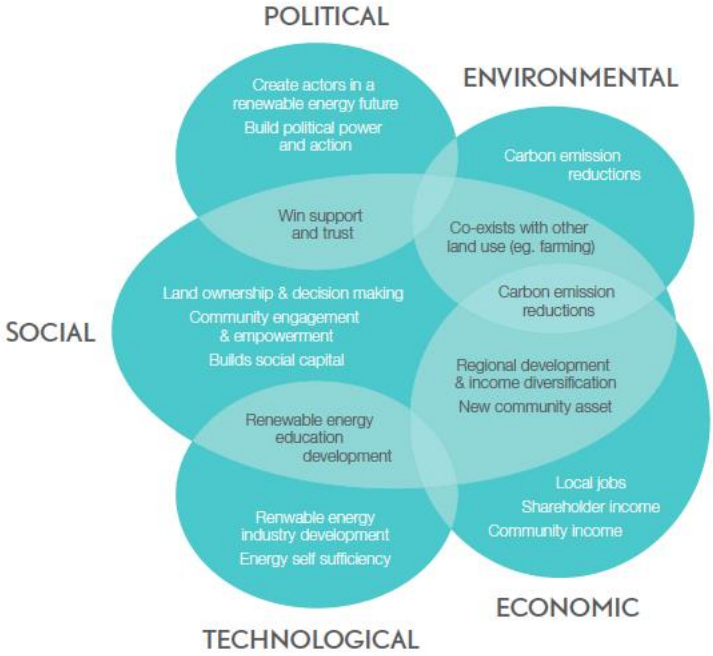
	HIGH	MEDIUM	NEUTRAL	LOW	VERY LOW
Financial return	20.34% 12	47.46% 28	25.42% 15	5.08% 3	3.39% 2
Community benefits	72.88% 43	22.03% 13	5.08% 3	0.00% 0	0.00% 0
Energy security	68.42% 39	24.56% 14	7.02% 4	0.00% 0	0.00% 0
Climate change	74.58% 44	18.64% 11	8.47% 5	0.00% 0	0.00% 0
Clean energy	81.36% 48	15.25% 9	3.39% 2	0.00% 0	1.69% 1
Public health/safety	50.88% 29	19.30% 11	24.56% 14	3.51% 2	1.75% 1
Job creation	53.45% 31	31.03% 18	13.79% 8	3.45% 2	0.00% 0
Community leadership	41.38% 24	31.03% 18	25.86% 15	1.72% 1	1.72% 1

This survey indicates that the value for participants rests primarily with the environmental and social impacts of the proposed project rather than the financial return. If the rate of return was low however, capital raising may be more difficult with groups who don’t value the social and environmental benefits as highly.

7.1 Non-financial benefits

Every CE project is different, being tailored to each community's needs and context, and bring a diverse range of non-financial benefits. Diagram 3 below summarises the elements of a community energy project.

Diagram 3: Hicks, J. & Ison, N., 2012. Community Energy. In The Home Energy Handbook: a guide to saving and generating energy in your home and community. Centre for Appropriate Technology



7.2 Social benefit (value proposition)

With regard to the value proposition, the community-developer partnership model is rich in social benefit, but these accrue to stakeholders differently.

Whole of community benefit includes:

- Proving a solar community-developer partnership model, could improve access to large scale renewables projects for developers of projects within the local community such as water corporations, network distributors, large industrial energy consumers etc
- Improve social license for big solar in rural communities through positive engagement resulting in 'appropriate development'

- Increased community resilience, empowerment and pride
- Ability to redirect profits to sources that could improve health and comfort outcomes for vulnerable households
- Improved energy literacy through community education delivery

For the commercial partner there would be the clear benefit that comes from the direct co-investment and financial support from local community investors.

- Can help them meet renewable energy or carbon emission obligations - this may be in the form of retention of large generation certificates (LGC's) (which are currently valued at over 8c kWh but forecast to decline over time)
- Can meet strategic objectives to partner with community or deliver community engagement outcomes
- Can increase social license to operate
- Can meet corporate social responsibility goals
- For developers with a customer interface, can increase the standing in the local community

Even in the best case and middle of the road scenarios, the business case is tight and will rely on at least some offset of cost against a retail energy price. However, the non-financial benefits are strong, so the success of a future project will depend largely on a commercial partner favourably viewing the renewable status of the energy generated, ie the project's ability to help the partner meet its own carbon reduction or community goals.

For the community entity there would be opportunity for the following social benefits to be accrued:

- lower/lighter level of responsibility for the community entity comprising the core responsibilities of the investment/debt facility.
- genuine sustainable investment
- direct financial stakeholder in solar farm
- genuine legal independence from commercial partner and the authority that affords
- platform for broader leadership on community energy both local/regionally and beyond
- platform for direct partnerships and collaboration with other community energy groups and key stakeholders
- community capital and capacity building, particularly in the areas of energy awareness, education and literacy

7.3 Partners & Governance (activities)

With this proposed model, there would likely be two layers, a legal entity to manage the community investment and a multi-stakeholder project-wide governance body to provide guidance and advice to key project actors about developing the actual partnership model (pre-operations).

Should a partnership model be further pursued example membership of a governance body includes:

- Commercial partner
- RAW
- City of Wodonga

In regards to the project development and benefit sharing there is also the potential to partner with an installer. In regards to energy retailers, it is likely in the context of this project that the electricity would be utilised by the commercial partner via a PPA rather than be available for the community to utilise.

Role & Responsibilities

As described above, the model would be a public company or co-operative structure in order to have over 20 shareholders.
Table 4 below illustrates some common roles and responsibilities for key project partners.

Key stakeholder relationship together (community entity and commercial partner)	Commercial partner	Community entity
• solar farm updates • solar farm tours and educational activities • community investment vehicle activity updates • potential to partner on other activities on a case-by-case basis	• Management of investment/debt facility, i.e. payment schedule	• establishment of community financial vehicle (which would then transition into a community board during the operations and once investment was complete) • co-investment • governance, compliance and administration of a legally independent entity • accounting, auditing and banking • shareholder registry arrangements • communication platform • broader community awareness, engagement, education program • delivering the community fund objectives

7.4 Environmental benefit (value proposition)

The environmental benefit of the project is relatively straight forward in that a project may be expanded in scale reflective of the size of the community investment in the project.

The annual generation associated with the community component of Scenarios 1 to 3 is 1,533 megawatt hours. If we assume that this replaces electricity in the network with a carbon intensity of 1.17 kg CO2-e per kilowatt hour (based on 2016/17 estimates for Victoria[19]), then the community component is providing an environmental benefit of 1,794 tonnes per year of per year in climate change mitigation activity.

The annual generation associated with the community component of Scenario 4 is 4,599 megawatt hours. Using the same emissions factors for Victoria, the community component of Scenario 4 would provide an environmental benefit of 5,381 tonnes per year of per year.

[19] Assumes Scope 2 & 3 Emissions Factors. Page 80: https://www.environment.gov.au/system/files/resources/5a169bfb-f417-4b00-9b70-6ba328ea8671/files/national-greenhouse-accounts-factors-july-2017.pdf

8 Community Benefit Delivery Mechanism

Throughout the initial community forum and the preceding feasibility and business case report there has been strong direction that a community fund be developed to distribute community benefit. This minimum viability has been set at approximately $15,000, which would allow for administration, a small grants program (focused on low income energy outcomes) and modest energy literacy delivery. Delivering benefit in accordance with the objectives of the project is the reason for the project, so ensuring a lean administration of the fund to maximise benefit delivery will be crucial.

8.1 Directing financial benefit

A survey (still open) was undertaken to validate the key areas of community benefit delivery (low income energy outcomes and energy literacy through education). It should be noted that the surveying occurred face to face at a sustainability festival, as well as online via the RAW networks. Therefore, it is not truly representative of the broader community yet. Initial community interest on how to direct the financial benefit is focused on participants stating solar on community buildings as important for 94%, low income energy efficiency programs were considered important by 92%, energy literacy rated 87%, small community energy grants rated important by 80% and communications activities rated 71%. Whilst it will be important to track community perception as the survey remains open, this can establish a focus for the fund concept in regards to how the income is strategically allocated. It should also be noted that in many cases, a percentage of the people most in need of the grants sometimes do not have the capacity to identify and apply for such grants. Methods to remedy this issue are to have disctinct programs for at-risk populations, and/or capacity building sessions to accompany a grant program.

	VERY IMPORTANT	IMPORTANT	NEUTRAL	UNIMPORTANT	VERY UNIMPORTANT
Solar on community facilities	51.61% 32	41.94% 26	8.06% 5	0.00% 0	0.00% 0
Low income household energy efficiency programs	50.00% 31	41.94% 26	8.06% 5	0.00% 0	1.61% 1
Energy literacy programs	39.34% 24	47.54% 29	11.48% 7	0.00% 0	1.64% 1
Small community grants for energy activities	32.26% 20	48.39% 30	17.74% 11	0.00% 0	1.61% 1
Communications associated with the principal investment	27.42% 17	46.77% 29	25.81% 16	0.00% 0	1.61% 1

These findings would seem to validate the initial objectives of the project and indicate that for respondents to the survey, funds available to projects should at least initially be used to fund solar for community facilities and low income household efficiency programs.

8.1.1 Project Fund

Given that the business case has established that for this project (1MW range) it is estimated that around $15,000 to $20,000 would be the assumed income range for the fund, it is recommended that a lean operating system be established to manage the fund's activities and outgoings. The fund would be used to manage projects based on a set of agreed criteria following rationalisation of the above objectives by RAW based on ongoing feedback on the survey and other engagement.

At a lean end of the spectrum, a simple independent bank account could be set up in order to manage the community fund income and outgoings. 10% of the fund could be allocated for administration and project selection coordination, or this could be a purely volunteer role (RAW volunteer). A guideline could be established on the strategy and budget allocation of the funds and an external volunteer committee could be set up to select projects brought to them by the corrdinator based on those projects meeting the objectives of the fund. RAW could have either representation on the volunteer committee or the RAW committee itself could absorb this project selection process as part of their ongoing activities.

The communication of the fund activities is recommended to be bundled up with the existing communication schedule of the community investment vehicle and RAW communications, inclusive of the grant submission process. The fund could serve to be a great engagement and promotion exercise whereby creative approaches could also be considered so that investors or people from the wider community could vote on the fund objectives or potential projects.

As projects grow, a fund's governance and management functions can become more complex. It could eventually be necessary to choose a business structure that fits the desired ownership/member profile and the fundraising and benefit distribution strategies to deliver the project. In selecting the right structure, a comprehensive grasp of the compliance obligations is also required.

If the project portfolio was to grow over time and if other income streams such as donations or grants were to be included there could be other governance and administrative structures considered. These may include RAW managing the fund and applying for Deductable Gift Recipiency (DGR) status or partnering with a local fund administrator who could process the fund income and outgoings. The length of term means that a certain flexibility would be advisable in order that if the fund was to grow >$50,000 that another structure could then be considered. Whilst the business case has not explored tax liabilities of the proposed community fund, we recommend that RAW explore this element further to ensure that any funds not spent within a financial year would not be taxed as income.

It should be noted that there will be an inherent tension between the rate of return for the community investors in the project, with the available budget for the community fund. This however, can also be a point of difference for the project and can be well communicated so that the value for investors is focused on the larger social good and in seeing the outcomes it delivers. The concept of what level of return would be palatable versus the need for a community fund could be further tested with community.

Another key point for consideration is that negotiations could occur to assess if the commercial partner could also have a joint funding and joint governance role which may look like an annual donation and the ability to run education activities on site. This approach may bring additional funds into the pool (or constitute the whole pool – making the available return to investors slightly higher), but would require a joint governance role in administration. This may have advantages in terms of creating additional value for a developer partner – especially where the business case is tight. The type of projects that were funded from the yearly allocation would then obviously have to align with developer partner's strategic goals and RAW objectives – but common ground could likely be achieved that met the goals of both. This approach may reduce some inherent tension between the rate of return to investors and the size of the surplus.

Under a project fund, projects which boost literacy (tours of facilities, education links with schools) would largely need a staff resource. Options for delivering benefit to low income households, principally through either direct subsidy (wholly or partly) of retrofits or funding (wholly or partly)

energy efficiency or solar for social service community buildings would be considered on a rolling basis. In order to maximise the visible impact of the community fund initially, it is recommended that the project allocation be directed to social service community buildings for at least the first few years of the fund operation.

Case study: Hepburn Wind approach to grants

Given the desire for some activities of the fund not to have a revolving income stream the case study of grants from Hepburn Wind is also a useful reference. Hepburn Wind runs an annual Community Grants round and a separate Energy Fund (not a revolving fund). Their first energy project was an EV charging station for the main street of Daylesford, then two solar projects on neighbourhood centre and a micro-hydro project.

The Community Grants are processed and acquitted via a SmartyGrants online grant application service. The Committee comprises five members appointed by the Board of Hepburn Wind. Committee members are appointed for a two-year term and serve in a voluntary capacity.

The Community Grants Committee is convened, coordinated and chaired by the Hepburn Wind Community Manager. The entire Community Fund (encompassing all grants, sponsorship and neighbourhood benefits like cheaper electricity), is managed by the Community Manager as a paid role up to no more than 10% of the fund ($3000) per annum. Energy Fund projects are worked up by the Community Manager and then approved by the Communications and Community Committee of the Board of Hepburn Wind.

The Community Grants Committee is and external committee and is made up of local Hepburn Shire-based members of Hepburn Wind from a variety of backgrounds and includes at least one Hepburn Wind director (and no more than two), and ideally a representative of the Leonards Hill / Korweinguboora community. The Committee assesses and scores applications according to the criteria agreed by the Board of Hepburn Wind, and make funding recommendations to the Hepburn Wind Board.

The Community Grants Committee has a scoring sheet that they assess around and there is a Guideline that the grant seekers must work. The Board retains the final say over allocation of funds. However, any departure from the Committee's recommendations must be minuted and the reasons reported to the Committee.

All Community Grants Committee members are subject to the conflict of interest procedures. Any grant application that involves a conflict of interest must be identified in the funding recommendation report that goes to the Hepburn Wind Board.

Once successful, the grant seekers must sign a Terms and Conditions contract and fill in the acquittal form once complete. There is a strong focus on co-promotions opportunity for Hepburn Wind with the recipient projects.

8.1.2 Community education model

Prioritising educational and engagement activities was part of the Wodonga Community Solar business case analysis. In particular it was considered that around $5,000 could be set aside as a one-off cost to develop educational curriculum, general community engagement activities could be budgeted for, however it is proposed that tours be self funding (ie the tour participants pay for the tour) at a rate of around $70 per tour to cover onsite and administrative costs to process and organise the tours.

In regards to energy education resources and curriculums, there are many good resources available for adults, homes and businesses, such as through Sustainability Victoria and via educational providers for schools such as EarthEd. It is important, with limited resources not to recreate the wheel. Localising existing content and providing face to face interpretation, advice and community engagement would be a good pathway. This approach would have a range of potential partnership options as well.

A successful partnership could deliver strong educational collaboration between RAW, Council and other partners around site tours, an interactive storyboard and viewing platform on site, live generation feed on-site, as well as in other prominent community locations.

The ability to make curriculum links with local schools is very strong and likely very low cost, dependent on the location of the solar project. There is also the potential for broader engagement to the (community) energy sector and beyond.

Another potential way that community education could occur is through the large customer base of Council (through rates) and any direct customer interface of the developer partner. This offers interesting potential for both raising awareness and also communicating what can be done on a household scale.

Linking to the potential for funds to be directed to solar or energy efficiency on community buildings with a social services mission, this visible impact could be used as a platform by the social service organisations to include energy literacy in their own conversations with low income clients. These interactions could be used as a communication channel using the educational resources developed above.

8.1.3 Revolving Energy Funds (REFs)

If the fund was to grow over time, there could be the potential to roll it into a REF, however, it should be noted that there are increased administrative elements. There exist many different examples of both REFs and related community energy projects now in Australia. Each involve different technologies, financing arrangements, ownership and governance arrangements along with different ways in which the projects engage with, and directly or indirectly support, local communities.

At their core however, those projects/programs that seek to return and leverage capital invested to support ongoing projects are only able to do so as long as the economic fundamentals of the initial tranche of projects are compelling.

In the project team's experience, this means providing at least around a 10% annual return on capital invested after all capital and operational costs have been accounted for. Greater returns than this will allow the financing of additional projects faster. Returns below this level will mean very slow progress in the establishment of subsequent projects.

The two emergent focus areas from the survey are explored below.

- ***Small Scale Solar - community facilities***

A project's economic value changes when its revenue is not determined by the combination of wholesale energy prices plus RECs, but instead by avoiding higher retail energy tariffs currently paid by a specific energy consumer.

As an example, the majority of households and small to medium enterprises (SMEs) across Victoria pay somewhere in the order of $0.18 to $0.30 per kilowatt hour for electricity (particularly during the day time).

A renewable energy generator with a lower levellised cost of energy than this, and one that can be placed behind the site's meter, will provide an economic benefit to that electricity consumer by supplanting a portion of their existing electricity consumption at a cheaper cost.

Household solar PV is a great example of this. With a levellised cost of energy in Victoria of around $0.10 - $0.12 per kilowatt hour, it can halve the cost of electricity supply for that portion of a site's electricity demand that is directly supplied by the solar electricity.

Many Victorian homes however do not have significant day time electricity consumption – meaning much of the solar-generated electricity can be exported to the grid for relatively little value. This can very quickly erode a project's economic benefits.

SMEs, Local Government facilities, community buildings and other non-residential sites can however have very high day time electricity consumption – meaning most or all of the generation from a solar PV system can be used directly on-site – and leading to excellent economic returns on capital invested.

The difference between the cost of energy from the renewable generator, and the price paid for retail electricity by a consumer, means that a project can be established by a third party entity (e.g. a community organisation or Local Council), for which it receives a margin (i.e. above operating costs), whilst at the same time delivering cheaper electricity to the consumer than they otherwise would normally pay.

It is these types of projects that can form the basis of an economically successful REF.

- ***REF case study: the Macedon Ranges REF (Mr REF)***

The Mr REF is an “Action Group” within MRSG (Macedon Ranges Sustainability Group). To date, MRSG has secured a domain name and established a separate (from MRSG) bank account for the Mr REF. Decisions regarding project investments and use of the fund have to date been made by the MRSG Management Committee.

This is the approach to the Mr REF:

- MRSG raises money for the fund;
- The fund invests in renewable energy projects (like solar panels or domestic wind turbines) as well as in energy saving measures (like solar hot water systems, heat pumps, efficient lighting or building improvements);
- Priority will be given to the highest amount of energy produced or saved per investment;
- For renewable energy projects to be viable the energy needs to be consumed "behind the meter" at time of generation to minimise feeding into the grid at current low feed-in tariffs;
- The funding model requires co-investment by the community organisation (minimum 50%);
- The money will be given as an "interest free loan". The receiving community organisation will pay the investment back to the fund based on realised energy savings; and
- The fund will operate indefinitely or until the vision of 100% renewable energy will be reached.

It is MRSG’s intention to expand and evolve the activities of the Mr REF to support more renewable energy and energy efficiency projects in the region

- ***REF case study: Corena***

CORENA has two governance committees as to have DGR (charity tax deductibility) you must have a committee with oversight of the fund. The Fund Management Committee administers the fund and are also set up as a technical committee to approve the projects. They are appointed by the CORENA Committee.

The CORENA committee is voted in by members at the AGM and it is the main governance vehicle. They pay the cheques and talk about the projects that join the funding queue but they don’t approve them unless they already had approval from the technical/Fund Management Committee. The projects all apply to be in the queue and CORENA works them up to a suitable stage before they are ready for technical and formal approval.

The Fund Management Committee also have to be approved as being 'responsible citizens' by the Department of Environment SA in order to be regarded as giving reliable oversight of what is done with the donated funds.

CORENA identifies these challenges for communities:

- Knowledge of the opportunity;
- Timing and project development; and
- Changing regulatory rules.

The CORENA model demonstrates that communities need:

- Access to independent advice;
- Project development resources and skills; and
- Reduce barriers such as funding.

8.1.4 Benefit sharing model recommendation

Given the fund level, the project and program based approach to the benefit sharing model is currently the most desireable pathway, however this should be tested more broadly within the community, as well as seeking opportunities to increase impact through strategic collaboration. A partnership could unlock bigger projects with a triple bottom line approach across the shire. The partners could be a mix of commercial partners or Council.

Based on a total fund amount of $20,000 per annum, it is recommended that a split of the following could be achieved:

- 10% ($2,000) per annum for coordination of projects and administration (staff time, could also be a volunteer role);
- $5,000 per annum for general community engagement, energy literacy (staff time);
- $10,000 per annum for energy efficiency / solar contribution on community facilities focusing on those who serve low income needs;
- $3,000 per annum for schools programs (staff time); and
- other tours to be self funding at a rate of $70 per tour.

The $10,000 allocation could also include funds for direct delivery of low income household retrofits after the first 2-3 years of operation, once visible ‘runs on the board’ are established.

Under this framework, the intention would be to grow the fund’s potential and work together to build a model of mutual benefit inclusive of:

- Principles, plan and policies;
- How co-promotion, risk management and logistics are to be managed;
- Who will ‘own’ the fund and who will ‘drive’ the fund; and
- How different organisations could contribute in-kind to the fund activities.

Potential partner actions:

- Providing dedicated annual funding for the fund;
- Providing dedicated funding up to 10% of the total fund to enable RAW or another community entity to administer the fund annually, until it is self-sufficient;
- Having a seat on a dedicated Committee that oversees fund management, project selection, community engagement and acquittal of the fund

- Assist with additional grant seeking, crowd funding for individual projects;
- Develop a list of projects for consideration and actively work with RAW to deliver these in partnership;
- Promote the partnership, strategy, fund and opportunity through website and newspaper ads and local business council, in particular advocating for commercial sites to participate in the fund;

RAW or community entity actions:

- Hiring staff / coordinating volunteers to project manage projects;
- Developing Guidelines;
- Confirming Fund Objectives;
- Maximum proportion of fund $$ for any one project;
- Monitoring (were reductions/savings actually achieved);
- Document expectations in relation to co-branding, co-contribution (financial and otherwise) of all the parties;
- Develop a due diligence process;
- Determine the makeup of the assessment committee;
- Processes around treatment of unallocated funds;
- Processes to drive the project implementation but also to support local organisations to apply/participate over time;
- Reporting and acquittal requirements.

We consider that the objectives of the fund need to be bedded down clearly before capital raising for the principal project, but that the remaining actions should not draw focus away from partnership development which is key to establishing the income stream.

9 Risks

A number of potential risks for this project were identified as part of the feasibility stage of the project. These have been updated below along with a description of the risk and its likelihood and consequence. We consider none of these risks insurmountable, subject to them being understood and mitigated appropriately.

Key: 0 = low, 5 = high)

Risk	*Description*	*Likeli-hood*	*Conse-quence*	*Potential mitigation*
RAW is unable to find suitable developer partner	With a tight business case the ability to find a partner will depend on the value of non-financial benefits. Consequence is '5' as this is a pre-requisite for the project.	3	5	Clearly articulating non-financial benefit where there is a tight business case will be important for establishing a project. Understanding motivations of developer partner will be able to direct this value proposition more clearly.
Complexity of partnership model	The partnership model has many moving parts and requires a detailed process of developing appropriate governance. Complexity of partnership model creates additional work for both parties or is too difficult to implement and not palatable to developer partner.	2	4	Develop heads of agreement or similar with partner which provides sufficient detail on roles and responsibilities. Subject to a preferred project being developed a project implementation plan which is agreed should be drafted in consultation with developer partner.
Changing energy market	The economics that underpin the model change significantly, for example energy costs decline and the project is no longer financially viable for one of the parties.	1	4	Whilst, it is unlikely that overall energy costs will decline, from a community entity perspective risk is mitigated through long term certainty of the price paid for electricity for the community component.
Changing Renewable Energy Certificate market	Currently, whilst there is a lack of federal policy for RECs post 2020, existing generators will continue to generate LGCs until 2030. The current Renewable Energy Target is only applicable to 2020.	3	4	It is unknown what the future is for RECs and if they will hold any value after 2020. The business model should keep in mind the possibility that they will be phased out. The future policy however, may have a similar functionality.
Reputational risk and shared exposure	Community entity mismanage process or funds and this reflects poorly on commercial partner Likewise, commercial partner undertakes action that reflects poorly on community	1	4	Agreements between partners would set terms of what they do together and separately. Ensuring shared value alignment would be a pre-requesite to entering into agreement.

Lack of financial support for capital raising phase.	Without grant or alternative support for capital raising / entity development the project may not be able to proceed as planned.	3	3	Seek grant capital for capital raising phase. Use underwriting facility to obtain funds for capital raising / entity development which then can be incorporated into the overall investment amount.
Lack of alignment on timing between partners	A suitable partner exists, but their project commences too early or late.	3	2	Raise capital over a longer period. Be definitive about the preferred timing from the community entity perspective and seek partners who meet the timing requirements.
Failure to raise capital/gain investors	Insufficient capital from community investors is raised for the project to go ahead. Capital raising has not been a significant barrier to date within the Australian community energy sector so the likelihood is relatively low, but it is a risk if the investment requirement is large and the rate of return is low. Consequence is '5' as this is a pre-requisite for the project.	2	4	Conduct capital raising as part of a broader community engagement strategy, implemented in stages over time to ensure maximum possible understanding of the project in the local and broader investor community. Utilise a range of engagement and marketing tools including forums, information stalls, surveys, targeted engagement etc. Thoroughly test market appetite locally. If necessary, communications and marketing for capital raising outsourced to a professional service provider.
Public opposition to the solar farm	Public opposition to mid – large scale solar is prominent internationally and emerging in Australia. Some of the common community concerns are: • land use and community perceptions: is it an appropriate location? • visual amenity of the generator facility (including fencing and lighting) • benefits flow to the community: are there only a few stakeholders benefiting or is it broader? • impacts on sites of significance to local Aboriginal and Traditional Owner groups • impacts on the site ecosystem: flora and fauna (short and long term) • logistics and concerns associated with influx of workers during the construction period • perception of how the project will impact local energy prices • dust and road access concerns • fire hazard concerns • glare from reflective surfaces and how that will be mitigated • community expectations about local job creation, post operations • lack of local knowledge and expertise to solve maintenance or operational issues • decommissioning concerns	2 Social Risk considerations through the operational phase ma include: technology failure noise issues health and safety issues lighting of the generator or site — community nuisance community expectations about local job creation, post operations flora and fauna issues lack of local knowledge and expertise to solve maintenance or operational issues decommissioning concerns	3	A feature of many community energy projects is a high level of community engagement and participation, often leading to high levels of local support. Conduct extensive community engagement throughout all stages of project development. Invite local community members to participate in the project as supporters, investors, volunteers, directors. Ensure project updates are communicated regularly and clearly, outlining potential issues as well as benefits.

Change in Wodonga council policy direction to support community renewable energy and solar farms	Appetite for supporting local community energy projects, or engaging in the broader renewable energy transition diminishes within Council.	1	2	Embed support for community energy in long term Council strategic plans (environmental sustainability and community plans) Continue officer support resource to continue momentum and internally advocate.
Lack of suitable land/right price for developer partners in Wodonga	The right site and/or sufficient financial benefits for the developer partner cannot be reached. Consequence is '5' as this is a pre-requisite for the project.	3	5	Securing a suitable developer partner, model and land is key for any community-developer partnership and commonly the most complex barrier to overcome. Extensive stakeholder engagement activity such as workshops, site visits and targeted engagement can help rule in or out potentially suitable hosts.
RAW organisation/volunt-eer fatigue	Human capacity within RAW Energy experiences limitations that can affect the effective delivery of a project.	3	4	Formalise RAW structure and members as soon as practicable. Conduct recruitment drive to raise human capacity within the organisiation. Establish roles and responsibilities for RAW committee to share work load.

10 Recommendations & next steps

It is our recommendation that there is a challenging business case for community co-investment in a mid-scale solar farm in the Wodonga region, but that a project could be successful if a number of conditions were met. Principally:

- A developer partner valued the non-financial benefits of the project highly, translating to a relatively high PPA price/willingness to pay – for example the renewable status of the energy generated by the project (LGC's), resulting in the project effectively helping the partner meet its own carbon reduction or other environmental and social/community goals
- A long term view on behalf of the developer partner, which sees significant commercial value in the transfer of the generation and energy benefit of the community investment to them at the end of the contract period (ie whereby the developer partner will own the asset and its generation 'outright')
- Investors are willing to receive low levels of commercial return (similar to a bank term deposit), in view of the community benefit of the project
- Grant capital is available for the capital raising and entity development stage or there is a favourable CAPEX cost for installation

In this context, we recommend the following next steps for RAW Energy and City of Wodonga:

- Actively pursue alignment with local partners, with a focus on clearly articulating the non-financial benefit of the project to partners based on the 'middle' case or loan model scenario which reduces reliance on grants or donations and makes the model more replicable;
- Continue to seek feedback from the community on their appetite for community investment and under what conditions;
- Resolve, if partnership conditions are met, the preferred community entity structure and investment raising mechanism.

11 Appendices

11.1 Business Model Canvas for Community-Developer partnership

Key Partners
Developer-partner
Council
RAW
Installers / Suppliers
Ausnet
Retailers
Delivery Partners

Key Activities
Development
Raising investment $
Project governance & legal structure
Building infrastructure

Ongoing
Operations and management (asset)
Financial management
Community education

Key Resources

Business case development
Legal advice
Financial management
Capital raising
Communications
Design
Installation

Value Propositions
Improved social license to Developer
Marginal cost of expansion is low
Aligned community development education outcomes maximised
Profit source for low income fund
Greenhouse gas emissions maximised
Pilot for sector that can be replicated

Customer Relationships
Community (education)
Investors
Developer / RAW & Council (Developer may technically become a customer of RAW & Council under certain project models)

Channels
Project control group
Prospectus
Ethical Investment Funds
Rates notices (Council)
Water bills
RAW and local champions
Community Events
Chamber of commerce
C4CE

Customer Segments
Developer – for purchase of electricity (if relevant)
Community investors / donators
Ethical Investment Funds

Cost Structure
Development
Legals and financial support
Upfront installation
Communications

Ongoing
Education delivery
Operations and maintenance
Potential lease on Developer land
Financial management
Return to investors
Community fund

Revenue Streams

Community Investment / Ethical investment funds
Donations
Payment for energy produced (Developer))
Payment from retail partner for sticky investors
In kind resources
Project sponsors (e.g kick in from ARENA / State Government)
Sponsorship rights (e.g. Solar Company)

11.2 Role and Responsibilities of entity

11.2.1 Details of Public Company

Public company limited by shares	
Separate legal entity	Public company limited by shares has a legal identity separate from that of its members.
Limited liability of members	Shareholders' liability is limited to the amount the shareholder has agreed to pay for his or her shares.
Primary regulator	ASIC
Ongoing reporting	Required to notify ASIC of changes to directors, secretaries and members and changes to share structure. Lodge audited financial report and directors' report annually.
Governing document	Replaceable rules or constitution.
Membership requirements	Minimum of at least one shareholder. Public companies have no upper limit on the number of members (as compared to proprietary companies).
Can dividends/profits be paid to members?	Yes, subject to compliance with the Corporations Act.
Ability to raise capital by issuing shares (or equivalent)	Public company may raise funds from the public by issuing shares, subject to compliance with the Corporations Act.

The legal structure of a public company is broadly similar to a proprietary company. It is incorporated by registration with ASIC in the same way. The main differences are in the governance, administrative requirements and fundraising options, discussed below.

In the context of this project, we assume that the public company would be unlisted.

A public company must have a minimum of three directors, two of whom must ordinarily reside in Australia. A public company must have a minimum of one company secretary. The requirement to keep financial records above also applies to public companies.

Public companies are subject to extensive reporting obligations. Public companies are required to prepare an annual financial report which consists of:

(a) the financial statements for the year;

(b) the notes to the financial statements; and

(c) the directors' declaration about the statements and notes.

In accordance with paragraph 10 of Australian Accounting Standard AASB 101, the financial statements for the year consist of:

(a) a statement of financial position (balance sheet) as at the end of the year;

(b) an income statement (profit and loss statement) for the year;

(c) a statement of changes in equity for the year;

(d) a cash flow statement for the year; and

(e) if required by the accounting standards – a consolidated balance sheet, income statement, statement of changes in equity and cash flow statement.

The financial report must be audited and an audit report prepared and lodged with ASIC within four months after the end of the financial year.

The directors' report must include the general information required by section 299 of the Corporations Act (including but not limited to a review of operations during the year and the results of those operations), and the specific information required by section 300 of the Corporations Act (including but not limited to details of dividends or distributions paid to members during the year) and also must be made in accordance with a resolution of the directors, specify the date on which the report is made and be signed by a director.

The reports must be lodged with ASIC within four months after the end of the financial year (unless the company is a disclosing entity, in which case they must be lodged within three months).

A public company can issue shares in circumstances requiring a disclosure document (for example, a prospectus). This is a key advantage and distinguishing feature of a public company. A public company must keep a share register and can pay dividends to its shareholders.

Shareholders in public companies may:

(a) sell their shares, but only if the sale would not breach the company's constitution; and

(b) are not liable for the company's debts, rather, a shareholder's only obligation is to pay the company any amount unpaid on their shares if they are called upon to do so.

Variation: Unit trust with Public Company

A unit trust is established when investors pool funds and put them on trust. The trust property is held and administered by a trustee for the investors. Each share in the trust is called a "unit". A unit as similar to a share, except that a unit confers a proprietary right to the beneficiary. The unit holders have a proprietary interest in the trust property in proportion to the money they have contributed by purchase of their unit share.

A private unit trust is limited to 20 members or less. A unit trust with more than 20 members is classified under the Corporations Act as a managed investment scheme, meaning that the trustee must be a public company and hold an Australian financial services license (AFSL).

11.2.2 Details of Distributing Co-operatives

Co-operatives	
Separate legal entity	A co-operative has a legal identity separate from that of its members.
Limited liability of members	Members are liable for the amounts each member owes the co-operative in respect of their membership. Generally this is limited to the amount of paid up share capital and/or membership fees.
Primary regulator	In Victoria, the primary regulator is the Registrar of Co-operatives at Consumer Affairs Victoria (**CAV**) (differs in each State/Territory).
Ongoing reporting	Small co-operatives must prepare and submit a simplified annual return. Large co-operatives must prepare and submit an annual financial report, directors' report and auditor's report.
Governing document	Co-operative rules.
Membership requirements	There must be at least 5 active members and is no maximum number of members.
Can dividends/profits be paid to members?	A co-operative can be established as either a distributing or a non-distributing co-operative: · a distributing co-operative may distribute any surplus funds to its members; · a non-distributing co-operative can use surplus funds to support its activities and cannot distribute funds to its members.
Ability to raise capital by issuing shares (or equivalent)	Yes, shares can be issued to members. Co-operative capital units (CCUs) can be issued to members and non-members.

Co-operatives must operate according to the co-operative principles, which include:

(a) voluntary and open membership;

(b) democratic member control;

(c) member economic participation;

(d) autonomy and independence;

(e) provision of education training and information;

(f) co-operation among co-operatives; and

(g) concern for the community.

One of the key advantages of co-operatives is that they do not need to maximise profits. Rather they must balance profit maximising against other considerations such as the sustainable development of their community.

A co-operative must have a board of at least three directors, two of whom ordinarily reside in Australia. Directors must be active members of the co-operative, unless the co-operative's rules provide otherwise. A co-operative must also have a company secretary who resides in Australia.

All co-operatives must keep written financial records that record and explain the co-operative's transactions, financial position and performance.

A small co-operative is required to prepare a simplified annual return and submit this to the Registrar.

A small co-operative has at least two of the following:

(a) consolidated revenue of less than $8 million;

(b) consolidated gross assets of less than $4 million; or

(c) less than 30 employees.

However, a co-operative will not be a small co-operative if, in a year, it issues shares to more than 20 prospective members and raises more than $2 million from the share issue.

A large co-operative is required to prepare and submit to the Registrar the following documents every year:

(a) financial report;

(b) director’s report; and

(c) independent auditor’s report.

There are two key ways a co-operative can raise capital by issuing financial instruments, namely by:

(a) issuing shares to persons who are members of the co-operative; or

(b) issuing co-operative capital units (or CCUs) to members or non-members of the co-operative