# GUIDE TO COMMUNITY-OWNED RENEWABLE ENERGY FOR VICTORIANS



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### **MINISTER'S FOREWORD**



We are pleased to release this Guide to Community-Owned Renewable Energy for Victorians.

The Andrews Labor Government believes Victorians should have every

opportunity to transition to a clean energy future. We firmly believe renewable energy delivers many benefits for Victoria, including new jobs from developing, manufacturing and installing new energy technologies. Renewable energy also drives positive environmental and social outcomes, and assists Victorians to control their energy needs.

Community groups are playing a valuable role in positioning Victoria as a leader in renewable energy by establishing grassroots projects that adopt new energy technologies.

Communities across Victoria are progressing projects ranging from powering primary schools with solar power to transitioning an entire town to 100 per cent renewable energy.

To increase the uptake of renewable energy by local communities, it is important Victorians have access to relevant information and tools. Therefore, I have developed this Victorian Community-owned Renewable Energy Guide in consultation with community groups, to help Victorians drive renewable energy in their towns and regions. This guide provides practical pointers on critical commercial, technical, governance and regulatory aspects of renewable energy projects. It contains a wealth of useful information on identifying an appropriate business model, selecting the best technology and managing the project.

The guide will also help community groups to develop sound business proposals which may assist to raise project funds, obtain approvals and apply for grant funding.

The guide is an initiative of the Renewable Energy Roadmap, which includes many initiatives to support community renewable energy and reduce barriers to distributed generation, such as solar power. It also complements clean energy grants already committed by the Victorian Government to pioneering community energy projects at Newstead and Woodend.

I hope you find this guide useful. I look forward to working with you to promote the rollout of renewable energy projects in our great State.

Hon Lily D'Ambrosio Minister for Energy and Resources

### **ABOUT THE GUIDE**

This Community-owned Renewable Energy Guide has been created to give communities in Victoria information about developing community-owned renewable energy projects.

It is a resource for community groups that are considering a community energy project and those that are already in the process of establishing a project. The guide consolidates existing knowledge and resources and provides links to further information and advice.

### Authors of the guide and C4CE

The guide was commissioned by the Victorian Government and has been co-authored by the following members of the Coalition for Community Energy (C4CE):

- Embark
- Community Power Agency (CPA)

community power

Alternative Technology Association (ATA)



Moreland Energy Foundation (MEFL).



Moreland **Energy** Foundation The authors from these respective organisations are Taryn Lane, Jarra Hicks, Craig Memery and Bruce Thompson. These organisations are founding members of C4CE and work under a collective impact framework. C4CE was formed in 2014 as part of the National Community Energy Strategy project supported by the Australian Renewable Energy Agency (ARENA). The strategy has become a coordinated resource for the national community energy sector with numerous initiatives outlined to help catalyse the movement in Australia.

# Web link to online guide, sources and updates

The online version of this guide provides live links to the sources and resources mentioned in the document. Many references are made to the Embark Wiki (the Wiki<sup>1</sup>) and the Community Power Agency's 'How to Guide', which have been significant sources of content for the guide.

The online version at www.ecodev.vic.gov.au will be updated as required.

### INTRODUCTION

This Community-owned Renewable Energy Guide is designed to help community groups navigate the process of establishing a community energy project.

The guide provides an overview of Victoria's community energy sector and the regulatory context in which community energy project groups operate. It reviews the project development process from concept to implementation, exploring community engagement, technologies, financial considerations and business models that may be used to establish a successful project. It also provides links to organisations that offer additional information and support for community energy projects.

### What is community energy?

Community-owned renewable energy or community energy (CE) refers to projects where a community group initiates, develops, operates and benefits from a renewable energy resource or energy efficiency initiative. Community groups are formed based on a common interest or geographical region such as a town or suburb.

Every CE project is different, being tailored to each community's needs and context. CE projects may be developed to:

- maximise local ownership and decision making
- generate jobs
- use resources efficiently and sustainably
- match energy production to local energy needs
   and circumstances
- help address climate change.

# Community energy is an important part of the energy transition

The Labor Government is rebuilding Victoria's reputation as the nation's leader for renewable energy to ensure the State is part of the global shift towards clean energy technologies. The Government considers community development of sustainable energy projects as a key feature of Victoria's future energy landscape.

CE projects provide a tangible way for urban, regional or remote communities to help achieve this aim by transforming their energy supply to be cleaner, safer and more sustainable. The projects enable communities to develop and own renewable infrastructure and become consciously involved energy citizens.

The potential for CE to contribute to the transition to clean energy in Victoria is significant, given the abundant renewable energy resources available in the State. CE is already a mainstream model of renewable energy development internationally, especially in countries like Denmark, USA, Germany and Scotland.

There are a range of social, environmental, technological, economic and political motivators that drive CE projects in Australia and around the world. Key motivators are shown in Figure 1.

CPA's paper, 'Navigating between concepts, context and motivations'<sup>2</sup>, and the Wiki article, 'Determining project objectives'<sup>3</sup>, provide more information on motivators and benefits of community energy.

3 http://embark.com.au/display/public/content/ Determining+project+objectives

<sup>2</sup> http://www.cpagency.org.au/resources



Figure 1: Motivators and benefits of community energy (Adapted from Source: 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.)

### **COMMUNITY ENERGY IN VICTORIA**

There are now six CE projects operating in Victoria and 22 projects operating nationwide. There are also 70 CE projects in some stage of development around Australia, including 26 in Victoria. A list of current projects and groups<sup>4</sup> can be viewed on the Wiki.

Hepburn Wind, located in Leonards Hill just south of Daylesford, is the first community-owned renewable energy generator in Australia. The wind farm cooperative has played a significant role in catalysing the CE sector across the country since it was launched in 2011.

# Victorian Government action to support community energy

A supportive and accessible regulatory environment is essential to unlock the passion that communities have for renewable energy and sustain the momentum of the CE movement. The Victorian Government is exploring a number of ways to remove regulatory barriers and enhance CE development as part of its Renewable Energy Roadmap<sup>5</sup> and Action Plan.

The Roadmap outlines a set of initiatives aimed at accelerating the development of renewable energy projects in Victoria and transitioning the state's energy industry towards a low emissions future. It outlines the Government's plan to attract Victoria's share of renewable energy investment and jobs in Australia by 2020. Some key policy and program approaches relevant to the CE sector in Victoria are outlined below.

### Unlocking community solar

New solar business models are being developed to enable consumers who may not otherwise be able to put solar on their own roofs to access the benefits of distributed generation. These customers include businesses, apartment dwellers, renters and lowincome households. Several Victorian community groups are keen to pursue solar business models operating in other jurisdictions and these may soon be viable in Victoria. The projects are all small-scale and behind-the-meter or below-theload. In this approach, the host site agrees to purchase the energy generated over the life of the project to avoid selling the energy into the energy market.

The authorising framework for gaining exemptions from retail licensing is currently challenging for proponents in Victoria. To address this issue, the Government is reviewing the process to ensure that new, innovative business models are not being unnecessarily restricted and Victorian consumers are appropriately protected.

The Government has also initiated an inquiry into the true value of distributed generation to Victorian consumers. The inquiry will be conducted by the Essential Services Commission. The inquiry findings will be used to inform how feed-in tariffs – the amount people are paid for the solar power they produce for the network – should be structured in Victoria.

### Unlocking community wind

The Victorian Government has recently reformed Victoria's wind farm planning laws to encourage greater investment in Victoria's strong wind resource. Planning controls have been changed to reduce the allowable distance of a turbine to a dwelling from two kilometres to one kilometre, with a landowner's consent required to locate a turbine closer than one kilometre to a dwelling.

Wind farm planning approvals have been streamlined with responsibility for deciding on new planning permit applications returned to the Minister for Planning. The transmission or distribution system of powerlines, substations and converter installations and other works to connect a wind farm to the electricity network can now be considered holistically as part of the wind farm planning proposal.

The Government is now assessing how communityowned wind generation facilities will be considered in the planning system in the future and is preparing a community discussion paper for consultation. The Government is also examining whether there are anomalies in relevant regulations and guidelines.

<sup>4</sup> http://embark.com.au/display/public/Groups/ Australian+community+energy+groups

<sup>5</sup> http://www.energyandresources.vic.gov.au/energy/ sustainable-energy/victorias-renewable-energy-roadmap

#### New community projects

The Government actively supports the development of pioneering CE projects. Two examples of this support are projects at Newstead and Woodend, which were awarded funding in 2015 to develop community-led renewable energy projects.

Newstead is a town in Central Victoria with approximately 500 homes and a commercial High Street. A local community group, Newstead 2021, is looking to transition the town to 100 per cent renewable energy with the help of a \$200,000 Victorian Government grant.

The Macedon Ranges Sustainability Group (MRSG) is building a 30kW solar photovoltaic (PV) system at the Black Forest Timber Mill in Woodend with the help of a \$100,000 grant. The system will supply the mill's tenants with solar power and provide a funding stream to support future renewable energy projects in the local area.

# Addressing barriers to distributed generation and energy storage

Victorian Government strategies to encourage the transition to sustainable energy focus on policy and regulatory frameworks governing distributed generation and energy storage. While distributed generation has increased significantly in Victoria, there are still a number of issues affecting its development.

The Government proposes to introduce measures to improve and simplify the connection process for distributed generators and small customers more generally. The proposed measures will streamline connection processes by providing greater clarity of connection requirements, clearer timeframes for connection, and improved processes for dispute resolution.

Collaborative work between all energy market stakeholders will facilitate equitable access to sustainable energy, while balancing use of the existing grid infrastructure with new technologies to maximise cost efficiencies.

### **Renewable Energy Target**

The Renewable Energy Target (RET) policy framework provides commercial incentives for investment in new renewable generation. However, recent uncertainty around the RET and a reduction in the target have dampened investment in renewable energy projects.

To address this, the Victorian Government has made a commitment, through the Renewable Energy Roadmap, to re-establish a state target. The Government, as a large electricity consumer, will also use its purchasing power to buy renewable energy certificates as a way to encourage renewable energy projects to be built in Victoria. This aims to bring forward investment worth around \$200 million and jobs growth in the renewable energy industry.

THE GOVERNMENT ACTIVELY SUPPORTS THE DEVELOPMENT OF PIONEERING CE PROJECTS THROUGH PROGRAMS INCLUDING THE VICTORIAN NEW ENERGY JOBS FUND



### **THE DEVELOPMENT PROCESS**

# What is involved in setting up a community energy project?

When establishing a CE project, it is important to understand the community group's motivations for pursuing the project. With a strong team of committed people in place, it is critical to develop a shared vision with clear aims for the project and test whether the group's ideas are achievable.

# Testing the feasibility, viability and desirability of a project

Many different concepts, each with several variables, may emerge as options to achieve the group's aims. The group needs to determine which concepts are going to work by considering technical feasibility together with financial viability and social desirability.

Many projects will be feasible with the technology available today but costs, regulations and community participation will be key tests for whether the project will be achievable on the ground. Figure 2 sets out a process that will help community groups determine the potential of different CE project concepts.



Figure 2: Z-NET Blueprint Approach – process for determining the viability of a community energy project Source ZNET Energy Town Project

The first step of the process is to understand the context, which includes identifying the community characteristics and location, its existing energy use and the regulatory environment in relation to the project aims. The next steps are to understand all the possible options, including what has worked in other communities, and determine the best fit for the local context. The final step is to ensure that there is a clear plan for development and implementation, including for operations and decommissioning. In determining whether the options are feasible, viable and desirable, it is important to assess them against a consistent set of criteria. Figure 3 shows questions that may be used to evaluate and compare options in relation to context, risk, technical, business case, environmental, economic and social criteria.

If the project concept meets the test and balances the criteria then detailed feasibility studies can be undertaken. If not, the concept may need to be refined, alternatives sought or new partnerships developed.

#### **TECHNICAL BUSINESS CASE** What are the technical needs What is the financial business and considerations of this case for this option? option? FEASIBILITY CONTEXT **RISKS** What are the regulatory What are risks or possible opportunities and constraints? negative consequences involved with this option? Think about renewable energy policy, electricity grid, energy Think of political, social, environmental, financial, markets, legal structures and VIABILITY DESIRABILITY fundraising rules. technical aspects. What renewable energy Can these be effectively resources are available? managed? Will they change over time? What energy effiency opportunities are there? What are the strengths and assets of the community and These factors all combine to determine the partners you are working with? feasiblility, viability and desiribility of an option

**Environmental Benefit** What are the environmental benefits of this option? **Economic Benefit** What are the economic benefits of this option? Social Benefit What are the social benefits of this option?

Figure 3: Key questions to ask in determining if a project is feasible, viable and desirable

### Development stages

Most CE projects will follow a common development pathway, as shown through the series of stages outlined in Table 1. Working through these stages will take anywhere from a few months (e.g. a donationfunded small solar PV project) to many years (e.g. a multi-megawatt (MW) wind farm).

### **Business** case

Developing a business case is essential for the project. The business case provides the argument for the project with evidence of its social, environmental and financial value. It differs from a business plan in that, while it outlines the financial arrangements, it gives a broad overview of the structure, management, marketing plans and aims of the CE project group.

The business case will evolve as the project develops, with data and assumptions becoming more accurate and identified risks being mitigated. Once all studies have been done and expert advice is received, the business case can become the foundation for a disclosure statement or prospectus needed to attract investors. It will be particularly useful in applying for grants or donations in the early stages. Table 2 provides a checklist for building a CE project business case.

Table 1: Project development stages and activities for a typical CE project



Table 2: Checklist for building the business case

Project scope	What is the nature of the project? What technology will the project deploy? What is the energy-generating capacity? What is the budget and timeframe?
Value proposition	What is the potential overall value of the project? What social, environmental and economic value will the project bring? This will involve a description of the project vision and outline of predicted benefits.
Financial viability	What income has been generated so far? What income is predicted? What is the expected rate of return? What in-kind and volunteer contributions have been made? Depending on what stage the project is at, the financial assessment will consist of basic financial modelling or more detailed financial analysis and cash flow projections.
Social desirability	How has support for the project been demonstrated? How many members/ supporters/investors are there? What community engagement activities have been undertaken? How have concerns been addressed?
Assumptions	What assumptions have been made about energy and renewable energy certificate (REC) pricing, capital costs, operating costs, interest rates, inflation and future electricity tariffs? Who will buy the power that is generated?
Governance	What legal structure and governance model is being used? Is there a board of directors? A good board with diverse skills can make a big difference to the success of a project. How are decisions made and who has voting rights?
Site assessment	Are there any site constraints or design issues? Will there be access to the grid and will it be cost-effective? What is the nature of the energy resource, and how might different technologies, scales and models affect it?
Sensitivity cost analysis	Will revenue or expenditure vary at different times of the year, or over a longer period? How might this affect cash flow? How will seasonal fluctuations be managed? How sensitive will the project be to tariffs or policy changes?
Risk analysis	What uncertainties affect the project now and into the future? How will these risks be managed?

To access templates and learn more about the process of building a business case, read the Wiki article 'Building the business case'<sup>6</sup>.

<sup>6</sup> http://embark.com.au/display/public/content/Building+the+business+case

### Monitoring and evaluation

It is impossible to manage something that is not monitored. Keeping track of how things are going throughout the project is essential to knowing if the aims are being met effectively and whether it would be better to change tack. It is also powerful to be able to convey the levels of project support and investment and what has been achieved to supporters and funders (e.g. planning and engagement activities, volunteer hours and in-kind contributions).

### Things that are good to know include:

- How many kilowatt hours (kWh) have been saved or generated
- How many and what types of activities have been done
- How many supporters/members/investors there are
- How many volunteers and volunteer hours have gone into the project to date
- What in-kind contributions have been made to the project and to what value
- How much money has been raised so far and from where
- How much money has been spent and on what
- Whether there are sufficient resources (e.g. financial, human, energy) to meet project goals
- Whether there is resistance, how it has been handled and where and how it will be overcome
- What other support or information is needed at the moment
- What impact the project is having on volunteers/ members/supporters/investors.



Keeping track of how things are going throughout the project is essential to knowing if the aims are being met effectively

### **THE PEOPLE**

### How do you successfully engage with the community and build support for your project?

People are the foundation of a CE project and community support is critical to its success. Getting people on board with the vision will build a base of community champions for the project. Many of these people will ultimately form the investor base, offering a combination of financial support, volunteer time and their expertise.

Community engagement activities and effective communications are the key to building community support for CE projects. They can be used to identify and recruit active members, build a database of supporters, gauge their level of support, identify partner organisations, educate the public about renewable energy and energy efficiency, and communicate the benefits and outcomes of the project.

### Community engagement

Quality community engagement goes beyond the basic consultation processes that developers typically employ to meet planning approval and compliance requirements. Good community engagement fosters relationships, trust, feelings of ownership and a sense of collaboration and shared decision making. It provides meaningful, ongoing opportunities for the community to participate in a project's development. Key principles for community engagement are mutual respect, mutual benefit, responsiveness, appropriateness, relationshipbuilding, authenticity and transparency.

The International Association for Public Participation has developed a spectrum of public participation that is summarised in Table 3. This spectrum reflects the different degrees of influence and control that may be given to a community through participation in planning and development for a project.

### **Guiding questions:**

- Who is the community you are seeking to involve in the project? What other stakeholders are going to be key to include in your consultation and communications (e.g. government, regulators)? How are you going to engage and involve the local community where the project is to be hosted?
- What is the role of the community in the project? Are they supporters, advisers, advocates, coowners, decision-makers, or a combination?
- How many and what opportunities are there for broad engagement and participation?
- How will the community input ideas and feedback and how will these be captured and integrated?
- Who makes what sorts of decisions? Which decisions are open for negotiation, and with whom?
- How open and transparent are the processes?
   How are decisions and milestones reported back?
- How will engagement be fostered through the entire life of the project, including operations and decommissioning?

Different levels and types of engagement will be appropriate for different CE projects. The approach will need to fit the local context and nature of the project. For example, if the project is a small solar array on the roof of a local business that is funded through a small number of local investors, then the general public may not need to be actively engaged. There might not be a need to attract many investors, the public impact of the project (e.g. visual, amenity) will be small and planning approval requirements will probably be minimal or unnecessary.

If the planned project is visually imposing, involves lots of people and has a significant impact on the local community, a more extensive and involved community engagement approach may be required. For example, a multi-MW bioenergy plant involving significant feedstock, large sheds, a big digester and a high level of investment will require extensive community engagement. Table 3: A spectrum of approaches to community engagement and communications

	Community engagement objective	Promise to community	Community engagement outcomes	
Inform	<ul> <li>provide balanced and objective information</li> <li>assist community in understanding all aspects of the project, including possible problems/issues</li> </ul>	<ul> <li>keep the community informed</li> </ul>	<ul> <li>secure a good site to install the renewable energy facility</li> <li>gain planning permission</li> <li>meet compliance regulations</li> </ul>	
Consult	<ul> <li>obtain feedback on plans, options and/or decisions</li> </ul>	<ul> <li>keep the community informed</li> <li>listen and acknowledge concerns</li> <li>provide feedback on how input influenced the decision</li> </ul>	<ul> <li>minimise objections</li> <li>effectively manage complaints</li> <li>good stakeholder relations</li> <li>a level of community awareness and trust in the project</li> </ul>	
Involve	<ul> <li>work directly with the community throughout the process and all stages of the project</li> <li>ensure concerns and aspirations are consistently understood and considered</li> </ul>	<ul> <li>work with the community to ensure concerns and aspirations are directly reflected in the alternatives developed</li> <li>provide feedback on how input influenced the decision</li> </ul>	<ul> <li>long-term broad local social acceptance and knowledge of the project</li> <li>strengthened local relationships and trust</li> <li>local advocates for renewable energy</li> </ul>	
Collaborate	<ul> <li>partner with the community in each aspect of planning, development and decision-making, including the development of alternatives and identification of the preferred solution</li> </ul>	<ul> <li>look to the community for direct advice and innovation in formulating solutions</li> <li>incorporate advice and recommendations into the decisions to the maximum extent possible</li> </ul>	<ul> <li>broad community participation, support and awareness</li> <li>some community ownership</li> <li>greater community benefit</li> <li>strong local relationships and trust</li> <li>timely development and ease of planning approval</li> <li>some sharing of benefits beyond investors</li> </ul>	
Empower	<ul> <li>have the community lead the development of the project</li> <li>place final decision- making in the hands of the community</li> </ul>	• implement what the community decides	<ul> <li>benefit-sharing model tailored to the local context</li> <li>harness the skills and capital of the community</li> <li>upskill community members to manage the project</li> <li>largely community owned and controlled</li> </ul>	

### Communications

Building and maintaining community support will be required throughout the life of a CE project. Clear and consistent communications will help engage people and keep them connected to the project.

In developing a communications plan, it is important to clearly define who the project community is, including its stakeholders. It is also important to articulate what makes the project a 'community project'. The plan should detail how and when to communicate with stakeholders at each stage of the project. It is likely that the extent and type of communication will vary across these stages.

Key communications may be based around the project concept and aims, project milestones, opportunities for investment and participation, planning processes, construction processes, policy changes, advocacy and events. A range of community engagement and communications activities and tools that might be considered by CE groups is listed in Table 4.

Table 4: Community engagement and communications activities and tools

Activity	Engagement and communications tools
Stakeholder research	Stakeholder identification and mapping; one-on-one meetings with local stakeholders and references to identify others; done regularly.
One-way communication	Project website; fact sheets; newsletter; press releases; newspaper ads; regular news columns; information in publications of local organisations.
Two-way communication	Telephone discussions; one-on-one briefings; social media; regular listening posts (e.g. at local clubs/cafés/pubs); informal dinners and get-togethers.
Community education	Public displays (e.g. photomontages, information posters); live renewable energy resource monitoring data displays and/or audio-visual installations; field trips (pre-construction) or open days (post-construction); local employees/volunteers visibly and consistently working on location; stalls at community events and markets; community gatherings such as film nights on relevant topics or dinners.
Community outreach	Meetings with neighbours and nearby residents within an area which is relevant to the local environment and technology type; drop-in information sessions; public launches at different stages of the project's development; site tours; celebratory events that allow the community to experience and learn about the project/ technology; volunteer and advocate training to skill people to talk about the project; local capital-raising events; hosting or working with other groups to deliver a festival, ball, fair or art exhibition.
Decision making/ feedback loops	Community workshops and focus groups; polling and surveys; community planning processes for key decisions; consensus-building participatory deliberation and decision-making processes; reporting decisions and rationale back to the community; complaints management and respectful conflict resolution mechanisms; community reference group with key partners/stakeholders.
Working with local groups and representatives	Engage with local council and State and Federal Government representatives; engage and collaborate with local community organisations, environmental and advocacy groups and education institutions (e.g. Indigenous elders, Landcare, bird watching groups, conservation groups, climate action groups, secondary schools, TAFEs).
Benefit sharing	Establish a community grants fund; distribute neighbourhood benefits; subsidise energy costs; give returns to shareholders; fund new, ongoing projects for community and environmental benefit; celebrate achievements.

Source: Lane, T and Hicks, J, Best Practice Community Engagement in Wind Development, ACT Wind Auction

Careful timing of communications and engagement activities is essential. It will often be best to test details with key people and stakeholders before consulting with the broader community.

## **THE TECHNOLOGY**

# What technologies are fitting for CE projects and what technological aspects need to be considered?

Solar PV, bioenergy, mini hydro and wind power are generally appropriate sustainable energy technologies for smaller-scale community projects. Groups considering larger-scale projects may also wish to investigate the potential of geothermal energy. The Wiki articles 'Renewable energy technologies'<sup>7</sup> and 'Identifying the right resource'<sup>8</sup> will help guide CE project groups to make decisions about these technologies. Groups should also consider the costs and benefits of energy efficiency measures, energy storage technologies and grid connections when establishing a project.

For communities considering a move towards 100 per cent renewable energy, a mixture of technologies, energy efficiency measures and operating models may be required. As an example, the range of energy projects to be undertaken by Mount Alexander Shire to achieve 100 per cent renewable energy is shown in Figure 4.

### CASE STUDY: 100% renewable towns – Z-NET

Zero Net Energy Town, or Z-NET, is a pioneering initiative that is supporting towns throughout rural and regional Australia to meet their energy needs from renewable energy. The NSW town of Uralla is the Z-NET case study town. The project in Uralla will provide a blueprint plan, open-source process and template for other towns to replicate. Uralla's case has shown that cost-effective strategies, such as LED lighting, insulation upgrades and on-site solar PV, can achieve 40 to 70 per cent of the objective while saving businesses and residents money, and building deep community engagement and energy literacy.



Figure 4: Achieving 100% renewable energy by 2025 in the Mount Alexander Shire by the Mount Alexander Sustainability Group

8 http://embark.com.au/display/public/content/ Identifying+the+right+resource

<sup>7</sup> http://embark.com.au/display/public/content/ Renewable+energy+technologies

### Solar photovoltaic (PV)

Recent years have seen a significant take-up of solar PV systems at a household, small business and commercial level, with over 250,000 systems now installed across the state with a total generation capacity over 720 megawatts (MW). Consumers and businesses generating their own power locally have benefited with bill reductions from feed-in tariffs for energy exports to the grid, as well as avoiding paying for grid-supplied power during times their systems are generating power. The broader market has also benefited, with distributed generation dampening demand periods during the day.

Falling technology costs and easier installation processes, particularly for solar PV, are also assisting Victorians, including at community levels, to transition to cleaner energy sources.

A range of community solar business models are outlined below. These have been deployed as behindthe-meter models, which are currently the most viable for CE projects. In this approach, the host site agrees to purchase the energy over the life of the project to avoid selling it into the energy market. The scale needs to be less than the minimum electricity demand of the host site to minimise grid connection issues and costs. It may also be possible to use these models for larger, grid-connected solar projects, depending on grid connection and electricity sale scenarios.

**Donation/community organisation solar** – funds are raised for a community organisation's rooftop solar PV through donations, either using a crowdfunding platform or more traditional fundraising program. Citizens Own Renewable Energy Network Australia (CORENA)<sup>9</sup> and The People's Solar<sup>10</sup> both facilitate projects using this type of model. **Community investment solar** – an organisation develops a community solar project and opens it up to community investors who will receive a certain return on their investment. Projects that have used this model include RePower Shoalhaven<sup>11</sup>, Sydney Renewable Power Company<sup>12</sup> and Lismore Community Solar<sup>13</sup>.

**Commercial-community partnership** – a community group partners with a commercial solar developer to deliver a solar project which results in dual ownership. An example of this model working at a smaller scale is Clearsky Solar Investments<sup>14</sup>.

**Multi-household solar** – involves aggregating households to deliver efficiencies through bulk-buying. Two examples are Mount Alexander Solar Homes (MASH)<sup>15</sup>, which has delivered 1MW of capacity in 2014-15, and the Darebin Solar \$aver<sup>16</sup> scheme, which allows pensioners to repay their PV through their rates.

Replicating and adapting proven models based on lessons learned can create efficiencies and bring down costs for CE groups contemplating a new small-scale solar project.

A comprehensive resource to help groups establish viable solar projects is provided on the Wiki under 'Developing a solar project', and includes detailed explanations of the current models that work, a decision-making guide (shown in Figure 5) and a host-site checklist.

There is also a range of other tools available to help test project feasibility, including ATA's Sunulator<sup>17</sup> that estimates the economic viability of a solar-battery system by calculating financial results via a simulator.

- 11 http://www.repower.net.au/
- 12 http://www.sydneyrenewable.com/
- 13 http://farmingthesun.net/lismore/
- 14 http://www.clearskysolar.com.au/
- 15 http://www.mash.org.au/
- 16 http://www.darebin.vic.gov.au/en/Darebin-Living/Caringfor-the-environment/EnergyClimate

- 9 http://corenafund.org.au/
- 10 https://www.thepeoplessolar.com/

17 http://www.ata.org.au/ata-research/sunulator



Figure 5: Interactive decision-making guide for solar PV projects

Source: National Community Energy Strategy.Interactive version available at: http://www.embark.com.au/display/content/Small-scale+decision+tree

### What models work right now?

The Embark/Farming the Sun Lismore Community Solar model can be adapted in Victoria under the current regulatory environment. These two 100kW solar farms are a partnership between local community members and Lismore City Council, to be built at Goonellabah Sports & Aquatic Centre and East Lismore Sewage Treatment Plant. They will be funded by up to 40 impact investors (20 per solar farm) by way of a loan to the council. The council will then purchase the solar PV and repay the investors.

### What models might be unlocked soon?

Other innovative models, such as those using solar PPAs, may soon be enabled by licensing reforms currently being considered by the Government.

The Repower Shoalhaven model is an example of a community investment solar project. The model has been successfully built in two locations in NSW and a third project has reached financial close. The model is developed for projects under 100kW and there are two versions. Both versions involve a community group, most likely an incorporated association, setting up a special purpose vehicle (SPV) or proprietary limited company to own the solar installation. Community investors loan capital to or invest equity in the SPV. Because the SPV is a private company, however, there is a cap on the number of investors and the amount that can be invested.

The Embark/Sydney Renewable Power Company (SRPC) model uses an unlisted public company legal structure to enable medium-to-large numbers to co-invest in a project. The 520kW project will be built on the Sydney International Convention, Exhibition and Entertainment Precinct at Darling Harbour, where the electricity generated will be used. This model is generally suited to projects over \$1 million in large metropolitan or regional areas where there are suitable host sites. The model can be applied to other technologies or for funding energy efficiency upgrades.

### CASE STUDY: Beaufort Hospital Biomass Heating System

A woodchip-fired boiler system has been installed at the Beaufort Hospital as a demonstration biomass heating project. The 110kW boiler is housed in a 12m shipping container. The existing LPG boilers will be retained as backup and to cover peak loads. The simple payback on the installation is expected to take 12 years at current LPG prices. Such a project would be possible to replicate with a community ownership model.

### Bioenergy

Bioenergy can be generated using a variety of technologies with different levels of sophistication. It is also highly scalable: from domestic wood heaters to industrial-scale combined heat and power (CHP) plants. With so many options, planning and development considerations will vary significantly from project to project.

Victoria has a comparative advantage in bioenergy with a diverse range of stable supplies of biomass feedstock that can be readily used for energy production. A number of bioenergy generators currently operate in Victoria using fuel sources such as agricultural, urban and industrial waste. Bioenergy projects are appropriate where:

- heating, cooling and/or electricity are needed
- cheap and sustainable biomass resources are readily available
- waste is produced as part of an existing food or fibre-producing enterprise.

Further information is available in 'Fuelled for Growth'<sup>18</sup> by Regional Development Victoria.

The map shown in Figure 6 provides a high-level outline of the bioenergy feedstock available across Victoria.

When considering a bioenergy CE project it is important to identify a region's biomass resources and their availability, then choose the right site for a biomass conversion facility. More detail can be found in the Wiki article 'Developing a bioenergy project'.

<sup>18</sup> http://www.rdv.vic.gov.au/programs-and-grants/biofuelsand-bioenergy



Source: Regional biomass estimates based on CSIRO (2011a). Metropolitan waste volumes based on 70% of 3.82 million tonnes of solid waste landfilled in 2009/10 as reported in the Towards Zero Waste Strategy.

Note: The above values are indicative and based on summing selected estimates (at various levels of certainty and reliability) contained in the CSIRO report. Given this, caution should be applied in the interpretation of these numbers and readers should refer to the CSIRO report which can be reviewed by contacting Regional Development Victoria. See Appendix for detailed biomass types and the definition of each broad biomass category

Figure 6: Bioenergy feedstock availability in Victoria. Source: Regional Development Victoria (with CSIRO data)

### Small hydro

Hydro-power is an established technology that is scalable to suit any project size, from a 1kW single residence system to the enormous 3,800MW Snowy Mountains Scheme. If a community has a steady and suitable water supply, then a small hydro-power system could be an affordable and reliable technology option. Small hydro systems typically depend on the natural flow of a river rather than storing water. It is important to have a consistent water supply and a drop in height for a hydro project to be viable.

Key aspects of small hydro development include getting to know the local planning and water authorities, water diversion, environmental assessments, social impact assessments, management plans and the planning application. Refer to the Wiki article 'Getting started with hydro'<sup>19</sup> for more information.

### CASE STUDY: Steavenson Falls Hydro Project

Steavenson Falls is one of Victoria's tallest waterfalls and a landmark tourist attraction. In 2009 the Black Saturday bushfires spread through the area and damaged the 13kW hydroelectric generator which illuminated the falls. Trentleck recommissioned the turbine, returning power with a battery backup system and the ability for excess power to be exported to the grid. This model could be replicated with a community ownership framework.

### Energy efficiency

Efficient use of energy can enable management of energy supply and demand, reduce environmental impacts and deliver financial benefits for communities. Energy efficiency projects can sometimes be overlooked as an opportunity for community investment but they can offer lower risks and higher returns than some renewable energy projects.

The principles of avoiding excess energy use, investing in efficient generation and distribution equipment and using strong controls can provide energy efficiency benefits. These principles can be applied to large and small-scale renewable energy generation projects in a range of situations and communities. They particularly apply where the energy generated is used onsite. Taking steps to understand the effects of reducing onsite use of energy will help ensure that any renewable generation investment made is the most effective for the long term.

For individual businesses and households, energy efficiency makes sense, yet in some situations people may not have access to the necessary information or cash to make an informed, upfront investment in energy efficiency measures. CE groups may be able to help bridge these gaps and capture the value of energy efficiency for the community.



Figure 7: Potential wind resources in Victoria

19 http://embark.com.au/display/public/content/ Getting+started+with+a+hydro+project

### Wind

Wind power harnesses wind to generate electricity and is one of the most cost-effective renewable energy resources. The technology to harvest wind energy is well proven and already used widely around the world to provide reliable electricity.

The scale of wind electricity generation can vary from micro-wind turbines up to 50kW, through to mid-sized 700kW turbines and large turbines from 2MW to 5MW. There are many opportunities for micro and mid-sized wind turbines to be deployed in a community-ownership model, especially in manufacturing, farming and industrial areas where the energy yielded can be used behind-the-meter.

Wind farm development is the suite of activities required to take a bare site and turn it into a working wind farm. Many communities around the world have developed wind farms. They have found that strong community engagement to build an understanding of wind energy and a social licence for its use in the community is critical to project success.

The first key step to developing a wind farm is to identify an appropriate site (e.g. no planning impediments or endangered species; access to suitable grid connection options, uncomplicated construction access, and limited visual and noise impacts). The next step is to monitor the wind speed and ensure the wind resource is good. This should be followed by preparation and lodgement of a planning application.

For information about making a planning permit application for a wind energy facility in Victoria, refer to 'Wind energy facilities'<sup>20</sup> on the Department of Environment, Land, Water and Planning website<sup>21</sup>.

The wind map in Figure 7 shows potential wind resources available across the state.

Benefit-sharing business models for wind farms are popular internationally but still emerging in Australia. Sharing the financial and other benefits of the wind farm (via gifted shares or cheaper electricity) can enhance social and economic outcomes for the local community.

'Developing a community wind farm'<sup>22</sup> is a detailed resource on the Wiki that provides guidance, models and tools that can be used to develop a wind farm. In addition, the 'Best Practice Community Engagement for Wind Energy'<sup>23</sup> guide goes beyond standard practice to explore what deeply involved and effective community engagement looks like.

More information about this resource is available in the 'Geothermal'<sup>24</sup> article on the Wiki.

### CASE STUDY: Co-operative wind – Hepburn Wind

Hepburn Wind is the owner-operator of Australia's first community-owned wind farm at Leonards Hill, south of Daylesford and about 100km north-west of Melbourne. The co-operative has more than 2,000 members with the majority local to the area. The 4.1MW wind farm hosts two turbines called Gale and Gusto that produce enough clean energy for over 2,000 homes. The wind farm project has attracted numerous awards and media attention for its unique approach to community engagement.

24 http://embark.com.au/display/public/content/Geothermal

<sup>20</sup> http://www.dtpli.vic.gov.au/planning/planning-applications/more-information -on-permits/wind-energy-facilities

<sup>21</sup> http://www.delwp.vic.gov.au/

<sup>22</sup> http://www.embark.com.au/display/content/Developing+a+community+wind+farm

<sup>23</sup> http://www.embark.com.au/download/ attachments/9797709/2014%20Best%20practice%20community%20engagement %20in%20wind.pdf?version=1&modificationDate=1440828530000&api=v2

### Geothermal

Geothermal energy is generated using heat from within the earth. This heat can be recovered as steam or hot water and used to generate heat and power. Direct use of geothermal energy for heating (e.g. with heat pumps) is most suited to community-scale projects and is common internationally.

The Victorian Government introduced the *Geothermal Energy Resources Act 2005* with a regulatory framework with planning permit exemptions to develop geothermal resources in Victoria. It also commissioned the Geothermal Atlas Project to collect data on geothermal resources across the state. The distribution of the resources is shown in Figure 8.



Figure 8: Distribution of geothermal resources in Victoria

### CASE STUDY: Direct Geothermal Energy Pilot

The Victorian Government supported the pilot testing of up to 30 geothermal energy systems in new and retrofitted buildings in Victoria. These included a 120kW system at the Elizabeth Blackburn School of Science and a 6kW system for a house in Brunswick that both used 50m deep vertical ground loops placed under their respective buildings. These pilot projects are showing the value of geothermal energy as an everyday heating and cooling alternative for Victorian communities.

### Energy storage

Energy storage technologies are highly sophisticated and beginning to become economically viable beyond niche remote area applications. The uptake of these technologies may offer significant financial benefits for energy consumers, particularly those with distributed generation systems such as solar PV. The technologies will enable households and businesses to choose when to store and use the power generated on site, enabling a reduction in overall energy costs. This will be particularly beneficial during peak winter and summer energy usage.

Consideration should be given to the benefits of investment in energy storage technologies when establishing a CE project. Project groups should remain mindful, however, that this market is still maturing and it is likely that the technology will become more affordable over the years to come.

There is currently no energy storage-specific framework in place to control the technical and safety components of storage technologies or how and by whom they are installed, maintained and operated. Standards Australia, the Clean Energy Council, the Energy Storage Council, the Victorian Government, and other organisations are working to address this to ensure that these technologies are safe and reliable.

### CASE STUDY: Moreland Solar City 'Concession Assist' or Positive Charge Lighting Project

Concession Assist was a collaboration between the Moreland Energy Foundation Ltd (MEFL) and the Brotherhood of St Laurence, with support from Kildonan UnitingCare, to mitigate the impacts of climate change on the community, particularly for low-income households. The project delivered over 1,000 energy efficiency audits and retrofits, delivering cost savings to participating households and reducing greenhouse emissions.

### **Grid connections**

One of the key challenges for many CE projects is grid connection. When building a renewable energy generation project, connecting to the electricity network is just as important as generating the energy in the first place. Victoria's electricity network is complex infrastructure, with various companies and government departments responsible for different aspects. It comprises two main sections: the transmission network (high voltage for transmitting long distances) and the distribution network (lower voltages for distributing to the point of electricity demand).

An embedded generator or distributed generator is one that is connected to the distribution network, as opposed to being directly connected to the transmission network. Community-scale renewable energy projects are typically embedded generators.

Communities with grid-connected generators will need to engage with their local Distribution Network Service Provider (electricity distributor) about getting connected. They may also need to engage with the Australian Energy Market Operator (AEMO) if a generation licence or exemption is required and the Australian Energy Regulator (AER) if a electricity distributor decision needs to be appealed.



Figure 9: Victorian electricity distribution businesses by region

There are five electricity distributors that manage the poles and wires in Victoria. Each covers a different region, as shown in Figure 9.

Roof-mounted solar PV systems of up to 10kW have a simple and standardised connection process to which electricity distributors have agreed. If the system is connected to the grid by an inverter that meets the Australian Standard AS4777, a relatively straightforward application to the electricity distributor should enable connection to the network. All other systems will be assessed individually by the electricity distributor.

There are five steps to obtain a connection agreement, as shown in Figure 10. These steps may require significant time, effort and negotiation. Early engagement is recommended. CE project groups may also consider engaging an electrical engineering consultant with expertise in grid connections to manage the technical aspects of the connection. These steps need to progress in parallel with the design and development of other aspects of the project and should be integrated into the project plan.

- **STEP 1:** Pre-feasibility Initial discussion with electricity distributor, ensure that you have a clear plan of what you would like to do, scale and type of technology, and a development timeline.
- **STEP 2:** Connection studies and enquiry – Connection feasibility study and written enquiry to your electricity distributor to seek indicative terms and cost to connect.
- **STEP 3:** Application to connect Formal submission and application to electricity distributor for approval to connect.
- **STEP 4:** Connection agreement and generator installation Terms of your agreement and cost to connect negotiated and agreed with electricity distributor.
- STEP 5: Inspection and commissioning After generator installation, final inspection by relevant safety authority and live connection in the presence of your electricity distributor.

Figure 10: Five steps to obtaining a grid connection

Each electricity distributor may interact with community groups differently. Technical network issues and the business proposition are key considerations for electricity distributors considering new projects. Projects with clear mutual benefits for the community and the electricity distributor are easiest to progress. There are complex regulations with which electricity distributors must comply in regard to connections, protecting the network and bushfire mitigation strategies.

To assist in scoping opportunities that may be attractive to both the electricity distributor and community, read the current Network Planning Report of the relevant electricity distributor and CSIRO's Electricity Network Transformation Roadmap<sup>25</sup>. Links can also be found on electricity distributor websites for connection enquiry guidelines, letter templates and indicative costs for network extensions. To understand more about this process, read the Wiki article 'Electricity networks and getting connected'<sup>26</sup>.

- 25 http://www.ena.asn.au/electricity-network-transformationroadmap
- 26 http://www.embark.com.au/display/public/content/ Electricity+networks+and+getting+connectedhttp:/ embark.com.au/display/public/content/ Electricity+networks+and+getting+connected

### **THE MONEY**

# What commercial and financial aspects need to be considered?

CE projects are motivated by more than commercial drivers and often involve significant volunteer time and in-kind contributions. They do, however, need to be financially sound and many (though not all) are required to provide a return on investment if they are to be successful.

Determining expected revenue-in and expenditure-out is fundamental to the business case and ensuring the financial viability of the project. On the revenue side, the main factor will be predicting energy generation. It is recommended that CE groups get the best advice they can afford from specialists in this area. Always be conservative in respect to yield predictions. A 10 per cent difference in these predictions can make a big difference to the bottom line. On the expenditure side, be sure to consider aspects such as maintenance, administration and decommissioning costs over time. A business model that involves distributing returns to many investors can contribute significantly to administration costs.

There are several sources of funding for a CE project and the suitability of each option will depend on the stage of the project, its legal structure and whether it uses a proven, established business model. These funding sources are summarised in Table 5 and Figure 11. There are a number of factors that need to be considered when determining the financial viability of a CE project. These include:

- size of the project in kW/MW of generation capacity
- resources (especially in the case of bioenergy projects where supply issues and contracts for those inputs are a key) and transportation costs
- cost of energy generation and maintenance
- cost of connection to the network
- cost of energy generation and supply
- ongoing contracts with the retailer/s
- costs incurred in establishing the project
- method and cost of raising funds, including any debt financing
- level of costs once the project is operational, including administration
- different sources and levels of project income
- vulnerability to policy changes.

THERE ARE SEVERAL SOURCES OF FUNDING FOR A CE PROJECT AND THE SUITABILITY OF EACH OPTION WILL DEPEND ON THE STAGE OF THE PROJECT

### Table 5: Range of possible funding sources by project stage

Funding type	Description	Funding sources and more information
Grant	Grant funding is most useful and most risky in the early (feasibility) stages of a project. Grants have played an important role in most successful CE projects in Australia to date particularly in relation to feasibility studies and, less commonly, capital expenditure. E.g. Hepburn Wind secured \$1.7 million in grants from Sustainability Victoria and Regional Development Victoria. As CE is new in Australia, the funding landscape is largely unfamiliar and there are very few CE-targeted grants. Grants under more general categories of environmental conservation or community education may apply to CE projects. Issues may arise from the temptation to mould a project to fit grant guidelines, rather than the grant being a good fit with project motivations.	<ul> <li>Grant makers include all levels of government (Council, State and Federal) as well as philanthropic organisations. Examples include:</li> <li>Our Community (offers a grants information service)</li> <li>Victorian Government <ul> <li>Grants Victoria</li> <li>Department of Economic Development, Jobs, Transport and Resources</li> </ul> </li> <li>Regional Development Victoria</li> <li>Sustainability Victoria</li> <li>Local councils</li> <li>Australian Renewable Energy Agency (ARENA)</li> </ul>
Donations	Donations are always welcome. They can, however, be difficult to attract in large amounts and hard to plan for over time. It can also take a lot of effort to bring in donations. There are legal requirements around seeking funds from the public, so it is important to obtain the required licence from Consumer Affairs Victoria and/or appropriate legal advice when planning a fundraiser. It is unlikely that donations will be able to fund more than a small CE project or part of the feasibility studies. To secure large donations, it helps to have Deductible Gift Recipient (DGR) status. DGR enables registered charities to accept tax-deductible donations. This is a great incentive for people to make donations, especially big ones. Having DGR status is a requirement of some grant conditions. Achieving DGR status can be a long and involved process, which is why many groups approach established not-for-profit organisations in their community to act as an auspice.	<ul><li>Possible donors include:</li><li>local individuals and businesses</li><li>community of interest</li><li>philanthropists.</li></ul>

Funding type	Description	Funding sources and more information		
Investments	A community share offer raises capital by inviting members of the community to invest in the project. This can only be done once the project has been 'de-risked', its viability has been established, planning approval has been gained, grid connection has been arranged and an agreement signed for the purchase of the energy. A community share offer involves preparing, publishing and distributing an offer document. The terminology, including prospectus, disclosure statement, share offer and product disclosure statement, and legal requirements of the document will vary depending on the legal structure chosen and the jurisdiction of the project. Different CE projects set different criteria for who is able to invest, how much they are allowed to invest and what associated benefits (for example voting rights) investors should receive. 'Angel investors' may be sought before the project has been completely de-risked. These are investors who are willing to risk losing their money, should the project not proceed. This is a more expensive source of funding because if the project does go ahead, these investors require a higher rate of return to compensate them for the risk.	<ul> <li>Possible investors include:</li> <li>local Individuals</li> <li>non-local individuals</li> <li>local organisations and businesses</li> <li>local government</li> <li>institutional investors (e.g. philanthropists, superannuation funds, investment firms).</li> </ul>		
Loans	Loans are a potential source of finance for CE, however, because CE is new in Australia, there is not a long track record of securing debt financing. The changing policy environment for renewable energy also makes it difficult for loan makers to feel confident that the predicted income will be achieved. Securing a loan will only be possible once a strong business case has been developed and the bank can assess the likelihood of the venture to repay the debt. From a risk management perspective, it is only viable to seek debt finance once the project group is convinced of the project's viability and that group members are not subjective members/investors to unreasonable risks. One of the most difficult aspects of getting a loan for a CE project is the lack of security. Most communities do not have any form of security to offer banks, apart from the earning potential of the project itself, which may not always be fully realised. One way around this is for an individual, organisation or business to provide security for the loan on the project's behalf.	<ul> <li>Possible sources of loans include:</li> <li>banks, e.g. community banks such as Bendigo Bank, Bank Australia (formerly BankMECU)</li> <li>individuals</li> <li>organisations</li> <li>government agencies, e.g. Clean Energy Finance Corporation (CEFC)</li> <li>local councils.</li> </ul>		
Crowdfunding	Crowdfunding is one of the newest donation-based fundraising strategies. It involves getting many small pledges of funding from many people, usually using a web-based platform. People are offered a range of levels at which they can pledge support and their pledges will only turn into actual donations if the fundraising target is reached. Crowdfunded investment is currently prohibitively difficult under investment laws in Australia, as it requires a financial services licence.	Citizens Own Renewable Energy Network Australia Inc (CORENA) <sup>27</sup> and the People's Solar are successfully taking the crowd funding approach and partnering with other CE groups to fund projects.		



Figure 11: Funding sources suited to CE projects by stage, project size and whether the model is pioneering or proven

### CASE STUDY: Joint ventures – CENREC

The Central NSW Renewable Energy Co-operative Ltd. (CENREC) was created with the primary intention of facilitating the community purchase of the equivalent of one turbine in the proposed 43-turbine Flyers Creek Wind Farm, to be located between Orange and Blayney in NSW. Using a communitydeveloper partnership model, the co-operative has played an important role in community engagement and education around the project.

It may also be possible to fund a larger project by partnering with an organisation that takes some or most of the financial risk and raises some or most of the capital. One example would be to partner with a conventional renewable energy developer already planning on delivering a project in the local area.

More information on fundraising options suited to different legal structures and business models is included in the following section. Additional information is available on the Wiki: in the Finance and Funding Sub Strategy, The Community Energy Cost Analysis and the Community Energy Maturity Index studies from the 'National Strategy 2015'<sup>28</sup>, as well as the 'Funding and Finance'<sup>29</sup> articles.

### **Electricity markets**

Currently CE projects can generally be viable if they are large scale and compete on the wholesale market (such as Hepburn Wind) or if they operate behind-themeter (such as community solar on commercial host sites) to attract close to retail value for their generated energy. Sale of electricity is the key income stream for any power generator and it is important to understand the way the National Electricity Market (NEM)<sup>30</sup> operates in Australia to maximise the return on investment.

#### **Power Purchase Agreements**

Power Purchase Agreements (PPAs) are the contracts which define the commercial terms for the sale of electricity between two parties, the seller of the generated electricity and the purchaser.

#### **Renewable energy certificates**

The Renewable Energy Target (RET) scheme establishes guaranteed annual demand for renewable energy in Australia's energy market. In practice, the RET functions in two separate markets for large and small-scale technologies, with different rules for each.

Renewable energy certificates are developed to facilitate market trade. The certificates can only be accessed by accredited renewable electricity generators (and some energy-efficient technologies). These include large wind farms, biogas plants, some hydro plants, small renewable technologies such as solar PV systems, micro wind and hydro systems, and solar water heaters.

As part of the trading process, large renewable generators may create Large-scale Generation Certificates (LGCs) on an annual basis, in line with generation output. The certificates are sold to energy retailers and others parties who are required to purchase them under the *Renewable Energy (Electricity) Act 2000* (*Cth*). This gives large renewable generators an additional income stream, on top of the sale of the electricity itself, and helps make projects economically viable.

Small renewable generators may create Small-scale Technology Certificates (STCs) that can be sold upfront for multiple years. The number of STCs created will vary according to the technology type and system size, but this arrangement enables small projects to obtain a discount on their capital cost. One LGC or STC is worth one MW hour generated by the renewable source. The prices of LGCs and STCs fluctuate with market supply and demand and political pressures.

- 29 http://embark.com.au/display/public/content/ Funding+and+finance
- 30 http://www.aemo.com.au/About-the-Industry/Energy-Markets/National-Electricity-Market

<sup>28</sup> http://embark.com.au/display/public/content/ National+Strategy+2015

### **THE STRUCTURE**

# What are the organisational and governance options and considerations?

Setting up and running a CE group and project requires good governance and a considerable amount of planning. People with a diverse range of relevant skills and a good standing in the community are required to run the project. A legal entity such as an incorporated association, cooperative, public company, trust or other corporate structure is also required and this will come with a range of legal and fiscal responsibilities. Some key considerations are fundraising requirements and means, business and tax registration, insurance, employment and banking.

It may be beneficial in the early stages of the project to establish a working group from an existing, wellestablished organisation in the community. Such an organisation is likely to have established governance and financial processes, insurance cover and office space in place that can be drawn on for the project. It may also have fundraising incentives, such as deductible gift recipient status.

As a CE project grows, its governance and management functions can become more complex. It will 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.

# Key questions when selecting an appropriate structure include:

- Where will the money for the project come from? How do possible legal structures enable or constrain fundraising?
- Where will the money generated by the project go? Who will benefit from this?
- Can only local people be member investors?
   Is it possible to have investors from further afield?
   What about businesses or local government?
- Who is included or excluded in decision-making?
- Who do you want to have majority of the decisionmaking power? How do you guard against takeover by other interests in the longer term?
- Who has power in this process and how equitable is it? How does this fit with the group's original vision and values?
- How do these questions relate to your group's motivations and vision for the project?

Some CE groups will use more than one legal structure to progress a CE project. In this case, a group will usually establish or use an existing not-for-profit legal structure (incorporated association, non-trading cooperative or public company limited by guarantee) to undertake the project development, community engagement and ongoing operations and then set up what is known as an SPV to manage the investment side of the project.

A summary of the characteristics and potential relevance of different legal structures is available in Table 6.

For more information, refer to pages 30-33 of the How to Guide and 'Determining the right legal structure' and the 'Legal and financial responsibilities' on the Wiki.

# CE projects in Australia can be divided into six main forms



### 1. Donation/philanthropic projects

Donation/philanthropic projects involve a community raising funds through donations, either using a crowdfunding platform or more traditional fundraising programs. Typically, the host site and beneficiary of this model will be a not-for-profit community organisation, such as a school, surf-lifesaving club or fire station, and the project scale will be small (10-50kW). While members of the organisation may donate to the project and will have a say over its direction, they are not investors and will not earn a dividend. Instead, all the money generated will go back to benefit the organisation.

The CORENA and Power for the People projects, and the Moreland Energy Foundation are examples of this type of project. Appropriate legal structures include incorporated association, non-trading cooperative and public company limited by guarantee.



### 2. Community investment projects

Community investment projects are typically initiated and led by a community organisation such as a cooperative or company. Funds are raised by opening up the project to community investors on the expectation that they will receive a certain return on their investment. Investors can be local and non-local individuals, organisations and small businesses. Income can also be distributed to the broader community through the creation of a community grant fund.

Hepburn Wind, RePower Shoalhaven and Denmark Community Wind are examples of this type of project. Appropriate legal structures can include a trading cooperative, private company and public company limited by shares.



#### 3. Community-developer partnerships

Community-developer partnerships are where the community or a renewable energy developer initiates a renewable energy project and both parties agree to deliver it in partnership. This structure is used typically for large (multi-MW) renewable energy projects where a community investment vehicle is part owner, along with the renewable energy developer and possibly other entities. The community often leads community engagement and consultation activities while the developer leads the technical studies. In many cases, the developer owns a majority of shares and holds most of the decision-making power.

Infigen/CENREC are examples of this type of project. Appropriate legal structures for the community-owned component of the project depend on the desired outcomes but may include a trading cooperative, private company and public company limited by shares.



### 4. Community-council partnership

A community-council partnership enables a CE group to access a premise or land from a council to install a renewable energy system, with the council agreeing to purchase all electricity generated. The community group will often initiate the renewable energy project and then approach the council to enter into a partnership. The council will have ideally conducted assessments of its buildings and identified sites suitable for installations. The CE group will lease the site, invest in the project and/or receive dividends from selling the electricity to council. Alternatively, it may provide a loan to the council for the infrastructure purchase.

Examples of this type of project include Lismore Community Solar, Clean Cowra and the Bendigo Sustainability Group. Appropriate legal structures include a trading cooperative and public company limited by shares.



#### 5. Multi-household models of community energy

Multi-household CE models are where a community group aggregates households to bulk-buy and install renewable energy technology. For example, the Bendigo Sustainability Group, with the help of a Government grant, funded community education and a support program for small scale household solar PV. This project achieved more than \$5 million of community investment and a 21 per cent solar penetration in the local community that is twice the state average.

Other examples of this type of project include Darebin Solar \$aver and MASH in Castlemaine. Appropriate legal structures include an incorporated association, non-trading cooperative and public company limited by guarantee. It may also be appropriate to use an existing community organisation to manage this type of project.



### 6. 100% renewable energy towns

Z-NET and the broader 100% Renewable Energy movement forms part of the larger community energy sector in Australia. It is also well developed in North America and Western Europe. Already in Victoria, communities such as Newstead, Yackandandah, Castlemaine, Geelong and Daylesford have announced their intent to substantially transform their energy towards 100% renewable resources.

The renewable energy town model provides a process for mapping out pathways to a community's renewable energy goal. This process can use feasibility studies and other methods to identify specific projects which can contribute to the ultimate goal. An incorporated association can be an appropriate structure for the initial work of identifying options, followed by other project-specific structures, depending on the size and nature of the project.

The renewable energy town model provides a process for mapping out pathways to a community's renewable energy goal

Legal structure	Governing body	Profit/ Not for profit	Geographic scale of incorporation	Voting*	Disclosure	Challenges	Benefits
Cooperative e.g. Hepburn Wind	Consumer Affairs Victoria	Both: Distributing (for profit) and Non- Distributing (not-for- profit)	State-wide but is becoming nationally integrated	Demo	Document checked by registrar	Obtaining legal advice; some difficulties in having inter- state investors; less familiar and less trusted by some.	Values align; less onerous offer document checks; can distribute before tax; unlimited number of members; ongoing opportunity for members to join (invest).
Incorporated Association e.g. Macedon Ranges Sustainability Group	Consumer Affairs Victoria	Not for profit	State	Demo	N/A	No equity investment	Easy to set up; able to have members; able to take on loans; able to trade and own property.
Company Limited by Guarantee e.g. Moreland Energy Foundation	ASIC	Not for profit	National	Demo	N/A	No equity investment	National substitute for incorporated association.
Private company – Proprietary Limited (Pty Ltd) e.g. Repower Shoalhaven	ASIC	For profit, company tax rate	National	Usually Prop can be demo	Info Memorandum	20 investors in 12 months with a total investment of \$2 million; maximum of 50 investors overall.	Easy to set up; familiar to investors and policymakers; easy to find legal advice.

Table 6: Available legal structures, their characteristics and applicability to CE projects

\*Demo = democratic: 1 person 1 vote; Prop = Proportional: 1 share 1 vote

Table continued over page



Legal structure	Governing body	Profit/ Not for profit	Geographic scale of incorporation	Voting*	Disclosure	Challenges	Benefits
Public company – Limited (Ltd); unlisted) e.g. SolarShare, Sydney Renewable Power Co, Denmark Community Wind	AISC	For profit, company tax rate	National	Usually Prop can be Demo	<\$10 million: Offer Information Statement; >\$10 million Prospectus.	Compliance and establishment costs are high.	Unlimited number of members; familiar to investors and policymakers, easy to find legal advice.
Trust Unit Discretionary E.g. Clearskys Solar Investments	ASIC	For profit, tax rate of investors	National	Trustee	Info Memorandum OR Managed investment scheme	20 investors in 12 months with a total investment of \$2 million OR get an Australian Financial Services Licence	Tax treatment of profits; capital returns.

\*Demo = democratic: 1 person 1 vote; Prop = Proportional: 1 share 1 vote

### **MORE INFORMATION**

### Victorian Government Renewable Energy Initiatives

The Andrews Government strives for all Victorians to be able to access energy that is affordable, reliable and more sustainable.

For more information on the Victorian Government's initiatives in supporting renewable energy, including community-owned projects, visit: www.energyandresources.vic.gov.au

### CE support organisations

Agencies, programs, networks and resources that you can go to for more information (e.g. community initiatives, finance toolkit, congress).

### C4CE | www.c4ce.net.au

C4CE is a system for coordinating collaboration of member organisations with the goal of creating a vibrant community energy sector and movement throughout Australia. With more than 60 members, including community energy groups, non-profit organisations, educational institutions, faith-based groups and various government bodies, C4CE encourages the active participation of organisations that are passionate about CE.

### Embark | www.embark.com.au

Embark Australia is a non-profit organisation that emerged from the Hepburn Wind experience to develop new models of CE and offer support to CE project groups. Embark has developed a Wiki to help up-skill communities, transfer knowledge and provide expert advice. It advocates for policy changes to grow the sector and provides coaching, workshops and public speaking. Embark has developed a wind and solar model and a suite of legal templates to reduce financial and organisational barriers for CE project groups.

# Community Power Agency | www.cpagency.org.au

The Community Power Agency works with communities to build their capacity to deliver successful CE projects. They provide training and workshops, public speaking, mentoring, networking and research services. Community Power Agency also works with a range of organisations to help address the institutional and policy barriers that face all CE projects across Australia. The Community Power Agency is the Secretariat for the Coalition for Community Energy.

# Alternative Technology Association (ATA) | www.ata.org.au

The ATA is a not-for-profit organisation promoting sustainable technology and practice. ATA advocates in government and industry arenas for easy access to the technology and its continual improvement, as well as the continual improvement of information and products needed to support sustainability. In particular, ATA has specialist expertise in engaging with the National Electricity Market (NEM), and can support CE groups to wade through the complexity of engaging with the NEM and mainstream energy market players.

### CORENA | www.corenafund.org.au

CORENA (Citizens Own Renewable Energy Network Australia Inc) enables individual citizens to speed up the transition to 100% renewable energy by helping to collectively fund renewable energy projects.

### Moreland Energy Foundation | www.mefl.com.au

Moreland Energy Foundation Limited (MEFL) is a notfor-profit organisation dedicated to sustainable energy. The foundation undertakes community engagement, delivers local sustainable energy programs, undertakes sustainable energy-related research and consulting projects and advocates on energy efficiency, renewable energy and related policy and planning issues.

### Energy for the People | www.energyforthepeople.com.au

Energy for the People is a company and certified B-Corporation which provides independent energy services, managing clean energy projects end-toend. These include pre-feasibility and feasibility studies, designing, procuring and/or managing the implementation of energy infrastructure, negotiating regulatory approvals and designing commercial delivery models to manage project risk and reduce project costs.

### Advocacy organisations

### Yes 2 Renewables | www.yes2renewables.org

Yes 2 Renewables is the Friends of the Earth's renewable energy campaign and is a successful grassroots movement. Its blog provides information about renewable energy policy in Victoria and announces public events to support renewable energy. It also gives a platform for engaged citizens to speak up for wind and other forms of renewable energy.

# Australian Wind Alliance and the Victorian Wind Alliance | www.vicwind.org.au

The alliance brings together communities, businesses and individuals who support more wind energy. Its mandate is to improve the environment through education about the benefits of wind power by working on the ground in wind districts and online. It also partners with communities and wind developers in areas with operating, planned and potential wind farms.

### Solar Citizens | www.solarcitizens.org.au

Solar Citizens is a community-initiated campaign working to build community and political support for renewable energy, with a focus on solar home-owners.

### Clean Energy Council | www.cleanenergycouncil.org.au

The Clean Energy Council is a not-for-profit industry body which represents its membership of renewable energy businesses and solar installers, and advocates for clean energy technologies in Australia. It maintains a register of approved solar products and accredited solar installers for consumers, and provides training to the industry. It also produces publications, submissions and events to support the development of the industry.

### Australian Solar Council | www.solar.org.au

The Australian Solar Council is a not-for-profit solar industry body which promotes the development and adoption of solar technologies in Australia. It runs a certification program and training courses for solar installers, and provides information and events to consumers and the solar industry.

### Resources

### The Embark Wiki

The Embark Wiki is an online best-practice toolkit offering information and advice on a wide range of community-owned renewable energy issues. The information and advice comes from community energy pioneers and subject experts. The Wiki a self-education tool and offers a place for users to contribute content.

How do you locate the articles listed in this publication? The Wiki is located at www.embark.com.au and most of the relevant information is located under 'Articles' in the header bar. Once there, navigate using the content list on the left-side bar or search for a topic area or article name listed in the guide using the search function above the content list. You can also search using key words which are relevant to the information you are seeking.

# 'How to Guide' and annotated list of community energy resources

The Community Power Agency's 'How to Guide' for community energy provides information on many of the areas covered in this guide and is a good source of further detail. In particular, it lists a comprehensive set of resources from Australia and overseas that provides detailed information on many aspects of CE. The list can be found on pages 61 to 72 of the 'How to Guide'.

### Sunulator

Sunulator is a free tool that has been developed by the ATA. Sunulator is a simulation tool that can be used to help plan a grid-connected solar project. The simulator calculates projected financial results for a project, including payback period, net present value and return on investment.

### Partnerships: Engineers without Borders – Embark

The EWB and Embark partnership facilitates matching of community groups with appropriate pro-bono engineering services and resources. This helps to improve community access to corporate partners and local volunteers.

### Embark SODAR rental program for community wind

For a community group without a balance sheet, installing a fixed wind-monitoring mast is a huge barrier. To assist such groups, Embark has secured a portable Sonic Detection and Ranging (SODAR) device and developed a low cost rental plan.

# Best Practice Community Engagement in Wind Development

Written by Jarra Hicks from the CPA and Taryn Lane from Embark and Hepburn Wind for the ACT Government's Wind Auction, this guide goes beyond standard practice to look at what represents best practice community engagement in wind development.

### **Our Community**

Our Community provides advice, tools, templates and resources to support not-for-profit organisations in Australia. Its website provides a valuable source of information in relation to organisational development, governance and fundraising. Individuals can also sign up as members and receive newsletters with listings of available grants.

### NOTES



