

community power  
agency



community-owned renewable energy

A HOW TO GUIDE

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The Guide is not a legal document and does not replace legal advice. Every effort has been made to ensure accuracy in this document. However, the items are necessarily generalised and readers are urged to seek specific legal advice on particular matters and not rely solely on this text. Statements in the Guide do not necessarily reflect the opinions of the NSW Government.



# foreword

Community owned renewable energy is a fantastic opportunity for all of us to participate in developing clean energy.

Not only is community owned renewable energy a great way for us to improve our environment, but it is also an opportunity for regional communities to come together and benefit economically. A more diverse energy mix developed through local community enthusiasm will benefit us all.

Whether you are taking the first steps on developing a new project or whether you are thinking about participating in an existing project in your community it is essential that you have the right decision-making tools. This guide has been developed to help local communities make these decisions.

The NSW Government is proud to support community owned renewable energy.



Rob Stokes, MP  
Minister for the Environment,  
NSW Government



# a short guide to starting a community renewable energy project

Jarra Hicks, Nicky Ison, Jack Gilding & Franziska Mey – April 2014.

establishing solar, wind, bioenergy and hydro-power projects that involve and benefit local people. This is a short guide to starting such a project in your own community. This guide has been prepared with the financial support of the NSW Government, through the NSW Office of Environment and Heritage's Regional Clean Energy Program.

## WHAT is community renewable energy?

Community-owned renewable energy projects are those that help decarbonise, decentralise and democratise our electricity system and demonstrate that renewable energy technologies work. They develop local renewable energy resources for electricity, heat and fuel in ways that:

- ▲ reflect the motivations and aspirations of the local community;
- ▲ maximise local ownership and decision making;
- ▲ share the financial benefits widely;
- ▲ match energy production to local usage.

One of the strengths of community renewable energy is that every project is slightly different, being tailored to each community's needs and context.

## WHY is community renewable energy important?

Community-owned renewable energy projects create social, political, environmental, economic and technological benefits by:

- ▲ strengthening local economies;
- ▲ building community participation, resilience & empowerment;
- ▲ educating people about renewable energy and involving them in creating a sustainable low-carbon future;
- ▲ directly and significantly reducing a community's carbon footprint;
- ▲ developing renewable energy industries, technology, jobs and training.

## HOW to get started

The early stages of a successful community-owned renewable energy project depends on a small group who are able to commit volunteering their time over a sustained period. It might be an offshoot of an existing organisation, or it might be a new group. Ideally this core group will have skills in community engagement, an interest in technical detail and some expertise in project management. Financial, legal and fund-raising skills are also important but these can come in a bit later.

## Engage your community

Why? People form the foundation of a community-owned renewable energy project and community support is critical to success. Getting people on board with the project vision will build your base of champions in the community and, ultimately, these people will become your investor base.

What? Gauge the level of support, identify and recruit active members, identify partner organisations, educate the public about renewable energy options, build a database of supporters. How? Website, newsletters, street stalls, articles in the local paper, guest speakers, public meetings, site visits to other community renewables projects, brainstorming workshops, events, celebrations, drop-in information sessions, etc.

## Define your vision

Use your community engagement process to create a shared vision for your local project:

- ▲ Why are you doing it? What social, environmental and economic benefits drive your project?
- ▲ What is the 'community' you are reaching out to?
- ▲ What technology will you use and what is the scale of the project?
- ▲ How will the benefits be shared?

## Choose a technology

Some projects start with a particular technology or local energy resource as part of their vision. Others are driven by wider goals and undertake an investigation of possible technology options that suit local circumstances. After initial discussion and investigation, you will need to choose a technology, scale and site before you can develop the detail of your project. Typical technologies are wind, solar PV, small hydro and biomass. Each has distinctive implications for the scale, location, cost, timeline and complexity of your project. A pre-feasibility study can scope the practicality, likely cost and potential barriers to your chosen technology.

## Developing the detail of your project

The combination of a community vision and a choice of a particular type and scale of technology will form the basis of a CORE project proposal. This is likely to include considerations of:

- ▲ How will the project be developed: as a community organisation to which people donate? As a new legal entity (eg co-operative or company) in which the community invests? As a partnership with a planned commercial renewable energy development?
- ▲ Who are the key partners you need for the project to succeed? These could include dedicated CORE support organisations,



Westmill Solar Cooperative, UK.  
Courtesy of [www.westmillsolar.coop](http://www.westmillsolar.coop).



Wildpoldsried, Germany.  
Courtesy of Jarra Hicks.



Hepburn Wind, Victoria, Australia.  
Courtesy of Karl von Moller.



Westmill Solar Cooperative, UK.  
Courtesy of [www.westmillsolar.coop](http://www.westmillsolar.coop).



Hepburn Wind, Victoria, Australia.  
Courtesy of Jarra Hicks.



Wildpoldsried, Germany.  
Courtesy of Jarra Hicks.

fundes, a community bank, an electricity retailer, your local council, a law firm, an engineering consultant, a commercial renewable energy developer etc.

- ▲ What legal structure best suits your purpose and values?
- ▲ Who will be involved in making what decisions?
- ▲ How will the project be funded, constructed and operated?

### Developing the business model

All the decisions above feed into a business model. If you are intending to raise money from the public this will form a crucial part of your fundraising document. Even for smaller projects the business model needs to define:

- ▲ What the project will cost, how much you need to raise, by what means and at what time.
- ▲ How the energy generated and other products (such as Renewable Energy Certificates) will be used and sold, and what income will be received.
- ▲ What return investors are likely to receive and what other financial and other benefits will be distributed to the local community.
- ▲ How operating, maintenance and decommissioning costs will be planned for.

Your business case needs to set out the assumptions behind your calculations and test that the project is viable in the longer term if circumstances change.

## Making it happen

At some point you will know if your project is ready to become a reality. You may be about to launch a capital raising campaign, set up a new organisation or sign a contract with a key partner organisation. Key issues you will need to focus on now are:

- ▲ Do you need to employ someone to coordinate everything?
- ▲ The dynamics of fundraising: Will you reward early investment, how will you maintain fundraising momentum, what will you do if you don't reach the target?
- ▲ How are you managing relationships with key stakeholders?
- ▲ Who is providing the technical and project management expertise to make sure the project is built to the required budget, timeline and quality?

## Enjoy the journey

If you are thinking of embarking on a CORE project, you are part of a vital and rapidly growing movement in Australia. There are enormous opportunities for these projects and there are many organisations and individuals who can help you. Developing your own project will take more time and effort than you expect, but the rewards will be greater as well. Not every proposed project will become a reality but there will be many and surprising benefits along the way. Enjoy the journey, pace yourself for a marathon not a sprint, celebrate the milestones on the way, have fun and remember:

*“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has!” - Margaret Mead*

## Top 3 resources recommended to help you get started:

### ▲ Embark

[www.embark.com.au](http://www.embark.com.au)

The Embark website provides a comprehensive Australian specific overview of community renewable energy, including practical capacity-building tools. It also showcases different examples of successful community energy projects from around the world as well as having important Australian specific information.

### ▲ PlanLoCal

[www.planlocal.org.uk/pages/renewable-energy](http://www.planlocal.org.uk/pages/renewable-energy)

PlanLoCal have developed a great range of online videos to help groups familiarise themselves with the process of establishing a CORE project and what it involves, as well as understanding renewable technology options better.

### ▲ Community Energy Scotland

[www.scotland.gov.uk/Resource/Doc/917/0115761.pdf](http://www.scotland.gov.uk/Resource/Doc/917/0115761.pdf)

This comprehensive toolkit has been produced by Community Energy Scotland for the Scottish Government and Energy Saving Trust to help community groups to develop renewable energy projects as well as pursue energy efficiency activities. The guide is more technologically oriented and also provides practical information for community groups undertaking renewable electricity or heating projects.

The full version of the Community Renewable Energy How to Guide and links to many more resources can be found at:

[www.cpagency.org.au/resources](http://www.cpagency.org.au/resources)

# about this guide

# 1

**This Guide to Community-owned Renewable Energy (CORE<sup>1</sup>) provides an overview of:**

- ▲ What is community-owned renewable energy,
- ▲ Why it's a great opportunity, and
- ▲ How to go about making it happen.

We also provide a status snapshot of CORE projects both internationally and in Australia. It has specific information on the situation in NSW but is relevant to groups throughout Australia.

This Guide is intended as a first port of call to get an idea of how to start. Afterwards we hope you will have the confidence to go and talk to relevant organisations and read more of the many detailed resources available to help you on your journey to developing your own community renewable energy project. To help you on your way, we have provided a list of many of the relevant resources out there, as well as the organisations working to support CORE in Australia.

When reading through this Guide try to remember one thing – you don't need to know everything when you first embark on developing a CORE project. Every CORE project, ever, has learnt how to do it while doing it – you will find both the journey and the destination worth the effort.

This Guide was developed by the Community Power Agency and Backroad Connections and funded by the NSW Office of Environment and Heritage.



Hepburn Wind, Victoria, Australia.  
Courtesy of Jarra Hicks.

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<sup>1</sup> CORE, community energy, community power and community renewables are overlapping terms, and there has been much debate among stakeholders about which one to use. Coalition for Community Energy uses the term community energy as this refers to on both the community energy generation and energy savings projects. However, this guide has a narrower focus on community-owned renewable energy projects and as such the term CORE has been used.



# 2

## community renewable energy in context

### 2.1 A changing energy landscape

A big energy transition is underway across the world. Every year the amount of renewable energy installed grows significantly. As renewable energy technologies like wind and solar PV develop, they become cheaper and more efficient. As increasing fuel costs and the cost of pollution are factored in, coal and gas-fired power become more and more expensive. In fact, wind power is now cheaper to build in Australia than new coal or gas fired power stations.<sup>1</sup>

The way that people relate to energy is also changing. More and more, people are thinking about where their electricity comes from, how they use it, and what impact all of this has on our planet and other people. People want to know where their energy comes from and what the flow-on impacts are (for better or worse). People are seeking ways to lessen the risks of increasing electricity prices and to keep the economic benefits of energy production in local communities.

People are also looking for opportunities to take action on climate change in ways that are empowering, positive and significant. Many people have done what they can at a household level and are looking for things they can do together, as a community. One of the great things about CORE is that it enables people to collectively develop renewable energy options that simply aren't available to you on your own.

Across the world, CORE is playing an important role in the transition to renewable energy. Take Denmark for example. Modern wind technology and the global wind industry emerged from Denmark in the late 1970s and early 80s.

Surprisingly, it wasn't government funding or big

business that fostered this budding sector, but small groups of farmers and townsfolk. At this time, it was common for a few people from a village to form 'wind guilds' and collectively chip in to build (from scratch!) or purchase and install a wind turbine on the edge of town.

This not only provided communities with access to clean energy and an income generating asset, it also provided an early market and testing ground for what is now a sophisticated global technology, crucial to our clean energy future. By 2001 there were 150,000 families involved in over 2,100 wind co-operatives; together they owned 50% of all turbines in Denmark and supplied 3.5% of national electricity needs.<sup>2</sup> Similarly, 51% of all renewable energy capacity in Germany is owned by individuals and communities.<sup>3</sup> That's an amazing testament to the power of communities to lead in (and benefit from!) the transition to renewable energy.

Already in Australia the community has played a crucial role in establishing the renewable energy industry. Over 1 million households now have solar panels on their roofs and are generating a portion of their energy needs directly.<sup>4</sup> Every one of these households is now better informed about renewable energy and energy use, and are potential advocates for renewable energy. However, not everyone has a roof that they can put a solar panel on, or once they have, many people want to do more. That's where CORE comes in.

1 Bloomberg Renewable Energy Finance (2013) Renewables now cheaper than coal and gas in Australia, <http://reneweconomy.com.au/2013/renewables-now-cheaper-than-coal-and-gas-in-australia-62268>

2 Danish Wind Turbine Owners Association (DWT OA) (2009) Cooperatives: a local and democratic ownership of wind turbines, <http://www.dkvind.dk/html/eng>

3 World Wind Energy Association (2012) Citizen Power Community Power Conference News, [www.wwec2012.net/news/conference-news/telcos/](http://www.wwec2012.net/news/conference-news/telcos/)

4 Clean Energy Council, 2013, Million Solar Rooftops [www.cleanenergycouncil.org.au/mediaevents/media-releases/April-2013/130405-Million-solar-rooftops](http://www.cleanenergycouncil.org.au/mediaevents/media-releases/April-2013/130405-Million-solar-rooftops)

## Box 1: The diversity of CORE

### Middelgrunden Wind Farm

A 20 MW offshore wind farm that is a joint venture between a co-operative of 8,500 members (mostly from Copenhagen) and the Copenhagen municipal utility.

### Hepburn Community Wind Farm

A co-operative-run 4.2 MW wind farm in Australia that is majority owned by local residents and contributes AU\$30,000+ a year to a local Community Sustainability Fund.

### Ellensburg Community Solar

A 58 kW (and growing) solar installation organised and run by the municipal utility, a local university and a local environment group in Washington state, USA. Local residents are investors and receive reductions on their energy bills according to the productivity of the portion they own.

### Isle of Eigg

A standalone mini-grid powered by hydro, wind and solar PV, providing electricity to the residents of the Isle of Eigg. Owned by Eigg Electric, a subsidiary of the Eigg Development Trust, of which local people are members.

Germany's first co-operatively owned biomass fuelled anaerobic digester and combined heat and power plant – 700 kW (electric) and 700 kW (thermal) and district heating network supplying 90% of Jühnde village's heating needs.

### Torrs Hydro

A 63 kW reverse Archimedes screw low drop hydro system (affectionately known as Archie) in the English town of New Mills. Owned by a co-operative for the benefit of the community, with majority membership from the local area.

### Min Wind I-IX

Nine separate corporations running 1-2 turbine wind farms, each owned by 33 different local farmer-investors in Minnesota, USA.

### Baywind Wind Co-operative

A joint venture between a wind developer and a co-operative of Cumbrian and wider UK residents. It has a community fund for local energy efficiency projects.

## 2.2 What is community owned renewable energy?

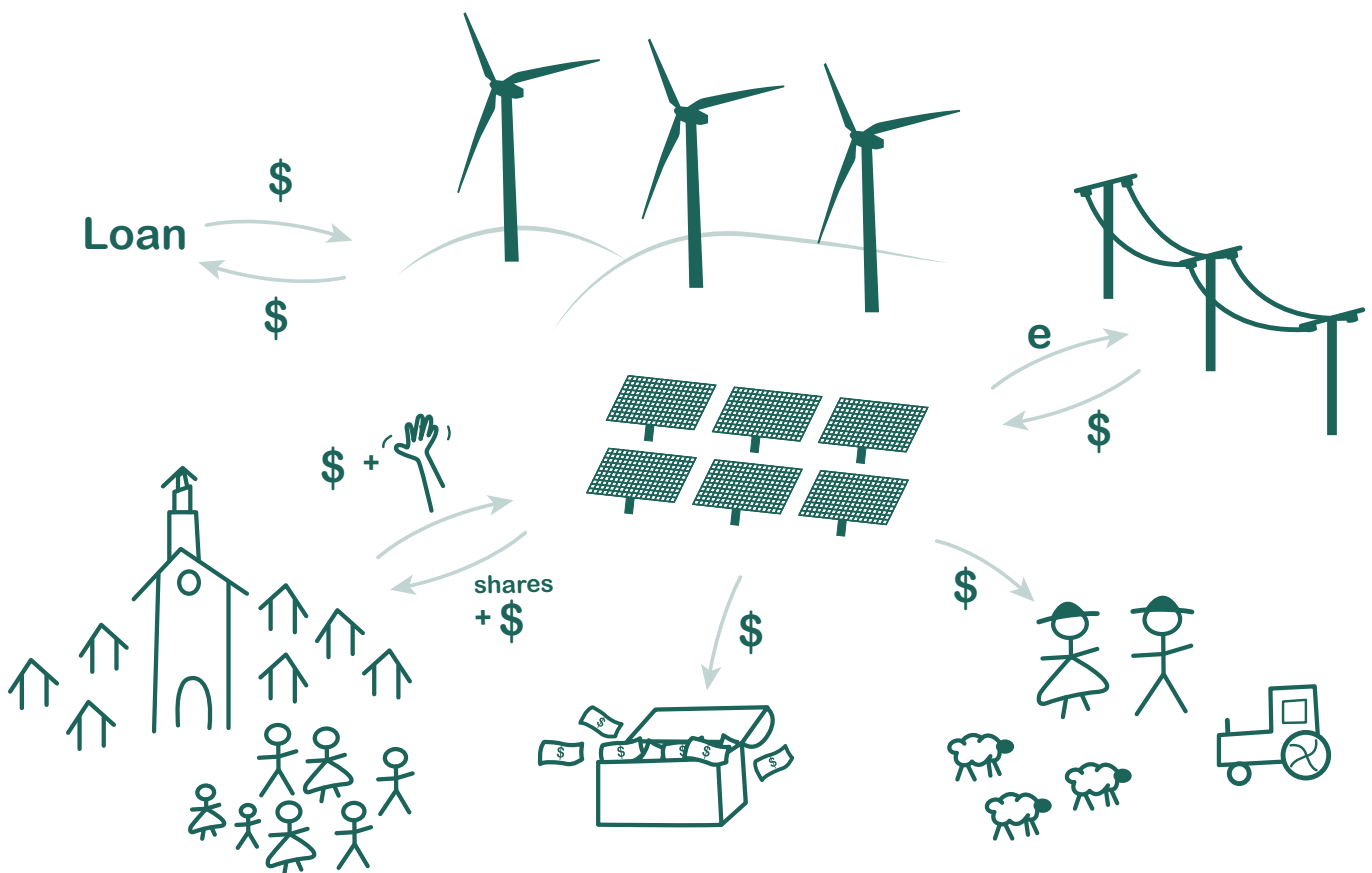
Community owned renewable energy (CORE) are projects in which a community of people is involved in initiating, developing, operating and benefiting from a renewable energy development. CORE projects come in many shapes and sizes, growing from the diverse needs and available resources of the local community. It might be anything from solar PV on a community hall to a four-turbine wind farm on the edge of town, to a small hydro system owned by two neighbouring villages.

CORE projects vary by technology, size, structure,

governance and funding options. See Box 1 for an overview of this diversity. Even people's motivations for setting such a project up vary: some want to reduce their town's carbon footprint and take action on climate change, some want local energy security, some want to support renewable energy education and uptake, some want a means to boost their regional economy. But there are some common features that can be summarised in what we can call 'the four D's of CORE'.<sup>5</sup>

5 3Ds by Ison, N. (2009) Overcoming technical knowledge barriers to community energy projects in Australia, unpublished Honors dissertation, University of New South Wales, Sydney and expanded to 4 by Rob Stokes, NSW Parliamentary Secretary for Renewable Energy in 2012.

Figure 1: A community energy project



## Box 2: The 4D's of Community-owned Renewable Energy

CORE projects can be characterised by their contribution to:

**Decarbonising** our energy supply by using renewable energy or other low carbon-dioxide emitting technologies, such as biogas.

**Decentralising** our energy supply by distributing electricity production across the country to match local energy needs.

**Democratising** our energy governance through community ownership and participation.

**Demonstrating** the effectiveness of renewable energy and community ownership models.

Even the word 'community' can mean many things. For example, a community might be defined by geography, meaning all people living within a certain area. It can also refer to a 'community of interest', in which people are united by common goals and values, but might be geographically disparate. More broadly, 'community' can refer to an enterprise that is driven by independent individuals, rather than by business or government.

Generally, a 'community' renewable energy project is founded on at least one of the following elements:

- ▲ ownership and decision making involves local individuals and stakeholders;
- ▲ project development and design is driven by local individuals and stakeholders;
- ▲ benefits from the project go to local individuals and stakeholders;
- ▲ the amount of energy produced matches local energy needs<sup>6</sup>.

The more of these elements that are incorporated into a CORE project, the more strongly embedded it will be in the community. However, every

group's idea of what is and isn't included in a 'community' approach is a bit different, this is part of the diversity and flexibility that makes CORE appealing to so many people in so many different circumstances.<sup>7</sup>

## 2.3 The CORE Sector: what's out there?

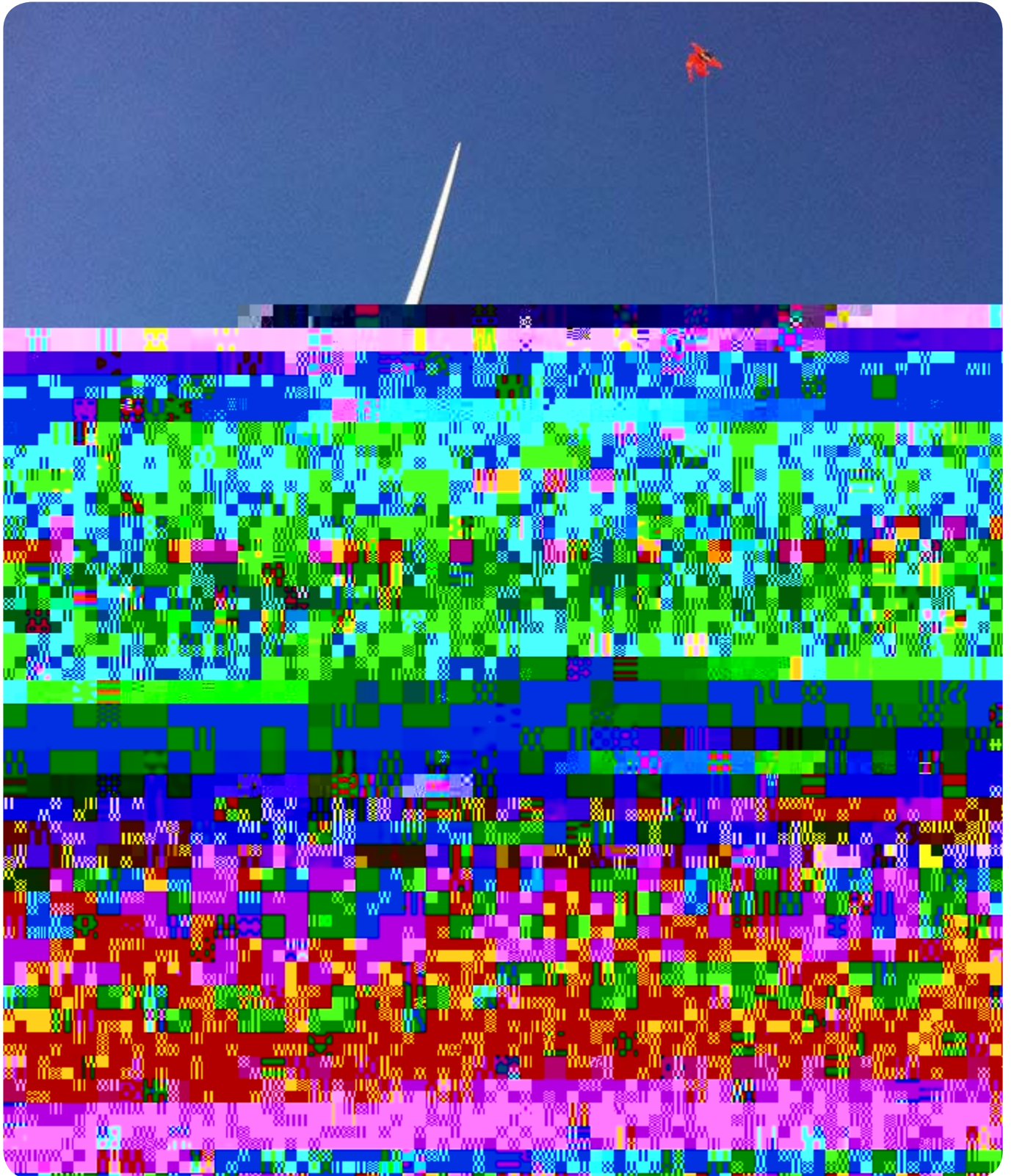
### International

Community ownership of renewable energy is most common and well-established in Europe, where such projects have been up and running since the 1980s. Wind power is the most common technology, but there are also many examples of other technologies being used: hydropower, anaerobic digestion with combined district heating and electricity generation, biomass boilers and solar PV. Countries such as Denmark, Germany and the UK (particularly Scotland) are seen as "pioneers in renewable energy and in policy approaches that encourage genuine opportunities for democratic control, community engagement and economic participation".<sup>8</sup> In Germany, the

<sup>6</sup> Note this last element by itself is not sufficient to classify a project as a community renewable energy or community-owned renewable energy project.

<sup>7</sup> For more discussion on defining 'community' see Hicks, J. & Ison, N. (2011) Community Renewable Energy Research Report for New England Wind, Community Power Agency. Accessible at: <http://cpagency.org.au/resources>

<sup>8</sup> Gipe, P.(2004) 'Community Wind: the third way' in Wind Power: renewable energy for home, farm and business, White River Junction: Chelsea Green Publishing. Available at: [www.wind-works.org](http://www.wind-works.org)



Hepburn Wind, Victoria, Australia. Courtesy of Ian Hutchinson.

first bioenergy village, Jühnde, started operating its community owned anaerobic digester in 2008. By 2010 there were 100 similar schemes in operation and 150 more projects in development. Experience in these countries indicates that a strong community renewable energy sector helps drive the shift to renewable energy.



**Samsø Island, a 100% renewable energy island in Denmark. Courtesy of Jarra Hicks.**

Over the past 8 years we have seen CORE projects popping up in the US, Canada and Japan. Although the sector is quite new in these countries, it is attracting a lot of interest and is emerging quickly.

There are also many CORE projects throughout the developing world, particularly in regions of Africa, South America, India and China. These projects use solar photovoltaic, small hydropower, wind and modern biomass. They also incorporate a range of simpler, smaller scale and inexpensive technologies, such as solar cooking, solar food driers and simple biogas (using unprocessed agricultural and food waste and animal dung). Over 25 million households meet their cooking and lighting needs from household or village scale

biogas plants using simple anaerobic digester technology.<sup>9</sup> A further 2.5 million households in the developing world use solar PV lighting.<sup>10</sup>

CORE is a new, but rapidly growing, sector in Australia. In 2009, there were only 3 known CORE projects under development. Now, in 2014, there are over 45 communities actively involved in setting up CORE projects and many more are interested. Hepburn Wind, Australia's first community-owned wind farm, started producing electricity in mid-2011. Denmark Community Wind Farm, in Western Australia, became operational in early 2013. Australia's first community-owned solar project – ClearSky Solar also started operating in 2014. See the Community Wind (Box 4) and Community Solar (Box 5) boxes for more information.

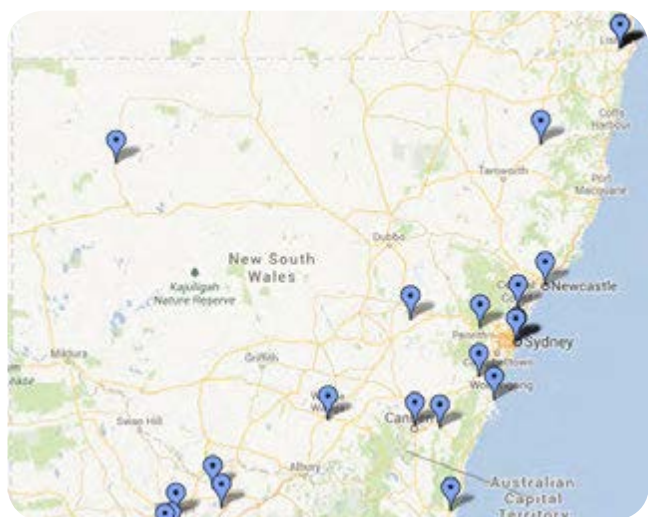
A recent survey of 37 CORE projects in operation or development across Australia found that most are in NSW (15) and Victoria (11) and the majority (20) are in regional areas.<sup>11</sup> Most (27) are solar PV projects, followed by wind (8) and small hydro (2) with the others yet to be decided: some groups are also considering bioenergy. Almost all are planning to be connected to the existing electricity grid. These projects are located in communities that collectively have a population of more than 1 million, indicating the potential reach current CORE projects could have and the potential community-ownership base they could leverage and benefit.

<sup>9</sup> Renewable Energy Policy Network for the 21st Century (REN21) (2007) Renewables 2007: Global Status Report, p6.

<sup>10</sup> *ibid*

<sup>11</sup> National survey of community energy groups, undertaken as part of the National Community Energy Strategy led by the Institute for Sustainable Futures and funded by ARENA. See also Ison, N, Hicks, J, Gilding, J, Ross, K. (2012) The Australian Community Renewable Energy Sector: Challenges and Opportunities, available at [www.cpagency.org.au/resources](http://www.cpagency.org.au/resources)

**Figure 2: Map of CORE Projects in development in NSW**



[www.cagency.org.au](http://www.cagency.org.au)

### CORE in New South Wales

In NSW there is a significant amount of enthusiasm for CORE. ClearSky Solar's Boggabri pub project<sup>12</sup> was the first operational CORE project in the state, there are at least 15 other projects in development.

Figure 2 shows the location of existing projects under development in NSW (three in Sydney). Examples include New England Wind, a community bioenergy project being investigated in the Blue Mountains, a community partnership with a large wind developer in Central West NSW and over 10 community solar projects in development from Lismore to Sydney, Nowra to Bathurst.

<sup>12</sup> <http://reneweconomy.com.au/2013/boggabri-pub-leads-the-way-in-community-solar-revolution-33313>

## The NSW Regional Clean Energy Program

### Box 3: NSW Government support for community renewable energy

The NSW Government wants local communities to be informed participants in discussing proposals for local and community renewable energy projects. To this end, the NSW Government is actively supporting CORE projects through the Regional Clean Energy Program (RCEP)<sup>1</sup>, which employs six Regional Clean Energy Coordinators. These coordinators are supporting communities in their engagement in large and small-scale projects across a variety of renewable technologies, including wind, solar, geothermal and bioenergy. The RCEP Program supports CORE projects in the following ways:

- ▲ Recently the RCEP released \$411,000 in grant funding for locally-owned renewable energy projects. This short-term funding is assisting

in early stage pre-feasibility and assessment activities for nine projects across NSW and is the first of its kind in Australia.

- ▲ To help communities in other areas that also want to develop locally owned renewable energy, the NSW Government will build on the experience from these pre-feasibility studies to develop tools and standard contracts, with project facilitation support from regional energy coordinators.
- ▲ The RCEP has supported the development of a number of useful resources, including research into community attitudes to wind, the challenges and opportunities facing CORE projects and a wind farm landholder's guide, as well as this Guide.

<sup>1</sup> The Renewable Energy Precincts program run by the NSW Office of Environment and Heritage has recently been reviewed and is now called the Regional Clean Energy Program.

## 2.4 The benefits

Each group will have specific driving motivations and values that will frame their choices and outcomes. These will produce a range of benefits, not all of which will be important to or present in every CORE project.

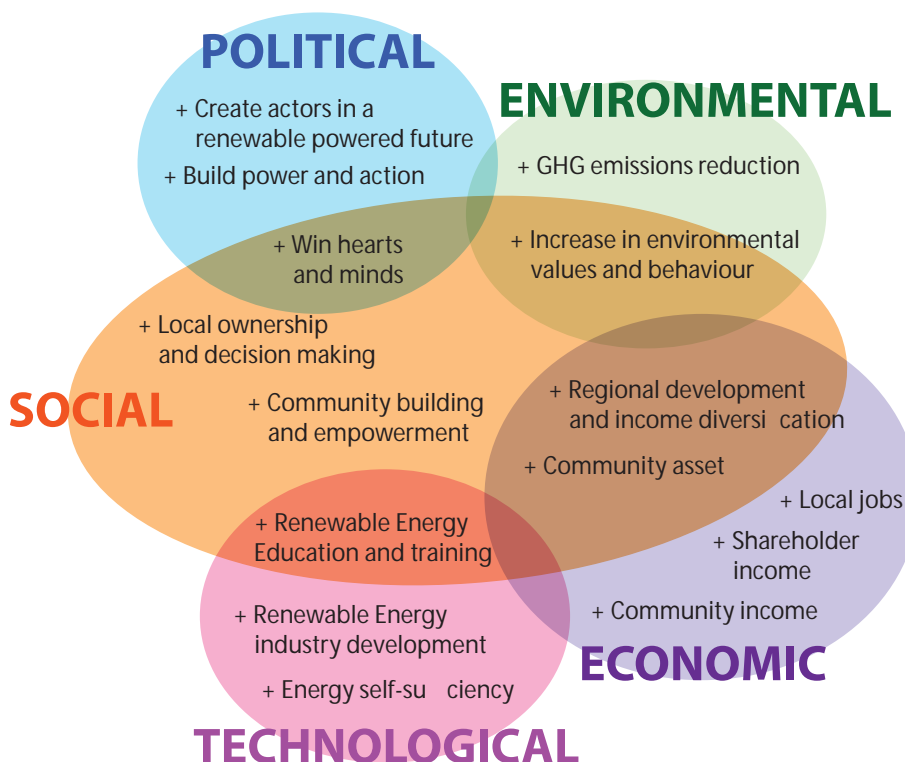
Having visited or worked with over 40 CORE projects across four continents, we have seen a huge range of projects and their many possible benefits. These benefits can be categorised into five broad areas: political, economic, environmental, social and technological, as summarised in Figure 3.

In essence, the particular advantages of a community approach to renewable energy development lie in the potential to:

- ▲ build community resilience and empowerment;
- ▲ build a strong understanding of renewable energy and a practical movement of action on climate change;
- ▲ support regional communities and foster local economic development;
- ▲ help develop renewable energy industries, technology, jobs and training.

CORE projects enable groups to act on many values and goals simultaneously: you can address your concerns about sustainability, while educating your community about renewable energy and generating new income streams for both investors and for community projects.

**Figure 3: The Benefits and Motivations of Community Renewable Energy Projects**



The benefits of community renewable energy projects  
From the "Home Energy Handbook", 2012



## The challenges

While there is huge potential for community renewables in Australia, there are also a range of challenges that make it hard for projects to get up and running. CORE is still a very new sector in Australia and, like most new sectors, the path is not yet 'well trodden': business and governance models are still being tested and the best means of fundraising, connecting to the grid and selling electricity are still being explored. You can play a role in helping smooth the path for future projects!

CORE projects take a long time, they require sustained passion and dedication and they cost a lot of money. It is also possible that there will be opposition to the project within your community. You will have to negotiate with the institutions and regulations of the mainstream electricity and planning systems in Australia, neither of which are well designed for small community orientated renewable energy projects. The changing policy environment has flow on impacts for community energy projects. However, just because it's challenging doesn't mean it's not worth doing.

A recent national survey of 28 Australian CORE projects and 9 supporting organisations, identified three major challenges:

- ▲ financing the development phase of CORE projects from vision through to being 'investment ready' (typically this means having planning approval and a detailed business case);
- ▲ getting a fair price for the electricity produced; and
- ▲ the feasibility and cost of grid connection.<sup>13</sup>

The National Community Energy Strategy currently under development has identified an additional two major challenges facing community solar projects

specifically:

- ▲ reducing the financial administration costs to a point that ensures the business case stacks up; and
- ▲ finding suitable host-sites, with a large enough on-site electricity demand and a significantly high electricity tariff so that the business case stacks up.

However, we believe that none of these challenges are insurmountable. Indeed, projects and CORE support organisations are working to overcome them in innovative and productive ways. With the right support, the Australian CORE sector could follow in the footsteps of successes of Europe. In Scotland, the right combination of community interest, supporting organisations and good policy have seen the number of community renewables projects grow from one or two to over 300 in less than a decade.

It is important to remember that communities have an important role to play in a renewable energy future. We've visited over 40 community renewable energy projects across four continents that are making real differences in communities, and there are hundreds if not thousands more out there.

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<sup>13</sup> Ison, N et al (2012). As above.

## Box 4: Community Wind

### Hepburn Wind

**Location:** Leonards Hill, near Daylesford, Victoria.

**Description:** Hepburn Community Wind Farm co-operative is Australia's first community owned renewable energy project. The community initiated the project in 2005 and it began generating electricity in mid-2011.

Specifications: 2 wind turbines with a combined capacity of 4.2 MW.

**Total cost:** \$13.5 million:

- ▲ \$9.8m contributed by nearly 2000 community investors
- ▲ \$1.7m in grants (Sustainability Victoria & Regional Development Victoria)
- ▲ \$3.1m loan from Bendigo Bank (not fully drawn).

**Impact:** Hepburn Wind generates more electricity annually than is used in 2000 homes — more than the domestic consumption of the nearby town of Daylesford and much of the surrounding area. Hepburn Wind reduces greenhouse gas emissions by 11,000 tonnes CO<sub>2</sub>e per year. More than half the project costs were for goods and services provided by local or Australian suppliers. Hepburn Wind provides several on-going jobs.

**Community ownership model:** Hepburn Wind is a co-operative owned by its member investors, the majority of whom are local. As a co-operative, it is based on the democratic principle of one-person-one-vote. This ensures that local people retain majority decision-making power, even if a majority of the funds come from outside the local area.

**Benefit-sharing model:** Hepburn Wind has created an innovative model for sharing the benefits of the project with the community and the neighbourhood around the wind farm. Its

Community Fund distributes \$15,000 per turbine per year in grants for important sustainability projects in the community (indexed over 25 years delivering over \$1m back to the community over the coming 25 years). Those in the immediate neighbourhood (roughly 2.5km radius) of the wind farm are eligible for:

- ▲ a free gift of shares; in this way, they can participate in formal decision-making processes and be connected to the project
- ▲ contributions to energy affordability for each household
- ▲ prioritisation in the Community Fund.

This is the first time in Australia a wind farm has given more to the community than to the landowner(s) who hosts the project.

For a more detailed case study of Hepburn Wind see [www.embark.com.au](http://www.embark.com.au) or [www.hepburnwind.com.au](http://www.hepburnwind.com.au)

Figure 4: Wind power potential, courtesy of Mount Alexander Community Wind (2013).

### Denmark Community Windfarm

Denmark Community Windfarm Ltd, Australia's second community wind farm, is a 1.6 MW project in Denmark, Western Australia. It has a very different model to Hepburn Wind. This \$5.8m project received \$2.49m in grant funding and the remainder has been raised through sale of shares (\$2m) and bank debt (\$1.5m). The minimum individual shareholding is \$500 and local people own a majority of the shares. However, there is no requirement for majority local ownership. Hence, there are no guarantees that either decision-making, or a significant portion of the financial benefit, will stay in the local community into the future.

The project does, however, offer other benefits of renewable energy and has a firm foundation of community support. The project was initiated in 2003 and led through the early stages of development by a local not-for-profit association. In recognition of the cash and in-kind contribution they put in to getting the project up and running, the association received \$200,000 worth of shares. Income from these shares will go to a community fund for “local works that have an environmental, cultural or social focus”.<sup>14</sup> Because of the class of shares, however, the association will not have voting rights and has no rights to surplus capital upon wind-up on the company. The company, however, has chosen to have democratically-based one-person-one-vote decision-making rather than the usual company voting system of one-share-one-vote.<sup>15</sup>

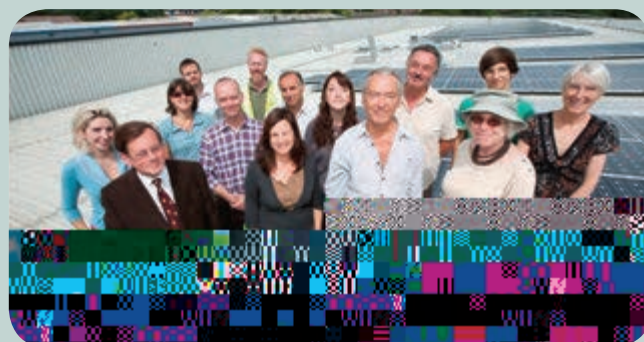
**Clean. Green Owned by you**

2MW = 1000

One 2MW wind turbine produces enough power for approx. 1000 houses\*  
\*average Vic home

14 Denmark Community Windfarm Ltd. (2011) Replacement Offer Information Statement, [www.dcw.org.au](http://www.dcw.org.au)

15 Ibid



Westmill Solar Cooperative, UK.  
Courtesy of [www.westmillsolar.coop](http://www.westmillsolar.coop).

### Box 5: Community Solar

The main community solar model being currently pursued by groups entails a community organisation, usually a not-for-profit incorporated association, initiating a project and develops a business case to build an 80-300 kW solar PV array on a suitable roof space. The array needs to go on the roof of an organisation or business (the host) that has a demand profile that will match the electricity supply from the solar panels (ie. the almost all of the electricity generated from the solar array is used by the host site during the day, seven days a week). The community organisation enters into a legal agreement with the host organisation, such that:

- ▲ the community organisation leases the roof space;
- ▲ the community organisation owns, installs, maintains and insures the solar array; and
- ▲ the host organisation agrees to buy all the electricity it needs as it is produced by the solar array. Any excess energy produced is fed into the grid (and bought by the energy retailer). Any deficit is taken from the grid and charged as per a normal electricity retail arrangement.

This arrangement enables the community organisation to get a retail rate for the electricity they produce, which is much higher than the wholesale rate they would otherwise get,

increasing the viability of the business case. For the host organisation, it means getting access to clean energy and the associated benefits and credibility, without having to own, organise and maintain it themselves.

The community organisation establishes a co-operative or a company to hold the contracts and to issue a share-offering to the community. The share-offer raises the required funds for the solar installation. Investors will receive dividends on investment, making it a financially beneficial venture, above and beyond the social and environmental benefits. This model also opens up investment in solar panels to sectors of the community who aren't currently able to invest, such as renters, people with inadequate roof space and those who can't afford the upfront costs of a whole solar array.

A key challenge facing community solar in Australia is that the profit margins are very tight and, hence, the management and operations must be highly efficient. Experience of community solar projects to date, is that finding a suitable host organisation and negotiating a good agreement with them is one of the most challenging aspects of project development. Embark has developed a solar model to assist communities to set up community solar projects (see [www.embark.com.au/display/public/content/Getting+started+with+a+solar+project](http://www.embark.com.au/display/public/content/Getting+started+with+a+solar+project) for more information).

There are two main variations on this model that are operating or almost operating in Australia. The first is a trust based model developed by ClearSky Solar Investments<sup>16</sup>, whereby a trust is set up instead of a cooperative or company. This limits the number of investors to 30 per project, but significantly reduces the financial administration

costs. They also work in partnership with a solar developer for the site negotiations, installation and maintenance. The second model is a debt financing model where instead of the host site leasing the solar array, they own the solar array and the community company or cooperative provides the finance.

Groups currently pursuing variations of this model in NSW include Cleanas (Newcastle), Central Coast Community Renewable Energy Association (Woy Woy), Repower Shoalhaven (Nowra), Farming the Sun (Lismore/North Coast), Pingala: Community Renewables for Sydney, Embark (Sydney) and more.

A variation on this model has been developed by Portland Community Solar, where the solar array will be owned by the Portland Sustainability Group (PSG) and all income will go to supporting their activities in the community. The project idea grew out of the need to develop a perpetual funding source for PSG to support the important on-going work it does in the community. Their community solar project aims to "source at least \$35,000 funding from PSG partners to purchase a solar photovoltaic system of at least 30 kW, and install the system on a host partner to generate at least \$5,500 per year income to the PSG".<sup>17</sup>

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16 ClearSky Solar (2014) [www.clearskysolar.com.au/](http://www.clearskysolar.com.au/)

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17 Portland Sustainability Group (2013) [www.psg.org.au](http://www.psg.org.au)

### Box 6: Locally-owned wind farms add value

Community-owned renewable energy assets, like a wind or solar farm, help to keep the financial benefits of energy infrastructure local by virtue of local ownership. A US study comparing the economic benefits of absentee (corporate) versus local ownership of wind farms shows that the community economic benefit is significantly greater with local ownership.



Hepburn Wind, Victoria, Australia.  
Courtesy of Ian Hutchinson.

**Table 1: Economic impact of wind projects with local ownership, compared to absentee-owned wind projects in the US<sup>1</sup>**

	Employment Impacts (Jobs per MW)	Annual Earnings Impacts (\$/MW)	Annual Economic Output (\$/MW)
<b>Absentee-Owned Projects</b>	0.1 - 0.6	\$5,000 - \$18,000	\$13,000 - \$55,000
<b>Projects with a Local Ownership Component</b>	0.5 - 1.3	\$18,000 - \$43,000	\$82,000 - \$140,000

<sup>1</sup> US Department of Energy (2012) The impact of wind development on county-level income and employment.  
Available: [www.windpoweringamerica.gov/pdfs/economic\\_development/2012/county\\_income\\_wind\\_development\\_impact.pdf](http://www.windpoweringamerica.gov/pdfs/economic_development/2012/county_income_wind_development_impact.pdf)

# starting your CORE project



Making a community renewable energy project happen is exciting. While it's definitely a big challenge – there will no doubt be moments of tearing your hair out along the way – every person we have spoken to who has been involved in a CORE project talks about the sense of satisfaction they feel, not only once it had started operating, but also following the many small achievements and milestones along the way.

## 3.1 The people

Where to start? The very essence of a community project is a group of people: a community project starts with you and a few other people who share a common vision. Perhaps you already have a community group that you're part of, or maybe you and some friends have been talking about what you can do for a while and it's time to bite the bullet and turn those ideas into action. Perhaps there are a number of organisations and individuals in your community that would be interested in being involved, and you could create a consortium. Or maybe you need to find other people who would also be interested; you could do this by organising an event (like Repower Shoalhaven did and 160 people turned up!), holding a stall or placing an ad in the local shop, paper or community website.

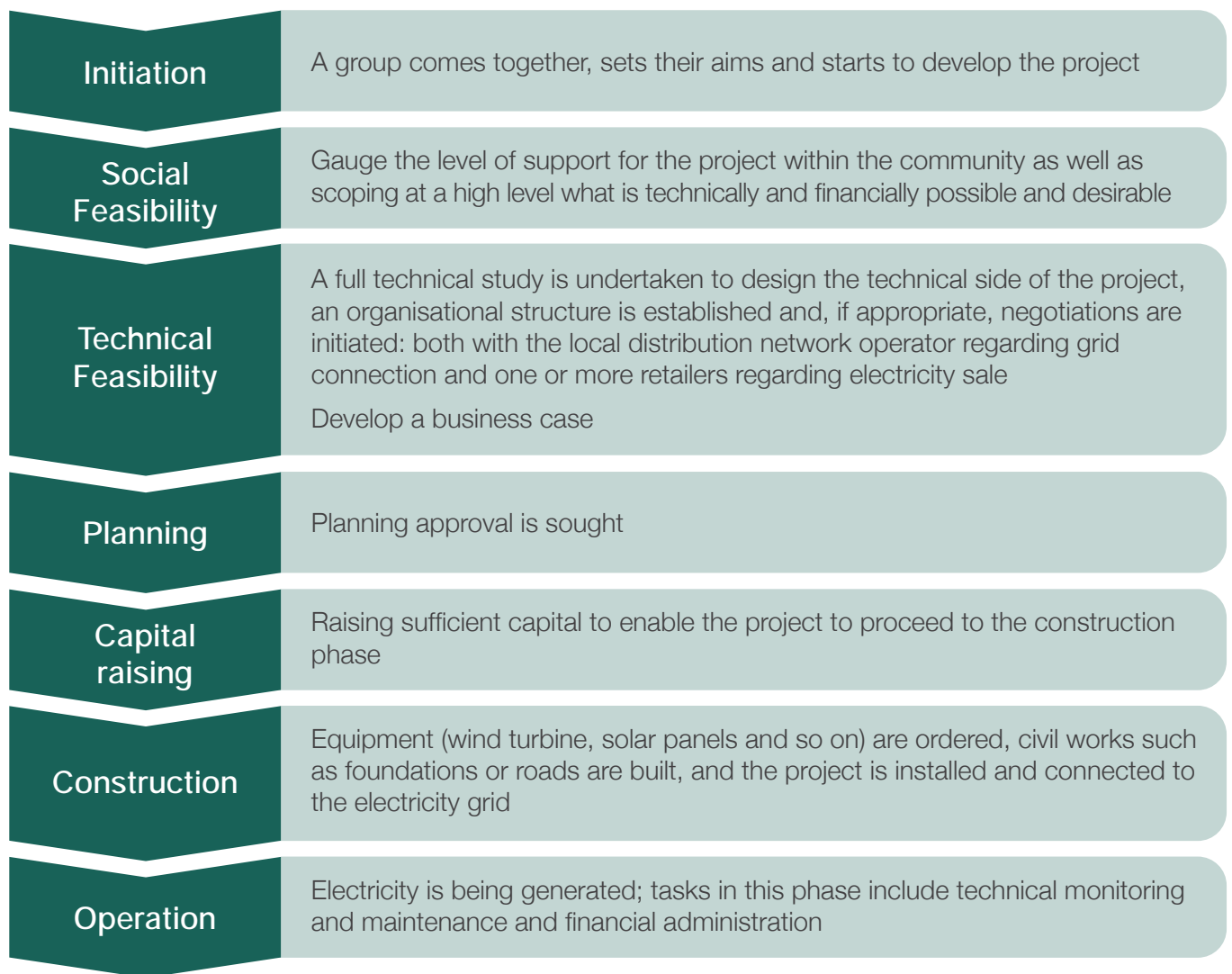
CORE projects typically have a dedicated team of at least five people, with a wider group involved in carrying out smaller tasks flowing in and out as required. At a stretch you could start a CORE project with a very dedicated group of three people, but we advise against trying with any less than that. The early stages of your project are likely to be run on no or partial funding, so you need to find people who are able to reliably commit time to the project on a volunteer basis over a year or more.



Mount Alexander Community Renewables, Victoria, Australia. Courtesy of Jarra Hicks.

### 3.2 Understanding the stages

Figure 5: Stages of CORE project development<sup>1</sup>



<sup>1</sup> Modified from Ison, N. et al (2012). As Above

Once you've got a group, the next step is to organise a series of meetings. But what needs to be discussed at those meetings? What needs to be done and how are you going to structure the work?

There are two useful ways of thinking about making a CORE project happen:

- ▲ by the timeline or stages in its development; and
- ▲ by the areas of work that need to be done.

Generally, the development of a CORE project can be thought about in terms of seven general stages as outlined in Figure 5.

It is important to note that different technologies will require different levels of activity at different stages. For example, the social feasibility stage is likely to be more complex and more important for a community wind or biomass project than for a community solar project.

While there are reasonably defined stages of the CORE development process, there are also key areas of work that happen throughout all stages. For example fundraising will need to start as early as the project initiation or pre-feasibility stage in order to be able to pay for the costly feasibility and planning process. Governance is essential the whole way through, as too is community engagement. Community Power Agency<sup>2</sup> has developed a framework to help groups think through the complex but achievable process of developing a CORE project, as represented in Figure 6.

**Figure 6: Community Renewable Energy Development Framework<sup>3</sup>**



The following sections of this Guide provide will go through each of the elements of this framework in turn.

<sup>2</sup> For more information see [www.cpagency.org](http://www.cpagency.org)

<sup>3</sup> Modified from Hicks, J. & Ison, N. (2011). As above.



# 4 vision and values

There are many motivations and values that underpin community renewable energy projects. For example, a motivation behind Hepburn Wind was to find a tangible and empowering community approach to tackling climate change. For the Isle of Eigg mini-grid in Scotland however the primary motivation was a need for an affordable twenty-four hour power supply in their community.

We suggest that at your initial meeting you start by talking about your motivations and together synthesise what you aim to achieve through the project and the values that underpin your vision.

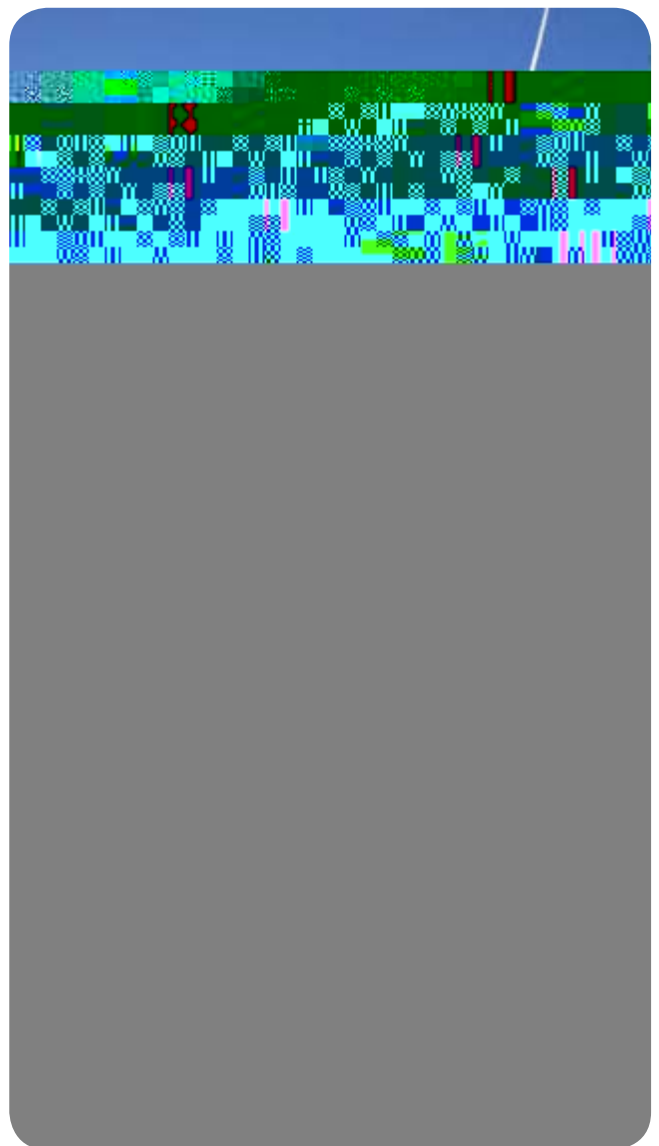
Questions you could ask include:

- ▲ Why are you here? What is it about this idea that inspires you?
- ▲ What would you personally like to achieve through this project?
- ▲ What would you like the project to achieve? Contribute to? Transform?
- ▲ How could the different aims and motivations of the group work together?
- ▲ Which aims and motivations do you want to prioritise as a group?

Answers to these questions can then form the basis of a vision statement. In going through this process it is important to recognise that things will evolve and emerge over the course of the project, but that a starting vision is inspiring and motivating for all involved. Having clear motivations and aims will help attract new people to the project too.

One useful distinction to make when planning your project is the different 'process' and 'outcome' dimensions of CORE projects.<sup>1</sup> When thinking about your group's vision and values, try to distinguish between those that relate to the outcomes (eg. powering our town on solar power) and those that relate to the process of developing the project (eg. community involvement, transparency, inclusiveness and having fun).

<sup>1</sup> Walker, G. and Devine-Wright, P. (2008) Community Renewable Energy: What should it mean? Energy Policy, Vol 36, p. 497-500.



Hepburn Wind, Victoria, Australia.  
Courtesy of Jarra Hicks.

## 4.1 Process: how is the project delivered?

'Process' refers to how you choose to go about planning, creating and delivering the project and what role the project team, volunteers and the broader community plays in this.

- ▲ Good questions to ask include:
- ▲ Who is involved and included in planning and decision-making?
- ▲ How many and what type of opportunities will there be for engagement and participation?
- ▲ How do people get (and stay) informed and involved?
- ▲ Who has power and influence?
- ▲ How open, inclusive and extensive is the development process?

CORE projects rely on an active support base of people. It is the people you get on board and include along the way who are going to be your advocates and your owner-investors. By virtue of being active on the ground, having regular and effective communications and offering opportunities for people to learn and get involved, CORE projects can have enormous potential for empowering and activating people. These processes are also likely to increase understanding and support for renewable energy projects, as well as broader environmental and social change ideas.

The process side of a project is defined by community engagement, which is discussed later in this Guide.

## 4.2 Outcome: what does the project achieve?

Questions you could think about include:

- ▲ What does your project look like? What technology? How big is it?
- ▲ How is the energy used and/ or sold?

- ▲ Who will benefit from the project? (eg. Shareholders, neighbours, local businesses, the broader community)
  - ▲ Are profits shared with the local community?
- A CORE project can bring income to a community by way of shareholder dividends and through the creation of a community fund. It can also contribute local jobs, support local businesses and provide education, training and tourism opportunities.

The process and outcome dimensions are closely related, of course, because a project that has a majority local ownership is likely to make decisions that bring greater community benefit.

## 4.3 Skills and division of work

Developing a CORE project involves gaining or accessing expertise in a wide range of areas including:

- ▲ community engagement and communications;
- ▲ organisational structure and governance;
- ▲ legal and regulatory compliance;
- ▲ technical issues around renewable energy generation as well as grid connection;
- ▲ financial modelling; and
- ▲ fundraising.

As your project moves through different stages of development you will need to revisit the issue of how you access these skills.

Questions to ask include:

- ▲ To what extent do those skills already exist within the core group developing the project?
- ▲ Can you recruit new people with specific skills to join the project: do you know anyone who might fit the bill? In what way do you ask them to support you (eg. as an advisor, a team member, an advocate?).
- ▲ What skills do you need to develop within

the group? Who will develop them and what training or mentoring is available to develop these skills?

- ▲ When will you need to hire external organisations with specific skills to complement what you already have and are committed to developing?
- ▲ What will be the split between paid, pro-bono and voluntary work?

No CORE project we know of has been developed by the community without the support of at least one external organisation. The specialist skilled people you seek out may include lawyers, renewable energy design and installation professionals and environmental impact assessors, to name a few.

A few organisations including Embark and the NSW Regional Clean Energy Program are trying to create standardised documents for community energy projects to save different projects repeating the same work over and over again. It cannot be stressed enough how important it is for groups not to re-invent the wheel with each new project, but to seek out and gain benefit from other people's experiences. It is worthwhile contacting the Coalition for Community Energy (C4CE)<sup>2</sup> to find out who could help you and what other groups are working on similar issues and models currently.

While one of the benefits of CORE projects is that many people work on them for the love of it, most (although not all) projects we know of, have employed at least one person in a Project Coordinator role to ensure that the project gets the attention it needs within the competing time pressures of those involved. Again, funding and recruiting for this position will be an important part of the process.

Managing a volunteer team can be a difficult thing to do: everyone involved is motivated by the vision, but may have limited time they can dedicate to actually doing the work needed. To avoid frustration and false expectations, it can be helpful for everyone involved to have clear responsibilities, including: role descriptions, reporting or accountability mechanisms (who to and when) and an indication of the time they can reliably commit each week. Setting up a clear group structure and delegation of tasks will also help your volunteer team to operate most efficiently. Separating your group's governance (oversight, strategic direction, policies and evaluation) from operations (delivering tasks, administration) will be important for effective project management and delivery.

Also, different people will want to contribute in different ways, finding a good fit for each person's skills and interests will help ensure they are satisfied as a volunteer and will want to stay involved. For example, some people will want to be involved in governance and oversight of the project, whereas others will be more interested in hands-on work and 'getting stuff done'.

Finally, don't forget the importance of celebrating your successes and looking after your group by also doing fun things together, even if its just meeting up to work in the same place.

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<sup>2</sup> [www.c4ce.net.au](http://www.c4ce.net.au)



Mount Alexander Community Renewables volunteers at a stall, Victoria, Australia. Courtesy of Jarra Hicks.



## organisational structures and governance

Clear and transparent governance of a CORE project is essential. This involves setting up clear decision-making and communications processes and establishing a legal entity.

There are two main phases of work in relation to organisational structure and governance:

Here, the CORE project is initiated, led and owned by a community organisation, such as an association, sustainability group, school, or local trust. These organisations are made up of local members and are usually not-for-profit. The difference between this model and the next one is that, while members of the organisation may donate to the project and will have a say over its direction, they are not investors and won't earn a dividend. Instead, all the money generated goes back to the organisation. These projects tend to be smaller than the other two models.

For example: Isle of Eigg (Scotland), Portland Community Solar (Victoria).

Appropriate legal structures: incorporated association, non-trading co-operative and public company limited by guarantee.

Here, the CORE project is initiated, led and owned by a co-operative or a company whose member-owners are community investors. These investors can be local & non-local individuals, organisations, small businesses and so on. Income generated is distributed back to investors. Often, but not always, income is also distributed to the broader community through the creation of a community grant fund.

For example: Hepburn Wind, MinWind (USA).

Appropriate legal structures: trading co-operative and public company limited by shares.

#### **Developer and community partnership**

Here, either the community or a renewable energy developer initiates a renewable energy project and both parties agree to partner. The community often leads the community engagement/consultation and the developer leads the technical studies. Both the developer and community members

own and invest in the project, to varying degrees and receive dividends according to the proportion of shares owned. Often, the developer owns a majority of shares and holds most of the decision-making power.

For example: Middelgrunden (Denmark), Infigen/CENREC (NSW, Australia).

Appropriate legal structures for the community owned component: any of the structures appropriate for the community investor model above, depending on the desired outcomes.

#### **Box 7: Partnering with a commercial developer**

Several innovative models for community-developer partnerships are emerging, particularly for wind farms. For example, Infigen, an Australian wind developer, is supporting the community in Central West NSW to set up a co-operative to purchase at least one turbine in their Flyers Creek wind farm, which is currently in development. It is rare for communities to have the financial clout to be able to afford more than a small-medium renewable energy system(s), so owning a share in a larger development can make a lot of sense. Partnering in this way also provides a means for the local community to own part of the wind farm and increases the level of local benefit and support from the project. See also the Middlegrunden project in Box 3.

## 5.3 Legal Structures

This section details the four main legal structures most suitable to CORE projects in Australia. Different legal structures offer different features and benefits. It will be important to choose a legal structure that fits your desired ownership/member profile, as well as your fundraising and benefit distribution strategies. Some groups establish hybrid structures, involving a partnership between two different legal entities in order to access the best of two legal structures. Often, choosing a legal structure that is going to work for you involves balancing different priorities, such as the desire for majority local ownership with the realities of raising enough funds for the project to proceed.

There are several key decisions to keep in mind when contemplating what legal entity will suit your project best. These are:

- ▲ Where will the money for the project come from? How do these legal structures enable or constrain fund raising?
- ▲ Where will the money generated by the project go? Who benefits?
- ▲ Can only local people be members? Or others 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 decision-making power? How do you guard against take-over 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 process and outcome goals and/or vision for the project?

The legal structures outlined below can be used to deliver 100% community ownership or to facilitate

community ownership in a developer community partnership.

This information is just a starting point. You will need to seek legal advice before making a decision.

There are four main company types in Australia:

- ▲ A private company limited by shares (Pty Ltd.): They are not allowed to publicly seek investors, meaning they cannot issue a public share offer document, and cannot have more than 50 shareholders. Shareholder liability is limited to the value of their shares. This is the most common company structure.
- ▲ An unlimited private company: similar to above, except that shareholders have unlimited liability, meaning they are responsible for all and any debts of the company, regardless of the value of their shares.
- ▲ A public company limited by shares (Co. Ltd.): there is no limit on the number of shareholders and shareholders can be sought publicly, but shareholder's liability is limited to the value of the shares they own.
- ▲ A public company limited by guarantee: this is often used by not-for-profits as there is no share capital. Each shareholder is liable for the amount they agree to contribute if the company is wound up.

All of these company structures are governed under the Corporations Act 2001, which is national legislation regulated by the Australian Securities and Investment Commission (ASIC). All companies are subject to legal responsibilities (including lodging annual reports, auditing financial statements, paying tax) and, hence, are subject to high degrees of transparency and accountability. Companies are a very common and familiar legal structure in Australia. As they come under national

legislation, companies are nationally recognised and able to conduct business (and take on shareholders) in any state.

Of all the different company structures, the one most likely to be appropriate for a CORE project is a public company limited by shares. The primary benefits of this type of company structure is its ability to raise funds through issuing shares to the public, to limit the liability of investors and to take on an unlimited number of investors. However, company share offer documents tend to be much more expensive and complicated than the equivalent co-operative documents.

Generally, a company's primary motivation is to generate profit for its shareholders. This could become a point of contention if your project's key motivation is not profit for shareholders, although there are ways to structure the company to reduce this. However, "corporate or institutional investors often prefer the public company structure, as it focuses on generating a return on their share capital".<sup>1</sup> This can be useful if your fundraising strategy relies on these investors.

Example: Denmark Community Windfarm which uses a private company limited by shares structure.

Find out more: Australian Securities and Investment Commission (ASIC) [www.asic.gov.au](http://www.asic.gov.au)

A co-operative is a democratic, member-run legal structure established to facilitate the mutual involvement and benefit of its members. The International Co-operative Alliance (ICA) defines a co-operative as "an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs

and aspirations through a jointly-owned and democratically-controlled enterprise".<sup>2</sup>

Cooperatives are established according to the international principles of co-operatives, as outlined by the ICA. The principles include voluntary and open membership, democratic member control, member economic participation, autonomy and independence, information sharing and a concern for the community. As a result, the co-operative structure embeds many of the social and broader community benefit goals that many CORE projects seek to create.

There are several types of co-operatives, but the most suitable for a CORE project is a 'trading' co-operative. A trading co-operative is able to distribute any surplus funds to its members (a non-trading co-operative must reinvest all surplus into the co-operative for the benefit of all members). It is much easier to source the required investment in a CORE project if you are allowed to distribute the surplus to those investors.

Under law, a co-operative requires active participation from its members. This means that all members need to "undertake active participation, support or a relationship with the primary activity of the co-operative".<sup>3</sup> The primary activity of a co-operative is set out in its constitution. For a CORE project, the primary activities might be to own a solar farm and sell the electricity produced, as well as to raise awareness about renewable energy and energy efficiency. Thus, active membership might require subscribing to an energy efficiency information service offered by the co-operative. Directors of a co-operative have a responsibility to cancel the membership of inactive members so if you choose a co-operative as a legal structure, give careful consideration to the 'active

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<sup>1</sup> Higginson, S. (2011) Advice to New England Wind – Legal Entity & Structure, Environmental Defender's Office Ltd.

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<sup>2</sup> International Co-operatives Alliance, [www.ica.coop](http://www.ica.coop).

<sup>3</sup> Higginson, S. (2011). As above.



membership' test when adapting the model rules for your co-operative.

The democratic principles of a co-operative means that each member gets one vote, regardless of how many (or how few) shares they hold.

Co-operatives are governed by state-based law; in NSW this is the Co-operatives (Adoption of National Law) Act 2012. States and Territories are in the process of aligning their separate laws into a common Co-operatives National Law, which has currently been adopted by NSW and Victoria. The national law will resolve issues of misalignment between states that placed complex limitations on the ability of cooperatives to advertise and accept investment outside their home state<sup>4</sup>. If choosing a cooperative structure, be aware that this may make it impractical for you to accept investment from some states and territories, until all states have adopted the national law.

Co-operatives are subject to very similar reporting and accountability requirements as companies. Co-operatives must have a board of directors, submit audited financial statements and annual reports. There is no limit on the number of members a co-operative can have and each member is only liable for the amount of their share-holding. A co-operative can enter into and enforce contracts, including the ability to hold, acquire and deal with property.

Example: Hepburn Wind (VIC), Westmill Solar Cooperative (UK)

Find out more: [www.fairtrading.nsw.gov.au/ftw/](http://www.fairtrading.nsw.gov.au/ftw/)

An incorporated association is a commonly used legal structure for community groups and clubs of all kinds. Associations are a suitable structure for groups with a common purpose who are not seeking to return financial benefit to members.

An association is the easiest and cheapest legal structure to set up and requires the least time and expertise to do so. The on-going reporting and compliance requirements are minimal and inexpensive. However, they do still have legal responsibilities (submitting annual reports including financial statements).

An association is its own legal entity, and hence, provides liability protection to its members and committee members in legal transactions. It can enter into contracts, including owning property, getting bank loans, making investments, etc. However, all profits made must go back to the association and be put towards fulfilling its purpose, as per its constitution.

As not-for-profit entities, associations are able to apply for Charity Tax Concession status and access tax exemptions and other tax benefits. Associations can also apply for Deductibility Gift Recipient (DGR) status, allowing third parties to make tax-deductible donations. These can be very useful if the association's financial model relies on donations. DGR status is also a requirement of some grant-givers.

Associations are governed by state-based law which requires that a majority of the associations' activities take place in that state. In NSW this is the Associations Incorporation Act 2009.

An association would be an appropriate structure for the early phases of a CORE project, before investors are sought. Often, CORE projects start as projects of an existing association.

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<sup>4</sup> See the explanations in the Hepburn Wind FAQ: <http://hepburnwind.com.au/faq/>

An association would also be an appropriate structure for a project that seeks to re-invest all earnings into the activities of the association. It may also be an appropriate co-investor in a larger renewable energy project, provided all revenues were reinvested to promote the purposes of the association, as with the Denmark Community Windfarm Inc (a not-for-profit association) in the Denmark Community Windfarm Ltd. (Box 4 above).

Example: Portland Community Solar and the early stages of Mount Alexander Community Wind.

Find out more: NSW Office of Fair Trading  
[www.fairtrading.nsw.gov.au/ftw/Cooperatives\\_](http://www.fairtrading.nsw.gov.au/ftw/Cooperatives_)

### Trust

A Trust can be established by members of a community or the ‘beneficiaries’ to oversee assets and distribute financial benefit. A Trust could be established to own and operate a CORE project. Trusts are allowed to distribute profit to their beneficiaries.

Jenni Matilla, from Matilla Lawyers explains on the Embark website: “The intended participants will need to enter into a trust deed and the deed will contain details of how the trust is to operate. Property, assets and equipment involved with the project may be held by the trust on behalf of the beneficiaries. The trustees are appointed and given specific powers under the trust deed, outlining how they may exercise control over the assets and operations of the project on behalf of the beneficiaries.” Trustees are appointed (not elected) by the beneficiaries, to govern the Trust. Beneficiaries then have little direct input into how the Trust is run and how any profits get distributed. This could be a point of contention if a CORE project were to pursue a Trust structure or it could

be a way of delivering a CORE project without the need for community members to play a particularly active role.

Example: ClearSky Solar

Find out more: Australian Tax Office (ATO)  
[www.ato.gov.au/businesses](http://www.ato.gov.au/businesses)

See the Resources Section for additional information about legal structures.

### A final word on legal structures

Bear in mind that choosing a legal structure is not just a technical decision of matching your requirements to the advantages of a particular structure. It will also influence how your project is perceived by the community and by potential investors. The rules of a company can be written to give one vote to each shareholder (the norm for co-operatives) rather than one vote per share. But choosing a co-operative sends a message that your enterprise is about more than just making money, while a company structure may be more familiar and therefore reassuring to larger individual and institutional investors.

Choice of a legal structure may also influence the support structures you can access. The international co-operatives movement has a strong tradition of mutual support and education as part of its mandate. Similarly the emerging social business movement has its own distinctive umbrella bodies, conferences, and training events. Also, it is worth considering that grants are often only available to not-for-profit entities. Incorporated Associations are by definition not-for-profit; Companies and Cooperatives can be established as not-for-profit if desired.

# 6

## community engagement and communications

Community engagement and participation is one of the defining features of a CORE project. Community processes and that corporate renewable energy developers typically employ.

Good community engagement builds trust, feelings of ownership, and a sense of empowerment through providing meaningful opportunities for the wider community to input into the project's development and on-going ways to be involved. It also ensures that the project delivers the most possible benefit, and meets the least possible resistance.

Community engagement can be seen as the participation of community members in project development, from inception to operation. It is a practice that fundamentally requires a two-way recognition of the existing capacities of people to be active participants, able to identify and contribute to devising effective solutions to experienced challenges<sup>1</sup>. Marrying the term 'community' to 'engagement' helps us to remember that the focus of engagement goes beyond individuals and places the emphasis on the collective and on seeking development outcomes that consider the diverse needs that exist within any community<sup>2</sup>. This helps to ensure that the project is appropriate and beneficial for the local community at large

Although community engagement has become a commonly used term, its delivery on the ground has been very uneven and has reflected varying degrees of commitment to genuinely involving people in directing the process and

outcomes of development.<sup>3</sup> A common way of conceiving these varied levels of participation is the International Association for Public Participation's Spectrum of Public Participation<sup>4</sup> (see Appendix A) that positions practices along a spectrum from simply informing, through to empowering, in the process of engagement. This spectrum reflects the different degrees of influence and control given to the community through participation in planning and development. Thus, community engagement can cover a range of activities, reflecting different desired depth of engagement. Paying close attention to which of these depths of engagement is chosen, and why, is an important aspect of designing a community engagement approach.

Clear and consistent communication throughout the project life will help to engage key stakeholders, and to keep them engaged. Having a plan for how you will communicate with key stakeholders, social media and the media throughout the project stages will help to direct this. Make sure to include media and social media alongside any community engagement events you plan, to help maximise your positive exposure.

Examples of community engagement and communications mechanisms include:

- ▲ A survey of your local community, to gauge opinion of different options associated with your project. Questions you could ask include: do you want this project to be owned by a majority

1 Hickey, S. & Mohan, G. (2004) 'Towards Participation as Transformation: Critical themes and challenges'. In Participation: From Tyranny to Transformation? Exploring new approaches to participation in development. London: Zed books. P. 3.

2 DSE (2005) Effective engagement: building relationships with community and other stakeholders, Melbourne: Victorian Government Department of Sustainability and Environment. p.12.

3 Eversole, R. (2010) Remaking participation: challenges for community development practice. Community Development Journal, Vol. 47, p. 29-41; Hickey & Mohan 2004.

4 IAP2 (2014) Public Participation Spectrum. Sydney: International Association for Public Participation.





# 7 technical considerations

Although we've been largely talking about electricity production, CORE projects can also produce heat. The best technologies currently available for community renewable electricity projects are wind, solar PV and micro-hydro. For community renewable heat projects, biomass boilers and other bioenergy technologies are appropriate. For combined heat and electricity ('cogeneration') projects, bioenergy is future. In this section we provide a high level overview of these technologies, as there are numerous resources available that provide detailed insight into different renewable energy technologies (see Resources section). Additionally, we will pose some questions or technical issues for your consideration when moving forward with a CORE project.

## 7.1 Renewable energy resources and technologies

Firstly, there is the question of what renewable energy resources you have available. This one is a deal breaker. For example if you don't have a river or stream near your community a hydro project is clearly out of the question. It is a little less obvious with wind power, as you won't know the wind speed until it's measured. This section outlines the key renewable energy technologies and some of the basic resource requirements.

### Solar PV



Westmill Solar Cooperative, UK. Courtesy of [www.westmillsolar.coop](http://www.westmillsolar.coop).

**Description:** Solar photovoltaic (PV) panels generate electricity when photons in sunlight hits silicon cells in the panel thereby dislodging electrons. This generates low voltage direct current which is converted by an inverter to 240 volt alternative current which is fed into your house

or back into the electricity network. Solar PV is a modular technology that can be scaled from household systems to utility scale.

**Resource Requirement:** Solar PV is more efficient where there is more sunlight, although solar panels will generate some electricity on cloudy days. Panels should be angled as close to north as possible on a tilt that means sunlight hits the panel at as close to a 90 degree angle as possible. Panels should also be installed in an unshaded location.

**CORE Status:** 25 Community solar PV projects in development. The first community solar projects in operation in Australia have been pioneered by Clear Sky Solar (see page 21).

### More Information:

- Australian PV Association* - [www.apva.org.au](http://www.apva.org.au)
- Australian Solar Council* - [solar.org.au](http://solar.org.au)
- Clean Energy Council* - [www.cleanenergycouncil.org.au/technologies/solarpv.html](http://www.cleanenergycouncil.org.au/technologies/solarpv.html)
- Installing small scale renewable energy systems in NSW* - [www.energy.nsw.gov.au/sustainable/renewable/solar/solar-scheme](http://www.energy.nsw.gov.au/sustainable/renewable/solar/solar-scheme)

## Wind



**Samso Island, a 100% renewable energy island in Denmark. Courtesy of Jarra Hicks.**

**Description:** The most efficient modern wind turbines are those with three blades, shaped like an aerofoil. As wind blows at a 90 degree angle to the blade, areas of lower and higher pressure is created above and below the blades causing them to rotate, which in turn drives a generator in the box (called a nacelle) behind the blades. These are called horizontal axis wind turbines and, due to the laws of physics, are more efficient than vertical axis wind turbines.

**Resource Requirement:** Wind turbines require a good wind resource to maximise output, this means fast flowing smooth air. Turbulence reduces the efficiency of a wind turbine and puts extra mechanical stress on the mechanism. Thus, locations with a smooth high surface, free from obstacles such as trees, buildings, rocks etc are preferable. As such, urban areas are generally unsuitable for wind systems, while highland or coastal farmland areas are generally ideal sites. Wind maps exist and should be your first port of call for assessing whether you have a good wind resource. However, actual wind monitoring for 12-18 months will be required at your preferred site(s) to prove the wind resource.

**CORE Status:** Two operational community wind projects in Australia – Hepburn Wind and Denmark Community Wind. A further four or

more are in development – New England Wind (NSW), MACWind (Victoria), CENREC (NSW) and Woodend (Victoria). Community wind projects are common across Europe and the US.

### More Information:

*Clean Energy Council* - [www.cleanenergycouncil.org.au/technologies/wind.html](http://www.cleanenergycouncil.org.au/technologies/wind.html)

*Hepburn Wind* - [hepburnwind.com.au](http://hepburnwind.com.au)

*Denmark Community Wind* - [www.dcw.org.au](http://www.dcw.org.au)

*Vic Wind Alliance* - [www.vicwind.org.au](http://www.vicwind.org.au)

*Embark* - [www.embark.com.au](http://www.embark.com.au)



**Wildpoldsried, Germany, a net energy exporter and all through community-owned bioenergy, wind, solar and hydro. Courtesy of Jarra Hicks.**

**Description:** Bioenergy is the conversion of an organic feedstock (eg. crop waste, animal dung, specialty crops) to energy – heat, electricity or both. There are three different processes used for bioenergy production around the world. The first is anaerobic digestion, which converts wet organic materials into methane through a composting process without the presence of oxygen. The methane can then be burnt to generate heat and electricity. The second is direct combustion of drier biomass feedstocks to generate heat and/or electricity. The third option is pyrolysis which involves heating feedstocks in the absence of oxygen. This drives off gases which can be burned to produce heat and optionally electricity. The solid remainder is called biochar and can be used as a soil

conditioner. Biochar can store carbon in the soil for long periods so the process can actually remove CO<sub>2</sub> from the atmosphere.

**Resource Requirement:** There are four main factors in determining a good bioenergy resource – the energy content of the feedstock, location, quantity and sustainability. Some organic materials have higher energy content than others. For a bioenergy system to be viable, a reasonably large quantity of the same or complementary feedstocks are required in close proximity, as the greater the distances the greater the transport costs and the less economical the project. The final factor is sustainability. For example native forests or native forest residues should not be used as a bioenergy feedstock and in NSW it is illegal to do so (for generators greater than 200 kW).<sup>1</sup> The second element of sustainability is whether there is a competing demand for the feedstock which sits higher on the waste pyramid. Most bioenergy feedstocks are waste products of other processes e.g. green waste, food waste, manure etc, if these can be reused or recycled e.g. composted they may be better uses than energy generation. This will require investigation<sup>2</sup>.

**CORE Status:** There is one potential community bioenergy project in development in Australia in the Blue Mountains. Community bioenergy projects are common in Germany, Austria and Denmark.

**More Information:**

*Bioenergy Australia* - [www.bioenergyaustralia.org](http://www.bioenergyaustralia.org)

*Bioenergy Handbook* - [www.energy.nsw.gov.au/sustainable/renewable/bioenergy](http://www.energy.nsw.gov.au/sustainable/renewable/bioenergy)

*Bioenergy Scoping Study* - [www.rdanorthernrivers.org.au/page/Content?&select=List&rowid=2729](http://www.rdanorthernrivers.org.au/page/Content?&select=List&rowid=2729)

1 The NSW Protection of the Environment Operations (General) Amendment (Burning of BioMaterial) Regulation 2003

2 See for example the NSW Energy from Waste - Draft Policy Statement for Public Consultation

## Small Hydro



Torrs Hydro Cooperative, UK.  
Courtesy of Nicky Ison.

**Description:** Small hydro systems are those that harness the power of flowing water, usually rivers or streams to generate electricity. They are distinct from large hydro plants such as those in the Snowy Mountains, as small systems are usually run of the river systems which don't require a dam or reservoir, or if they do they are very small and thus have significantly less ecological impact than large hydro systems. The most common small hydro systems for community energy applications are reverse Archimedes screws for small vertical drop locations such as a weir, and kaplin or pelton wheels for longer vertical drop locations.

The energy potential of a river depends on two key features – the volume of water flowing and the vertical drop (known as head). The greater the volume of water and the further the vertical drop, the greater the energy potential. Consistency of flow throughout seasons is also important.

**CORE Status:** There are two potential community small-hydro projects in development in Australia one in Victoria and one in Tasmania. Community small hydro projects are common across the UK and Germany.

See Resources Section

## Concentrating Solar Thermal (CST)



Gemasolar, Seville, Spain.  
Courtesy of [www.torresolenergy.com](http://www.torresolenergy.com)

**Description:** Concentrating Solar Thermal (CST) technology involves concentrating sunlight using mirrors onto a point or tube filled with a fluid. The fluid is heated from the concentrated sunlight and then used to generate steam to drive a turbine, generating electricity. The four main CST technologies are power towers, dish systems, linear fresnel and parabolic trough systems. Additionally, the heat generated can be stored as molten salt, which can then be used to generate electricity when the sun is not shining, e.g. overnight. Storing heat is a lot more efficient than storing electricity.

**Resource Requirement:** CST systems require direct (not diffuse) sunlight, and as such work best in locations that are clear and sunny with little cloud cover during the year. As such, coastal and tropical locations are not generally appropriate, however, desert like locations often work well. However, CST systems like any steam generators (coal, gas etc) also work best with access to water for cooling purposes (though they can be air cooled).

**CORE Status:** CST is one of the newer renewable energy technologies however, there are many systems operating in Spain, the US and the Middle East. As yet there are no operational community-owned CST plants in the world. Perhaps Australia could develop the first one?

### More information:

Australian Solar Thermal Energy Association (AUSTELA) - [www.austela.org.au](http://www.austela.org.au)

## 7.2 Grid Connection

When developing your project, you will need to know what electricity infrastructure (grid networks) exists in your community. There are four main answers to this question:

- 1) There is good network coverage with capacity to integrate distributed electricity projects. This would mean a new CORE project would likely be able to connect into the existing grid infrastructure with little extra upgrade. Even if your project is 'behind the meter', it will still need to be grid connected (see Box 5: Community Solar on page 21)
- 2) There is good network coverage with no capacity. This would mean there is a good electricity distribution and transmission network in your community but it doesn't have the ability to accept and export more electricity.
- 3) There is bad network coverage. This typically occurs at the outer limits of the electricity grid, where supply is unreliable and there is no extra connection capacity.
- 4) You have no electricity network; your community is off-grid.

Where you are in this list will determine how easy it will be to connect to the grid and to export the electricity you generate, and how much this connection is likely to cost. If you can't connect to the grid you will need to consider energy storage technologies such as batteries or pumped hydro. You may also consider setting up a community owned mini grid like the one on the Isle of Eigg.<sup>3</sup>

<sup>3</sup> [www.isleofeigg.net/eigg\\_electric.html](http://www.isleofeigg.net/eigg_electric.html)



### Box 9: Energy storage

Currently there is much talk of the role of energy storage. Significant amounts of money are presently being invested in energy storage technology research and commercialisation, with industry analysis predicting dramatic reductions in cost in storage technology by 2020. The implications of this is that individual houses, businesses and even entire communities if they establish mini-grids<sup>4</sup> will have an affordable choice as to whether to connect to the centralised electricity grid or go energy self-sufficient. This energy storage revolution will create new and exciting opportunities for CORE in coming years, including solutions to avoid expensive grid upgrades. It might even open up possibilities for whole towns to buy back and manage their own mini-grids.

Connecting to the electricity grid can be one of the most challenging and expensive aspects of a CORE project. To find out more about your local grid and the process for connecting, you will need to talk to the local electricity distribution network service provider (DNSP). It is important to start the process of finding out about grid connection and its likely costs as early as possible, as it can make-or-break a project.

### 7.3 Project Size

The third technical issue to consider is project size: how many kilowatts (kW) or megawatts (MW) will suit your site and need? In part this question will be determined by the renewable resource and grid capacity you have available but the project size will also be dependent on cost. The bigger the project the greater the cost and the more money you will have to raise, but also the cheaper each unit of generated energy is likely to be. There can be economies of scale with bigger projects, as associated costs (such as

planning assessments, grid connection, civil works) can be offset against greater generating capacity.

Decisions about project size will also be influenced by your objectives and by what you believe is the capacity of your community to raise capital. Some community projects aim to produce all or a significant proportion of the electricity used in their geographical area while others are scaled to the needs of a particular building.

### 7.4 Project Location

The final technical issue to consider is location: where will you site your project? As with scale, this will partially be answered by the electricity network location and what renewable energy resources you have available and where. For example, if you have a weir in a good sized river and are considering a micro-hydro project using a reverse Archimedes screw, there is no question of location – there's only one place it could be. However, with wind and especially solar projects there is often more choice. Motivations that might influence the choice of location include education outcomes and the desire for visibility. If one aim of your project is to raise awareness and public education about renewables, you may want your site to be highly visible and even in an iconic location. On the other hand if there's community opposition to wind in your area, you may want to site the project in a place where it will cause the least controversy (without reducing energy yield).

Many people focus on the technology aspect of CORE because being a renewable energy project is what defines it from other community development projects. Nevertheless, just because it is a 'techy' project does not mean that the technology should dominate and determine the nature of the project. You have many choices you can make and these technical considerations, while important, should not outweigh considerations about what will best suit your community.

<sup>4</sup> [www.ata.org.au/wp-content/projects/Off\\_grid\\_summary.pdf](http://www.ata.org.au/wp-content/projects/Off_grid_summary.pdf)



## 8.1 Fundraising stages

When developing your CORE project, there are two main phases of fundraising:

- ▲ Funding the project development to planning approval; and
- ▲ Capital raising once a full business case and share offering has been developed and planning approval has been received.

In Australia, funding the development phase of a CORE project (Stages 1-4 in Figure 5: Stages of CORE project development) has been one of the biggest challenges to date. This is because communities, unlike large companies, don't have large reserves of capital to draw on to fund the development phase. Further, there is only the idea of a project and no solid business case, as such early investment is risky. However, this is the case for the development stage of any new venture, whether it is a renewable energy project or a new restaurant. The difference between a CORE project and a new restaurant, is that the business model for a restaurant has been proven thousands of times over, while there are only a couple of CORE projects operating in Australia. Because CORE is a new model of renewable energy development in Australia, it is still 'proving itself' and projects are required to cover the 'pioneering costs' associated with a new industry. Many groups and organisations are working to overcome this challenge in different ways.

Once a project has planning approval and the business case is established, it is easier to go out to the community and to financing organisations to secure investment to fund Stages 5-7 (Figure 5). However, it is important to note that the construction costs are the largest part of most CORE projects, so the capital-raising phase can be challenging due to the need to raise a large amount of money in a relatively limited time period.

## 8.2 Fundraising mechanisms

For both stages (development and capital raising) there are a series of different fundraising and financing mechanisms available - these are outlined in Table 1. Most projects use a combination of financing mechanisms at different stages.

It should also be noted that some financing options aren't possible with some organisational models. For example, if you want to develop a community organisation model of CORE (see Section Three Models of CORE development), a community share offer would not be possible as this financing mechanism leads to an investor model of CORE.

Funding Mechanism	Detail
<b>EQUITY INVESTMENT</b>	
<p>Community Share Offer</p> <ul style="list-style-type: none"> <li>× Project development</li> <li>✓ Capital raising</li> </ul>	<p>A community share offer raises capital by inviting members of the community to invest in the project. This involves preparing, publishing and distributing an offer document. The terminology (prospectus, disclosure statement, share offer, product disclosure statement etc.) and legal requirements of the document will vary depending on the legal structure chosen and jurisdiction.</p> <p>Inviting members of the community to invest makes them members of the project's organisational structure and usually entitles them to participate in formal decision making (for example at Annual General Meetings). You must do your due diligence at the prospectus stage and as such expect significant legal and accounting costs, including in some cases the need for a Financial Services Licence<sup>1</sup>. Different CORE 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. Examples include:</p> <ul style="list-style-type: none"> <li>• Requiring all, a majority or only partial local investment.</li> <li>• Defining local in different ways.</li> <li>• Only allowing individuals, but not organisations or businesses, to invest.</li> <li>• Placing an upper or lower boundary on investment.</li> <li>• Having only one investment amount, for example \$1000, no more, no less.</li> <li>• Including or excluding local government.</li> <li>• Allowing each member only one vote, no matter how much they invest.</li> </ul>
<p>Angel Investment</p> <ul style="list-style-type: none"> <li>✓ Project development</li> <li>× Capital raising</li> </ul>	<p>Angel investors are those that put equity into a CORE project during the project development stage, before there is any guarantee of project success. To compensate for this risk, angel investors are typically offered a higher return, or a greater number of shares in exchange for their investment than those investing at a later stage in the project. If you consider this mechanism, you will need to develop a business case which sets out clearly the benefits to early investors and ensures that this does not undermine the viability of later investment.</p>
<p>Institutional Investors</p> <ul style="list-style-type: none"> <li>× Project development</li> <li>✓ Capital raising</li> </ul>	<p>Institutional investors such as superannuation funds have significant reserves of capital. However, the size of CORE projects is often too small for most super funds. Even so, a number of organisations are looking into what it would take to unlock this source of investment for community renewable energy projects. This may involve grouping many projects so the starting capital base is much larger, which in turn will require many more projects to be close to the investment ready stage.</p>

## Funding Mechanism

## Detail

### DEBT FINANCE

#### Loans

- × Project development
- ✓ Capital raising

Some CORE projects are part financed by loans from banks, credit unions, individuals, organisations or government. Because CORE projects are new in Australia, there is not a long track record of securing debt financing. However, Hepburn Wind was successful in securing a loan from Bendigo Bank, while some other financial institutions such as Credit Unions have expressed interest in doing so for future CORE projects. 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 re-pay the debt.

One of the most difficult aspects of getting a loan for a CORE 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. In Scotland a program was developed called CARES which provided unsecured loans at the project development phase of CORE projects. While this was risky, the default rate on the loan was half that of commercial ventures.<sup>2</sup> In the case of Hepburn Wind, an organisation provided a loan security. Once a greater number of CORE projects are operating, loan maker's confidence should increase, thus increasing the access to this type of funding.

It may also be possible to secure a loan from a wealthy individual, philanthropic or commercial organisation.

### GIFTS

#### Grants

- ✓ Project development
- ✓ Capital raising

Grant funding, if available, is very useful, particularly in the early and most risky stages of a project. A grant to help fund the project from the idea phase through pre-feasibility, to the point where you have a firm idea of what the project will look like, is very useful. However, grants can be tied in ways that do not fit with your project aims. Grants have played an important role in all successful CORE projects in Australia to date. For example, Hepburn Wind secured a total of \$1.7million in grant funding from Sustainability Victoria and Regional Development Victoria.

Grant makers include all levels of government (council, state and national) as well as philanthropic bodies, such as foundations. As CORE is new in Australia the funding landscape is unfamiliar with it and there are very few CORE-targeted grants. A further challenge is that CORE projects can be characterised as social enterprises: while their key motivations are environmental and social purposes over personal profit, most do ultimately return a profit to their investor-members. Paying a dividend (even if only modest) is often a necessary condition to attract

Funding Mechanism	Detail
Grants continued	<p>investors, given that CORE projects often require large investments to reach their fundraising goals. The philanthropy sector does not yet understand the co-benefits of this CORE model and, hence, find it difficult to fund CORE projects as they are not purely not-for-profit. At a government level, in May 2013, the NSW Office of Environment and Heritage (OEH) released \$411,000 of grant funding for the early stages of nine CORE projects.</p> <p>The number and type of grants available changes all the time. Checking websites like ARENA, OEH, Our Community, Regional Development Australia and contacting your local council to see if there are suitable grants is a good idea.</p>
<p>Donations (including donation crowd-funding)</p> <ul style="list-style-type: none"> <li>✓ Project development</li> <li>✓ Capital raising</li> </ul>	<p>Donations are even more untied than grants and are always welcome! To attract donations though, you will need to be able to convince someone your idea is worthwhile and likely to succeed and that you are trustworthy. All easier after you've done the pre-feasibility stage! There are also legal requirements around seeking funds from the public, so make sure if you plan a fund raiser you check out the Office of Fair Trading web site or get some legal advice. Due to the typical size of a donation, even a large one, it is unlikely that you will be able to fund more than a small CORE project from donations alone.</p> <p>To get big 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 also a requirement of some grant conditions. Achieving DGR status can be a long and involved process, which is why many groups approach organisations to act as an auspice.</p> <p>Crowd funding is one of the newest donation based fundraising strategies. It involves using one of the many crowd funding websites (e.g. Pozible, Start Some Good, Kick-starter) to get many small pledges of funding from many people. People are offered many different levels at which they can pledge support and only if your fundraising target is reached do people's pledges turn into actual donations. In Australia, the Citizens Own Renewable Energy Network Australia Inc (CORENA - <a href="http://corenafund.org.au">http://corenafund.org.au</a>) is taking this approach to CORE.</p> <p>A successful crowd-funded initiative is run like a campaign, you have to work out your target audience and your key messages. Creating a short video about what you are doing and why people should fund it is also a good idea. It is better to think of crowd funding as peer-to-peer funding that makes it easy for people you are already in contact with to donate some money to your project. If you get your strategy right (and</p>

Funding Mechanism	Detail
Donations (including donation crowd-funding) continued	are lucky) they will share the crowd funding appeal with their friends and so on. Some crowd funding campaigns go viral, where thousands of people you've never heard of start donating. Most don't, however, so don't bet on it.
Crowd-funding investment ✓ Project development ✓ Capital raising	In the UK and the US crowd-sourced investment (as opposed to donations) has funded a number of renewable energy initiatives, such as Mosaic and Abundance Generation. These projects have been surprisingly successful at raising significant amounts of community investment. Crowd-funded investment is currently prohibitively difficult under investment laws in Australia.

## PARTNER WITH OTHER ORGANISATIONS

Partner with other organisations

✓ Project development  
✓ Capital raising

The final possible funding mechanism is to partner with another organisation that takes some or most of the financial risk, and raises some or most of the capital. One example of this is to partner with a conventional renewable energy developer, particularly if they are already planning on doing a project in your area. The Central New South Wales Renewable Energy co-operative (CENREC) is a good example of this, they are partnering with the wind developer Infigen to purchase one of the wind turbines in Infigen's proposed 44 turbine wind farm at Flyers Creek.

Partnerships are not stand-alone financing mechanisms; your group will still need to find some way of financing your part in the partnership. Also bear in mind that the more financially independent your group and wider community can be, the more decision making power you will have in the project.

### 8.3 Creating the business case for your project

No matter which financing and fundraising mechanisms your community chooses, you will need to develop a sound business case for your project, carry out financial due diligence and 'stress test' your business plan. Specifically, banks will need a low risk guarantee that their loan will be paid off. They will want to see that your predicted income streams are robust, that your group has a strong management team and that someone in your team has a track record in successful business development.

Additionally, most community members will want an assurance that they will get some return on their investment, particularly if it is a large investment. While grants do not require a return, grant makers tend to fund projects that look likely to succeed and their measure of success will almost definitely include that the project has a sustainable long-term finance model, as well as delivering social or environmental benefit.

At a business case level CORE projects are no different from any other enterprise – you must consider your costs and income streams and how they stack-up relative to each other. As such, several key decisions will need to be factored into your business case, including how you plan to sell your electricity and renewable energy certificates, planning for community benefit and how to keep operating costs down, and how you plan to manage cash flow, among other things. We will cover these things briefly in the section below.

#### Selling your electricity and renewable energy certificates

The main income stream for almost all CORE projects is the sale of electricity (and sometimes heat energy). This income is only available once the project is operational so the business case for

most CORE projects is based on the unit price of electricity sold and the amount of electricity the project is likely to generate. Within this framework of pricing structures there are two main options:

#### 1) Negotiating a Power Purchasing Agreement (PPA) with an electricity retail company.

A PPA requires the retailer to buy your project's electricity at a negotiated price, either a set price that will not fluctuate or the 'spot market' price for electricity in the Australian Energy Market which fluctuates dramatically. Typically, a retailer will be willing to offer 4-8c/kWh in a fixed price PPA. Your project will also be eligible for Renewable Energy Certificates, either Small-scale Technology Certificates (STCs) for smaller renewable energy projects<sup>1</sup> or Large-scale Generation Certificates (LGCs) (see Section Policy mechanisms that support renewable energy for more details on the renewable energy certificates). This will create a second income stream for your project. Negotiating a PPA for both the electricity generated and the Renewable Energy Certificates simplifies the operation but you may well get a greater income by negotiating these two income streams with different buyers.

#### 2) Selling the electricity generated directly to energy users.

There are several ways this could be done. One way is to place a renewable energy installation behind the electricity meter of a large energy user. This is the main model that community solar projects are proposing to use in Australia at the moment (see 5 for more information).

If your community is off-grid, for example like the Isle of Eigg in Scotland<sup>2</sup>, creating a small electricity grid and selling direct to the consumers may be the

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1 No more than 100kW for solar, 6.4kW for hydro and 10kW for wind

2 [www.isleofeigg.net/eigg\\_electric.html](http://www.isleofeigg.net/eigg_electric.html)

most attractive option available to you. However, to legally sell electricity directly to consumers in Australia (aka not to an energy retailer), a National Retailer Authorisation (licence) must be obtained or an exemption issued by the Australian Energy Regulator.<sup>3</sup> Changes in the operation of the national electricity market and the growth of the CORE sector are opening up more innovative possibilities for the sale of electricity and renewable energy certificates. In addition to the conventional PPA with an existing energy retailer, these include:

- ▲ Organise the purchase and sale of renewable energy certificates from community renewable energy projects as a form of Greenpower. For example 'the new Community Climate Chest (C3)<sup>4</sup> allows individuals to purchase GreenPower LGCs from specific projects, bypassing energy retailers. As it is traded through a DGR registered organisation (ATA), all GreenPower LGC purchases are tax deductible (a tax office ruling has been obtained to confirm this), providing a 30%+ tax offset for the purchase amount for most users.<sup>5</sup>
- ▲ Aggregating the sale of electricity from multiple CORE projects. In November 2012 a new category of participant in the national electricity market called a "Small Generation Aggregator" was created. This allows electricity output from a number of small generators to be aggregated and sold in the national market. Commercial or community based market aggregators could make it easier and cheaper for small CORE projects to sell into the national wholesale market and to get a better price for their energy.

- ▲ Virtual Net Metering (VNM). In the UK, ten states in the US and Germany, small renewable energy generators are allowed to sell their electricity directly to one or more nearby electricity users. The benefit of this approach is that because the transaction is in a local area and does not use the full electricity distribution and transmission infrastructure, users are not charged the full network cost creating a win win for both consumers and embedded generators such as CORE projects. VNM while not technically illegal in Australia, has not yet been done. The Total Environment Centre and Institute for Sustainable Futures are two organisations investigating how it could be done here.<sup>6</sup> The Coalition for Community Energy is actively investigating these options. Keep in touch with the Community Power Agency if you would like to find out more about innovative approaches to selling energy as they develop.

Innovative approaches to electricity retailing have worked well overseas - see for example the Svergies Wind co-operative case study<sup>7</sup>.

### **Establishing a community fund**

In addition to paying back loans and providing a return to investors (if that is the model you go with), many CORE projects that generate profit give money back

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3 See the AER's website for more details - [www.aer.gov.au/retail-markets/retail-exemptions](http://www.aer.gov.au/retail-markets/retail-exemptions).

4 C3 website: Community Climate Chest <https://www.climatechest.org.au/>

5 Ison N, Byrne M, Gilding J, Hicks J and Memery C (2014), Community Energy Advocacy Strategy, Coalition for Community Energy <http://c4ce.net.au/>



what the income could be used for (e.g. yearly grant funding rounds). Examples of things other CORE community funds have given money to include energy efficiency programs, environmental programs, funding a new community enterprise, providing a new social service (e.g. a school bus, fire brigade equipment). What you use the money for will also obviously depend on how much income is coming in. For example, Hepburn Wind has a \$30,000 year community grants program, while a community hydro project in Wales splits its estimated £20,000 annual profit between a childcare project, a coffee bar and a community centre.

### **Cash flow**

Whichever approach to financing, electricity sale and community income you choose, there is one more crucial financial consideration to take into account – cash flow. CORE projects present a cash flow dilemma because most of the costs are upfront and are due before the project is able to start generating income through the sale of electricity; particularly during the construction phase of a project when expensive items – for example the wind or water turbine – must be bought, as well as civil works paid for. This often comes to hundreds of thousands, if not millions, of dollars.

Preparing a cash flow plan to ensure you have enough money in the bank at the time you need it will help you ensure the success of the project and can form the basis of your financing strategy.

### **Operating costs**

The costs of operating your CORE facility once it is up and running also needs to be factored in to the business case. Operation costs need to include things such as staff time (for management, book keeping, community engagement, etc.), maintenance, accounting and auditing, loan

re-payments, insurance, dividend distribution, community fund distribution, events, paying dividends, communicating with members and developing other communications materials, etc. as well as putting aside money for refurbishment and dismantling the infrastructure when the time comes. Operating and administration costs are one of the key factors that are currently inhibiting the development of community solar projects, as such a number of organisations are looking into ways that CORE projects can share these costs thus increasing their viability. Contact the Coalition for Community Energy for updates on this.

# external factors

# 9

There are a number of external factors that are to a greater extent out of the control of your group that will none-the-less have significant bearing on what is and is not possible for your CORE project. These will affect specific decisions within the areas discussed above.

Key external factors to consider include:

- ▲ The technical, commercial and regulatory structure of the electricity system.
- ▲ State and Federal Government energy policy such as Renewable Energy Targets, Feed-in Tariffs, carbon-pricing and CORE support programs. The government regularly reviews these programs and changes the terms under which payments are made, as well as the amounts paid. These changes can have serious implications for project financing.
- ▲ Planning policy: one of the key tasks in developing a CORE project is getting planning approval. Each state in Australia has its own planning system, so planning requirements will differ from place to place and also by technology type and scale.
- ▲ Legal entity regulation (eg. Company law, Incorporated Association law)
- ▲ The existing organisations in your community – what organisations already in your community could help or hinder the project? What's the internal politics of your community? Attitudes to renewables? What is the local council's approach to energy and sustainability? How will this fit with what you are trying to do?
- ▲ The CORE support organisations that operate in your area (a list is given in the Resources section of this guide).

## 9.1 The National Electricity Market

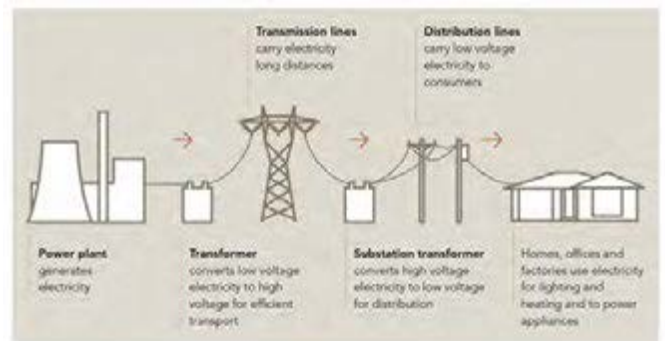
Electricity generation, distribution and sale in Australia is a highly regulated industry with many players and a complex set of arrangements which govern its operation. The National Electricity Market (NEM) is a wholesale market for the supply and purchase of electricity that covers the area serviced by an interconnected set of networks which extends from Port Douglas in Queensland to Port Lincoln in South Australia and Tasmania. If your proposed project is to be connected to the grid in this area, you will need to understand NEM arrangements as they affect what you can and cannot do and how you will be paid for electricity you generate. Different arrangements apply to the West Australian "South West Interconnected System" (SWIS) or if you are not connected to the grid at all.

Australia's electricity system, like many around the world, was set up for a centralised model of electricity generation, with large fossil fuel powered generators, with a one way flow of electricity. The electricity system works at two main levels – physical (flow of energy) and commercial (flow of money). At a physical level, energy traditionally flowed from generators through the transmission network, to the distribution network and on to end users such as you and I.

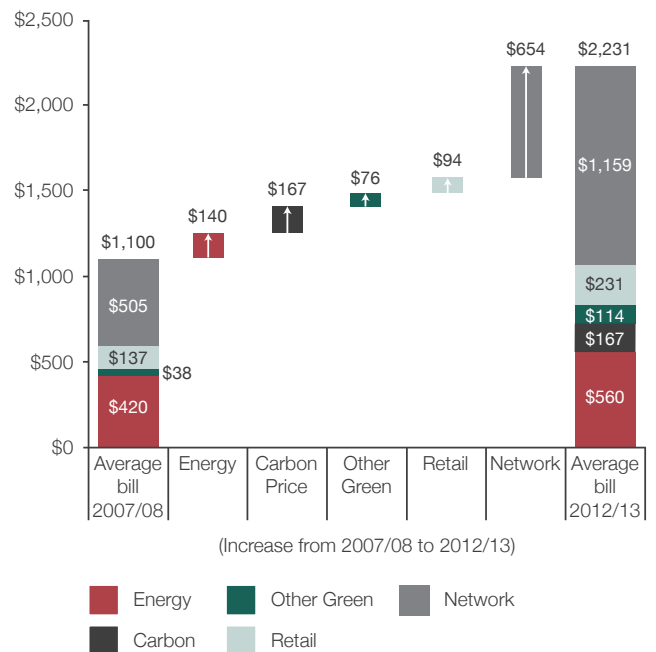
At a commercial level money flows from end users of electricity to an energy retailer who in turn purchase electricity from generators on the wholesale electricity market (or through private power purchase agreements). Retailers also have to pay network companies for the use of the distribution and transmission networks as well as policy schemes and operating fees of the market. This all means that that our electricity system has two “markets” a wholesale market which is the cost of just the electricity generation and a retail market which is the cost of the whole system, as shown in Figure .

In the last 15 years the wholesale cost of electricity in NSW has ranged from an annual average of 2.8c/kWh to 5.5c/kWh<sup>1</sup>. The 2012/13 regulated retail tariff for residential customers was between 28.5c/kWh and 37.4c/kWh and for small commercial customers ranged from 26c/kWh to 34c/kWh<sup>2</sup>. As such, whether your project is behind a meter of a customer and thus competes with retail electricity prices or just exports electricity to the grid and thus competes with wholesale electricity prices, makes a huge amount of difference to the economics of your project.

**Figure 7: Transport of Electricity**<sup>3</sup>



**Figure 8: Average NSW Electricity Bill**<sup>4</sup>



1 [www.aemo.com.au/Electricity/Data/Price-and-Demand/Average-Price-Tables](http://www.aemo.com.au/Electricity/Data/Price-and-Demand/Average-Price-Tables)

2 IPART (2013) Review of regulated retail prices for electricity, 2013 to 2016, p4. Note the tariffs quoted in this guide combine standing charges (daily – c/day or capacity c/kW) and energy tariffs (c/kWh).

3 Adapted from <http://eex.gov.au/energy-management/energy-procurement/energy-pricing/the-energy-supply-chain/>

4 Source: IPART (2012) Review of regulated retail prices and charges for electricity 2013 to 2016.

## 9.2 Policy mechanisms that support renewable energy

The main policy mechanism supporting renewable energy in Australia at the time of writing is the Renewable Energy Target. Additionally, there are support programs such as the NSW Regional Clean Energy Program (see p.13) and funds such as ARENA and the Clean Energy Finance Corporation that community renewable energy projects could potentially tap into. The carbon price also increases the economic viability of CORE projects.<sup>5</sup>

The Renewable Energy Target (RET) sets a certain amount of electricity that energy retailers must purchase from renewable energy sources each year, which increases annually until 2020. Current arrangements are that the scheme continues until 2030 and is reviewed every two years by the Climate Change Authority. To meet this target a market of renewable energy certificates was created, where each certificate accounts for 1MWh of renewable energy generation. This provides renewable energy generators with a second income stream in addition to selling their electricity on the wholesale electricity market. The price of renewable energy certificates depends on supply and demand – that is the price is set by the market, however the amount of generation (i.e. the size of the market) is set by policy. In 2011, the Renewable Energy Target was split into two:

- ▲ The Small-scale Renewable Energy Scheme<sup>6</sup> and
- ▲ The Large-scale Renewable Energy Target.

Bioenergy and most wind and small hydro CORE projects will fall into the latter category, while

community solar projects could fall into either. See the Office of the Renewable Energy Regulator for more information.<sup>7</sup>

The Australian Renewable Energy Agency (ARENA) has been set up by the federal government with the aim of “improving the competitiveness of renewable energy technologies and increasing the supply of renewable energy in Australia”.<sup>8</sup> ARENA is predominantly a grant funding body. While some of their funding programs do not rule out funding for CORE, their programs do not target CORE specifically. Nevertheless if your group is considering a project using bioenergy or small hydro, there may be potential for funding, so too if your community is off-grid or at the very edge of the electricity grid.

The Clean Energy Finance Corporation (CEFC) established as part of the Clean Energy Future Package, provides financing to nearly commercial renewable energy and energy efficiency projects. As such, CORE projects (once they have planning approval and a business case) may be able to go to the CEFC for assistance. The CEFC funding would only be a possibility once planning approval is granted and you are seeking loan finance for capital costs.

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5 Note at the time of writing the Renewable Energy Target is under review and both ARENA and the Clean Energy Finance Corporation's future are uncertain.

6 <100kW for solar, <6.4kW for hydro and <10kW for wind

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7 <http://ret.cleanenergyregulator.gov.au/>

8 <http://www.arena.gov.au/about/index.html>

# 10 a final word



Westmill Solar Cooperative.  
Courtesy of [www.westmillsolar.coop](http://www.westmillsolar.coop)

Community Renewable Energy Projects are innovative and empowering. We think that CORE projects are one of the most exciting ways to make a positive change in Australian communities. If and when you choose to embark on a journey to establish your community's own renewable energy project we suggest you remember:

*“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has!” - Margaret Mead*



Mount Alexander Community Renewables.  
Courtesy of Taryn Lane.

## Appendix A: IAP2 Spectrum of Public Participation<sup>1</sup>

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
<b>PUBLIC PARTICIPATION GOAL</b>	To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decision.	To work directly with the public throughout the process to ensure that public issues and concerns are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
<b>PROMISE TO THE PUBLIC</b>	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input	We will work with you to ensure that your concerns and issues are directly reflected in the alternatives	We will look to you for direct advice and innovation in formulating solutions and incorporate	We will implement what you decide.

<sup>1</sup> [www.iap2.org.au/resources/iap2s-public-participation-spectrum](http://www.iap2.org.au/resources/iap2s-public-participation-spectrum)

## 11.1 Resources: Useful Australian Organisations

### Community Renewable Energy Support Organisations

#### Community Power Agency | <http://www.cpagecy.org.au/>

The Community Power Agency was set up in 2011 to support the development of a vibrant community renewable energy sector in Australia. Drawing on a combined experience of visiting, researching and/or working with over 45 CORE projects across the world, the Community Power Agency works with communities to build their capacity to deliver successful projects. They do this by providing training and workshops, public speaking, mentoring, networking and research. Community Power Agency also works with a range of organisations to help address the institutional barriers that are facing all CORE projects across Australia. They do this by running campaigns such as the Fund Community Energy Campaign ([www.fundcommunityenergy.org](http://www.fundcommunityenergy.org)), undertaking research (The Australian Community Renewable Energy Sector: Challenges and Opportunities), developing resources, coordinating sector information sharing and collaboration, particularly through the founding of the Coalition for Community Energy, strategy development and more.

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#### Embark | [www.embark.com.au](http://www.embark.com.au)

Embark Australia is a non-profit organisations that emerged from the Hepburn Wind experience (it is governed by an independent board). Embark offers support to interested communities including:

- ▲ developing a best practice toolkit to help rapidly up-skill communities
- ▲ knowledge transfer and expert advice
- ▲ building a network of CORE related suppliers, contractors, investors and lenders
- ▲ aggregating services to capture economies of scale
- ▲ identifying and trouble-shooting CORE market failures
- ▲ sourcing feasibility and investment funding
- ▲ attracting large-scale investment for projects
- ▲ advocating for policy changes to grow the sector
- ▲ coaching, facilitation, on-going support and public speaking.

Embark has developed a wind and solar model and a suite of legal templates to reduce the financial and organisational barriers that communities face.

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### **Starfish Enterprises** | <http://starfishenterprises.net/>

Starfish Enterprises Network Limited is a community company limited by guarantee supporting different sustainable initiatives such as Farming the Sun, New England Wind, New England Sustainability Strategy, The Living Classroom etc.

Starfish Enterprises specialises in and provides:

- ▲ Uber Participation: participatory processes, such as for planning or decision-making, are key to best bringing together the wide range of interests, expertise, stakeholders and knowledge
- ▲ Collaborative Governance: models of organising which best share and distribute leadership, roles and responsibilities between the many stakeholders, organisations and people who make up regions, communities and sectors
- ▲ Leadership & Learning: in core sustainability capabilities such as participation, collaboration, partnership development and social change
- ▲ Community Enterprise: creating livelihoods that meet and provide for essential community needs (such as energy, transport, education, food, accommodation, health and communication)
- ▲ Auspice: initiating or enabling sustainability initiatives to become self-sustaining and independent
- ▲ Social Marketing Stories: to touch, move, inspire and enable people and organisations in being sustainable.

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### **Energetic Communities** | <http://energeticcommunities.org.au/>

Energetic Communities is an Incorporated Association that works closely with communities, especially Transition Kurilpa in Brisbane. As well as developing CORE, Energetic Communities is a Social Enterprise providing several services in sustainable energy and food, business energy efficiency, peak oil, climate change and sustainability research.

They offer:

- ▲ Support and development
  - ▲ Sustainability assessment and strategies
  - ▲ Carbon accounting and management
  - ▲ Carbon footprint assessment and recommendations
  - ▲ Energy audits and energy efficiency
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**Alternative Technology Association (ATA) | <http://www.ata.org.au/>**

The ATA is a not-for-profit organisation promoting sustainable technology and practice. They provide services to members who are actively walking the talk in their own homes by using good building design, conserving water and using renewable energy. ATA advocates in government and industry arenas for easy access to these technologies as well as continual improvement of the technology, information and products needed to support sustainability. In particular, ATA has specialist expertise in engaging with the National Electricity Market (NEM), and can support CORE groups to wade through the complexity of engaging with the NEM and mainstream energy market players. The ATA is a not-for-profit organisation promoting sustainable technology and practice.

With branches and members around Australia and New Zealand, ATA provides practical information and expertise, based on their members' hands-on experience and needs. ATA also offers advice on conserving energy, building with natural materials, reusing, reducing the use of and recycling natural resources.

ATA also publishes RENEW, a magazine showcasing the latest sustainability and clean technology developments.

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**Australian Community Energy (ACE) | <http://www.ace-renewables.com>**

ACE is a consultancy that facilitates the development of community and business driven investments into renewable energy. They offer a complete development package for renewable energy projects from project concept and initiation through to construction and ongoing operation management. Their services include:

Project concept initiation; community consultation; renewable energy resource assessment; project design and layout; planning and regulatory assessment; grid connection assessment; co-operative establishment; environmental assessments; government and agency liaison; power purchase agreements; manage maintenance and repair, etc.

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**Sustainable Regional Australia | <http://www.sustainableregionalaustralia.com.au/>**

Sustainable Regional Australia (SRA), established by the Central Victorian Greenhouse Alliance, supports, services and leads communities in their transition towards more energy resilient futures. Their services include:

- ▲ Home energy assessments
  - ▲ Business energy assessments
  - ▲ Location specific community energy efficiency leading to community renewable energy projects
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**Future Energy** | <http://www.futureenergy.com.au>

Future Energy Pty Ltd is a Victorian company established to develop, construct, and operate renewable energy projects throughout Australia. They facilitate investment opportunities in projects for communities, landholders, and individual and corporate investors. Future Energy were involved in the development phase of Hepburn Wind.

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**Moreland Energy Foundation** | <http://www.mefl.com.au/>

Moreland Energy Foundation Limited (MEFL) is a not-for-profit organisation dedicated to sustainable energy. They undertake community engagement, deliver local sustainable energy programs, undertake sustainable energy related research and consulting projects and advocate on energy efficiency, renewable energy and related policy and planning issues.

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**Bushlight** | <http://www.bushlight.org.au/>

Bushlight is part of the Centre for Appropriate Technology (CAT), a national Indigenous science and technology non-profit organisation. CAT provides technical advice and services to Indigenous communities throughout regional and remote Australia. They work closely with Indigenous people and their support agencies to deliver:

- ▲ reliable and sustainable energy supplies by designing, installing and maintaining renewable energy systems
- ▲ training and education in household energy efficiency to reduce power costs, and
- ▲ support for local enterprise and activity development, using renewable energy.

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**Institute for Sustainable Futures (ISF)** | <http://www.isf.uts.edu.au/>

ISF is the flagship research institute of the University of Technology, Sydney. They work across the full range of sustainability areas from water to waste, social sustainability to international development. In the energy space, ISF has undertaken a range of cutting edge research projects including the CSIRO-funded Intelligent Grid project that culminated in the Decentralised Energy Roadmap. ISF has a wide range of expertise in policy and regulatory barriers and opportunities for decentralised and renewable energy. In particular, ISF has undertaken sustainable and renewable energy master plans/strategies for a range of Councils across NSW. ISF will be leading the delivery of Australia's inaugural Community Energy Congress 2014, a national conference bringing together the Australian CORE Sector for the first time.

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**Mattila Lawyers** | <http://www.mattilalawyers.com.au/>

Mattila Lawyers is a leading Australian law firm with a legal team that includes corporate, regulatory and legislative experts. They have particular expertise in co-operative law at both state and national levels.

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## Government Organisations - NSW

### Office of Environment and Heritage, Regional Clean Energy Program (formerly Renewable Energy Precincts Program) | <http://www.environment.nsw.gov.au/climatechange/renewableenergy.htm>

The Regional Clean Energy Program is a NSW Government initiative which supports the community in their early and effective engagement with renewable energy projects across NSW.

The Office of Environment and Heritage has employed six regionally-based renewable energy coordinators to help drive regional initiatives and lead stakeholder engagement to enhance knowledge, understanding and uptake of renewable energy. In 2013, the Program provided \$411,000 to nine CORE projects in development across NSW.

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### Department of Fair Trading | <http://www.fairtrading.nsw.gov.au/>

NSW Fair Trading administers fair trading laws and looks after the rights of consumers. They advise businesses and traders on fair and ethical practices. The website provides information, templates and application forms that - amongst other things - enable registration of an association or cooperative in NSW.

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### Department of Planning and Infrastructure NSW | <http://www.planning.nsw.gov.au/>

The Department of Planning and Infrastructure is a NSW state government department that aims to support sustainable growth in NSW. Their website provides information about policy, regulations and strategies regarding planning issues. It gives the opportunity to lodge submissions and contribute to state government decision-making processes. The Department also provides funding and grants for different purposes.

## Government Organisations – National

### ARENA | <http://www.arena.gov.au/>

The Australian Renewable Energy Agency (ARENA) is an independent Commonwealth authority, supporting innovations that improve the competitiveness of renewable energy technologies and increase the supply of renewable energy in Australia. Key programs include:

- ▲ The Emerging Renewables Program, which provides funding for capacity building, addressing knowledge gaps and removing roadblocks to renewables and
- ▲ The Regional Australia Renewables initiative.

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**Regional Development Australia** | <http://rda.gov.au/>

Regional Development Australia (RDA) is a national network of 55 committees made up of local leaders who work with all levels of government, business and community groups to support the development of their regions. Local RDA chapters also give grants.

This Australian Government initiative brings together all levels of government to support the development of regional Australia. It is funded by the Australian Government and by state, territory and local governments in some jurisdictions. It is administered by the Department of Regional Australia, Local Government, Arts and Sport.

Advocacy

**Solar Citizens** | <http://solarcitizens.org.au/>

Solar Citizens is a community initiated campaign working to build community and political support for renewable energy, particularly solar home owners. Using community organising tools made popular by the Obama campaign in the US, Solar Citizens has been integral to ensuring that renewable energy remains on the agenda, while also supporting local groups across Australia to develop valuable community organising and campaigning skills.

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**Total Environment Centre** | <http://www.tec.org.au/>

The Total Environment Centre (TEC) is an independent, non-profit group. Since its establishment in 1972, TEC has run more than 100 campaigns. The organisation concentrates its resources on direct campaign activity, lobbying and research for the protection of the environment and sustainable systems and technologies. One of their major campaigns continues to be advocating for electricity market reform that is more environmentally sustainable.

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**Yes to Renewables** | <http://yes2renewables.org/>

Yes 2 Renewables is the Friends of the Earth's renewable energy campaign. The 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.

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**Clean Energy Council** | <http://www.cleanenergycouncil.org.au/>

The Clean Energy Council is an incorporated not-for-profit association and is the peak representative body for Australia's clean energy sector. It is an industry association made up of more than 600 member companies operating in the fields of renewable energy and energy efficiency.

The Council is principally funded by membership fees and it provides services to its members, including briefings, knowledge transfer as well as advice and daily media updates. Its primary role is to develop and advocate effective policy to accelerate the development and deployment of all clean energy technologies. The CEC also promotes awareness of the industry, thought leadership and clean energy business opportunities through industry events, meetings, newsletters, directorates and the media.

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**Australian Solar Council** | <http://solar.org.au/>

The Australian Solar Council is a not-for-profit organisation, which supports the development of solar applications in Australia. They promote solar energy, distribute information (e.g. trainings and events) and advocate for the adoption of this technology by government and business. They collaborate with industry, academics and the broader community for the adoption of solar energy. The website provides information about the latest branch news, information for future solar homeowners, event announcements such as best practice trainings on solar and complementary low-emissions technologies.

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**Australian Wind Alliance and the Victorian Wind Alliance** | [www.vicwind.org.au](http://www.vicwind.org.au)

Wind farmers, professionals, business people and community members from across Victoria who wanted to bring positive wind stories and advocacy to the fore, founded the Australian Wind Alliance in 2012. The Alliance brings together communities, businesses and individuals who support more wind energy. Their mandate is to improve the environment, through education about the benefits of wind power by working on the ground in wind districts and online. They also partner with communities and wind developers in areas with operating, planned and potential wind farms to build understanding and support for wind power.

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## 11.2 Useful Resources

### Community Renewable Energy Guides

#### **Embark Wiki | Australia | [www.embark.com.au/](http://www.embark.com.au/)**

The Embark wiki provides a comprehensive overview of community renewable energy, including practical capacity-building tools. As a wiki, many leading community energy practitioners in Australia have developed articles and its content still growing. Articles showcase different examples of successful community energy projects from around the world.

The community section gives very practical assistance and step-by-step guidance on how to start, run and build a group and deliver effective community engagement. Under the funding and finance heading, guidance is provided for funding early stages of projects, developing a financial model, and business case templates. Details on the Embark solar and wind models and legal frameworks can also be found. The case studies section draws on Australian and overseas examples.

The website also provides background information about the history of community energy and the Australian energy market.

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#### **Guide to Developing a Community Renewable Energy Project in North America | US, Canada, Mexico [www.cec.org/Storage/88/8461\\_Guide\\_to\\_a\\_Developing\\_a\\_RE\\_Project\\_en.pdf](http://www.cec.org/Storage/88/8461_Guide_to_a_Developing_a_RE_Project_en.pdf)**

The guide gives detailed instructions and background information for communities to develop small-scale renewable energy projects. Although it mainly focuses on the co-operative business model, the information presented is equally applicable to other business models. The tool provides practical guidance on how to approach and initiate community projects and covers relevant technologies such as wind, solar PV, hydro and biomass. It includes planning charts for the different technologies and a step-by-step description of how to start a community project.

The need for a business plan and its structure is discussed, as are financial management and the essentials of a detailed budget plan. Specifically targeted at the North American readership, the second last section sketches legal requirements and permitting processes at the different levels of government including technology-specific permits.

The last section draws attention to an issue sometimes neglected in early stages of the community energy project development - the operation stage and the schedules of maintenance. The guidebook highlights the importance of planning and managing the last stage of a community project.

Additional web resources and links for the North American audience are listed in the annex; especially useful (also for non-American readers) are two examples of model business plans for a Wind Park and a Biomass Cogeneration Plant.

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### **A guide to manage community funds | UK - Scotland**

[www.communityenergyscotland.org.uk/publications\\_and\\_guides](http://www.communityenergyscotland.org.uk/publications_and_guides)

This tool provides suggestions and guidance for communities receiving income from renewable energy schemes on how and where to spend it to benefit their local areas. While drawing from the latest knowledge on the advantages and disadvantages of different approaches, three models of fund management are discussed.

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### **Community Renewable Energy Toolkit 2011 – updated version | UK - Scotland**

[www.scotland.gov.uk/Resource/Doc/917/0115761.pdf](http://www.scotland.gov.uk/Resource/Doc/917/0115761.pdf)

This comprehensive toolkit has been produced by Community Energy Scotland for the Scottish Government and Energy Saving Trust to help community groups to develop renewable energy projects and pursue energy efficiency activities. This guide is more technologically oriented and provides practical information for community groups undertaking renewable electricity or heating projects.

The first part provides general background information on energy, renewable energy and carbon basics as well as energy efficiency in buildings. To assist community groups in choosing the right system, different technologies are discussed along with key issues regarding installation and operation. Details are provided for the technologies such as solar water heating, solar PV, wind energy, biomass heating, heat pumps, exhaust air heat recovery, wave and tidal power. A full section is dedicated to renewable district heating networks. Guidance is also given for off grid solutions and their design requirements. The three last parts emphasis aspects of community ownership, community consultation and funding and financing of community projects.

The annex of the toolkit contains amongst others a list of the current community projects in Scotland, sources for grant funding and 16 case studies of community projects.

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### **Community Involvement in Renewable Energy Projects. A Guide for Community Groups 2000 | UK**

<http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file48402.pdf>

This guide was produced for the Department of Trade and Industry (DTI) and describes the processes involved in establishing a community renewable energy project. It starts by discussing the benefits of renewable energy and the scope for community involvement. The principal steps in developing a project involving the community are then described, before moving on to the likely procedures for starting a project. Sources of finance and the necessary legal structures are outlined, with taxation aspects (key issues for community investors) and the preparation of business plans being summarised in the appendices.

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**A rough guide to community energy | UK | [www.roughguide.to/communityenergy/](http://www.roughguide.to/communityenergy/)**

This booklet was produced for Plan A, CSR and Sustainable Business, Marks & Spencer with the aim to make it easier for community group to establish projects whether generating renewable energy or saving energy. It starts by emphasising the benefits of community energy and explaining the energy mix and industry in the UK. The next chapter elaborates the first steps and hurdles for starting a group while listing some practical guidance.

The guide goes into detail for energy efficiency measures as well as renewable energy generation.

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**How to plan and deliver a successful climate change project | UK**

**[www.energysavingtrust.org.uk/Publications2/Communities/How-to-plan-and-deliver-a-successful-community-climate-change-project](http://www.energysavingtrust.org.uk/Publications2/Communities/How-to-plan-and-deliver-a-successful-community-climate-change-project)**

This guide was developed by the Energy Saving Trust in England and provides a more generic approach for how to develop and implement a community project with a focus on either renewable energy or energy efficiency.

It offers the reader guidance to understand how to reduce their community's carbon footprint; explore what carbon-reducing actions are best for their community; set targets and understand the benefits these can have for their project and develop an action plan for reducing carbon emissions.


The guide includes links back to the Energy Saving Trust website with more detailed information on types of technologies, tools to calculate the footprint of your community.

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**Guide to Community Energy | UK | [www.gov.uk/community-energy#community-energy-toolkit](http://www.gov.uk/community-energy#community-energy-toolkit)**

The Department of Energy & Climate Change website offers a guide for local groups who are interested in setting up a community energy project. It starts with giving a short overview of what community energy covers and what emphasis such projects have on. It contains a lot of links and further reading

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**CARES Case Studies** | UK | [www.communityenergyscotland.org.uk/projects/cares\\_case\\_studies](http://www.communityenergyscotland.org.uk/projects/cares_case_studies)

List of different case studies for all different technologies in Scotland, which have been supported by the Scottish Government's CARES fund.

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**PlanLoCal Case studies** | UK

[www.planlocal.org.uk/planlocal-community-renewables/group/case-studies](http://www.planlocal.org.uk/planlocal-community-renewables/group/case-studies)

This website provides ten case studies from across England which focus on a range of different communities, different projects, and different technologies.

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**Energy4All** | UK | [www.energy4all.co.uk/projects.asp](http://www.energy4all.co.uk/projects.asp)

This website provides case studies from England, Scotland and Northern Ireland including an interactive map with project locations.

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**Community Energy Partnerships Program** | Canada and around the world |

[www.communityenergyprogram.ca/Resources/ResourcesCommunityPower.aspx](http://www.communityenergyprogram.ca/Resources/ResourcesCommunityPower.aspx)

The website of the Community Energy Partnerships Program (CEPP), which is a grant program to support community power in Ontario, provides some case studies from Ontario and from around the world.

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**Ashden Awards** | UK and around the world | [www.ashden.org](http://www.ashden.org)

Ashden champions and promotes practical, local energy solutions that cut carbon, protect the environment, reduce poverty and improve people's lives. Their website is a fantastic resource of renewable energy and energy efficiency projects from all over the world.

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**Case studies of community energy in Germany** | Germany

[www.forumforthefuture.org/project/discover-community-energy/more/germany-community-energy-tour](http://www.forumforthefuture.org/project/discover-community-energy/more/germany-community-energy-tour)

This website provides some German case studies from community energy projects in Schönau, Feldheim, Vauban, Sandfang, Freiburg and Freiamt.

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**West Oxford Community Renewables** | UK

[www.youtube.com/watch?feature=player\\_embedded&v=GZoL2sYt19Q](http://www.youtube.com/watch?feature=player_embedded&v=GZoL2sYt19Q)

This video from West Oxford Community Renewables provides an introduction what the community has achieved by installing 550 solar PV panels on the roofs of a local school and benefit from the feed-in tariff.

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**Community-owned wind turbine Hockerto** | UK | [www.youtube.com/watch?v=qiRk7TqgO90](http://www.youtube.com/watch?v=qiRk7TqgO90)

Video on how the people of a Nottinghamshire village bought and installed a 225 kW wind turbine, with feed-in tariff profits benefitting shareholders and paying for projects to benefit the local community.

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**Middelgrunden Wind Turbine Cooperative** | Denmark | [www.middelgrunden.dk/middelgrunden/?q=en](http://www.middelgrunden.dk/middelgrunden/?q=en)

One of the most cited case studies for wind power in Denmark. This example represents the success story of community wind in the country.

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### **Wind Works | USA, international | [www.wind-works.org/cms/](http://www.wind-works.org/cms/)**

This website offers an online archive of articles and commentary on wind and solar energy, community power, renewable energy policy, and Advanced Renewable Tariffs by the author, advocate, and renewable energy industry analyst Paul Gipe. Resources on both large and small wind energy provide information on technical details, wind power development in other countries as well the history of wind power.

The website also offers books of the author as well as book reviews about wind energy and community wind power.

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### **Wind Farm Guide for Host Landholders |**

**[www.nswfarmers.org.au/news/global-news/wind-farm-guide-for-host-landholders](http://www.nswfarmers.org.au/news/global-news/wind-farm-guide-for-host-landholders)**

The Wind Farm Guide for Host Landholders was developed by NSW Farmers with help from the NSW Government. The guide is targeted at landholders who are considering hosting a wind turbine on their property, are in the process or already host a wind turbine. The document provides information to better understand the process for wind farm development from the initial stages right through to decommissioning.

The first part of the guide comprises a checklist of questions to ask when dealing with wind farm developers, background information on wind energy in NSW and renewable energy policy in general. Aspects such as dealing with multiple developers, understanding the potential impacts on e.g. farming, land use, water use, impacts on amenity and visual are highlighted. The reader obtains insight into the different contract arrangements and what commercial considerations have to be taken into account. In the middle section the planning, construction and decommissioning stages of a project are described in detail. The description also includes information about Community Consultative Committees.

Additional resources and contacts for those seeking further advice for projects in NSW, are listed in the last part of this guide.

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### **Community Engagement Guidelines for the Australian Wind Industry |**

**[www.cleanenergycouncil.org.au//cec/technologies/wind/comm-engage-guidelines](http://www.cleanenergycouncil.org.au//cec/technologies/wind/comm-engage-guidelines)**

The Clean Energy Council on behalf of the Australian wind industry has released its community engagement guidelines. The guidelines demonstrate the industry's commitment to involving local communities in the development and management of wind farms. The guidelines were developed by independent consultants the Australian Centre for Corporate Social Responsibility and involved input from the wind industry as well as an external reference group made up of academics, practitioners from other industries, landholders and government representatives.

The guide outlines best practice community engagement and what this means throughout the various stages of a wind farm. The guidelines are a 'live' document that will be continuously reviewed and updated to reflect best practice in community engagement.

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### **Victorian Consumer Guide to Small Wind Turbine Generation |**

[www.sustainability.vic.gov.au/resources/documents/small\\_wind\\_generation1.pdf](http://www.sustainability.vic.gov.au/resources/documents/small_wind_generation1.pdf)

This resource provides guidance for purchasing a small wind turbine for home owners or businesses in Victoria. It gives assistance as to whether to purchase a wind turbine system and what type. ‘Small’ wind systems are typically those sized to suit the needs of a domestic dwelling or small business; generally less than 100 kW and most are in the range 1-10 kW.

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### **NSW Small Wind Turbine Consumer Guide |**

[www.environment.nsw.gov.au/resources/climatechange/0449SWCG.pdf](http://www.environment.nsw.gov.au/resources/climatechange/0449SWCG.pdf)

This Guide was commissioned by the NSW Office of Environment and Heritage (OEH) and published in June 2010. It is a revision of the Victorian Consumer Guide to Small Wind Turbine Generation prepared for Sustainability Victoria by Enhar, adapted for use in NSW.

Whilst installer and equipment supplier information is now dated, the guide does provide a good overview of small wind in NSW, together with information about planning approvals and installation requirements. Six case studies across NSW provide examples of what can be done with small wind.

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### **Community Wind Toolbox | US | [www.windustry.org/community-wind/toolbox](http://www.windustry.org/community-wind/toolbox)**

This Toolbox is designed to give developers of community wind projects practical knowledge of what to expect when developing commercial-scale community wind energy projects in the range of 1 to 100MW. These wind projects are designed for bulk power generation for sale to a utility company or large electricity user and can supply enough energy to serve several hundred to thousands of homes. The Toolbox does not apply to small-scale wind systems.

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### **Small Wind Electric Systems – An Oregon Consumer’s Guide | US**

[www.oregon.gov/energy/RENEW/Wind/docs/smallWindGuide.pdf](http://www.oregon.gov/energy/RENEW/Wind/docs/smallWindGuide.pdf)

This comprehensive consumer’s guide for small-scale wind turbines was produced for the US Department of Energy provides good reasons for installing wind turbines. It explains the technical features of a wind turbine, sizes and functionality. Furthermore the guide gives practical advice what wind system cost, where to find installers and how to connect the system to the grid.

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### Community Wind: An Oregon Guidebook | US

[http://energytrust.org/library/forms/CW\\_PG\\_CommWindGuidebook.pdf](http://energytrust.org/library/forms/CW_PG_CommWindGuidebook.pdf)

The Energy Trust of Oregon prepared this Guidebook to facilitate successful, cost-effective community wind development that provides measurable benefits for Oregon's environment and local economies. The purpose of this Guidebook is to introduce the basic concepts behind community wind development in plain, user-friendly terms. It provides the reader with the conceptual framework for understanding the process of community wind project development.

This Guidebook is primarily tailored for individuals or communities pursuing development of a community-based wind project around 600 kW to 10 MW in size. The first section is intended to convey the importance of project planning and provide useful tools to assist in managing a community-scale wind project. The next section discusses resource assessment and siting as very important parts of the development process. Further sections explain issues related to site control and securing the exclusive rights to develop a wind project by introducing different ways of ownership or land-lease agreement. After that the reader's attention is directed to obtaining land use and building permits from different local and state authorities as well as challenges related to grid connection. In the second last section different financial and development models are introduced that best fit to community wind projects. The last part gives a range of further resources for Oregon and the mid-west US on wind energy development.

### Solar

### Community owned Solar PV | Australia | <http://ramblingsdc.net/Australia/ComOwnedSolar.html>

This website was produced by the independent researcher Dave Clarke. The page aims to give information on how a community investment scheme could be set up to place solar PV power on buildings to the benefit of many and the disadvantage of none.

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### Initiating Your Co-operative Solar PV Community Power Project 2011 | US

[www.ontario-sea.org/Storage/62/5437\\_OSEA-SolarPV-Toolkit.pdf](http://www.ontario-sea.org/Storage/62/5437_OSEA-SolarPV-Toolkit.pdf)

This toolkit is designed to get a community solar project started. It focuses on Ontario's electricity system, renewable energy technologies, and co-operatives. However it provides also some general information on establishing a co-operative solar PV renewable energy project in a community.

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### **A Guide to Community Solar: Utility, Private and Non-Profit Project Development 2010 | US**

[www.nrel.gov/docs/fy11oti/49930.pdf](http://www.nrel.gov/docs/fy11oti/49930.pdf)

The information in this guide, published by the US Department of Energy, Efficiency & Renewable Energy, is organised around three sponsorship models: utility-sponsored projects, projects sponsored by special purpose entities (businesses formed for the purpose of producing community solar power), and non-profit sponsored projects. The guide addresses issues common to all project models, as well as issues unique to each model.

The guide begins with examples of the three project sponsorship models, discussing the legal and financial implications of each model. This is followed by a discussion of some state policies that encourage community solar and ways for multiple individuals to share in the benefits of a single solar installation. The guide then reviews some of the tax and financing issues that impact community solar projects. While the guide cannot offer legal or tax advice, the authors hope to provide an outline of the legal hurdles and pitfalls that every project organiser should consider. The “Getting Started” section is very useful as it provides readers with practical tools and tips for planning their own project.

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### **The Northwest Community Solar Guide | US**

[www.nwseed.org/wp-content/uploads/2013/05/NW-Community-Solar-Guide.pdf](http://www.nwseed.org/wp-content/uploads/2013/05/NW-Community-Solar-Guide.pdf)

This guide is designed to be a resource for those hoping to construct Community Solar projects: community organisers, solar energy advocates, government officials, or utility managers. By explaining the universe of available incentives and by detailing the past efforts of other solar advocates, this guide hopes to light the path for future organizers as they seek to comprehend the incentive landscape, to devise financial models, and to garner financial and logistical support for their projects.

## Bioenergy

### **New South Wales North Coast Bioenergy Scoping Study |**

[www.isf.uts.edu.au/publications/Isonetal2013northcoastbioenergy.pdf](http://www.isf.uts.edu.au/publications/Isonetal2013northcoastbioenergy.pdf)

This study was initiated and developed by Sustain Northern Rivers (SNR) Energy Working Group in 2013. It quantifies the potential contribution of bioenergy to sustainable energy on the North Coast of NSW.

The study provides a very good overview of current and emerging bioenergy activities and technologies such as direct combustion, pyrolysis and anaerobic digestion. It outlines three different bioenergy development models which are suitable in the North Coast region. The main part of the study deals with North Coast's bioenergy resource potential, opportunities and challenges for sectors e.g. sugar cane, camphor laurel, macadamia, plantation forestry residues, etc. The second last part is dedicated to highlighting key bioenergy opportunities for the North Coast. A bibliography of key bioenergy resources was produced as an accompanying document.

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### NSW Bioenergy Handbook |

[www.energy.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0003/452919/NSW-Bioenergy-HB.pdf](http://www.energy.nsw.gov.au/__data/assets/pdf_file/0003/452919/NSW-Bioenergy-HB.pdf)

This handbook was produced for the Department of Energy, Utilities and Sustainability in New South Wales in 2004. It provides detailed information on what different resources are available for bioenergy, what technological, logistical and environmental considerations need to be considered and what approach can be taken to develop a bioenergy project.

The handbook comprises 6 sections, where the first gives a broad introduction to bioenergy, including its potential benefits and challenges, and an overview of sustainability issues for bioenergy projects. The next section provides a reference on bioenergy feedstocks for electricity and heat generation. In section 3 the reader is introduced to bioenergy processes, where a closer look is taken at the different processes used for turning biofuels into electricity, and their use in heating or cooling. This is followed by information about bioenergy for transport, which covers all the issues surrounding the production and use of vehicle fuels from bioenergy feedstocks. The second last section is dedicated to developing bioenergy projects including how to start a bioenergy project and planning and environmental protection licensing. Section 6 provides a list of further resources and contacts.

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### Usewoodfuel Scotland | UK | [www.usewoodfuel.co.uk](http://www.usewoodfuel.co.uk)

Usewoodfuel Scotland was created by Forestry Commission Scotland as part of a package of work delivered under the Regional Biomass Advice Network (RBAN) project which ran from 2008 to 2011. The overall objective of the programme was to encourage the installation of biomass boilers and to develop the wood fuel supply chain. The website offers technical as well as financial information for biomass heating for different target groups such as business, public sector, domestic as well as community organisations.

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### Bioenergy Training | UK | <http://fyi.uwex.edu/biotrainingcenter/community-matrix-tools/>

The Bioenergy & Renewable Energy Community Assessment Toolkit provides information and tools to engage community leaders and residents in discussions about alternative energy generation options and energy planning for the community. The authors present discussion matrices that focus community decision making on environmental, economic, and social aspects of renewable energy development. The matrices are qualitative in nature, and provide a starting point for discussion by presenting possible outcomes (positive, negative, neutral) of development of alternative energy sources. Matrices are presented for the following renewable energy options: (1) Annual/perennial biomass, (2) Woody biomass, (3) Corn Grain Ethanol, (4) Anaerobic Digestion, (5) Wind Energy.

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## Small Hydro

### **North West Hydro Resource Model** | UK | [www.engineering.lancs.ac.uk/lureg/nwhrm/tool/](http://www.engineering.lancs.ac.uk/lureg/nwhrm/tool/)

This website provides a resource evaluation tool that assists with identifying hydro power generation options. It is structured into five main parts and gives guidance in to the following aspects: economic assessment, physical characteristics, engineering options, environmental implications and public acceptability and engagement.

Although the project to develop this tool was aimed at potential sites in the North West of England, data and interpretations allow for a general application at a region or sub-region scale for more strategic planning.

## Financing

### **PlanLoCal** | UK | [www.youtube.com/watch?feature=player\\_embedded&v=cTP4FVgkzSY](http://www.youtube.com/watch?feature=player_embedded&v=cTP4FVgkzSY)

This link guides to a video from the PlanLoCal website which gives an overview how to raise the cash for a renewable energy project by inviting people to become shareholders.

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### **SunFunder** | UK | [www.sunfunder.com/](http://www.sunfunder.com/)

Sun Funder is a crowdfunding website which offers investment opportunities for renewable energy projects in Africa, Asia, Latin America and the Caribbean. The model is based on three main target groups who benefit from each other: solar energy businesses who offer affordable solar energy solutions; underserved communities who lack access to financing and investors who like to fund solar projects and contribute to community development. The investors will earn back their investment and receive 'Impact Points' (interest) which can be reinvested.

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### **Solar School** | UK | [www.solarschools.org.uk/](http://www.solarschools.org.uk/)

Solar Schools is a crowdfunding platform run by 10:10, a climate change project. Donations will be spent on solar PV installations on school rooftops, which help reduce a school's carbon footprint, save money on energy bills, generate revenue and educate children about renewable energy and environmental issues.

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### **Abundance Generation** | UK | [www.abundancegeneration.com/](http://www.abundancegeneration.com/)

Democratic finance is how the initiators describe their crowdfunding model 'Abundance Generation', which allows for investments of as little as five pounds in renewable energy projects that power communities, and in return for investing you can get up to 8% profit. Abundance Generation is a UK company that has, in six months, attracted almost £1.5million in renewable energy investments.

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**Community Wind Financing – a handbook by the Environmental Law & Policy Center | US**

<http://elpc.org/wp-content/uploads/2009/11/ELPC-Community-Wind-Book-09.pdf>

This updated Handbook provides the latest information on financing community wind projects, including ownership structures, roles of financial intermediaries, and sources of federal and state financial support.

Although building these projects has become easier over time as landowners have benefited from the experiences of the community wind pioneers, understanding and accessing financing opportunities remains perhaps the most important requirement for a successful project.

Please note that this Handbook is not an overall guide to community wind development, but instead focuses primarily on ownership and financing issues. Appendix B provides more comprehensive sources of overall information on developing community wind power projects.

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**Greenunite | US | [www.greenunite.com/](http://www.greenunite.com/)**

Greenunite is also a crowdfunding platform with an educational focus. It intends to support individuals to launch important products, technology and content dedicated to creating a more sustainable world. The website has a broader approach and features more than renewable energy projects. However the website currently only supports U.S.- based projects.

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**LeihDeinerUmweltGeld | Germany | [www.leihdeinerumweltgeld.de/](http://www.leihdeinerumweltgeld.de/)**

‘LeihDeinerUmweltGeld’ – ‘lend your environment money’ is a German crowdfunding website which offers solar PV, bioenergy and other renewable energy projects across Europe. Investors can earn up to 8% return on investment.

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Community Engagement/ Governance

**PlanLoCal | UK | [www.planlocal.org.uk/](http://www.planlocal.org.uk/)**

PlanLoCal is a programme developed by Centre for Sustainable Energy. It aims to support communities and groups who wish to set up community-scale renewable energy projects. It provides different guides e.g. resources to plan, promote or facilitate events. It also has a range of 47 short films which explain entertainingly how to manage a project, technologies, case studies and many more.

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**Ontario Coop Association | Canada |**

[www.ontario.coop/cms/documents/1/Co-op\\_Biz\\_Comparisons\\_and\\_legal\\_combined\\_April2012.pdf](http://www.ontario.coop/cms/documents/1/Co-op_Biz_Comparisons_and_legal_combined_April2012.pdf)

This document provides a comprehensive overview of the different legal models of co-operatives, business corporations and not-for-profit corporations. In table format it compares the three models regarding e.g. principles, voting, shares, securities regulations, legal set up, income tax etc.

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**Community Power Roadmap to Success Video** | Canada | [www.youtube.com/v/wWgepkQrTdM](http://www.youtube.com/v/wWgepkQrTdM)

This video nicely illustrates and explains the concept of community renewable energy, the model of cooperatives and how it works in Ontario.

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**International Association for Public Participation (IAP2)** | Australia | [www.iap2.org.au](http://www.iap2.org.au)

IAP2 has developed resources to understand best-practice community engagement and the principles of public participation. Their Public Participation Spectrum is a particularly useful tool. They also run courses.

### The National Electricity Market

**An Introduction to Australia's National Electricity Market** | Australia |

<http://www.aemo.com.au/corporate/0000-0262.pdf>

Overview of the National Electricity Market, including key regulatory bodies, the different actors, their roles and the institutional arrangements that make up the energy system in most of Australia.

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[www.cpagency.org.au](http://www.cpagency.org.au)

Jarra Hicks, Nicky Ison, Jack Gilding and Franziska Mey – April 2014

Reference Guide:

*Hicks, J., Ison, N., Gilding, J. and Mey, F. (2014) "Community-owned renewable energy: a how to guide". Community Power Agency, Sydney.*

Cover photo: Westmill Solar Cooperative, UK. Courtesy of [www.westmill.coop](http://www.westmill.coop).

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