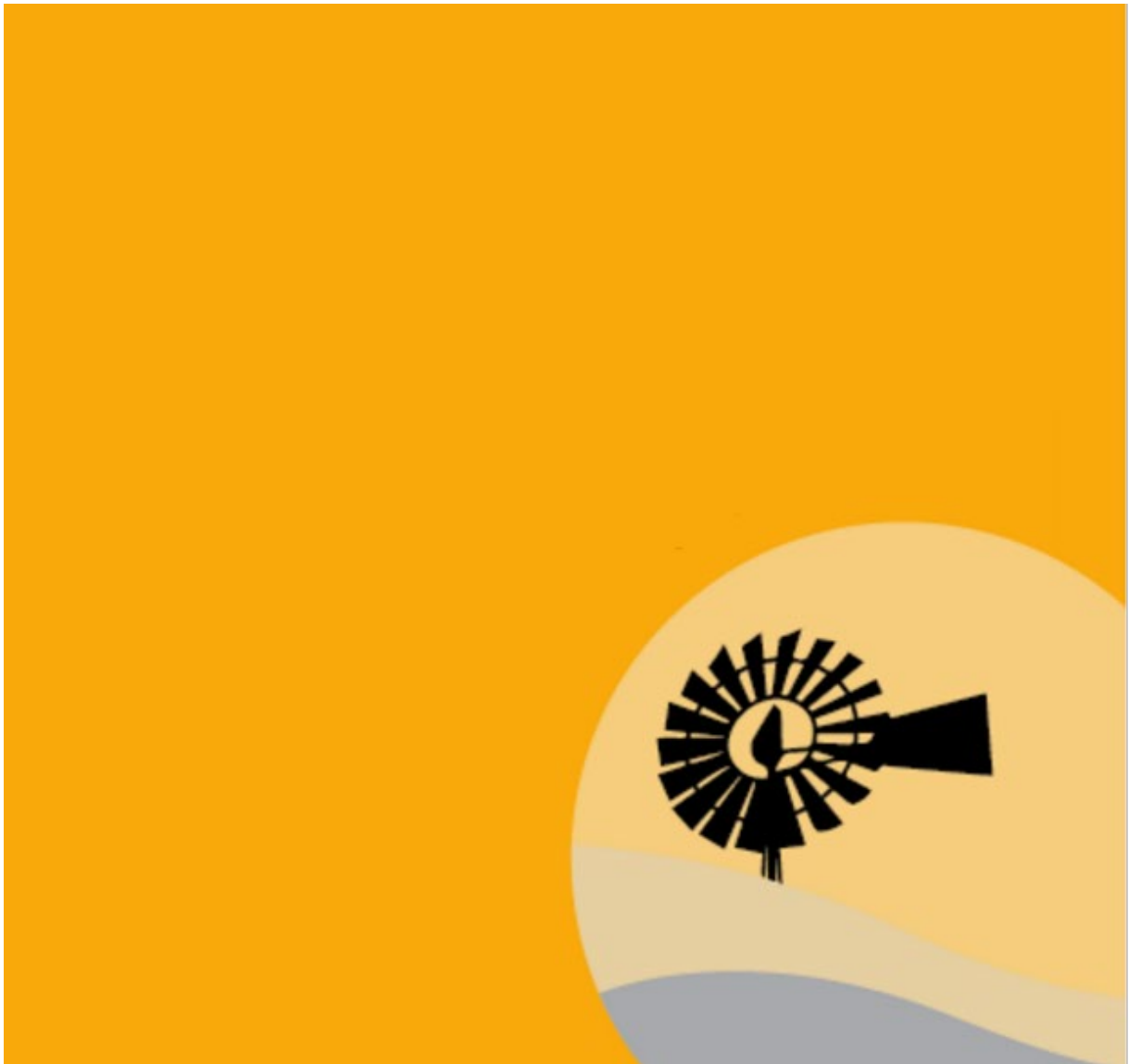




**Western Murray
Land Improvement Group**

Community Energy

February 2022



This project is being delivered in partnership with Murray River Council via funding received from the Federal Government through the Drought Communities Program.

MRC prepared an [Adverse Event Plan](#) (AEP) in 2020 via input from the local community including farm owners, local business owners, representatives from progress associations, crisis support and health services. Subsequently MRC has partnered with Western Murray Land Improvement Group (WMLIG) to deliver upon the purpose and vision of the AEP building on resilience principles that focus on building community capacity.

Proudly funded by the NSW Government in association with Local Government NSW



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Executive Summary

The community energy movement will continue to grow and gain strength.

It is clear at this point in time that there are numerous options that WMLIG will continue to pursue for a community owned energy hub with Murray River Council and potentially other neighbouring councils.

These options include ongoing discussions with providers such as EnergyLocals; the tested models being taken to market, such as ClearSky Solar; options for a micro-grid that could be expanded; and a larger majority community-owned scheme.

WMLIG has included this option in the 10 year MRC Community Strategic Plan.

Section 1 - What is community energy?

The rapidly emerging market for renewable energy projects is being seen as a 'new gold rush', with a boom in investment already under way.

But, where communities are seeking to develop, own and benefit from their own energy projects it is a movement that is seeking to ensure this market 'happens with us and not to us'.

In most instances in the current and rapidly developing market, however, the emerging commercial, sustainably-based delivery schemes – whether large commercial-scale solar installations, wind farms and other renewables - are not of themselves Community Owned Renewable Energy projects (CORE).

Community-owned renewable energy refers to projects where a community group initiates, develops, operates, connects to and benefits from a renewable energy resource or energy efficiency initiative.

Typical examples include solar, wind, bulk-buy programs, energy efficiency programs, electric vehicle charging stations, biomass trials, growing potential in the bioenergy market, or even becoming a community-owned electricity retailer.

So long as it's community behind the project then you'll meet the definition of being 'community energy' – that means the community has conceived, developed, owns or operates the project.

Community groups are formed based on a common interest or geographical region such as a town or suburb.

Every project is different and is tailored to each community's needs and context.

The COPE movement and communities that have either adopted and successfully implemented pioneering schemes, or are in the process of creating such schemes, have at their core the focus that people at the grassroots level have power over how their energy is generated.

They are also developed to maximise local ownership and decision making; generate jobs; use resources efficiently and sustainably; match energy production to local energy needs and circumstances and; help address climate change.

There are numerous business models that can be applied to a CORE – whether small or larger scale, co-designed private/public partnerships, shareholdings, or involving one or a combination of power generation sources - and these will be outlined in this report.

We also outline the recommended process required to establish a CORE scheme.

A clear distinction has been made as to what differentiates the increasing move towards the marketing of 'sustainable energy products or services', whether from existing energy suppliers or new commercial enterprises establishing customer bases.

The targeting of communities or community members with such products and services does not equate to a CORE scheme.

The CORE system requires community needs to be actively involved in the delivery of those products or services at some point.

This does not preclude instances where Community-developer partnerships are valid, for example, or community-Local Government partnerships are entered into.

The main peak bodies that have emerged, advocates to government for legislative change and development revenue and corporate philanthropic backers regard community energy as being cooperatively spirited, but commercially driven and environmentally minded.

Through this combination, community energy is a clear contributor to the bigger picture of climate change action, sustainability, social equity, community resilience and self-management.

At the community level, tangible benefits must include the ability to demonstrate the economic benefits of ultimately retaining greater wealth and growth potential in the community; returning profit to the community; end-user economic benefit and; control over how their energy is generated.

Section 2 - The Current and Emerging Market

In 2009, there were 3 known CORE projects under development in Australia.

Now, over 100 communities are actively involved in setting up CORE projects, with many more interested.

Hepburn Wind in Victoria, was Australia's first community-owned wind farm, and 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 case studies).

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.

Most (27) are solar PV projects, followed by wind (8) and small hydro (2) with the others yet to decide.

Some groups and local governments are also considering bioenergy projects as a cost saving, carbon-reducing option – especially on larger public buildings – as well as a potential income stream.

Almost all CORE projects 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.

Community energy projects in Australia can be divided into six main forms

1. Donation/philanthropic projects
2. Community investment projects
3. Community-developer partnerships
4. Community-council partnership
5. Multi-household models of community energy
6. 100% renewable energy towns

- Australia's energy system operates within a complex legislative and regulatory framework that crosses Federal and State Government legislation, various authorities and systems. (Legislative reforms are being proposed, particularly in Victoria, to streamline and clarify the operating environment for community schemes.
- A powerful Federal Parliamentary Committee on the Environment and Energy has launched an inquiry into a Bill to establish a \$467 million Australian Local Power Agency, as proposed by Independent Victorian Member for Indi, Dr Helen Haines.
- The proposed agency would support regional communities to develop and invest in their own renewable energy projects, but the recommended legislation is unlikely to be put forward prior to a federal election.
- Coalitions and peak body groups have been established to assist, service and mentor new CORE projects and provide guidance on funding options. It is a generally accepted practice that those proposing a CORE can attract funding for the development of a business plan, and

that such proposals require a comprehensive completed business plan before being presented to the community for buy-in and participation.

- The CORE schemes currently operating employ a range of systems, combinations, investment options and governance arrangements.
- The timelines taken from completing the business planning, securing community buy-in and participation, to operational enterprise vary widely, but are generally not achieved short-term.

Government Policies and Supports

Federal and state policies in regard to encouraging and fostering CORE schemes vary widely.

There are various enquiries and potential legislative changes currently under consideration in the jurisdictions covered by this report.

Federal Government policy

The Energy Policy Blueprint

This policy aims at producing a fair deal on energy and sets out “the objectives and policies to ensure a better energy future for Australia”.

The 3 pillars of this policy are: reliable, secure and affordable energy supply; putting consumers first; and meeting our international commitments.

The Renewable Energy Target (RET) Scheme

This scheme encourages the additional generation of electricity from renewable sources to reduce greenhouse gas emissions in the electricity sector.

The Large-scale Renewable Energy Target (LRET) scheme

The Large-scale Renewable Energy Target (LRET) incentivises investment in renewable energy power stations, such as wind and solar farms, or hydro-electric power stations, by legislating demand for large-scale generation certificates (LGCs).

One LGC can be created for each megawatt hour of eligible renewable electricity produced. LGCs can be sold to liable entities (mainly electricity retailers) who buy and surrender the LGCs to the Clean Energy Regulator to demonstrate their compliance with the scheme's annual targets.

In turn, the LGCs provide the power station with a source of revenue additional to the sale of the electricity generated.

The Regulator has advised that the LRET target of 33,000 gigawatt hours of additional renewable electricity generation was met on a rolling 12-month basis at the end of January 2021.

The annual target will remain at 33,000 gigawatt hours until the scheme ends in 2030.

Small-scale Renewable Energy Target

The Small-scale Renewable Energy Scheme (SRES) incentivises households, businesses and the community to install eligible small-scale systems such as rooftop solar panels, solar water heaters, small-scale wind or hydro systems by legislating demand for small-scale technology certificates (STCs).

STCs are created at the time of installation according to the system's deeming period—the estimate of years the system will create renewable energy from installation until 2030.

Liable entities have a legal requirement to buy and surrender STCs to the Regulator quarterly.

While it is possible for the system owner to create and sell the STCs themselves, installers of these systems usually offer a discount on the price of installation in return for the STCs.

Emissions-Intensive Trade-Exposed activities under the RET

A 100% exemption from RET liability is applied to electricity used in carrying out eligible emissions-intensive trade-exposed (EITE) activities. Companies that conduct an eligible EITE activity may be issued with an exemption certificate by the Regulator.

EITE activities are specified in the Renewable Energy (Electricity) Regulations 2001.

Guidance for determining EITE activity boundaries are described in the instrument Emissions-Intensive Trade-Exposed Activity Boundaries.

Independent Federal Member for the Victorian seat of Indi, Helen Haines, has championed the federal reform process.

Haines has produced the Local Power Plan, which lays out a clear roadmap to building the world's best renewable energy sector in the regions and to make sure regional people are the first to benefit.

A powerful cross-partisan parliamentary committee has held an inquiry into the legislation Helen Haines has written, and the committee backed the fundamental parts of the policy. The policies needed for regional Australia are: clear.

- A \$300 million Local Power Fund to help every regional town build its own solar and community battery projects;
- A new mechanism to attract private investment in locally-owned renewable energy projects;
- A top-to-bottom review of the Government's existing energy agencies to give regional Australians a seat at the table.

Surveys conducted to underpin the uptake of renewables show:

- Over one-third of Australians have installed rooftop solar on their home, but just one percent have a home battery.
- Batteries are currently not affordable - a large Tesla battery costs around \$15,000.
- The cost of batteries could be reduced by up to \$3000 with new incentives through the existing Small-Scale Renewable Energy scheme.
- No-interest loans of \$5000 could be offered to households to purchase batteries, solar, and electric-appliances.

Dr Haines plan would reduce the up-front cost of a home battery by \$8,000, and independent modelling suggests it could drive the deployment of 2 million home batteries by the end of the decade.

Analysis of this plan shows that a fully-electric household would save around \$5000 a year in power bills, heating bills, and petrol costs. Getting 2 million batteries into the electricity grid would create a massive electric sponge, soaking up cheap solar power during the day and balancing the grid at night.

And, creating a new industry around home batteries would create thousands of jobs for tradespeople and electricians across the nation.(ref:1)

New South Wales Government

Community energy projects are stated as being "a great opportunity for people to come together and work towards achieving their clean energy goals whilst bringing economic benefits to their region".

To this end, the NSW Government is actively supporting CORE projects through the Regional Clean Energy Program (RCEP)¹, 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 Environment Department's \$300,000 Clean Energy Knowledge Sharing Initiative is supporting 10 projects and feasibility studies across the state.

The last Ministerial statement was issued by then Minister, Rob Stokes, who has been replaced by Matt Kean.

“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”.

A guide has been developed (copy available and referenced in other sections of this report) to help local communities make these decisions.

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

A survey of community attitudes to renewable energy in NSW was conducted in 2014.

It covers community attitudes towards renewable energy, self-assessed knowledge of renewable energy, and wind and solar farms in New South Wales.

The survey showed the vast majority of people (91%) supported the use of renewables to generate electricity in NSW. There was also a widely held view that NSW should be producing more of its electricity in this way (83%), rather than less (3%), or maintaining current levels (11%).

Most people surveyed supported the use of both wind farms (81%) and solar farms (89%).

The principal advantages people saw in renewables were:

- benefits to the environment (80%) – cleaner/creating less ‘pollution’ or fewer greenhouse gases (52%) – more sustainable, reducing reliance on non-renewable resources such as coal (39%)
- lower cost, or at least the potential for reduced cost in the long run (37%).

The principal disadvantages people saw in renewables were:

- higher cost (39%), particularly in the set-up phase
- concerns about efficiency and reliability (18%).

About four-in-10 people believed there were no disadvantages to renewables, or could not think of any.

Regional attitudes to local wind and solar farms

People living in non-metropolitan regions of NSW – North East, Hunter/Central Coast (excluding Newcastle), North West, South East and South West – were asked for their views about siting wind and solar farms in their local region and within 1 to 2 kilometres of where they lived.

The closer to peoples’ homes wind or solar farms were located, the lower the level of support for them.

It is clear there is widespread in-principle support for using renewable energy in NSW and most people do not need convincing about its environmental benefits.

There are mixed views about the costs, efficiency and reliability of renewable energy.

Reasoned arguments about the long-term financial payoff from investing in renewable infrastructure are important for those who have concerns. The proximity to peoples’ homes is important with the location of large-scale renewable energy projects.

This is particularly relevant to wind farms

The perceived cost of renewables is a complex and multi-dimensional issue. Some people were aware of the competing priorities of higher cost now versus lower cost in the long run, were wary of

the potential for higher domestic electricity costs, and some were willing to pay more to support renewable energy technologies.

Victorian Government

The Victorian Government's policies in regard to CORE projects and renewables is included given the cross-border potential and linkages that would arise for the region.

The Victorian Government supports the development and implementation of community renewable energy projects.

The Government considers community development of sustainable energy projects as a key feature of Victoria's future energy landscape.

Community energy projects provide a tangible way for urban, regional or remote communities to help achieve this aim by transforming their energy supply to be cleaner, safer and more sustainable.

The Victorian Government policy states that these projects enable communities to develop and own renewable infrastructure and become consciously involved energy citizens. The potential for CE to contribute to the transition to clean energy in Victoria is significant, given the abundant renewable energy resources available in the State.

CE is already a mainstream model of renewable energy development internationally, especially in countries like Denmark, USA, Germany and Scotland.

The Victorian Government is exploring a number of ways to remove regulatory barriers and enhance CE development as part of its Renewable Energy Roadmap and Action Plan.

The Victorian Government recently announced that it would deliver Australia's first offshore wind farms, to generate at least 2 gigawatts (GW) of offshore wind online by 2032 – powering 1.5 million homes and creating thousands of jobs.

The first power from offshore wind is expected by 2028, with targets of 4GW by 2035 and 9GW by 2040.

Unlocking Community Solar

New solar business models are now being developed to enable consumers who may not otherwise be able to put solar on their own roofs to access the benefits of distributed generation. These customers include businesses, apartment dwellers, renters and low- income households.

Several Victorian community groups are keen to pursue solar business models operating in other jurisdictions and these may soon be viable in Victoria. The projects are all small-scale and behind-the-meter or below-the- load.

In this approach, the host site agrees to purchase the energy generated over the life of the project to avoid selling the energy into the energy market

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

Unlocking Community Wind

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

Wind farm planning approvals have been streamlined with responsibility for deciding on new planning permit applications returned to the Minister for Planning.

The transmission or distribution system of powerlines, substations and converter installations and other works to connect a wind farm to the electricity network can now be considered holistically as part of the wind farm planning proposal.

The Government is now assessing how community- owned wind generation facilities will be considered in the planning system in the future and is preparing a community discussion paper for consultation.

The Government is also examining whether there are anomalies in relevant regulations and guidelines.

The Government has established measures as part of the Renewable Energy Roadmap to facilitate the uptake of renewable energy by Victorian households and communities to support the transition to a clean energy future.

The guide consolidates existing knowledge and resources, as well as providing links to further information and advice. It also gives practical pointers on critical commercial, technical, governance and regulatory aspects of community renewable energy projects.

This includes information on how to identify an appropriate business model, select the most suitable technology, and manage a project.

Barriers to distributed generation and energy storage

Victorian Government strategies to encourage the transition to sustainable energy focus on policy and regulatory frameworks governing distributed generation and energy storage.

While distributed generation has increased significantly in Victoria, there are still a number of issues affecting its development.

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

for connection, and improved processes for dispute resolution.

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

The Renewable Energy Target (RET) policy framework

This provides commercial incentives for investment in new renewable generation. However, recent uncertainty around the RET and a reduction in the target have dampened investment in renewable energy projects.

To address this, the Victorian Government made a commitment, through the Renewable Energy Roadmap, to re-establish a state target.

The Government, as a large electricity consumer, will also use its purchasing power to buy renewable energy certificates as a way to encourage renewable energy projects to be built in Victoria. This aims to bring forward investment worth around \$200 million and jobs growth in the renewable energy industry.

Established under section 94 of *The Electricity Industry Act 2000*, the PiLoR framework allows electricity generators to negotiate payments made to local councils and includes a methodology under section 94(6A) to assist in calculating these payments.

The methodology includes both a fixed and variable component, the latter based on nameplate capacity of the power station, and it applies to most types of electricity generators, but does not include solar as a fuel source.

A new additional methodology has been introduced specifically for community and smaller commercial solar and wind generators up to 25 MW capacity, which sets a variable charge only based on electricity generation sent to the grid.

Solar is now included as an energy source, allowing upcoming solar generation projects to use the PiLoR methodology.

The changes have been made to encourage more community projects and lower access costs for smaller renewable generators, while ensuring councils receive enough revenue to help fund local services.

The Renewable Communities Program (RCP) has provided grant funding to support the delivery of **implementation-ready** community-led renewable energy projects.

Funding has been awarded to projects that:

- increase the uptake of renewable energy generation;
- consider energy justice and social benefit;
- promote community participation; and
- reduce greenhouse emissions.

A recent move has been the setting up of the Victorian Energy Collaboration (VECO).

Under this scheme, 46 Victorian councils so far have switched all of their electricity supply needs to Red Energy (owned by the Snowy Hydro Scheme)

VECO is the largest emissions reduction project ever undertaken by the local government sector in Australia.

By using renewable energy it will save 260,000 tonnes of carbon emissions from entering the atmosphere – the same as taking 90,000 cars off the road.

The financial savings for councils will also free up council revenue for the benefit of greater services for ratepayers.

The 46 Victorian Councils have pooled their electricity needs into one long-term contract with Red Energy which will provide the VECO group with renewable energy generated from wind farms in Victoria.

From 1 July 2021, this renewable energy is being used to power council-owned infrastructure, such as town halls, sports grounds, community venues, leisure centres and streetlights.

The renewable energy will be provided by two wind farms in Victoria – Dundonnell wind farm near Mortlake, which started exporting power to the grid in March 2020, and Murra Warra II wind farm near Horsham, which commenced construction September 2020 and will be fully operational by June 2022.

Both wind farms have and will continue to deliver economic benefits to the regions during construction and ongoing operation, and form an important part of state, regional and local economic development.

SECTION 3

The Current Energy Market Operating System

The Australian Energy Market Operator (AEMO) operates two wholesale electricity markets in Australia: the National Electricity Market (NEM), which operates in eastern and south-eastern Australia, and the Wholesale Electricity Market (WEM), which operates in Western Australia.

They aim to support greater competition and investment in the electricity industry and allow generators and wholesale purchasers greater flexibility in how they sell or buy energy.

The NEM is a wholesale electricity market where electricity is sold by generators and bought by retailers (who on-sell it to consumers) or large-scale customers. It operates on one of the world's longest interconnected power systems, stretching from Queensland to South Australia and Tasmania.

There are more than 300 registered participants in the NEM, including market generators, transmission network service providers, distribution network service providers and market customers.

AEMO manages both the wholesale markets and the power system, as well as the retail markets that underpin the wholesale market.

Australia's energy system operates within a legislative and regulatory framework that seeks 'to promote the efficient investment, operation and use of energy services for the long-term interests of consumers in relation to price, quality, safety, reliability and security'.

The framework includes national laws, regulations and rules – which, as energy policy is the domain of the states, and must be applied at state and territory level – as well as guidelines, standards and procedures.

AEMO's role and functions are prescribed in the national energy laws.

Electricity regulation

The electricity system and markets in most Australian states and territories are governed by the National Electricity Law (NEL) and the National Electricity Rules (NER).

National Electricity Rules (NER)

These are made under the NEL and govern the operation of the NEM. They determine how companies can operate and participate in the competitive generation and retail sectors, and also govern the economic regulation of electricity transmission and distribution networks.

Among other functions, they provide the regulatory framework and processes for market operations, power system security, network connections and access, pricing for network services in the NEM and national transmission planning.

In Victoria, however, the national rules for network connections are modified, with many of the network service provider roles being assigned to AEMO.

Australia's energy system is governed by a number of bodies and agencies, including three market bodies: AEMO; the Australian Energy Market Commission (AEMC) and; the Australian Energy Regulator (AER).

Overseen by the Council of Australian Governments (COAG) Energy Council, this governance framework separates decision-making on government policy, energy regulation and energy system operation.

While the market bodies work closely together to support efficient investment in, and operation of, Australia's energy system – including collaborating as part of the Energy Security Board (ESB) – each of the bodies is an independent decision-maker with clear functions, accountabilities and powers.

The term 'market participants' refers to the people or businesses that take part in the electricity and gas markets operated by AEMO.

There are many different participants involved in our energy systems, including (but not limited to) generators, producers, Network Service Providers, shippers and retailers. To participate in Australia's energy markets, people and businesses must register with AEMO.

AEMO – Australian Energy Market Operator

The Draft 2022 Integrated System Plan (ISP) was published on 10 December 2021.

It is a 'whole of system plan' that offers a roadmap for development in eastern Australia's electricity system.

Section 4 – How to set up a Community Energy Project

People form the foundation of a community-owned renewable energy project and community support is critical to success.

Create a community vision.

- Perform pre-feasibility studies to scope what is feasible viable and desirable
- Define project technology, scale and site; and develop an initial business case
- Create an engagement strategy and associated tools; engage with the community and build support

Getting people on board with the project vision will build the base of champions in the community and, ultimately, these people will become the investor base.

The first move is to form a community working group.

Setting up and running a community energy group and project requires good governance and a considerable amount of planning.

People with a diverse range of relevant skills and a good standing in the community are required to run the project.

A legal entity such as an incorporated association, cooperative, public company, trust or other corporate structure is also required and this will come with a range of legal and fiscal responsibilities.

Some key considerations are fundraising requirements and means, business and tax registration, insurance, employment and banking.

Various case studies and government guidelines for start-ups, recommend that It may be beneficial in the early stages of the project to establish a working group from an existing, well- established, trusted organisation in the community that has the power to facilitate community education.

Such an organisation is likely to have established governance and financial processes, insurance cover and office space in place that can be drawn on for the project.

It may also have fundraising incentives, such as deductible gift recipient status.

Such an organisation can also provide the skills that enable:

- Understanding the context of the proposal – identifying community characteristics and location; existing energy use and the regulatory environment that will apply
- Gauging the level of community support
- Identifying and recruiting active members
- Identifying partner organisations
- Educating the public about renewable energy options
- Building a database of supporters – creating a website, newsletters, street stalls, articles in local media, guest speakers, public meetings, other outlets willing to promote the concept, site visits to other community renewables projects, brainstorming workshops, events, celebrations and drop-in information sessions

The next step is to understand all the possible options, including what has worked in other communities, and determine the best fit for the local context and timelines.

Work can be carried out to check planning zone conditions; find funding for project development; hire a project officer; undertake the planning approval process; negotiate grid connection and power purchase agreements; while continuing to build support.

The working group would also pursue the raising of sufficient capital to proceed to a construction/connection phase; while continuing to communicate progress to the community and build support.

Order equipment (eg. wind turbine, solar panels, bioenergy installations); contract works; undertake civil works; install equipment and connect the project to the electricity grid; continue communications and community engagement activities.

Generate and sell electricity; undertake technical monitoring, maintenance and financial administration; continue communications and community engagement activities.

The final step is to ensure that there is a clear plan for ongoing development and implementation, including for operations and decommissioning.

Feasibility and Testing

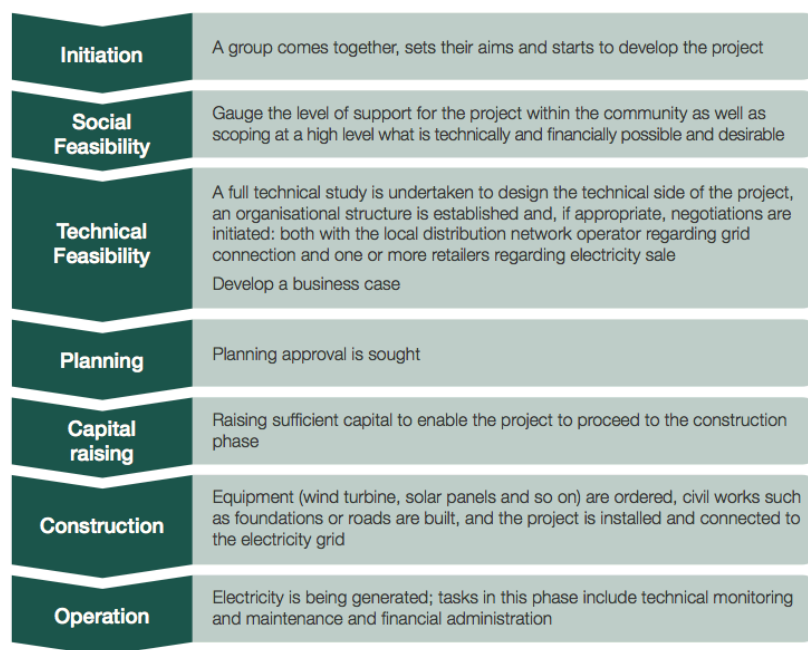
Once the working group begins the business plan development process, there are numerous different concepts, each with several variables, that will emerge as options to achieve the group’s determined aims.

The working group needs to determine which concepts are going to work by considering technical feasibility along with financial viability and social desirability.

Many projects will be feasible with the technology available today but costs, regulations and community participation will be key tests for whether the project will be achievable on the ground.

3.2 Understanding the stages

Figure 5: Stages of CORE project development¹



Reference: The Coalition For Community Energy (C4CE)

We have studied each of the business models that could be applied to any option, including the processes for evaluating options in regard to context, risk, technical requirements, the business case, and economic, environmental and social criteria.

If a project concept meets the required tests, a detailed feasibility study can be undertaken.

Business Case

Developing a business case is essential for the project. The business case provides the argument for the project with evidence of its social, environmental and financial value.

This differs from a business plan in that, while it outlines the financial arrangements, it gives a broad overview of the structure, management, marketing plans and aims of the project group.

The business case will evolve as the project develops, with data and assumptions becoming more accurate and identified risks being mitigated.

Once all studies have been done and expert advice is received, the business case can become the foundation for a disclosure statement or prospectus needed to attract investors.

A complete checklist for building the business case is available.

Monitoring

It is impossible to manage something that is not monitored.

A system to monitor progress throughout the project is essential to knowing if the aims are being met effectively and whether it would be better to change the approach.

It is also vital to be able to convey the levels of project support and investment and what has been achieved to supporters and funders, including planning and engagement activities, volunteer hours and in-kind contributions.

A monitoring template has been created.

Communications

Building and maintaining community support will be required throughout the life of any community energy project to continually engage and keep people connected.

An overall communications plan has been developed, that can then be refined, from an initial definition of who the project community is, including its stakeholders and what makes it a 'community project'.

Key communications tools can then be mobilised in a planned and measureable mechanism.

Challenges and Risks

A major challenge facing community solar in the current market is that profit margins are tight.

The experience of many projects has identified that finding a suitable host organisation and negotiating the best agreement with them is one of the most challenging aspects of project development.

Models have been created to assist communities, but there are two main variations that are being employed.

First is a trust-based model that was developed by ClearSky Investments (see case studies).

A trust, rather than a cooperative company, was set up and this limits the number of investors to 30 for each project. This significantly reduces the administration costs.

This trust has a partnership with a solar developer for site negotiations, installation and maintenance.

The second model employs debt financing. Instead of the host site leasing the solar array, they own it and the community company (or cooperative) provides finance.

There are numerous groups in NSW that are using variations of these models.

Case Studies

Community energy projects can generally be viable in the current market if they are large scale and compete on the wholesale market (such as Hepburn Wind) or if they operate behind-the-meter (such as community solar on commercial host sites) to attract close to retail value for their generated energy.

Sale of electricity is the key income stream for any power generator and it is important to understand the way the National Electricity Market (NEM) operates in Australia to maximise the return on investment.

The community energy schemes currently operating in Australia do not provide a one-size-fits-all model.

They vary in size, technologies used, and business models employed.

In some instances, smaller scale initiatives may provide a preferred starting point, while others have formed large energy supply enterprises.

The examples that are available include solar, wind, bulk-buy programs, energy efficiency, electric vehicle charging stations, biomass trials, already operating bioenergy processes, or even becoming a community-owned electricity retailer.

Provided it is community behind the project, you will meet the definition of being community energy – that means the community has conceived, developed, owns or operates the project.

Some of the schemes that have been either government, community or privately funded to produce their business models and/or have become operational, include:

Hepburn Wind Community Solar Farm

Operated by the Hepburn Community Wind Park Co-operative.

The first Australian 100% community-owned renewable energy project.

It involves 2 wind turbines with a combined capacity of 4.2 MW.

The total project cost was \$13.5 million.

- 2000 community investors contributed \$9.8 Million
- \$1.7 Million in grants from Sustainability Victoria and Regional Development Victoria.
- Bendigo Bank loan of \$3.1 Million (not fully drawn)

The scheme provides enough electricity annually for 2000 homes – covering the town of Daylesford and surrounds.

Greenhouse gas emissions reductions of 11,000 tonnes of CO₂e a year.

Half the project costs were for goods and services, all provided by Australian suppliers.

The project is a cooperative owned by its member investors, most of whom are local and it operates on the basis of one person, one vote.

The associated Community Fund allocates \$15,000 from each turbine a year for grants to other sustainability projects.

Anyone within a 2.5 kilometre radius of the wind farm receive:

- Free shares
- Contributions to their energy affordability
- Prioritised applications in the community fund

The scheme now co-locates 3MW of solar PV to accompany the wind generation on site, greatly contributing to the shire's zero-net energy target by 2025 and zero-net emissions by 2030.

The Hepburn Wind and the Goulburn Solar Farm, for example, involves a community investment model in which local groups develop the project, then seek investors from the community to fund it.

A community member can buy a share for \$400.

Zero Net Energy Town, or Z-NET

A pioneering initiative that is supporting towns throughout rural and regional Australia to meet their energy needs from renewable energy.

The NSW town of Uralla is the Z-NET case study town.

The project in Uralla will provide a blueprint plan, open-source process and template for other towns to replicate.

Uralla's case has shown that cost-effective strategies, such as LED lighting, insulation upgrades and on-site solar PV, can achieve 40 to 70% of the objective while saving businesses and residents money, and building deep community engagement and energy literacy.

Enova Community Energy (North coast of NSW)

A social enterprise energy retailer, built from the ground up by the people, for the people. Enova is owned by more than 1,600 Australian community shareholders.

It is already supporting communities to power themselves with renewable energy that is locally generated, stored and distributed.

Enova sources all of its energy from its customer rooftops and renewable energy generator Diamond Energy.

As a social enterprise, it will give half of its profits (after tax and reinvestment) back to the community via energy efficiency, education and community projects.

ClearSky Solar Investment

A new community-based solar investment company that has completed its first community-funded solar installation – at a Boggabri hotel. in the heart of a NSW coal-mining region.

ClearSky Solar Investment works off a trust-based investor model, that will link local investors with high quality solar projects.

It is one of many companies scouting up to several hundred community solar projects around the country.

The project, comprises 60 250W Trina solar panels and a 15Kw SMA inverter.

It had just under 10 investors, an agreed investor term of 7 years, and a planned total term yield of 171%.

Under the model, investors own the modules and sell the output of the system to a local consumer – usually the landowner. Each project has a maximum of 20 investors and a minimum investment of around \$2500 or \$5000, depending on the size of the project and the number of investors.

Two more projects are currently seeking funding, including projects in Narrabri and Brewarrina.

EnergyLocals

A social-enterprise based energy retailer that states it is 'doing something about climate change by making energy clean, cheap and fair for households, businesses and developers'.

Customers receive clear energy plans, with a higher solar Feed in Tariff and a claim 'that prices will never change for profit'.

For each customer that switches to their supply deal, a 'fee' is returned for use at the community level for other sustainability or community-led projects.

The Embark/Farming the Sun Lismore Community Solar

This model employs two 100kW solar farms.

This is a partnership between local community members and Lismore City Council, to be built at Goonellabah Sports & Aquatic Centre and East Lismore Sewage Treatment Plant.

They will be funded by up to 40 impact investors (20 per solar farm) by way of a loan to the council.

The council will then purchase the solar PV and repay the investors.

Yackandandah Public Virtual Power Plant

Totally Renewable Yackandandah will install solar PV and battery systems on community buildings in and around the township of Yackandandah.

This will provide low cost, behind the meter, electricity to the mostly volunteer groups housed in the buildings, helping to cut costs, reduce emissions and join the whole of town 100% renewable energy target.

Skipton Hospital Straw Heating

A Pyrenees Shire Council initiative to replace LPG heating at the Skipton Hospital with straw pellet fuelled heating - using locally produced straw pellets - to reduce hospital heating costs.

This project will reduce carbon emissions, provide additional income for local farmers, and improve local air quality by reducing stubble burning.

The North East Solar Benefits program

Renewable Albury Wodonga

The installation of micro-grid enabled solar energy systems on 10 Beyond Housing (social housing) homes, provided for residents at risk of homelessness.

These installations will address energy poverty, providing residents with constant and affordable electricity supply.

The project will also assist residents with the development of an energy efficiency plan.

Mirboo North Hall Precinct Project

Mirboo North Community Shed Co-operative

There will be 82.5kW of behind the meter solar PV installed on four buildings in Mirboo North. This will significantly reduce electricity costs for community-focused tenants and provide an income stream to contribute to future projects.

Beaufort Hospital Biomass Heating System

A woodchip-fired boiler system has been installed at the Beaufort Hospital as a demonstration biomass heating project.

The 110kW boiler is housed in a 12m shipping container. The existing LPG boilers will be retained as backup and to cover peak loads. The simple payback on the installation is expected to take 12 years at current LPG prices.

Such a project would be possible to replicate with a community ownership model.

Repower Shoalhaven

An example of a community investment solar project. The model has been successfully built in two locations in NSW and a third project has reached financial close. The model is developed for projects under 100kW and there are two versions. Both versions involve a community group, most likely an

incorporated association, setting up a special purpose vehicle (SPV) or proprietary limited company to own the solar installation.

Community investors loan capital to or invest equity in the SPV. Because the SPV is a private company, however, there is a cap on the number of investors and the amount that can be invested.

Embark/Sydney Renewable Power Company

This model uses an unlisted public company legal structure to enable medium-to-large numbers to co-invest in a project. The 520kW project will be built on the Sydney International Convention, Exhibition and Entertainment Precinct at Darling Harbour, where the electricity generated will be used.

This model is generally suited to projects over \$1 million in large metropolitan or regional areas where there are suitable host sites. The model can be applied to other technologies or for funding energy efficiency upgrades.

On Country Renewable Energy

This is being achieved either via crowd-sourcing platforms or traditional means.

The money is to be spent on installing a sustainable energy system at a local premises.

For example in north-east Victoria, a First Nations owned renewable energy project will deliver solar power to the office of a state government agency.

Households Bulk-Buy

Another model involves a group of households coming together to find a renewable energy solution, such as bulk-buying solar energy.

Set up models are available for this option.

Bioenergy

WMLIG has included options for a community energy hub and bioenergy project in the 10 year MRC Community Strategic Plan and has embarked on an organic waste to energy and bio-fertiliser project with the One Basin Cooperative Research Centre in partnership with Murray River Council (see Agri-innovation precinct proposal – [provide link](#)).

Several large renewable energy projects are proposed within the Murray River Council area. Community groups have the opportunity to tap into community benefits programs associated with these projects which will provide financial grants to support community events, projects and activities. A Scholarship Program is also proposed to support local students to further education at University or TAFE.

WMLIG has conducted an in-depth analysis of the feasibility of organic waste conversion to generate products for the agriculture, food and fibre manufacturing industries.

This analysis has examined bioenergy processes already being applied, pilot programs and new business and employment opportunities and the reduction of waste, as well as existing WMLIG pilot projects that have bioenergy potential .

This can be generated using a variety of technologies with different levels of sophistication. It is also highly scalable: from domestic wood heaters to industrial-scale combined heat and power (CHP) plants.

With so many options, planning and development considerations will vary significantly from project to project.

A number of bioenergy generators currently operate in using fuel sources such as agricultural, urban and industrial waste.

Bioenergy projects are appropriate where:

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

The Federal Government's Bioenergy Roadmap

Joint Ventures

The Central NSW Renewable Energy Co-operative Ltd. (CENREC) was created with the primary intention of facilitating the community purchase of the equivalent of one turbine in the proposed 43-turbine Flyers Creek Wind Farm, to be located between Orange and Blayney in NSW.

Using a community- developer partnership model, the co-operative has played an important role in community engagement and education around the project.

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

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