



Opportunities for Community Energy in Mornington Peninsula Shire Council

Authored by Community Power Agency

About the authors

Community Power Agency (CPA) is one of Australia’s leading organisations supporting the development of community and local energy initiatives. CPA’s mission is to grow a vibrant community energy sector in Australia. We do this through supporting community energy groups, policy and advocacy work to remove the barriers facing all community energy projects. Formed by Jarra Hicks and Nicky Ison in 2011, CPA has grown to a dynamic team of five people. We are recognised across the sector for our community energy knowledge, networks and policy impact.

For further information visit: www.cpagency.org.au

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Executive Summary

Community Power Agency was engaged to provide an overview of potential community energy options for the Mornington Peninsula Shire region. This report summarises the findings and recommended options of initiatives that are feasible and desirable in the Mornington Peninsula context.

Community Power Agency has analysed 10 community energy models and programs assessing their appropriateness for the Mornington Peninsula. Consideration was particularly given to speed of implementation, carbon emission reduction, and social inclusiveness. From this list, we identified four recommended options:

1. Community supported RE education & installation
2. Revolving community fund
3. Community investment in Council rooftop solar
4. Community/Council Solar Garden

This report does not constitute legal, financial or technical advice. Further advice from specialists will be required to develop the detail and determine the feasibility of any of the ideas suggested herein.

1. Introduction

The Mornington Peninsula Shire Council declared a Climate Emergency in 2019 and set the goal to achieve net zero carbon emissions by 2040. In order to meet this goal the Council organised a webinar in June 2021 regarding the role of community energy at which Community Power Agency gave a short presentation. Due to the enthusiastic response with over 50 residents attending the webinar and more than 20 indicating interest to form a local community energy group, Council then engaged Community Power Agency to guide the community through the establishment phase. This involved a vision & group inception workshop, wider community survey and this brief options report.

With a growing interest in community energy, this is a timely piece of work. From a handful of initiatives in early 2010, to more than 110 groups and 150 operating projects today, the community energy sector in Australia is growing quickly.

Community Energy in Australia¹

Community-owned renewable energy or community energy (CE) refers to projects where a community group initiates, develops, benefits from and/or operates a renewable energy resource or energy efficiency initiative. Community groups are formed based on a common interest or geographical region (eg. a town or suburb). CE projects may be developed to meet the motivations and aspirations of the community to:

- maximise local ownership and decision-making;
- share financial benefits widely;
- generate jobs;
- use resources efficiently, appropriately and sustainably;
- match energy production to local energy needs and circumstances; and,
- help address the global challenge of climate change.

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

¹ This section draws on the C4CE Community Energy Strategy

CE projects provide a tangible way for urban, regional or remote communities to transform their energy supply to be cleaner, safer and more sustainable. The projects enable communities to develop and own renewable infrastructure and become consciously involved energy citizens. The potential for CE to contribute to the transition to clean energy in Australia is significant, given the abundant renewable energy resources available. CE is already a mainstream model of renewable energy development internationally, especially in countries like Denmark, USA, Germany and Scotland.

In Victoria, there are now more than 50 CE groups, which is almost half of all the groups across the nation. This is partly due to the significant time and energy that the Victorian Government has spent exploring ways to remove regulatory barriers and enhance CE development. It is also closely connected to the coalition of community energy groups that have been delivering localised energy generation and distribution for community benefit for many years across Victoria. The most recent program support from the Victorian Government is the Community Power Hubs program for each region of Victoria, with the Metropolitan Hub led by Yarra Energy Foundation covering the Mornington Peninsula.

Roles of local governments in renewable energy deployment

Councils across Australia are also increasingly taking an enabling approach to clean energy and playing a leadership role supporting community energy projects. While many councils are already sustainability leaders in areas of waste, water, community engagement and more, renewable energy represents a new field that councils are embracing and demonstrating leadership in. This includes facilitating, co-ordinating, promoting and encouraging local clean energy action. Leading Australian local governments in the community energy space include:

- The City of Sydney –supported Pingala with grant funding enabling the implementation of their community energy projects and facilitated a PPA with Repower Shoalhaven for their recent solar farm project.
- Darebin City Council –pioneered the rates financing mechanism in partnership with Australian Energy Foundation (AEF) to enable pensioners and low-income homeowners to install solar panels at no up-front cost.
- Lismore City Council –created Australia’s first Council operated and community funded solar farms, and
- Moreland City Council –established the not-for-profit organisation Australian Energy Foundation more than a decade ago to work with the local community to reduce greenhouse gas emissions and implement its Zero Carbon Evolution Strategy.

These Local Governments have all recognised that community energy can help them achieve their community sustainability and climate goals. However, doing so has required:

1. A commitment to innovation, trying new things and thus an appetite for risk.
2. A willingness to consider more than the bottom line. For example, the Lismore community-council solar partnership would not have been possible if Lismore Council had assessed the project purely on financial terms.
3. An internal champion with enough resources and support to drive initiatives forward.
4. Different council teams to better coordinate and share information for example, the environment/energy, community and business engagement and finance teams.

Councils have a limited number of resources and capacity yet have found many different ways to engage and ultimately benefit from renewable energy and energy efficiency measures. These ways of engaging can be classified into the six roles for Councils outlined in Table 1 below.

Table 1: Typology of Council engagement in renewable energy and local community energy activities

Typology	Characteristics
1. Council engagement as RE customers	Most common level of engagement in RE: councils purchase of green energy and undertaking energy efficiency measures in order to save money, reduce carbon emissions and lead by example
2. Council engagement as educators/ information providers	Most common level of engagement with their communities in RE: Councils demonstrate good practice as role models by installing small-scale solar PV systems and also educate their community by offering information about RE systems
3. Council engagement as facilitators	Councils facilitate RE action of their communities e.g. coordinate bulk buy purchase and identify and broker relationships to reliable suppliers
4. Council engagement as innovators and participants	Councils actively drive and promote RE engagement to their communities through innovative programs e.g. rates-based finance of RE deployment
5. Council engagement as catalysts and supporters	Councils catalyse CRE initiatives by offering administrative support, council rooftop space or land as host site and providing funding to conduct feasibility studies
6. Council engagement as networkers and advocates	Councils collaborate and network with different stakeholders incl. other councils to strengthen their capacities for RE engagement and to advocate for institutional changes and/or new policy schemes on higher government levels that enable locally led RE initiatives

Source: Mey, Diesendorf, & MacGill (2016).

Despite the appetite in Australian communities for renewable energy deployment, the institutional environment and energy policy context pose significant challenges. Hence Councils appear as natural allies that can help advance and accelerate local clean energy action.

Methodology

This report draws on Community Power Agency’s knowledge of existing Community Energy models and projects currently under development and operating in Australia. The report has been developed by employing a three-stage methodology – firstly we seek to understand the local context including social and demographic information, secondly we explore the renewable energy context through a local government lens, from a community perspective and briefly from a technical perspective, then we look at the local community motivations from the inception workshops with the core group and the data from the wider community survey.

We will then present a high-level analysis of community energy options from which we will narrow down to four recommended options. Based on the information gathered from the community and our assessment we develop a set of criteria to guide our recommendations and then we provide more detailed information on the four options with suggestions for Council involvement and next steps.

The report is structured as follows:

- Section 2 provides the local context of the Mornington Peninsula,
- Section 3 reports on key motivations for the community
- Section 4 analysis of community energy options
- Section 5 recommendations for Mornington Peninsula region.

2. Local context

Social & demographic context

The Mornington Peninsula Shire is located on the south-east arm of Port Phillip, within Victoria's metropolitan region (Figure 1). The Bunurong/BoonWurrung people of the Kulin nation are the Traditional Owners of the area. Located a one hour drive from Melbourne, the Shire is 732km² with around 10% of Victoria's coastline at 192km and is host to a variety of natural assets including diverse coastlines, green wedge conservation areas and historic farmland.

Mornington Peninsula Snapshot

- Mornington Peninsula Shire has a population of almost 169,000 people. In comparison to the national averages there are less people of working age (15-64 years).
- The median weekly income is \$807 which is significantly higher than national averages, however there are regions of both almost double (Mount Eliza) and half (Capel Sound) this amount within the LGA. This indicates an ability in several areas for household RE installations.
- Volunteer work is one percentage higher than the national average of 19%.
- There is a high concentration of home ownership both outright and with a mortgage at 74%, whilst 20.8% of the population rent – significantly lower than the national average of 30%. Again this indicates a higher ability for household RE installations.
- The median rent is \$380, which is more than the state but less than the national averages.
- The average monthly mortgage repayments are \$1,880, which are around the national average.
- The labour force consists of approx. 52,682 people. Of these, the top five industries are Health Care and Social Assistance (7,389 people), Retail Trade (7,291), Construction (7,223) Accommodation and Food Services (5,043) and Education & Training (4,719).
- The region is renowned for its agricultural industry and first-class food and beverage production however, the construction industry makes the greatest contribution to economic output in the region at \$3.4 billion accounting for 21% of total output.

ABS, 2016; Remplan, 2021

Renewable energy context

THROUGH A LOCAL GOVERNMENT LENS

Mornington Peninsula Shire Council (the Shire) has a strong record of climate action, with the Shire's operations on track to be carbon neutral by 2021. MPSC is now certified as carbon neutral under the

Climate Active Standards, achieved through limiting emissions through rooftop solar installations on Shire buildings, installing LED streetlights, offsetting residual emissions and energy efficiency programs.

In August 2019 Mornington Peninsula Shire Council declared a climate emergency and prepared a Climate Emergency Plan which was endorsed in August 2020. The Climate Emergency Plan represented the strong desire from the community and Council to take action on climate change swiftly and effectively. As part of the plan, objectives were set to encourage renewable energy uptake and energy efficiency initiatives (amongst other actions) within the community.

Specifically, the Shire Climate Emergency Plan includes:

- Interim targets of a 30% reduction in community greenhouse gas by 2025, a 65% reduction by 2030 and 80% reduction by 2035
- Goal to use 100% renewable electricity by 2023
- Generate 200MW of renewable electricity locally by 2030
- Targets for all pool vehicles to have zero tail pipe emissions by 2025 and all fleet vehicles to have zero tailpipe emissions by 2030
- Advocacy efforts, recognising the transition to zero emissions requires State and Federal action as well.

To date the Shire has installed a total of 1,243kW of renewable energy across 46 council operated sites and helped 23 community organisations install solar systems. Their low interest, long access loan program for local businesses to install energy efficiency upgrades has supported 15 local businesses to install 1,153kW of solar PV systems and a range of energy efficiency programs.

It is clear that the Shire is committed to involving community members in climate action, evidenced through several community programs aimed towards assisting residents, businesses and the community in general to reduce their carbon emissions. These programs include educational workshops, the Eco Living Display Centre, partnering with the Climate Clever app and other organisations to guide residents through solar bulk buys and energy audits of their house – and now supporting their residents to form a community energy group.

Source: Mornington Peninsula Shire Council, 2021, Cities Power Partnership 2021

IN THE WIDER COMMUNITY

In the broader community there has been an estimated 99.9 MW of solar PV installed across the Shire. This covers almost 20% of dwellings in the LGA, which is slightly lower than the state average meaning there is some room for support and action to encourage more households to install solar.

By global standards, Mornington Peninsula Shire has excellent solar resources. The region has an annual average solar exposure of around between 15-16MJ/m²

Areas in Victoria range between 14 and 19 MJ/m². According to the Global Solar Atlas, the Shire has a solar photovoltaic output of 3.9kWh/day compared, for example, with Germany which receives only 2.8 to 3.2kWh but has 53.8 GW of installed solar photovoltaic.

Solar PV Capacity in Mornington Peninsula Shire LGA

- Est dwellings: 90,928
- Installations: 19,399 (approx. 19.8% of dwellings)
- Est. installed capacity: 99913 kW
- Under 10kW: 74325 kW (installations: 18047)
- 10-100kW: 24396 kW (installations: 1348)
- Over 100kW: 1192 kW (installations: 4)

Australian PV Institute, 2021

Victoria generally has good wind resources particularly off-shore wind however the capacity and quality of this resource is not included in this report to focus on technologies that are within reach for a newly formed community energy group. Likewise hydro power and bio-energy are also not included.

3. Key motivations for community energy in Mornington

Peninsula

Since Council's Community Energy webinar in June a group of approximately 20 local residents attended two inception workshops and committed to forming a Community Decarbonisation and Renewable Energy Network. This group has been quite active already, setting up a website and incorporating as an association.

During the inception workshop, CPA worked with participants to develop a set of driving motivations to guide the group and their decisions into the future. These also serve to inform the wider community of the vision and ambition of the group.

In order to better understand the attitudes and interests of the wider community in relation to community energy CPA collaborated on a community survey. The information gathered from this survey will serve to guide the next steps for the community group and feed into the recommendations made in this report. The survey was being promoted in the region during November- December 2021 via online channels and the Council's social media.

Community survey results

There were 268 responses as at 6 December 2021 from 24 postcode areas within the Peninsula and 10 respondents from outside the Mornington LGA. The age range of respondents is 43% skewed towards the 65+ range, with an even split between 35-49 age range and 50-64 range and a handful in the 20-34 range. It is a 60/40 mix of genders with more female respondents. The survey questions are provided in Appendix A.

Most respondents want to see significant climate achievements sooner than the Shire goal of net zero emissions by 2040 (Figure 1). 86% of respondents believe it is extremely or very important to both produce and use energy in, or close to, the Mornington Peninsula (Figure 2). When asked to consider associations with community renewable energy, common responses were renewable technology types and positive sentiments with many expressing their hope and necessity to undertake these initiatives as seen in the word cloud of Figure 3. Rooftop solar, microgrids and batteries are the top 3 technology solutions that respondents are interested in for the region.

Figure 1: Year respondents want MP Shire to reach zero net emissions

Figure 2: Importance of producing & using energy in/close to our region

Figure 5: Benefits of renewable energy projects – Greatest importance consolidated

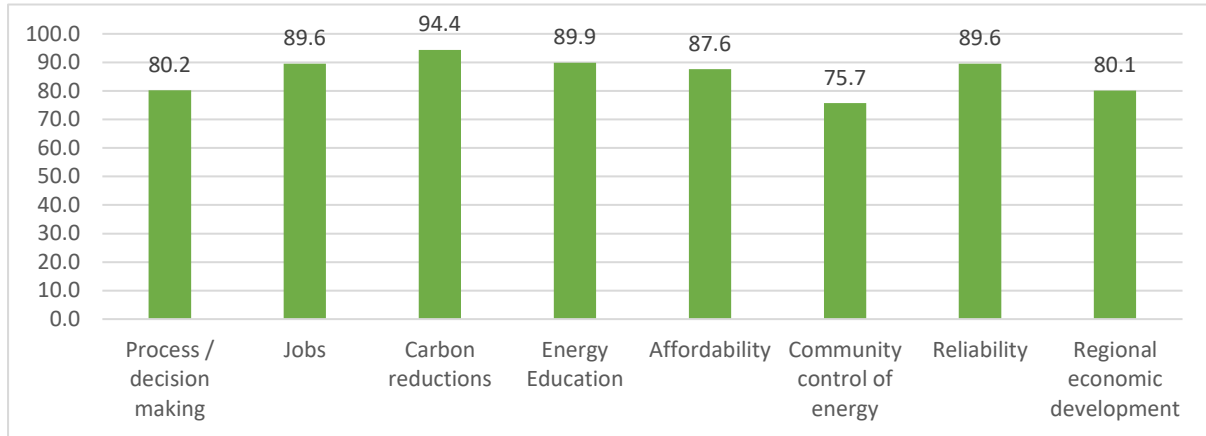
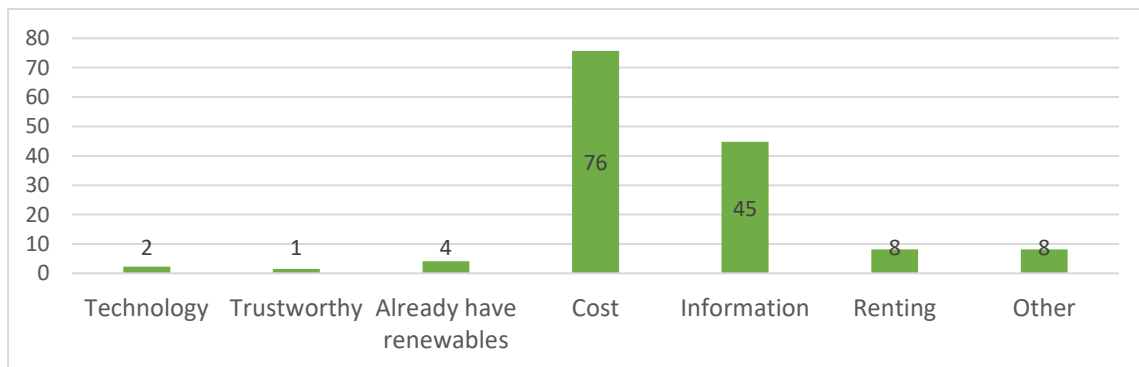


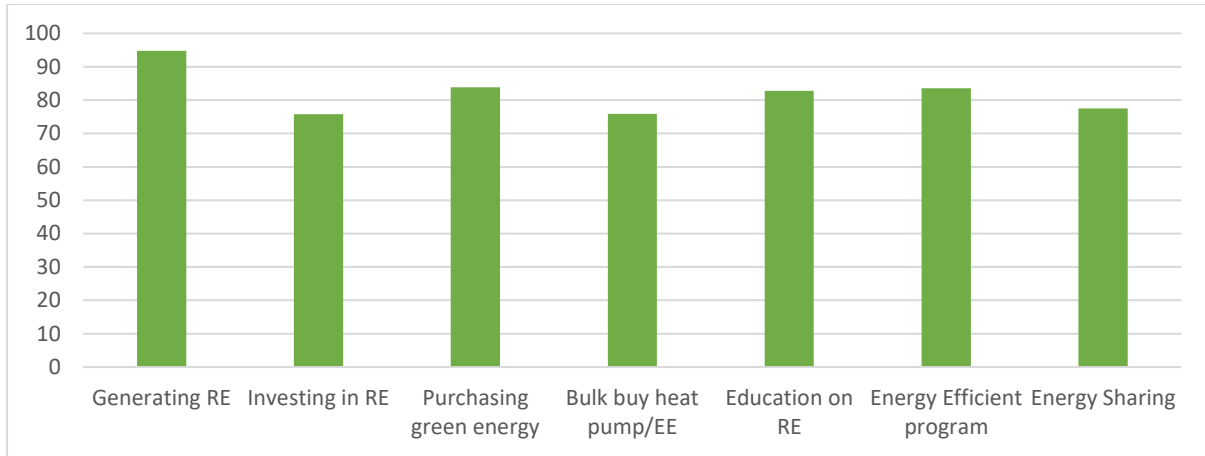
Figure 6 shows over three quarters of respondents listed cost as a barrier to transitioning to renewable energy or becoming more energy efficient in their home, while almost 50% indicated that information was a barrier - either because it is too confusing or they are unsure what type of renewable energy technology to install (which may be referring to any type of RE technology including solar PV, batteries, heat pump etc). This highlights an excellent opportunity to provide clear, trustworthy information to residents in the Shire. A small portion listed renting or other reasons as barriers for their uptake.

Figure 6: Barriers to renewable energy uptake for respondents



Two thirds of respondents have rooftop solar installed and with 22 respondents listing renting as a barrier for RE uptake this means there may be approximately 70 households already in contact with this project that are interested in solar PV. Figure 7 shows there is a fairly even spread across different project initiative ideas that respondents are interested in, providing a solid base for Council and the community energy group to have their own criteria drive the first projects.

Figure 7: Interest in renewable energy initiatives - consolidated



4. Analysis of community energy options

Table 2 provides a summary of existing community energy models with information on where the funding is sourced (model), what types of projects this generally enables, a short description of each and our brief assessment of each option. In section 5 we provide further detail on the recommended options.

Our criteria for assessing CE options considers the viability and desirability taking into account the priorities of carbon emission reductions (CO₂ impact) and inclusiveness that came out strongly from the community engagement outlined in section 3. Thus before going into detailed recommendations of community energy projects for Mornington Peninsula, the following criteria are used as the first layer of analysis of suitable options:

- *Speed of implementation* - short (within the next 6 to 18 months), medium (1.5 years to 2.5 years) and long term (more than 2.5 years), this can be an important criteria to maintain volunteer enthusiasm, inspiring further action and takes into account project complexity;
- *Direct kW/ CO₂ impact* stands for the potential of the initiative/project to directly generate a low (less than 50kW), medium (51 kW – 250 kW) or high amount (greater than 250kW) of kW hours of renewable energy generation and/or energy savings and so contributing to emissions reduction;
- *Social inclusiveness* refers to the capacity of the initiative/project to address systemic barriers and actively include people in the LGA who currently cannot access renewable energy generation such as renters, low-income households and homeowners with unsuitable roofs. The three categories are low (little to no capacity to equally include disadvantaged groups), medium (some capacity to include disadvantaged groups) and high (great potential to include a broad audience incl. disadvantaged and marginalised groups).

Ultimately the potential of the initiative/ project to address any of the above criteria depends on its design and implementation. These criteria are a first overlay and should be considered as a guidance in discussion and consideration of the recommendations.

Table 2: Summary of community energy models

Models	Projects	Short Description	CPA Assessment
Donation model	Small-scale solar PV crowdfunded projects	Small-scale renewable energy projects e.g. rooftop solar PV enabled through community donations helping the host (e.g. IGA, Bowls Club, churches, community centres, halls) to save on its electricity bill.	<i>Speed of implementation:</i> short <i>Direct kW/ CO₂ impact:</i> low -medium <i>Social inclusiveness:</i> medium depending on community served by host site
	Revolving fund	Provides low interest loans to non-profit organisations and/or businesses, then the loan repayments are used to cycle through to enable future projects.	<i>Speed of implementation:</i> short to medium <i>Direct kW/ CO₂ impact:</i> medium (depending on the funding and lifetime, the ultimate sum of all projects could have high impact) <i>Social inclusiveness:</i> medium to high depending on host sites
Aggregated household model	Bulk-buy projects Solar PV incl. batteries Energy efficiency	Aggregate power of community buyers to purchase product(s) at a discounted price. These products include solar panels, household batteries, heat pumps, and energy efficiency measures.	<i>Speed of implementation:</i> short <i>Direct kW/ CO₂ impact:</i> medium <i>Social inclusiveness:</i> medium for energy efficiency measures depending on product & accompanying educational element, lower for infrastructure with high upfront cost

	Solar Gardens	A solar garden is a centralised solar array that offers consumers the opportunity to purchase or lease solar panels with the electricity generated credited to the customer's energy bill.	<i>Speed of implementation:</i> long <i>Direct kW/ CO2 impact:</i> high <i>Social inclusiveness:</i> medium (high if some plots are donated for social access)
	Rates-based finance	Finance for clean technologies is mediated through Council special charges or rates levied on the property. Could be paired with other options.	<i>Speed of implementation:</i> medium to long <i>Direct kW/ CO2 impact:</i> high <i>Social inclusiveness:</i> medium to high
	Education and events	Info-sessions, individual consultations and home energy assessments for energy efficiency, RE installations as well as workshops on the latest clean technology updates.	<i>Speed of implementation:</i> short <i>Direct kW/ CO2 impact:</i> low (could be medium depending on design) <i>Social inclusiveness:</i> high
	Precinct microgrid	A geographic area that has all its energy needs met from within the precinct and has ability to island from the national grid. Requires participation from network operator and ongoing load management.	<i>Speed of implementation:</i> long <i>Direct kW/ CO2 impact:</i> medium to high (depending on design) <i>Social inclusiveness:</i> medium depending on design
Investment model	RE generation at medium scale or community batteries	Community initiated renewable energy projects that are funded or part funded by community investors, on the expectation that these investors will receive a certain return on their investment.	<i>Speed of implementation:</i> medium to long <i>Direct kW/ CO2 impact:</i> medium to high (depending on design) <i>Social inclusiveness:</i> low
Partnership models	Council-community partnership	Community collaboration with council to initiate, invest and implement local renewable energy generation projects on council property.	<i>Speed of implementation:</i> short to medium <i>Direct kW/ CO2 impact:</i> medium <i>Social inclusiveness:</i> medium if a co-op model with low shares is used
	Developer/distributor-community partnerships	Co-ownership / co-investment model with community investment and/ or benefit sharing programs.	<i>Speed of implementation:</i> medium-long <i>Direct kW/ CO2 impact:</i> medium <i>Social inclusiveness:</i> low depending on benefit sharing arrangements

5. Recommendations

The following four projects were selected based on CPA experience, applicability in the local context, stage of life of community energy group and community motivations of carbon reductions and inclusivity. These projects explore the differing ways that the community could be involved in the project and are presented in detail outlining the potential for the impact/outcome; role for Council, challenges and next steps.

Community energy projects are diverse and present different options for community involvement, along with varying levels of participation within those options. Some projects may require different business model designs and present the opportunity for the community to become project investors/funders and have a stake in the ownership and decision-making of the project. Other options may have community members as customers of the project, whilst others may offer both. These options are not exclusive and it may be possible (or required) to configure the use of more than one of these options in a final designed project.

Recommended Community Energy projects:

1. Community supported RE installs
2. Revolving energy fund
3. Community investment – council/community project
4. Community/Council partnership for a Solar Garden

1. Community supported RE education & installation

Speed of Implementation	Direct kW/ CO2 impact	Social inclusiveness
<i>Short</i>	<i>Medium</i>	medium social inclusivity for energy efficiency measures depending on product & accompanying educational element, lower for infrastructure with high upfront cost

Description

While individual household solar installations are common among the survey respondents there are currently less than 20% of dwellings with solar in the Mornington Peninsula Shire. This presents an opportunity as it is less than the Victorian state average and the survey data shows that many people face an information barrier to installing RE at their home. Additionally, over 200 respondents expressed interest in purchasing a heat pump hot water system or energy efficiency devices.

A bulk buy of solar or heat pumps is recommended primarily due to its relative swiftness for implementation, the potential to have cumulative kW/CO2 impacts and its linkages to existing Council opportunities. Whilst bulk buys tend towards the lower end of the social inclusivity spectrum (often due to the higher up front capital costs) there are creative ways to enhance social inclusivity by combining energy efficiency and education into the design and delivery.

We suggest the newly formed community energy group run information sessions explaining the benefits of solar, the process for assessing suitability of rooftops and have installers available for answering questions.

These events could be purely informational, or the group could set up a referral fee with solar installers or co-ordinate a bulk buy of heat pumps. Several other groups use a referral/commission model alongside information sessions including Inner West Community Energy (it is understood that they have a 4% commission rate) and Southcoast Health and Sustainability Alliance (SHASA) that also offers home energy audits.

Impact/ outcome

Implementing this project makes for many quick wins with relatively easy projects while also potentially providing an income for the group. This can be important as the group may decide to invest those funds on building up the group or they could form a kitty to donate a solar installation to a disadvantaged family. This can be decided up front or at a later point.

The community engagement can also create a stronger sense of community and connectedness in the area whilst building reputation and trust in the community energy group.

Recommended role of Council

The role of MPSC could include partnering on the information events by providing promotion support and venues pro bono for the information sessions.

This project could leverage MPSC's existing program with AEF, create a partnership with Council on a bulk buy. Also the Victorian Government Solar Savers program is worth investigating.

Challenges

This option requires event management skills to ensure attendees are engaged at the sessions and they are run well. Also at least one person must be quite knowledgeable on the RE topic and able to answer community questions.

We suggest building relationships with trustworthy solar installers and inviting them to be present for Q&A sessions, Council could play a role to help vet installers.

Potential next steps for this option

- Make a connection with another community energy group doing this project (CPA can provide an introduction)
- Decide on technology type and the first town to begin activities
- Review local solar installations using online tools such as solarquotes.com.au and local knowledge, then connect with positively rated businesses and build a relationship, emphasising thoroughness and community engagement required for referrals. Ensure any agreement with an installer is timebound and reviewed for performance quality regularly.

2. Community energy revolving fund

Speed of Implementation	Direct kW/ CO2 impact	Social inclusiveness
Short to medium	Medium (depending on the funding and lifetime, the ultimate sum of all projects could have high impact)	Depending on the design – could be medium to high

Description

The revolving no-interest loan fund concept was pioneered by CORENA, starting with the first project at Tulgeen Disability Services cheese packing workspace in Bega, NSW. Since then, this model has proven itself as one of the most successful models for community energy, with CORENA having completed 43 projects and multiple other communities having directly adopted their model (e.g. Energy Innovation Co-op's Southern CORE fund in Southern Gippsland and COREM in Mullumbimby). In this model, funds are raised to provide zero interest loans to non-profit organisations. This structure results in a revolving fund, with donated funds being reused for multiple projects. The revolving fund loans can be offered to not-for-profit community groups, public buildings, businesses and local households. Over time, as funds are re-paid, they can be loaned out to new applicants.

The loan amount is decided once a host business or organisation has been identified and their RE installation or upgrade cost calculated. A simple loan agreement is used and once the repayments start coming in there would be a base to continue further projects.

This option can be established relatively quickly with existing legal agreements available and has the potential to have good kW/CO2 impact over time as projects accumulate. The fundraising component of this option helps to raise the profile and awareness of the community group and if projects are selected on community assets the opportunity to benefit disadvantaged parts of the community is increased.

Impact/ outcome

Enables community benefit and inclusion through reducing upfront costs.

Lowers electricity bills and reduces carbon emissions for host sites.

Challenges

Finding host sites that are able to install solar can be time consuming, co-ordinating the program is often in stops and starts as without a large seed fund it can take a while for the

funding pool to build up again.

Recommended role of Council

Assist with promotion and connections to potential community host sites.
Provide seed funding to kick-start the first project or match donations from the public up to a certain point.

Next steps

- Develop process for host site nomination (see COREM process here - <http://www.corem.org.au/i-want-to-propose-a-project/> or www.corenafund.org.au)
- Investigate potential host sites

3. Community investment in Council rooftop solar

<i>Speed of Implementation</i>	<i>Direct kW/ CO2 impact</i>	<i>Social inclusiveness</i>
<i>Short to medium</i>	<i>Medium</i>	medium if a co-op model with low shares is used

Description

Community energy investment projects are one of the most common types of community energy project in Australia. The community organisation initiates the project and funds the installation with community investor-members, on the expectation they will receive a certain return on their investment. There are usually up to 20 investors-members per project (except for cooperatives which can have more investor-members such as the model Pingala uses). The group would negotiate with MPSC and the solar developer, and enter into a lease, loan or PPA arrangement with MPSC. The project management and ownership could be solely the responsibility of Council or a mixture with the group.

In Australia most investment projects are rooftop solar projects on commercial buildings operating behind the meter and below the load. This ensures that the projects are viable and investors receive a reasonable return on their investments.

This option offers the ability to deliver a sizeable project behind the meter with Council to achieve more significant kW/CO2 impact within a single project. Depending on the complexity of the site, this option can be delivered relatively quickly. Ability to be inclusive will depend on the design of the investment model and the price of investment (ie \$200 minimum share investment, with a maximum of \$20,000).

Impact/ outcome

Community investors receive a return on their investment. MPSC will have lower electricity bills and its environmental footprint will be reduced. Community members can contribute to a larger RE asset development often this generates feelings of local pride and connectedness to the area.

Opportunities for community education via signage to explain the project and demonstrate energy savings, ideally with instantaneous display.

Challenges

Arranging the model relationship between parties can be complex, and it may difficult to retain a sense of community input involving a Council asset.

Recommended role of Council

MPSC's role in a community energy investment project could include: facilitating the work of the community group, acting as the host site and increasing its own promotion efforts of community energy initiatives and related Council activities.

Providing legal advice for any contracts to be drawn up and undertaking a technical/feasibility study for a potential site.

Potential next steps for this option

- Connect with Lismore City Council to understand their process and arrangements for the community-council solar project
- Council to conduct high level feasibility of potential host sites

4. Community / Council Partnerships for a Solar Garden

Speed of Implementation	Direct kW/ CO2 impact	Social inclusiveness
<i>Long</i>	<i>High</i>	<i>Medium (high if some plots are donated for social access)</i>

Description

A solar garden is an innovative solar ownership model that allows people currently locked out of owning solar (e.g. from renting, living in an apartment or having a shaded roof) to share in the benefits too without needing a sunny roof. The model is similar to a community garden except instead of growing veggies in community garden plots this model harvests solar energy from solar garden plots. Participants purchase a "solar garden plot" of equivalent size that they would otherwise install on their roof and join together with other participants to install the solar panels elsewhere in a combined mid-scale solar farm or very large roof mounted solar array if a site is available. Credits are then distributed to the participants' electricity bills via an agreed electricity retailer proportional to the generated output of their share in the solar farm/array.

This option is recommended for consideration as a longer term trajectory. Establishing a solar garden requires significant development assessments for a commercial scale solar farm and legal setup. Withstanding this, it offers one of the greatest potentials for kW/CO2 impact and has the unique quality of allow access to solar for those locked out.

Impact

Solar gardens provide multiple economic and community benefits by making renewables accessible for everyone and enabling communities more control over their energy future, while keeping the returns in the local economy. Depending on their scale and design solar gardens have the potential to involve hundreds of participants. The [Haystacks Solar Garden](#) currently being established in the Riverina Region of NSW is designed to have 333 members each with a 3kW solar garden plot.

Challenges

Whilst popular internationally in the USA and Germany solar gardens are only just emerging in Australia. A project of this type is quite complex and would require a significant investment of project management hours to establish the necessary relationships and legal agreements. Additionally a suitable site would need to be identified with minimal to zero tenure costs plus a 'friendly' off taker (ie a organisation interested in purchasing energy via a PPA from the solar farm) for at a portion of the solar generation to stabilise the income generation and reduce risk of returns on the venture for the community. The site would need to host at least 1MW of solar panels, usually 2-3 hectares.

Recommended role of Council

MPSC could play an important role in site provision for a solar garden if a piece of otherwise unusable land could be identified (e.g. buffer zone to landfill, STP or quarry) and provided with a peppercorn lease. Council could also act as project manager in the initial phase of feasibility assessments to determine the financial parameters required to make viable in the local context and provided the much needed partnership as an off taker of locally supplied socially enabling renewable energy via a PPA.

Potential next steps for this option

A high level site, social and financial feasibility assessment would need to be undertaken to identify if there is a suitable site and/or appetite from Council to procure renewable energy from a local community project and at what price.

Additional Information

Local Government Electricity Procurement Opportunities

Local governments around Australia are seeing the power that their procurement choices can have on renewable energy projects through their electricity contracts. For example City of Sydney's decision to include "community ownership" as a social criteria in their electricity procurement process was instrumental in Repower Shoalhaven successfully establishing their community owned solar farm². As existing electricity contracts and PPAs come to an end Councils are increasingly purchasing not only greater volumes of renewable energy but also mandating for locally supplied, socially inclusive options.

Not all communities are primed and ready to deliver generation projects which align to Council contract time frames or volumes, so it is important to negotiate flexibility into either the partitioning of PPAs/ retail contracts or existing clauses. This will allow for the opportunity to procure from local projects as they come to fruition. Many Councils are also exploring the development of their own mid-scale solar farms and bio energy projects in an effort to increase the supply of local renewable energy and stimulate localised economic developments. These sorts of ventures are ideal projects for community investment.

Final remarks

There is no perfect project that offers quick delivery, with high kW/CO₂ impact and high social inclusivity. All projects require a compromise of these three criteria but the way to ultimately achieve high kW/CO₂ and social inclusion impact are to have thriving community energy groups collaborating hand in hand with Council and regional partners, building trust and raising awareness in community over the long term.

Any community energy project will invariably evolve and change as further information is uncovered. We encourage all parties involved to have patience and trust that both Council and the community at large have considerable shared motivations of reduced carbon emissions and of including everyone in the opportunities and benefits of renewable energy.

² <https://news.cityofsydney.nsw.gov.au/articles/5-things-to-know-about-our-electricity-deal>

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Appendix A - Community Survey

eMPower

Community Decarbonisation and Renewable Energy Network



With support from



Dear resident,

Mornington Peninsula Shire has declared a climate emergency and has a plan to guide the Peninsula towards zero carbon emissions by 2040.

We have all heard of the challenges we face but, as always, Australians are resilient and resourceful when it comes to finding solutions that provide positive outcomes for all.

We are a group of concerned and passionate local Mornington Peninsula resident community members committed to achieving the goal: 'To decarbonise our collective energy consumption at a local level for a net zero-carbon future'. We invite you to take part in this short survey which will help us determine the community's interest and support of community beneficial renewable energy projects on the Mornington Peninsula.

This survey will take approximately 3 minutes to complete and is open from 3rd November to 3rd December 2021. If you'd like to learn more about eMPower: Community Decarbonisation and Renewable Energy Network please visit our landing page <https://empowermornpen.org.au/>

QUESTIONS via an online survey

1. **What is the postcode where you spend most of your time?**
2. **Assuming it is technically feasible and cost-effective, what goal do you think the community should set to reach zero carbon emissions in Mornington Peninsula?:**
 - a. 2040
 - b. 2035
 - c. 2030
 - d. Other (please specify)
3. **What are the first three words that come to mind when thinking about community renewable energy in the Mornington Peninsula?**
4. **Please rank the renewable energy technologies you would most like to see being used in the Mornington Peninsula? (pick your top 3)**
 - Rooftop solar PV for homes/ business
 - Solar Farms
 - Wind Energy
 - Hydropower - using water
 - Bioenergy – using organic matter such as agricultural crops or animal waste
 - Batteries - residential/business or community
 - Micro-grids – where energy is locally generated, shared/ consumed and stored in system that can be stand-alone from the grid if needed.
5. **How important do you believe it is to produce and use the energy in or close to our region?**
 - Extremely important
 - Very important
 - Somewhat important
 - Not so important
 - Not at all important
6. **How important do you think the following outcomes are to achieve in Mornington Peninsula:**

	Extremely Important	Very Important	Important	Somewhat important	Not Important	Unsure/ don't know
Households and businesses generate and use their own power						
People share/trade energy with one another across a network						
The local community owns renewable energy generation						
Low-income households can benefit from renewable energy programs						
Large power plants supply electricity to everyone across the state						
Mornington Peninsula is as energy efficient as possible						

7. If new renewable energy generation projects were to be proposed in the Mornington Peninsula, how important do you think it is that the project delivers the following:

	Very Important	Important	Somewhat important	Not Important	Unsure/ don't know
Opportunities for the community to have input/ invest in the project					
Local employment opportunities and support for local businesses					
Reductions in carbon emissions, helping to address climate change					
Local education on renewable energy and energy efficiency					
Creates energy savings for community					
Community ownership					
Greater community control over electricity supply					
Increases resilience and self-sufficiency of electricity supply					
Regional economic development by keeping energy dollars local					

8. Do you currently have any of the following installed at your home/business?

- a. Solar PV
- b. Solar hot water
- c. Battery storage
- d. Heat pump hot water system
- e. Electric vehicle
- f. Energy efficient in-home smart display
- g. Other

9. What do you consider are the greatest barriers in transitioning to renewable energy in your home? Select all that apply.

- i. Cost
- ii. Not sure what type to install
- iii. Information is too confusing
- iv. I am renting
- v. Not a priority
- vi. Other

10. Please rate your interest in the following renewable energy initiatives:

	Very interested	Somewhat interested	Unsure, need more information	Not Interested
Generating renewable energy - solar, wind, batteries, bioenergy, other				
Investing in local renewable energy facilities/projects				
Purchasing local renewable (green) energy				
Purchasing heat pump hot water systems and other energy efficient devices through bulk buys				
Learning more about renewable energy & energy efficiency				
Participating in energy/thermal efficiency programs to lower your energy bills				
Participating in a local energy sharing program				

These next questions help us understand if we are reaching a representative cross-section of our community.

11. Which age range do you belong to? optional

- 65+
- 50- 64
- 35- 49
- 20 - 34
- 19 or younger

12. What is your gender? optional

- Male Female Non-binary Other

13. Would you like to hear updates about eMPower: Community Decarbonisation and Renewable Energy Network?

Your details will be added to our (low volume) email member list. You will receive notice of future opportunities to provide input and feedback, and sharing the outcomes of this process. You can also join the core group of volunteers.

If yes, please provide your email below.

Email:

“We have one final chance to create the perfect home for ourselves and restore the wonderful world we inherited. All we need is the will to do so.” David Attenborough

Thank you for your time.

Appendix B – CE Models

1. Investment projects

<p>Case study examples</p>	<p>Lismore Community Solar farm is an investment model as well as a community-council partnership model. Proprietary companies are established as SPVs for each project. The model has been developed for situations where the council is the customer. Community investment will provide a loan to fund the build of the solar farms, which will be owned by the Council and they will use all electricity generated on site. Council will repay the investors with interest to the community companies for a period of seven years followed by a ‘bullet’ repayment of capital in full at the end of the loan.</p> <p>This community solar farm model was developed especially for two 99kW projects in partnership with Lismore City Council. They are the first community-funded and council-operated solar farms in Australia. The minimum investment amount was 90 shares/ \$9,000. A number of 1,800 shares were offered to a maximum of 20 shareholders for each of the two systems (Starfish Initiatives, 2018).</p> <p>Lismore City Council worked through a range of necessary legal reviews, including clearance from the NSW Office for Local Government, which provides a valuable assurance of the legality of this model for other collaborations with Local Councils. The model is especially well suited to small-sized community energy projects of up to around 100kW in size. It can also be used to fund energy efficiency upgrades. The use of a loan-based financial structure results in relatively simple and minimal requirements in terms of governance, financial, legal, compliance and administration.</p>
<p>Sources/ resources</p>	<p>Lismore Community Solar</p> <p>Link: http://farmingthesun.net/lismore/ and http://farmingthesun.net/lismore/business-model/</p> <p>Other investment projects have been developed by:</p> <ul style="list-style-type: none"> • Clear Sky Solar • Pingala • Repower Shoalhaven <p>Another useful resource providing an overview of the different models is:</p> <p>Link: Small-scale Community Solar Guide/ version 2</p>

2. PPAs with community investment

<p>Case study examples</p>	<p>Clearsky Solar</p> <p>A very successful model has been developed by Clearsky Solar. This organisation has already 11 projects with more than 425 kW installed. The community group emerged as a local chapter of the Clean Energy for Eternity Association established during the heights of the climate movement in 2006. In their model, community investors form a trust which then provides a loan to a solar company who owns and operates the solar PV installation on behalf of the host site (e.g. the Bograbri Pub).</p> <p>Sapphire Wind Farm</p> <p>The approach by CWP Renewables (the developer) was guided by the aim to build long-term community support for the project and test innovative ways to differentiate from competitors by “leading the pack in community engagement” (CWP Head of Development, Ed Mounsey cited by Holmes a Court in The Guardian 2018).</p> <p>The project differentiates from the other initiatives in particular regarding the co-investment opportunity for predominantly local and regional investors. Co-investment refers to a structure where a community investment vehicle buys rights to a portion of the earnings of the wind energy project but has no decision-making power or control over the operation of the asset. In the case of Sapphire Wind Farm most likely an unlisted public company will be established, and an investment offer is made to the community which is ultimately considered just like another funding partner. The benefit for the community members is a simple and low risk access to large-scale investment promising 5-6% floor rate of return. The return would be linked to the performance of the wind farm as a whole rather than one individual</p>
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	turbine. The share offer is expected to open later this year with a minimum investment of \$5,000.
Sources/ resources	<p>Link: http://www.clearskysolar.com.au/index.php</p> <p>Link: https://www.sapphirewindfarm.com.au/</p> <p>Link: https://www.melbourne.vic.gov.au/business/sustainable-business/mrep/Pages/melbourne-renewable-energy-project.aspx</p> <p>Link: https://businessrenewables.org.au/</p>

3. Revolving Fund

Case study examples	<p>CORENA has pioneered and implemented the revolving fund model in the Australian community energy sector since 2013. CORENA is a not-for-profit group with nationwide membership. Their revolving fund initiatives are called Quick Win project which provide interest-free loans to non-profit community organisations in all parts of Australia. To date CORENA has implemented 24 projects with a value of \$323,000 with a total capacity of 211 kW.</p> <p>Link: https://corenafund.org.au/quick-win-projects/</p> <p>Solar Savers Model is used by Darebin, Adelaide, and some other Victorian local councils and could be considered as one form of revolving fund but is specifically enabled through rates based re-finance. Please see rates based finance above.</p> <p>Also the Southern CORE revolving fund – EICo-op</p>
Sources/ resources	<p>Link: https://corenafund.org.au/clever-climate-economics-for-local-councils/</p> <p>Link: http://www.darebin.vic.gov.au/Darebin-Living/Caring-for-the-environment/EnergyClimate</p>

Source: The information about revolving funds are based on CORENA's data and findings.

4. Solar Gardens

Case study examples	<p>The Haystacks Solar Garden is in the final stages of development and is planned to become operational in mid 2022. It is a 1.5MW solar asset offering 333 solar plots of 3kW using a cooperative business model. It is part funded by a grant from the NSW Government Regional Community Energy Fund and will be delivering a knowledge sharing package once the project is complete. This will include several information sessions as well as sharing legal and other agreements to assist future solar gardens.</p> <p>The project has drawn largely on the ARENA funded Social Access Solar Gardens research undertaken by Community Power Agency in collaboration with several partners including the Institute for Sustainable Futures.</p> <p>Link: https://haystacks.solargarden.org.au/</p> <p>Link: https://arena.gov.au/projects/social-access-solar-gardens/</p> <p>Link: https://www.uts.edu.au/research-and-teaching/our-research/institute-sustainable-futures/our-research/energy-and-climate/social-solar-gardens</p> <p>Enova's Solar Gardens model – behind the meter</p> <p>Link: https://enovaenergy.com.au/solar-garden/</p>
Sources/ resources	<p>The Social Access Solar Garden was derived from the ARENA and Victorian Government funded Moira and Swan Hill Local Energy Trading (LET) Project. This project virtually trialled a community solar farm, which was part of a bigger project led by ISF, <i>Facilitating the Introduction of Local Network Charges and Local Electricity Trading</i>. The project established that there was sufficient merit in the one-to-many LET model to warrant further and more detailed investigation.</p> <p>Links: https://www.uts.edu.au/research-and-teaching/our-research/institute-sustainable-futures/our-research/energy-and-climate/social-solar-gardens</p> <p>https://www.uts.edu.au/research-and-teaching/our-research/institute-sustainable-futures/our-research/energy-and-climate-3</p> <p>The Energy Consumers Australia funded <i>Renewables for All</i> project which identified a series of models and associated policy and regulatory reforms that would allow all Australians, no matter their income or living arrangements, to be able to directly</p>

benefit from clean energy solutions such as solar PV, storage and energy efficiency. Solar Gardens were identified as one of the key models in this project, which was led by CPA.

Link: <http://cpagency.org.au/renewables-for-all-resources/>

There are additional examples from several US states, where the idea originally stems from enabled by their virtual net metering policy.

Colorado has implemented one of the most publicized and recognized community shared solar program called Community Solar Gardens.

Link: <https://www.colorado.gov/pacific/energyoffice/community-solar>

Guide to Community Shared Solar:

Link: <https://www.nrel.gov/docs/fy12osti/54570.pdf>

Appendix C – Additional questions

Critical business model design questions

The following questions are sourced from another project however may prove useful in thinking of future projects.

Organisational structure and governance

- Who will own and control the renewable asset?
- Will Council be in control of the asset or will they play the roles of host site and customer?
- Will there be some sort of special purpose vehicle established that will own the asset?

Community engagement and communications

- What social benefits in particular would Council like to achieve with this project?
 - Supporting private households to invest in the project?
 - Supporting low income or socially disadvantaged members of the community?
 - Some other beneficial outcome for the community?

Technical structures

- Is it feasible to install solar assets on Council sites?
 - Can the regulatory environment be navigated legally?

Finance and fundraising

- Income streams: How will the project make money to cover its operating costs and achieve a return for sources of finance? Who will buy the energy produced by the project?
 - Is Council willing and able to buy the energy from an off-site asset? Is there another energy user that would be interested in socially responsible energy?
 - Could households buy the electricity via a solar garden or peer to peer trading?
 - What additional value in terms of operating revenue could a battery bring?
- Sources of finance: Where will the money come from to pay for the project?
 - Can Council contribute funds from a source such as the Environment Levy or WS&S?
 - Would Council be willing to borrow money to finance the project?
 - Should the money come from the community and should this be seen as an opportunity for investment of some sort?