

Introduction to the Community Energy How to Guide

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Future
Energy
Development

Acknowledgements

We would like to acknowledge the individuals and organisations who have contributed to the development of this guide.

The guide is designed to assist.

The purpose of this guide is to assist people in learning about community energy and help them decide if they want to embark on a community energy project (CEP). Coordinating the various steps involved in a CEP is a complex task, starting with a group of passionate individuals who value self-generation and energy independence, and extending to the construction of infrastructure, connection to services, and exporting electricity to the grid.

While this undertaking is extensive and may involve significant costs, when properly planned and implemented, the benefits can include lower net electricity costs, a more resilient electricity supply, and energy independence, where local communities have control over their electricity supply. This guide aims to break down the planning and implementation process of a CEP.

About the guide

Why was the guide created?

The guide was created to meet the needs of communities and individuals who wish to have better control over their electricity. It also aims to demonstrate how community-scale projects can align with the grid to improve resiliency, reduce costs, and lower greenhouse gas (GHG) emissions. The guide provides information to help communities get started on their projects as cost-effectively as possible and navigate the complexities involved. It is intended to maximise the positive impact for each community.

This guide is published and maintained by Ara Ake for the benefit of all. It is a living guide, open to contributions and comments from the community.

The information presented in this guide is based on interviews with nearly 100 individuals, including industry participants, financiers, people involved in community energy projects, and community members. Their insights and perspectives form the basis of this guide. The guide incorporates the topics, challenges, and approaches derived from these conversations. When subjective information is included, it is usually based on or supported by these interviews. To provide a balanced perspective, multiple viewpoints have been considered wherever possible.

Rather than being overly prescriptive, the guide offers practical information to allow readers to come up with their own creative solutions. As more projects are developed, a wider range of solutions will emerge, addressing these inefficiencies and advancing collective goals.

Who is the guide for?

This guide is designed to serve all communities, recognising and acknowledging Māori as the Tangata Whenua of Aotearoa New Zealand. It aims to make community energy accessible to Māori and inspire everyone to act as stewards of the environment. The guide incorporates case studies from Māori-led projects and reflects the diversity of cultures in New Zealand.

Many iwi-led organisations are currently exploring or participating in community energy projects. These projects align with the values of sustainability, equity for Māori, and reliable energy supply for remote communities. Iwi representatives have emphasised the importance of renewable energy in improving the well-being of whānau living in isolated and deprived areas, reducing energy hardship, and addressing social inequities. They recognise electricity as a fundamental resource and aim to use it to benefit their communities.

Community energy projects can be complex, but this guide provides assistance regardless of the approach chosen. There are four options to consider:

- learning and doing the project independently
- hiring professionals to handle all aspects
- combining local learning and planning with professional advice, or
- deciding not to pursue the project.

The guide is applicable to each of these options.

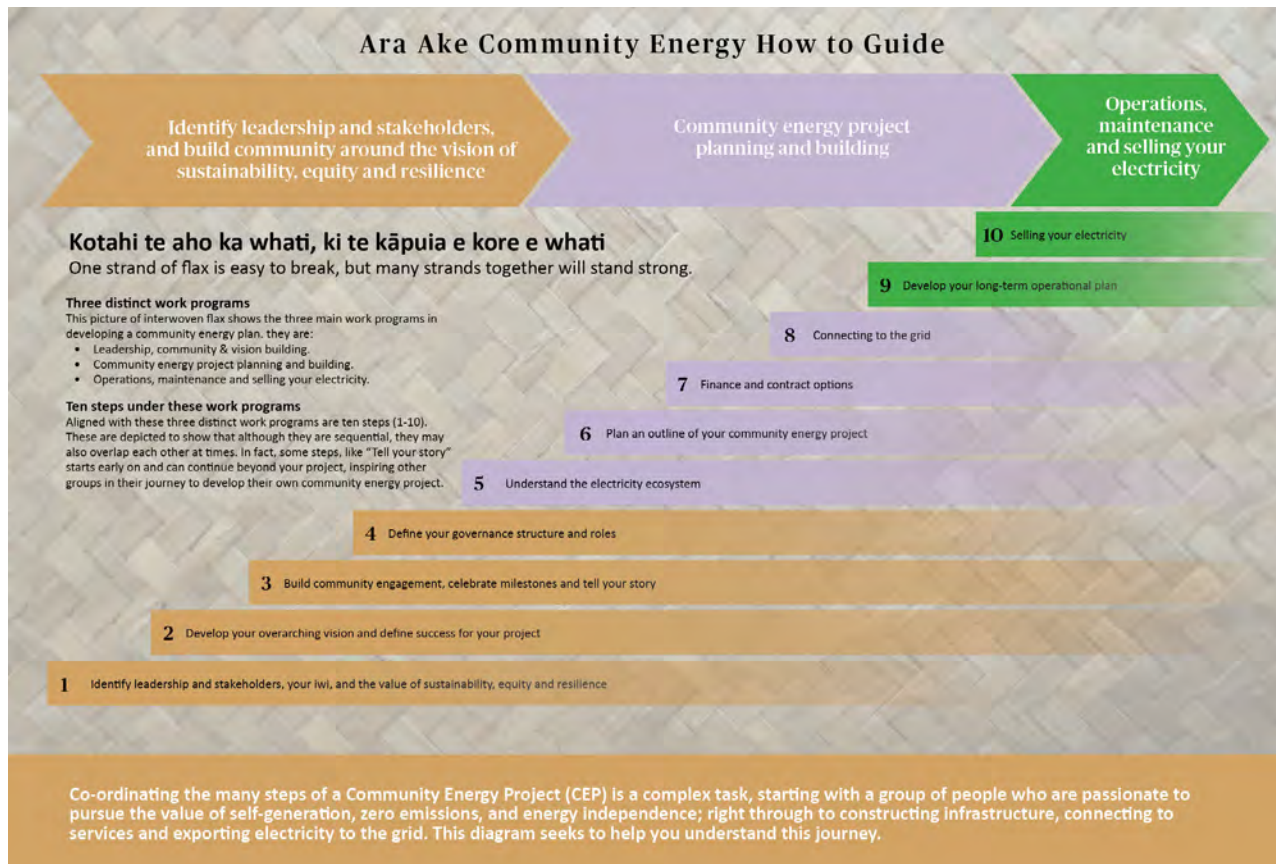
The structure of the guide

The guide is organised into three main workstreams, each covering a series of connected stages:

- 1 Identify leadership and stakeholders and build community around the vision of sustainability, equity and resilience.
- 2 Planning and building.
- 3 Operations, maintenance, and marketing.

These workstreams are supported by ten steps and case studies that provide detailed guidance for creating an energy plan. These steps are depicted in the diagram below with approximate start points, but the order and timing of these steps may vary based on each community's needs. The steps often overlap and influence one another.

The guide emphasises the importance of community engagement and storytelling throughout the project's lifecycle. Decision-making, community consensus, and ongoing communication are vital for project success.



Workstream One – Identify leadership and stakeholders and build community around the vision of sustainability, equity and resilience

Building a community energy project requires strong leadership and community support. The first step is to have someone or a small group initiate the conversation and promote the benefits of an energy project to the wider community. While they may not end up being the overall leader of the project, they play a crucial role in starting the discussion and creating awareness.

The initial task of the initiating person or group is to identify and bring together all the stakeholders who will contribute their time, effort, and finance into the project and likely be the beneficiaries of it. This includes local hapu and iwi, as well as expert advisers and professionals who can provide guidance and services in establishing and developing the project.

The individuals who initiate the conversation will nurture the idea and lay the foundations for the vision, aiming to build community consensus and gain momentum for the project. As the core group expands and the vision becomes clearer, the next step is to appoint people to their respective roles within the project. Seeking advice from experienced community energy leaders can be valuable at this stage to learn from their insights and experiences.

Workstream Two – Planning and building

Once the community has united behind the vision of a community energy project, the second workstream involves putting the plans into action. This requires bringing together the necessary skills and experience to develop concrete plans and strategies. Some key tasks in this workstream include seeking professional advice on financial models, engaging in project management sequence planning, and coordinating various aspects such as roles, responsibilities, timelines, and budgets.

Financial planning is an important aspect that needs to be addressed before system planning can take place. The community must have a clear understanding of the budget available and what can be accommodated within that budget. Seeking professional assistance and peer reviewing can be beneficial in ensuring that the financial plans are comprehensive and aligned with the goals of the project. Getting the financial aspects right is crucial for the long-term success and sustainability of the community energy project.

In parallel with the planning and building process, it is essential to maintain continuous communication and storytelling to the community and stakeholders. Providing accurate and timely information is vital for supporting and strengthening the consensus and ongoing enthusiasm for the project. As the project transitions from the wider community discussion phase to the smaller group planning and building phase, effective communication becomes even more important. It is through clear and compelling storytelling that the planning and building team can effectively enact the community's consensus and keep everyone engaged and informed.

Workstream Three – Operations, maintenance and marketing

Once the community energy project is in the operational phase, ongoing operations, maintenance, and evaluation become critical for its long-term success. This phase involves various activities and features that are essential for maximising the benefits of the project.

One important aspect is the management and utilisation of excess electricity generated by the community energy project. This can involve exporting the surplus electricity to the grid, contributing to the local energy supply and potentially generating revenue for the project. Additionally, energy sharing initiatives

can be implemented, especially with vulnerable members of the community such as kaumatua, ensuring access to affordable and reliable energy.

During this phase, the true benefits of the community energy project start to materialise. These benefits extend beyond energy independence and achieving renewable generation targets. The project contributes to energy resiliency by diversifying the local energy sources and reducing dependence on external factors. It also promotes affordability by potentially lowering electricity costs for the community.

Sharing the success and impact of the project through storytelling remains crucial at this stage. By showcasing the achievements, challenges, and benefits of the project, other communities considering a similar journey can be encouraged and inspired. The storytelling aspect helps build awareness, generate support, and promote the replication of successful community energy projects in other areas.

In summary, ongoing operations, maintenance, and evaluation are vital for the long-term success of a community energy project. This phase allows the community to realise the true benefits of the project, such as energy resiliency, affordability, and energy sharing. Continued storytelling and communication remain essential for inspiring and motivating other communities to embark on similar sustainable energy initiatives.

As the project progresses, numerous decisions will arise, emphasising the importance of community engagement and participation in the decision-making process. When unforeseen costs arise, the robust community engagement established thus far will prove invaluable in effectively navigating through such circumstances. By fostering a vision rooted in community discussion, comprehension, and consensus, the community remains unified and propels forward in unison.

Abbreviations commonly used in this guide.

- CEP Community Energy Project
- DER Distributed Energy Resource
- EDB Electricity Distribution Business – lines company
- ICP Installation Control Point (meter)
- kW Kilowatt – A measure of Power
- kWh Kilowatt hour – A measure of Energy
- MW Megawatt – 1,000 kW
- kVA Kilo Volt Amps – this is the same magnitude as kilowatts but includes reactive power
- EA Electricity Authority
- MBIE Ministry of Business, Innovation and Employment
- EECA Energy Efficiency and Conservation Authority
- GXP Grid Exit Point
- EIPC Electricity Industry Participation Code or “The Code”
- “The Code” Electricity Industry Participation Code (EPIC)
- PPA Power Purchase Agreement
- GHG Green House Gas (emissions)
- TOU Time of Use rate
- ENO Embedded Network Owner
- RAB Regulated Asset Base





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