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## Cost of a Renewable Micro Grid in Moorea

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**Protocol status:** Working

**We use this protocol and it's working**

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**Keywords:** microgrid in moorea, renewable micro grid, renewable energy microgrid, microgrid, reducing moorea, energy bill, moorea, moorea moorea, island in french polynesia, energy demand, island, fossil fuel, imported fossil fuel, carbon footprint, high carbon dioxide emission, cost

## Abstract

Moorea is an island in French Polynesia that depends on imported fossil fuels to meet the community's energy demands, which leads to high costs and high carbon dioxide emissions. The implementation of a renewable energy microgrid may provide a solution to reducing Moorea's carbon footprint and energy bills. This protocol aims to assess the technical and economic feasibility of implementing a microgrid in Moorea and estimate the corresponding costs.

## Guidelines

Carry field notebook and camera at all times to document findings.


## Materials

Field notebook, pencil, camera, computer

## Troubleshooting



## Safety warnings

 Have sunscreen, water, and bug spray on at all times.

## Ethics statement

All data collection and analysis will be conducted in compliance with the local laws and regulations of Moorea. Data transparency is very important throughout the duration of this project and all data collected will be available online to the public.


## Before start

Before starting, familiarize yourself with microgrids, island energy production, and solar panels.



## Cost of a Renewable Microgrid in Moorea, French Polynesia

3w

- 1 Conduct a comprehensive scientific literature review on microgrids, renewable energy, and their use in island communities.  504:00:00 .Write high level notes as you read to provide a general overview of the energy landscape in Moorea. 3w
- 2 Interview key stakeholders, including the local government, energy provider (Électricité De Tahiti), and community members in various parts of Moorea to gather information on their perspectives on the implementation of a renewable microgrid system in Moorea.
- 3 Conduct site visits to research energy infrastructure, surrounding land, and other relevant factors. During site visits, take photos and write notes if energy infrastructure relies on fossil fuels or renewable sources.
- 4 Calculate the cost of implementing a renewable flexible grid in Moorea. Calculate this cost by adding the fixed cost of building this infrastructure and variable cost of maintenance.
- 5 Conduct cost benefit analysis of continuing current energy consumption by analyzing economic, environmental, and social costs of a continued reliance on fossil fuels for Moorea. Document high level findings.
- 6 Summarize all findings in the Results section of the research project. Highlight any patterns, trends, or outliers in the data.
- 7 Analyze results and write Discussion section of research project. In the Discussion section, explain why these results were obtained, discuss any issues with the project, and propose future research questions to further the study.
- 8 Publish final report to an online academic journal.