



AWARENESS,
COMMUNICATION
AND SENSITISATION



CAPACITY
DEVELOPMENT

Understanding the CO₂ Footprint of PV Installations

SUMMARY

Country	Cameroon
Implementer	Antenna Foundation
Target groups	Interested stakeholders such as organisations, investors and companies
Duration	03/2022 – 06/2023
Type of energy use	Other

CHALLENGE

Renewable energies are of great importance for the future energy supply and a carbon trajectory that remains within the boundaries of the 1.5° target set in the Paris Accord. While off-grid PV systems can electrify rural areas, and thus create the basis for social and economic development, we know little of their carbon footprint. What is missing are calculation models that help us understand the CO₂ footprint of various system components as well as the potential to save CO₂ compared to alternatives.

IMPACT LOGIC

The Swiss Antenna Foundation (AF) project aims to create a basis for CO₂ analysis of off-grid systems with a view to also be able to participate in the Voluntary Carbon Market. For this purpose, data of a mini-grid is collected and a model for the evaluation of the lifetime and the (saved) CO₂ emissions developed. With the help of a case study, this model is subsequently tested and compared with existing models. In order to be able to generate emission

certificates with PV applications, both the buyers of the certificates and the investors need to know how much CO₂ savings the installed systems can generate compared to conventional power supply, for example compared to diesel generators or hydro-power plants. Therefore, AF pursues several goals with its project, which logically build on each other. In the first step, the project records the emissions of the different power sources. Based on these calculations, it is possible to calculate the carbon footprint of PV projects. The project develops a practicable model for local partners in the second step and proves its functionality in practice in the third step. Therefore a case study is realised and at least ten technicians are trained. This will encourage local partners to carry out this CO₂ analysis automatically for each PV system. In the next step, AF determines for its own energy projects to what extent it can use the method to generate official and voluntary emission certificates and sell them on the market. AF will make all the results of the project accessible after the project has ended, so that the methods and effects can be shared.

INNOVATIVE PROJECT ELEMENTS

So far, the ecological footprint of the replacing system has rarely played a role in the CO₂ certification of solar technology, neither has the assessment of the advantages and disadvantages of various components. There are thus two levels of innovation present. The first is a holistic calculation model to make the CO₂ savings visible compared to a baseline. And the second being that project developers can assess the carbon footprint of individual components within a system to select the best items based on a CO₂ assessment.

FURTHER INFORMATION

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