

# **Renewable energy in humanitarian settings: a blueprint**

## **Topic 4.5 – Refugees and host communities**

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Nowadays, the world is witnessing an unprecedented level of displacement. According to UNHCR, about 70.8 million people are forcibly displaced worldwide and among them are nearly 25.9 million refugees. Most refugees depend on energy resources for use in everyday life that pose enormous risks to their safety and well-being. UNHCR and its partners rely highly on conventional polluting diesel generators to provide refugee settlements with electricity for common every day needs, such as lighting, as well as to operate the infrastructure and services in the settlements. Apart from the environmental and health-related drawbacks, this also results in high costs.

For this purpose, IRENA supported UNHCR in addressing the issue of efficient, clean, affordable and reliable energy supply in four refugee settlements. The main objective of this collaboration was to assess the current and expected energy consumption in four camps and identify the ideal renewable energy solutions that would provide the refugees with clean, reliable and affordable energy for their everyday needs and concurrently reduce the exorbitant cost of diesel.

The energy assessments were conducted at the compounds of the various humanitarian organisations present in the camps as well as at the various service points (schools, health centres...etc). The assessments also included a survey for the beneficiaries at community level and household level in order to understand the refugees' point of view in terms of energy consumption and particularly for Ethiopia, also regarding the problems with the neighbouring community for the collection of firewood for cooking.

This paper encompasses the study conducted by IRENA in collaboration with UNHCR and the various RE solutions that were identified after the detailed energy assessments which were conducted in Q4 2019. The data collected during the energy assessments by the consultancy entity was used to perform techno-economic analysis of the various locations in each camp with mini-grids modelling software HOMER Pro and solar PV design tool Helioscope. Both tools were used to design the ideal least-cost RE solution for providing the refugees with inexpensive, reliable and clean energy, and to reduce the diesel consumption for each settlement. The different solutions which were identified include solar PV mini-grids, solar home systems (SHS) and solar water pumping solutions.