

ARC POWER

PROJECT SUMMARY

The first phase of an ambitious scheme to build a large portfolio of mini-grids in Rwanda has been completed after its British-based developer secured GBP 900,000 in convertible loans from REPP.

As of 31 March 2022, REPP's critical early-stage support for the project had enabled ARC Power Ltd to finish construction of all four of Phase 1's mini-grid generation systems serving six distribution networks. The networks provide electricity to fourteen villages in Bugesera and Gatsibo Districts and have so far connected 9,717 people and 154 microbusinesses to electricity for the first time.

With the initial phase of the project now completed, ARC Power is beginning on the second phase involving the roll-out of further mini-grids. These additional mini-grids are anticipated to boost the project's total generating capacity from 0.1MW to 2.24MW and connect up to 400,000 people to clean energy for the first time. The company is currently in the process of raising additional debt and equity to support the second phase with financial close expected by Q4 2022. Energy from the mini-grids is being offered on a pre-pay, pay-as-you-go basis to off-grid communities currently with no access to clean energy, and who mostly rely on more expensive and polluting sources of energy such as kerosene for lighting.

The portable and modular mini-grids were developed by ARC Power and can each connect between 100 and 600 households or businesses in a village, providing productive-use, A/C power for lighting and mobile charging, as well as the ability to use appliances and machinery, enabling the development of small businesses. The modular nature of the units also allows for increased capacity to be added following the initial installation, ensuring that supply can be ramped up in line with demand.

Over 50 jobs have been created during the initial phase in 2022, of which 27% were held by women and 47 were local. The full project is forecast to result in 200 jobs during construction and a further 40 during operation. Once completed, the integrated mini-grids will provide enough clean electricity to meet the needs of up to 400,000 people living off-grid in Rwanda, which currently has an estimated national electrification rate of 30%, and just 12% in rural areas.

The Rwandan government has set a target to provide universal energy access by 2024. If successful, the project will prove the case for large-scale off-grid solar PV solutions in Rwanda, and catalyse interest from the commercial sector.

REPP funding is being matched by private Swedish impact investors.

Country policy alignment

Supports Rwanda's conditional NDC (2020) targets to reduce GHG emissions by 38% and install 68MW of solar PV mini-grids in rural areas by 2030. Project is in line with Rwanda's long-term development plan, Rwanda 2050, which aims to increase renewables to being 60% electricity generation mix and ensure 100% electricity access by 2035.



Location
Rwanda

AT A GLANCE

Technology:

Solar PV
mini-grids



Project type:

Off-grid

Offtaker:

Off-grid communities

KPIs



GHG emissions avoided:
Phase 1: 68 tCO₂e
(achieved, cumulative);
whole project: 4,928 tCO₂e
per year (target)



People with first-time energy
access: **Phase 1: 9,717**
(achieved); whole project:
400,000 (target)



Planned capacity: **Phase 1:
0.1MW (achieved)**; whole
project: 2.24MW (target)

FUNDING STRUCTURE

Initial loan

Signed: 18 February 2019

Type: Convertible loan

REPP funding: GBP 600,000

Additional loan

Signed: 13 May 2020

Type: Convertible loan

REPP funding: GBP 300,000

SDGs



"We have big ambitions to deliver the most scalable and cost-effective distributed renewable energy across East and Southern Africa. The funding from REPP has allowed us to successfully complete the first phase in Rwanda, ahead of this regional expansion." - Karl Boyce, CEO, ARC Power