

SUMMARY BRIEF

RWANDA RENEWABLE ENERGY FUND PROJECT

*Engaging the private sector in off-grid solar
electrification*

// June 2022

DEVELOPMENT CONTEXT

Millions of people across Africa have no electricity. As it will take many years before electric grids reach all the unconnected households, solar products and mini-grids constitute faster and cheaper “off-grid” solutions.

In November 2015, the Rwandan government set an ambitious target to increase electricity access from approximately 22 percent of the households in 2014 to 70 percent by 2018. Specifically, the government’s plan called for 48 percent of the country’s households to be connected to the grid, with 22 percent (about 550,000 households) to be covered by off-grid solutions.

Rwanda’s investment plan for the Scaling Up Renewable Energy Program (SREP) is focused on helping the country meet the 22 percent off-grid electricity access target through private sector-led off-grid solutions and mini-grids. Its aim of establishing the conditions for growth in off-grid electricity access for households, firms, and institutions would require major investments and an improved enabling environment.

CLIMATE DELIVERY INITIATIVE SERIES //

CIF Program: SREP

TOPICS

- Off-grid electrification
- Financing private sector provision
- Result-based financing

PROJECT COST:

USD 48.94 million

PARTNER ORGANIZATION:

World Bank

PROJECT DURATION:

2017–2023

COUNTRY:

Rwanda

Implementing MDB



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RWANDA RENEWABLE ENERGY FUND PROJECT:

The Rwanda Renewable Energy Fund's (REF) project design was motivated by the need to accelerate off-grid access to electricity in rural areas. Based on its aim of promoting private sector-led off-grid renewable energy development, REF involves setting up a fund to provide lines of credit to finance private sector engagement in off-grid electrification and create an enabling environment in this sector. The financial institutions are expected to use these lines of credit to finance private solar companies' provision of solar home systems and mini grids to households. This project is financed by the Climate Investment Funds' (CIF) SREP and implemented by the Government of Rwanda through the Rwanda Development Bank (BRD), with support from the World Bank. This case study traces the delivery challenges the project had encountered during its implementation and the government's adaptive management, as it identified and addressed the delivery challenges.

DELIVERY CHALLENGES AND SOLUTIONS:

CHALLENGE ONE: Skill and Human Resource Misalignment. Building an effective and qualified project implementation unit (PIU) proved to be more challenging than expected due to BRD's unfamiliarity with the World Bank's procedures and its initial capacity issues.

SOLUTION: Adaptive Management. The challenge was resolved after BRD brought onboard the necessary human capital, as well as instituted weekly calls for monitoring, coordination, and problem-solving, leading to improved project management.

CHALLENGE TWO: Private Sector Limitations. REF's design contained multiple financing windows, based on the idea that solar companies would be free to choose whether to seek financing from savings and credit cooperatives (SACCOs), banks and microfinance institutions, or BRD. As the government had wanted to develop sustainable sources of domestic financing for the off-grid sector, direct BRD financing was initially de-activated. However, providing credit lines

at competitive terms did not sufficiently incentivize Rwanda's financial institutions to finance the off-grid sector. In fact, the financial institutions, perceiving this new business to be risky, showed little interest in lending to the solar companies, resulting in the limited movement of funds during the first three years of the project.

SOLUTION: Pivot to Market-appropriate Products and Procedures. The project activated the window for direct lending credit lines from BRD to the solar companies, and simplified the over-stringent eligibility requirements for borrowing solar companies.

CHALLENGE THREE: Unaffordability to Target Population. Although the strengthened PIU was implementing project activities and the solar companies had better access to finance, sales and installations were still not proceeding at the targeted rate, because the intended users could not afford the solar systems. Being smallholders with few and irregular income sources, and lacking in cash during the planting season, they found it hard to make timely payments on pay-go systems, leading to defaults.

SOLUTION: Grants. A project restructuring in 2020 introduced results-based and progressive subsidies that improved the affordability of solar home systems, particularly for the targeted low-income households. Solar companies were paid for each installation made for eligible customers upon the verification of the system's installation and operation. Extensive monitoring of the market, dialogues with the solar companies, and the success of a pilot results-based project that provided proof-of-concept facilitated this solution.

However, no progress has been made in the area of mini-grids, due to the unaffordability of mini-grid electricity tariffs in the absence of grant funding that is currently unavailable. Furthermore, the project's financing window to provide a line of credit to mini-grid developers is insufficient.

CHALLENGE FOUR: Adverse Regulatory Changes with revisions to off-grid targets and technical guidelines.

4.1: In 2021, challenges stemming from revisions to the national off-grid targets and from Rwanda's technical standards for solar home systems affected the project. Although the government's original National Electrification Plan of 2018 had set an off-grid provision target of 48 percent, it lowered the off-grid target when it updated the plan in the middle of 2021, in light of the faster-than-expected progress with grid expansion and slower-than-expected off-grid uptake.

Although the periodic updating of national electrification plans is a good practice in general, some of the solar companies expressed concern that the revision to a lower off-grid target would leave too small a market for solar home systems.

SOLUTION: Constructive Policy Dialogue. A solution was found in the form of an upward adjustment of the new off-grid target, thus ensuring that the provision of solar off-grid solutions remained financially feasible. The solution was arrived at through constructive, multi-stakeholder policy dialogues between the government and the World Bank.

4.2: Another issue emerged surrounding quality standards for solar home systems. The government had formulated national quality standards for solar home systems due to some substandard systems being imported, with adverse consequences for end-users and companies selling quality products. Nonetheless, the guidelines were more demanding than the international norm. With few manufacturers able to meet Rwanda's standards, imports slowed, as the guidelines made it hard to get products through customs.

SOLUTION: Data-driven dialogues and the World Bank's provision of technical support to the Rwanda Standards Board led to the government's resolution of the issue by aligning its standards to international norms.

TRACING THE IMPLEMENTATION PROCESS:

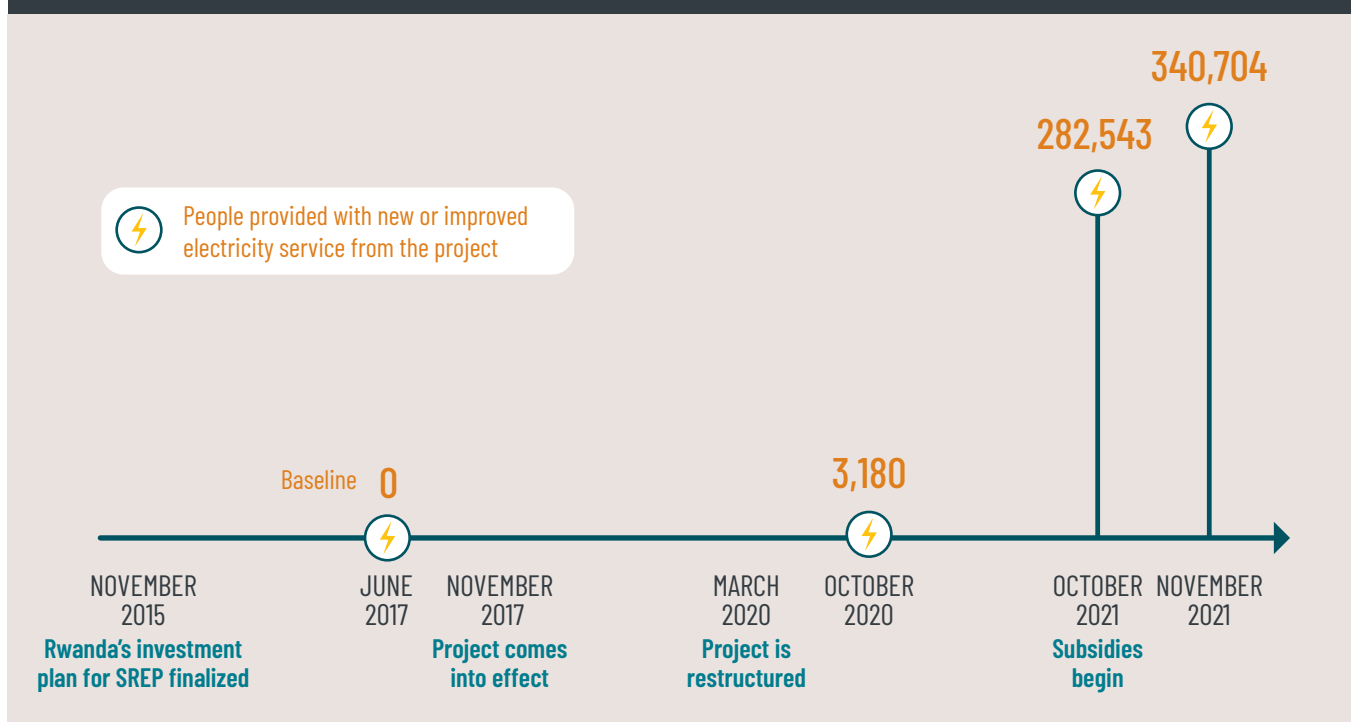
The project was off to a slow start with electricity connections and disbursements well below target during the first three years. However, connections, disbursements, and other results picked up after the project team made several adjustments, including a formal restructuring in March 2020, in response to the delivery challenges.

Several factors facilitated the project team’s adaptive management:

- The team worked collaboratively to detect, diagnose, and resolve challenges.
- Active dialogues with companies and financial institutions helped the project team to understand the market, its challenges, and the corrective actions needed so that it was able to design the appropriate incentives for the targeted stakeholders.
- The project’s design, built upon separate financing windows, allowed for flexibility to adapt to the situation. BRD could activate the direct financing window with relative ease and add a new results-based grants window.
- Predetermined formal milestones helped trigger timely reviews and course corrections.
- The World Bank paid close attention to the implementation details, using calls with the PIU team, technical support through staff and consultants, and country visits to deliver agile implementation support.



FIGURE 1. TRACING THE RWANDA RENEWABLE ENERGY FUND PROJECT’S IMPLEMENTATION TIMELINE



PROGRAM RESULTS:

As of 2022, BRD's changes to the project, in response to the challenges, are producing positive effects. Disbursements are up and the project is meaningfully engaging the private sector in selling and installing solar home systems and working with financial institutions to finance the sector. By November 2021, the project had financed 340,704 connections.

LESSONS LEARNED:

- 1 | **Market actors should have access to multiple sources of financing.** Though there were valid reasons for steering the solar companies to borrow from local financial institutions, it proved to be a limiting factor. Direct lending from BRD to the solar companies turned out to be more effective.
- 2 | **Subsidies are required to further expand the penetration of solar home systems among low-income population segments.**
- 3 | Projects to promote private sector participation and foster market development **should rely on extensive and continued consultations with market participants and near real-time market monitoring.**
- 4 | Projects to promote private sector participation and foster market development **need flexible mechanisms to respond to market developments and market participants' concerns.**
- 5 | **There is a need for continued dialogues between multilateral development banks (MDBs) and the government to address delivery challenges stemming from policies and regulations and their changes.** MDBs, with ongoing sector engagement, policy dialogues, and policy lending in the same sector as an investment project, are well-positioned to engage in this dialogue.

THE CLIMATE INVESTMENT FUNDS

The Climate Investment Funds (CIF) is one of the largest multilateral climate funds in the world. It was established in 2008 to mobilize finance for low-carbon, climate-resilient development at scale in developing countries. 14 contributor countries have pledged over US\$10 billion to the funds. To date CIF committed capital has mobilized more than \$62 billion in additional financing, particularly from the private sector, in 72 countries. CIF's large-scale, low-cost, long-term financing lowers the risk and cost of climate financing. It tests new business models, builds track records in unproven markets, and boosts investor confidence to unlock additional sources of finance.



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