



**ENERGY PRIVATE DEVELOPERS**  
Your partners for energy in Rwanda

# **EPD LEARNING REPORT ON UNDERSERVED POPULATION**

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## Acronyms

EPD	Energy Private Developers
NST	National Strategy and Transformation
NEP	National Electrification Plan
RES	National Electrification Strategy
GE	Grid Extension
SAS	Solar Stand-Alone Systems
REG	Rwanda Energy Group
EDCL	Energy Development Corporation Limited
EUCL	Energy Utility Corporation Limited
ESSP	Energy Sector Strategic plans
EICV	Enquête Intégrale sur les Conditions de Vie des ménages



## Executive Summary

Rwanda's National Strategic and Transformation (NST-1) targets universal electricity access for households in Rwanda by 2024, to be achieved through on-grid and off-grid electrification technologies with shares of 52% and 48% respectively. The off-grid connections use Solar Stand-Alone Systems (SAS) and mini-grids as an interim solution and are particularly reserved for EPD member companies to cover up.

The purpose of this report is to provide insights on the underserved population in Rwanda in terms of electricity mainly off grid. Insights provided in this report will give investors, government, and other stakeholders a deeper understanding of the electrification status to date, showcase least electrification districts, reasons for the low percentage of electrification, solutions/programs in place to boost the electrification of underserved population, and the recommendations to ensure the number of underserved population is significantly reduced. The quantitative and qualitative analyses presented in this report are based on the data collected from local leaders, different EPD partner institutions including REG, EDCL, BRD, MININFRA on electrification targets and various financing & support programs in energy sector.

As of May 2022, the cumulative connectivity rate is 71.92% of Rwandan households including 50.61% connected to the national grid and 21.31% accessing through off-grid systems (mainly solar)<sup>1</sup>

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<sup>1</sup> <https://www.reg.rw/what-we-do/access/>



## 1. Introduction

EPD has a mandate of making sure that there is rapid deployment of clean energy and last mile connection in order to reach universal access in Rwanda. As such, we have carried out this research particularly to provide an overview of the underserved population in Rwanda, identify reasons why there are still underserved areas, strategies in place to reduce the underserved population and the recommendations to ensure the country's target of 100% electrification is met by 2024. The research insights will give investors, the Government, and stakeholders a deeper understanding of Rwanda's electrification status.

This report is organized into five sections:

Section 1 above gives an introduction to the research.

Section 2 highlights the overview of the energy sector in Rwanda.

Section 3 showcases data collection methodologies used to identify the less electrified areas.

Section 4 shows the research outcomes.

Section 5 discusses solutions/ strategies to reduce the numbers of underserved population and

Section 6 provides recommendations.

## 2. Overview of energy sector in Rwanda

Over the past decade, the power sector has proliferated, from only six percent of the population having access to electricity in 2000 to 71.92 % in 2022(May). The electricity access kept on growing due to the government's proper planning, such as Energy Sector Strategic plans (ESSP) aligned with annual National Electrification Plans (NEP) and Rural Electrification Strategies (RES). The RES outlines strategies through which Rwanda households far away from the planned national grid coverage could have access to electricity through the most cost-effective means by developing programs that facilitate the end-users

to access less costly technologies. One of the strategies of RES is to increase the participation of the private sector by providing off-grid solutions. As of May 2022, the cumulative connectivity rate is 71.92% of Rwandan households equivalent to 2,709,000 households as reported by the NISR (EICV, 5). Figure 1 shows the electricity access as of May 2022.

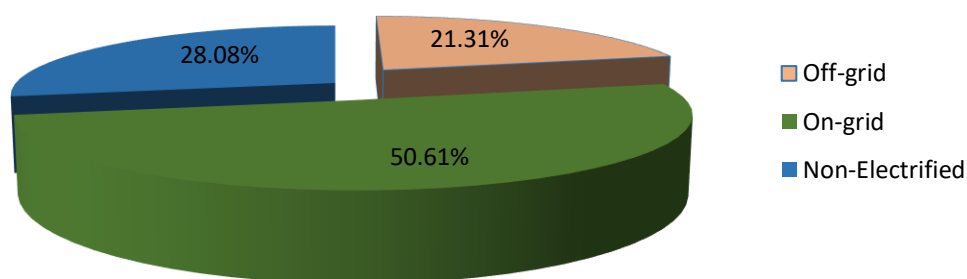


Figure 1: Electricity Access rate as of May 2022.

### 3. Data collection and findings

This section presents the data collected on underserved population.

#### 3.1 Data collection

The data was collected via different methodologies such as interview (phone interview) and report publications to mention a few:

- Interviews: The interviews were conducted by EPD to local leaders of the identified less electrified districts.
- Report publications: The data on electrification status were collected from reports published by main stakeholders in the energy sector.

### 3.2 Findings

As of May, 2022 the electrification rate is at 71.92%. All the districts in the country have a percentage of electrification, some villages are electrified by off-grid while others are electrified by grid extension. Figure 2 shows the districts percentage rates of connections combining off-grid and on-grid.

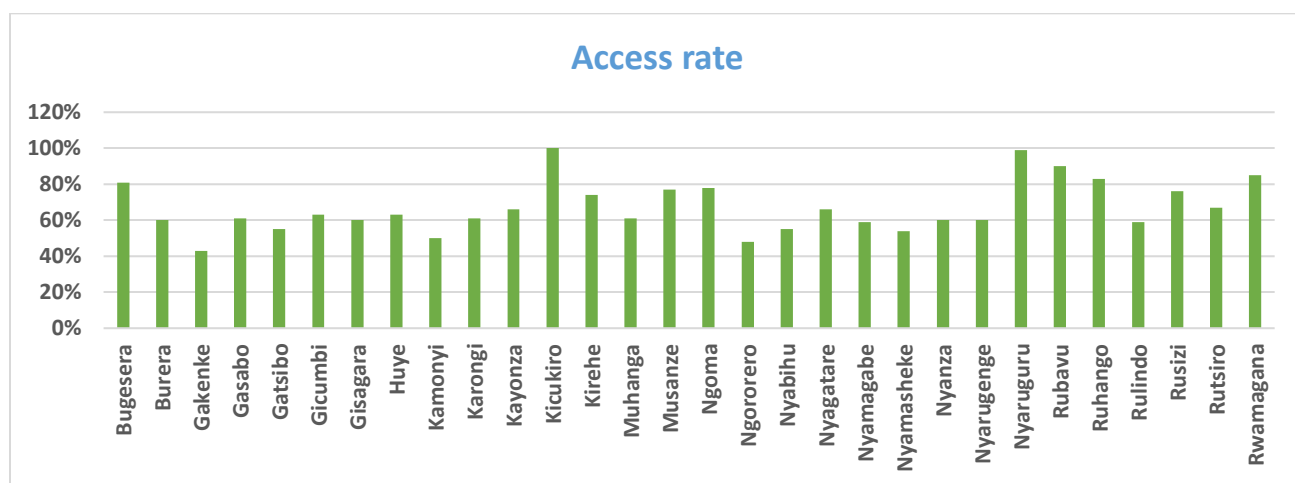


Figure 2: Districts access rate

The Government is committed to meet universal access by the year 2024. The current access targets stipulate a 100% household’s access to electricity by 2024 and according to the revised NEP 2021, 70% of households will be connected to the national grid and 30% will access electricity through off-grid solutions<sup>2</sup>.

In each particular district the off-grid technologies are being distributed as alternative source of energy. The off-grid access rate per each district is shown in Figure 3.

<sup>2</sup> Publication of Updated National Electrification Plan (NEP 2021): <https://www.reg.rw/publicinformation/strategies-plans/>

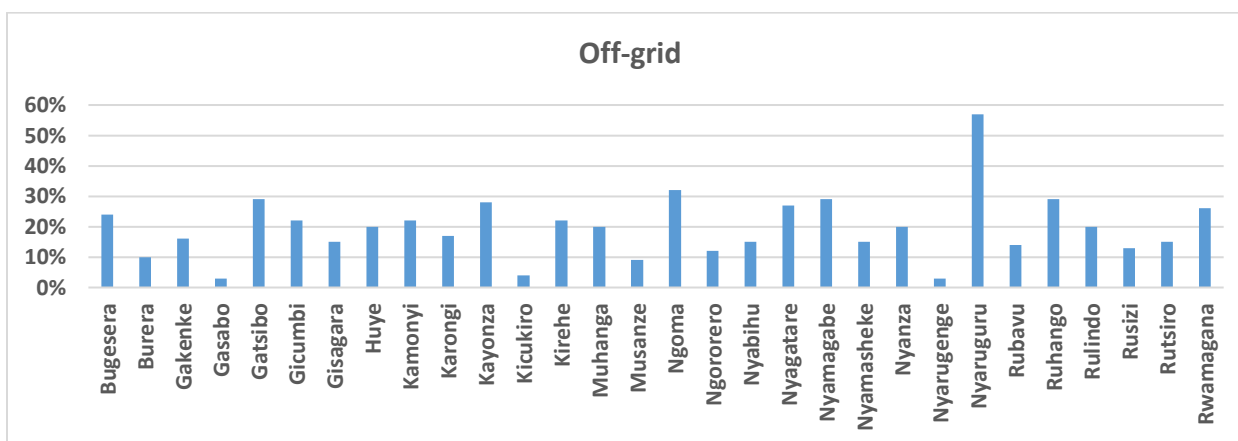


Figure 3: Off-grid electrification rate per each district

## 4. Key outcomes

Looking at the level of electrification countrywide as of today, there are some districts that still have low percentage levels of electrification be it either on-grid or off-grid. Specifically, for off-grid 3 top least electrified districts are located in the capital city (Kigali) where the priority source of energy is on-grid.

A case study of the less electrified districts was conducted where local leaders of less electrified districts participated in an online interview and the following outcomes highlighting the reasons causing the slowness in electrification were identified:

### 4.1. Reasons for slow electrification

- Demography: the biggest number of the populations being so scattered and the areas demography so hilly hence making it very difficult for off-grid providers to make connections.
- High Pricing: expensive solar home system products due to the bad roads, hilly and far villages locations.
- Affordability: The biggest percentage of the population in villages have low purchasing capacity and they do not afford buying Off-grid systems.
- Fewer sectors of underserved districts are less involved in the subsidy programs, examples are two districts one with 89 villages and only 16 of them are connected; and another one with 317 villages having only 26 villages connected under the subsidy. The similarity between these two sectors is a very low participation in subsidy programs in place to help the Off-grid sector grow.
- Attitude: A small percentage of the local communities are still reluctant on receiving off-grid because their expectation to tap into the main grid is high.



## 4.2. Suggested solutions

Through phone interviews local leaders suggested the following:

- There is a need for a mass mobilization of Off-grid technology and products.
- Addition of more villages in the subsidy program.
- Companies should harmonize on the prices of their products.

## 4.3. Proposed solutions to reduce the underserved level

- ✚ During the period July 2021- April 2022, 89,956 Households were connected through off grid solutions (Standalone solar home systems and mini grid) against the planned 60,000 connections.

This increases the total number of households connected through off grid from 477,184 households connected by end June 2021 to 567,140 households by May 2022. In a bid to increase solar systems uptake BRD in partnership with REG-EDCL and other stakeholders are conducting a countrywide awareness and promotional campaigns on the use of SAS products.

- ✚ The government of Rwanda has put the scale up electricity access with focus on low performing districts and productive use areas as well as promoting affordability of off grid solution in areas far from the main grid among the areas of priority for the fiscal year 2022/23 as the target is to connect 670,000 new households to the Off-grid Solutions.

**Note:** The number of households and productive use in areas connected to off grid as well as grid extension figures are expected to significantly increase by end June 2022.

## Recommendations

- It is recommended that the revised NEP 2021 be considered by all stakeholders and development partners to track the implementation of NST1 targets.
- REG is recommended to re-allocate areas demarcated for Grid extension which delayed to secure funds to be re-demarcated for Off-grid connections.
- Private sector recommends investors/Development partners/Financial institutions to allocate Funds and invest in the energy sector so as to ensure the rapid electrification to underserved population.