

# Scaling up Off-Grid Energy in Rwanda

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***Towards Universal Energy Access by 2020 in Rwanda: The role of government, multilateral and private sector stakeholder engagement to achieve scale.***

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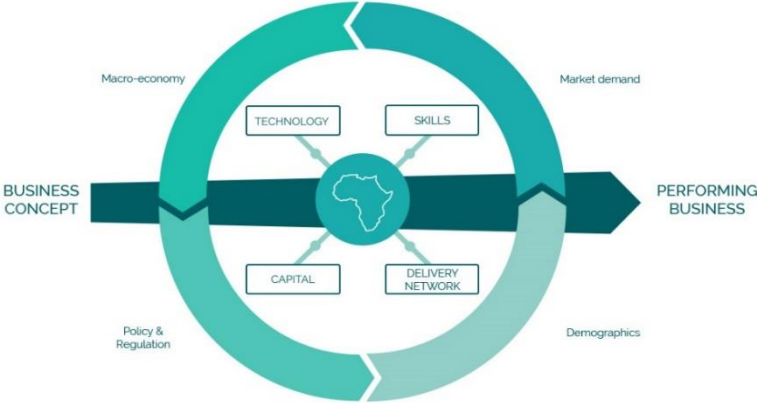
# Energy 4 Impact Overview



- Formerly GVEP International
- Non-profit organisation focused on providing support to businesses working to accelerate access to energy in SSA
- Offers business, technical, financial advice to energy SMEs and micro enterprises
- Impact over the last 10 years: Raised \$111m of capital to support 3,046 businesses that have created 8,363 jobs, avoided 12,2m tonnes of CO2 and provided 14,8m people with improved access to energy.

# Energy 4 Impact's approach

Our approach to developing the energy sector

Challenge	Energy 4 Impact business model	Objectives
<p><b>SMEs' big role in scaling up energy access:</b> Small, "infrastructure-light", distributed solutions by SMEs are a significant part of the solution in SSA</p> <p><b>But they often lack the enabling resources:</b> Technology, skills, capital, delivery network</p>	 <p>The diagram illustrates the Energy 4 Impact business model. It features a central circular flow with four quadrants: TECHNOLOGY (top-left), SKILLS (top-right), CAPITAL (bottom-left), and DELIVERY NETWORK (bottom-right). A central map of Africa is surrounded by these four elements. The circular flow is bounded by four external factors: Macro-economy (top-left), Market demand (top-right), Policy &amp; Regulation (bottom-left), and Demographics (bottom-right). A dark teal arrow labeled 'BUSINESS CONCEPT' enters from the left, and a larger dark teal arrow labeled 'PERFORMING BUSINESS' exits to the right, passing through the center of the circular flow.</p>	<ul style="list-style-type: none"><li>✓ Help companies overcome gaps in enabling environment</li><li>✓ Address challenges in early stages of growth</li><li>✓ Support to achieve traction in customer market and amongst capital providers</li><li>✓ Enable to scale-up in order to become sustainable</li></ul>





**SOGER**  
SCALING UP OFF GRID ENERGY IN RWANDA

# Scaling Up Off Grid Energy in Rwanda

## Contributing to Government of Rwanda's Energy Access Goals and Priorities

- ❑ GoR Rural Electrification Strategy
  - ❑ 70% electrification by 2017/18, 100% 2020
  - ❑ GoR has an explicit expectations placed on private sectors, especially on mini-grid

*“Mini-grids will be developed by the private sector with Government playing a key role in identifying sites and establishing a framework through which these can become financially viable investments” RES 2016, Minifra, GOR*  
*This requires both innovation in technologies and business models. It requires a private sector to be better prepared to take on this responsibilities*

SOGER is designed to support private sector to overcome these existing MG challenges (technical capacity, management skills, financing gaps) and thereby to contribute to GoR's long term energy vision

# SOGER Programme Overview



**Duration:** 3 years July 2016 to July, 2019, Funded by Sida

**A two-phased programme:** Inception Phase (6 month) and Implementation (30 month)

## Programme Objectives

- To support the growth of a sustained market for off-grid renewable energy in Rwanda, by helping the private sector to deliver energy access to unserved or underserved people in rural areas
- To contribute to social and economic development and enhance environmental sustainability
- To attract private sector capital & increase Fis' appetite to engage in the sector and create the conditions for sustained market activity, which do not require long term donor funded support

Expected impact: 100 Enterprises/project developers supported, 15,500 connections, 10,400 tonnes of CO<sub>2</sub> saved per year, 7000 jobs created, 40 women led businesses supported, 5 women developer supported

# Programme Components

- **Renewable Energy Small Projects (RESP) Development Facility:** to accelerate the development and growth of small isolated mini-grid RESP projects, including solar mini-grids and projects based on other renewable energy approaches, in line with the government's priorities for rural electrification.

**Technology type/scale:** On/Off-grid renewable based generation (>50kW to 3MW), typically solar and hydro based generations.

- **Pico-hydro project development:** to support the development of 30 Pico-hydro micro-utilities, to provide sustainable electricity to rural communities.

**Technology type/scale:** Off-grid pico-hydro generation (>5kW to 50 kW)



# SOGER Projects Overview

## RESP

3 On-Grid IPPs  
(hydro)  
400 kW -1.6 MW  
4 Off-Grid Solar >50k

Total Investment  
Requirement: approx.  
USD 35 million USD

Debt Requirement:  
approx. USD25 m.

**Cumulative  
Generation: 1.1 MW,  
>3.5MW**

**Household  
Connection: 11,000**

## Pico-Hydro

### 10 Grant Supported

(Dev. Equity+Grant+Debt+Comm. Share)  
Scale: 16 – 50kW, Capex: Approx. 85,000  
USD

10 Grant Supported Pico Hydro: Dev. Eq:  
10- 20%, Debt capacity- 5- 15%, Grant  
injection- 60-70%)

### Community Shared Ownership

### 20 non Grant Supported

(Dev. Equity (15-25%) + Fianances ( EnDev RBF, Fis debt, WB REF, Fonerwa, others) + Comm. Contr. (5-10%)

**Cumulative Generation: 450kW, >1MW**

**Household Connection: 4500**



## Support Structure

- Project Development Support:
  - demand/design analysis, site selection, pre-feasibility work)
  - community engagements, business models, Government approvals, permits, EDCL clearances etc.)
  - investor's facilitation and capital raising, PPA secured, demand distribution, customer management )
- Financing Support: commercial equity, grants, debts, grants for connections, access to FIs
- Productive energy use support: mentoring, business skills, grant, debts finances
- Micro-enterprises capacity building support/mentoring/access to MFIs, SACCOS
- Guarantees, training to FIs
- Other technical/financial advisory support, investment facilitations

**Thank You**

**Bibek Raj Kandel**

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