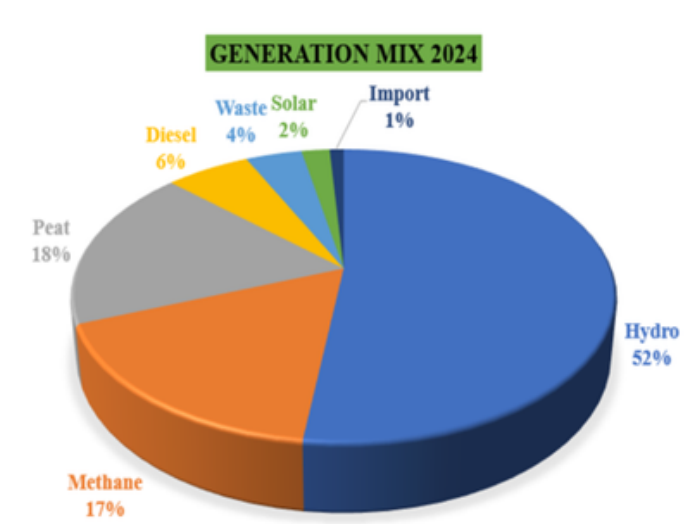
Rwanda Energy status

ENERGY PRIVATE DEVELOPERS ASSOCIATION

Energy Sector in Rwanda is undergoing rapid development with focus on increasing access. As of end July 2025, approximately 84.6% of Rwandan households have access to electricity, with 59.6% connected to the national grid and 25.0% using off-grid systems, mainly solar. Rwanda's total installed capacity is 406.4 MW. [1]

Rwanda Energy mix



Hydro Power

Hydropower remains the cornerstone of Rwanda's electricity generation, contributing over 50% of the country's total installed capacity of 406.4 MW. As Rwanda continues to advance its renewable energy agenda, the upcoming Ruzizi III Hydropower Project, with a planned capacity of 206 MW, stands out as a transformative milestone.[2] Scheduled to commence full construction by January 2026.

Ruzizi III will supply sustainable electricity to more than 300,000 residents across Rwanda, Burundi, and the Democratic Republic of Congo. Beyond expanding clean energy access, the project will play a crucial role in enhancing regional energy integration, strengthening economic growth, and reducing reliance on fossil fuels, while symbolizing regional cooperation and a shared commitment to long-term environmental and economic sustainability. [2]

Project will be constructed along the Ruzizi River

E-mobility

Rwanda's policy framework is designed to cut emissions, promote green innovation, and attract investment in the electric vehicle (EV) sector. With VAT exemptions in place until 2028, the current period offers a favorable environment for EV importers. [3]

Policy and Incentives

- Rwanda is actively promoting e-mobility to reduce greenhouse gas emissions, support green technology, and attract investment in the electric vehicle (EV) sector.
- Government incentives include:
  - Exemption from VAT, customs duties, excise tax, and withholding tax on EVs, charging equipment, batteries, and spare parts.
  - These exemptions are valid until June 30, 2028.
- The country targets 20% of public buses to be electric by 2030.

Market Growth and Adoption [4]

- Between 2020 and 2024, Rwanda imported over 7,000 electric and hybrid vehicles, consisting of:
  - 512 fully electric vehicles (EVs)
  - 6,660 hybrid electric vehicles (HEVs)
- EV imports have shown rapid growth from 19 units in 2020 to 512 in 2024 and are expected to continue rising as incentives remain in place.

Investment Opportunity

- With favorable policies and tax exemptions valid until 2028, this is an optimal period for investors and importers to enter Rwanda's emerging EV market.

Rwanda is promoting green transport by mandating that all newly registered public transport motorcycles be electric in Kigali with different companies (Spiro, Ampersand, Gorilla, REM, etc.. . This policy supports the country's goals to reduce emissions, enhance air quality, and advance sustainable mobility.

BASIGO 100% Electric Bus


SPIRO Electric motorcycle

Mini grid and C&I

The energy generation capacity for private extended to 100 MW with no licence to install and generate. [5] Energy developers expected to perform beyond lighting.

Rwanda's C&I energy sector is growing rapidly, driven by the need for reliable and affordable power to support industrialization. Key users include agro-processing, water treatment, and service industries. The market is shifting toward on-site renewable solutions like rooftop solar, aligned with national goals for energy efficiency and sustainability.[6]

However, growth is slowed by high upfront costs and limited financing options. Despite these barriers, industries such as food processing, cement, and textiles show strong potential for renewable energy adoption. The sector offers major investment opportunities in renewables, efficiency, and energy management to enhance energy security and reduce costs.

ARC Power and Volkswagen Mobility Solutions Rwanda (VWMSR) established the Empowerment Hub to facilitate agricultural mechanization, sustainable mobility, and local entrepreneurship. The hub is powered by a 100 kW grid-tied solar system installed by ARC Power and supports farming operations through five rentable electric tractors.[7]

ARC Power e-tractor


In 2025, a small-scale photovoltaic power system was installed at the Chinese-built Forever TVET Institute in Kigali to provide a stable and sustainable energy supply for the campus. The system integrates a 44.28 kWp solar PV array, a 25 kWh lithium battery, and smart energy management into a unified "PV-Storage-Charging-Load System", establishing an intelligent energy control architecture for efficient utilization and precise distribution of energy resources. The initiative aims to promote the adoption of clean energy, enhance school energy efficiency, and provide a cutting-edge, practical platform for education and research. [8]

Productive Use of RE and Value Chain

Rwanda is actively leveraging renewable energy for productive uses (PUE) to drive economic growth and improve livelihoods, especially in agriculture and small businesses. Through strong private sector participation and development initiatives, the country is scaling up off-grid solar solutions such as cold storage, agro-processing equipment, and solar-powered machinery for small-scale industries and rural enterprises enhancing productivity, reducing energy costs, and supporting sustainable development.

In a significant step toward advancing sustainability and rural development, Kolmena Group Ltd has officially handed over a 30-kilowatt solar power system to the Rwanda Green Fund (FONERWA) and the Good Neighbors Cooperative in Rubaya Sector, Gicumbi District. [9]


The solar installation powers two milling machines and a lighting system within the cooperative's working area.

Clean Cooking

2025 Clean Cooking Highlights

The BioMassters company distributed 6,500 eco-friendly biomass pellet stoves (metal and locally-made clay models) in Rwanda, designed to reduce smoke emissions and shift away from firewood/charcoal use. [10]

Through the Bboxx-Forward7 partnership (with the Government of Rwanda and the Ministry of Infrastructure, MININFRA), a programme began in 2025 to distribute 50,000 affordable LPG cooking kits (two-burner stove + 12 kg cylinder + smart pay-as-you-go valve) to low-income households. [11]

November 03, 2025 :Government of Rwanda, Bboxx team delivered 50,000 affordable LPG kits

Clean Cooking - Government Initiatives

The Government has set a target that by 2032 all schools under the national feeding programme will have phased out firewood/charcoal and moved to cleaner alternatives (fuel-efficient stoves, LPG or other). [12]

A gas container near the kitchen at Collège Christ-Roi de Nyanza. The use of cooking gas in schools has played a crucial role in protecting forests in the Southern Province.

Rwanda's Carbon Market Gains Driving Clean Cooking and Renewable Energy

The Development Bank of Rwanda (BRD) announced that Rwanda is set to earn over USD 19 million (Rwf 27.5 billion) from the international carbon market by 2026, with proceeds directed toward sustainable energy and environmental protection programs.[13]

Under the carbon market framework, low-emission countries like Rwanda receive payments from high-emission countries for verified activities that reduce carbon emissions. Eligible projects include clean cooking, renewable energy deployment, forest conservation, tree planting, and biodiversity protection.

Currently, Rwanda's carbon credits trade at USD 15 per ton of CO_2, with prices expected to rise as the country strengthens its project portfolio. Rwanda has already received USD 214,000 (Rwf 310 million), with an additional USD 2 million expected by December 2025 and nearly USD 16 million projected for 2026. [13]

Through ASCENT, the Development Bank of Rwanda (BRD) is leading efforts to disseminate 80,000 clean cookstoves nationwide, supporting the shift from traditional fuels to modern, efficient, and low-emission cooking technologies. [14]

Between 2020 and 2025, BRD registered carbon credits from flagship green projects, including:

- Cana Uhendukiwe Program: Enabled access to solar power for households, with investments totaling USD 48.94 million. [15]
- EAQIP 3B (Tekera Aheza) Project: Supporting distribution of fuel-efficient stoves to reduce firewood use and indoor pollution. The project will avoid over 600,000 tons of CO_2 emissions and generate USD 10 million in carbon credit revenues by 2026. [16]

Revenues from carbon credit sales will continue to strengthen renewable energy, sustainable fuel production, and clean cooking programs.

Ruhango Environmental Week: promoting clean cooking and well-being by AVSI Rwanda

Cooking demonstrations and competitions

Women prepared the same meal twice: once on a traditional three-stone stove and once on an Improved Cookstove (ICS).

This hands-on comparison allowed community members to experience firsthand the advantages of the ICS:

faster cooking times, significantly reduced firewood use, and far less smoke.

Judges assessed the results based on cooking time and smoke levels, while community health workers enriched the activity by sharing important nutritional advice and safe cooking practices.

This direct experience proved powerful in helping participants understand the practical and health benefits of cleaner cooking (2nd Oct.2025 at Ruhango District). [17]

Solar Power

The solar subsector mostly played by Energy developers contributed to the access to energy in off-grid areas by providing SHS solutions by 25% of total access, and the existing resources like ASCENT promises big contribution of distributing 50,000 SHS. [18]

- Government targets & plans: feasibility work and planning in 2025 accelerated discussions for large solar parks (feasibility for 200 MW and proposals for additional plants including studies for a 30 MW plant). The national Least Cost Power Development Plan targets major solar scale-up through 2050. [19],[20]

Market & finance (what happened in 2025)

- The Government and MININFRA are accelerating household solar adoption through a $29.24 billion FRW subsidy window funded by the World Bank and is expected to trigger at least 370,000 off-grid connections [21]

- Private off-grid players and mini-grid developers continued pilots and scale-ups (pay-as-you-go SHS providers, local installers and regional developers), supported by blended finance and local banks offering green lending. (See mini-grid and off-grid market activity in 2025.)

Technology and access

- Solar Home Systems (SHS): SHS remained the dominant off-grid technology for household electrification and basic productive appliances (lighting, phone charging, small radios/TVs). Pay-as-you-go models keep monthly/weekly payments affordable.

- Mini-grids: Pilots and early commercial roll-outs expanded in 2025 — developers like ARC Power progressed multi-phase mini-grid projects to electrify rural communities, with plans for many more mini-grids across provinces. Mini-grids combine PV arrays with battery storage and often serve productive loads. [22]

- Large-scale PV & utility projects: Feasibility/planning advanced for larger grid-connected plants (studies for 30 MW and exploratory work toward hundreds of MW in longer term plans). These moves signal a shift toward adding utility solar to complement hydropower. [23]

Methane Gas

Photo: Kivu-Watt methane gas extraction facility

Rwanda Methane Gas Developments

1. Contribution to Electricity Generation

Methane gas extracted from Lake Kivu plays a significant role in Rwanda's energy mix, contributing approximately 21% of national electricity generation. The installed methane-based generation capacity has reached about 82 MW, strengthening energy security and reducing dependence on imported fuels. [24]

2. Key Power Producers

Two main projects dominate methane-to-power production in Rwanda:

- KivuWatt - Operating at approximately 26 MW, this is the pioneering methane gas-to-power plant on Lake Kivu. [25]
- Shema Power Lake Kivu (SPLK) - Contributing around 50 MW, making it one of the largest methane power producers in the country.[26]

3. Ongoing Infrastructure Development

The Gasmeth Energy Project in Karongi District is currently under construction. Once completed, it is expected to:

- Extract approximately 40 million cubic meters of gas per day
- Supply methane for electricity generation, industrial applications, domestic energy use, and transport fuel

This project represents a major expansion of Rwanda's methane gas utilization beyond electricity. [27]

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