

## RENEWABLE ENERGY FOR REFUGEES



A couple in Kigeme with an SHS installed on their roof  
(Practical Action / Edoardo Santangelo)

REFUGEES  
NEED ENERGY

**Refugees in Rwanda and Jordan most often do not have sufficient access to energy to meet their basic needs, or to live safe, and productive lives.**

In many cases, neither do the communities that host them. Like everyone else, they need energy to power their homes, businesses, schools, and health clinics. Families need energy to earn an income, to stay in touch, to cook, and to study. Yet, energy is inaccessible, unsafe, and unaffordable, particularly in refugee camps. Without access to energy, they are unable to rebuild their lives and have to rely on humanitarian aid.

**Jordan background**

Jordan is the second-largest host of refugees per capita worldwide with 758,330 persons of concern. 83 per cent of those people are living in urban areas outside refugee camps. Jordan has relatively high youth unemployment and a significant number of children remain out of school because of financial barriers and the poor quality of services provided. UNHCR states that around 80 per cent of Syrian refugees in Jordan live below the poverty line and struggle to pay monthly bills. Rent and utilities are their highest costs.

**Rwanda background**

In Rwanda's camps, access to electricity and lighting in households are below the targets set by the government. Before our project, 58 per cent of households either had no lighting at night or used only basic sources such as candles and torches. Three-quarters of households relied primarily on three-stone fires, mud stoves, and charcoal for cooking. Most households (90 per cent) coped with the lack of firewood by skipping meals, reducing portion size, or exchanging food for cooking fuel.



Ensuring Refugee Camps in Rwanda have Access to Sustainable Energy

## OUR APPROACH

RE4R worked directly with refugees and the communities that host them, along with governments and local partners, to increase access to renewable energy (see table on next page for details of the project components). We have developed an approach that works towards:

- **Strengthening and supporting markets**

RE4R provided refugees with access to affordable sources of renewable energy by encouraging the engagement of private sector actors and strengthening local markets. RE4R did this in a way that can be economically sustainable beyond the life of the project. This enabled refugees to choose the solutions that work best for them.

- **Promoting economic activity for refugees and host communities**

By powering lighting, cooking, radios, mobile phones, tools, and appliances, RE4R enabled refugees to generate income and move from reliance on aid to economic independence. We supported refugees and the local communities that host them with finance and training to help them make the most of the energy they have access to, and to use it to support their families and communities.










- **Providing ‘Total Energy Access’**

RE4R ensured that households, enterprises, and community service providers have the energy supply and services they need to support human, social, and economic development. This includes access to technology and expertise to bring renewable energy to homes, schools, health clinics, and businesses.

- **Fostering change at the systems level**

RE4R demonstrated how renewable energy transforms the lives of refugees, and takes the experiences and solutions to those who can use them in other humanitarian settings across the world.

## WHAT WE DELIVERED

	Rwanda	Jordan
<b>Households</b>	 Biomass cooking technologies  Solar home systems	 Solar water heating systems and energy efficiency upgrades
<b>Livelihoods</b>	 Productive uses of energy  Solar systems for small enterprises	 Skills training and capacity building
<b>Communities</b>	 Camp-wide solar street lighting  Solar mini-grid for institutions and community facilities	 Onsite PV and energy efficiency upgrades for public schools

Global activities
<ul style="list-style-type: none"> <li>• Research and data</li> <li>• Learning on private delivery models and livelihoods</li> <li>• Project learning and knowledge</li> <li>• Policy advocacy</li> <li>• Communications and outreach</li> <li>• Monitoring, evaluation and learning</li> </ul>



# SUPPORTING HOUSEHOLDS



A woman and child under the light from their solar home system  
(Practical Action / Edoardo Santangelo)

## ⚡ Electricity

RE4R provided solar home systems (SHS) for households and small businesses in three refugee camps in Rwanda which provide energy for lighting, phone charging, and small appliances, such as radios.

Most refugees (96 per cent) who have purchased a system use it as their primary source of light, enabling children to study and families to socialize, work, and have more freedom in how they spend their time after dark.

We supported two SHS suppliers to provide affordable products directly to refugees. This activity aimed at strengthening the market for energy in the camps and has also created jobs for refugees, as technicians, customer care and sales agents, security guards, and business owners.

### A community fund for inclusion

We have established a community fund to promote financial resilience and support the poorest households to afford SHS. The fund provided loans and savings schemes to groups, supported the establishment of micro-businesses, and built financial management skills. By helping refugees to work together, we made sure that the benefits of renewable energy were available to all.

#### Project Achievements

<b>4279</b>	SHSs installed in households
<b>707</b>	participants in the community fund
<b>97%</b>	of customers report they are able to do recreational/leisure activities after dark
<b>99%</b>	of customers report they feel safer in their homes after dark
<b>87%</b>	of customers report they are able to study after dark

## 🔥 Clean cooking

In 2021, RE4R supported two clean-cooking suppliers to scale up their businesses and establish operations in Kigeme and Nyabiheke refugee camps and the surrounding host community. The suppliers sell improved cookstoves and sustainable biomass pellets which allow people to cook faster and save money on fuel. This supported a transition away from reliance on traditional stoves and unsustainable fuels, such as charcoal and firewood which are detrimental to people's health and the environment.

Awareness raising campaigns, marketing activities and user training sessions were conducted to explain the benefits of the new cooking technologies and how to correctly use them. The suppliers hired refugees and host community members to support them with sales and customer support.

#### Project Achievements

<b>6951</b>	cook stoves purchased
<b>1,254,887</b>	kgs of biomass pellets purchased
<b>81%</b>	of customers feel safer using improved stoves
<b>23%</b>	decrease in average monthly spend on fuel

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**Norwegian Refugee Council supported me by installing a solar water heater, in return the landlord agreed on a reduction of rent that helped me in making personal savings.**

Syrian refugee living in northern Jordan

## Hot water

RE4R has installed solar-powered hot water systems for refugee families living in rented accommodation in Jordan. In exchange for the installation, landlords agreed to reduce refugee tenants' rent for a year. Improvements to insulation, doors, and windows were also made to these homes. Reduced rent payments and lower energy bills are making a huge difference to refugees' monthly budgets.

### Project Achievements

**602**

households have received solar water heaters

**158**

households have received energy efficiency upgrades

**29%**

average reduced spending on non-renewable energy technologies and fuels for households after the installation of solar water heaters

## HELPING LIVELIHOODS

### Livelihoods

RE4R supported 150 entrepreneurs and small businesses in and around the camps in Rwanda through our Productive Uses of Energy for Livelihoods Programme. We matched entrepreneurs with business mentoring programmes, technical training, and access to finance, to help them use energy to boost their incomes. Some of the businesses we supported included hairdressers and salons, butchers, a cybercafé, phone repair shops, tailoring and shoe repair shops, food production, egg incubation, carpentry, and cafes.

### Project Achievements

**84**

entrepreneurs have reported a 50% increase to their incomes since participating in the mentorship programme



Students participate in a training on solar technology (Norwegian Refugee Council)

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**This training [on solar energy] taught me everything from A to Z... I managed to find a job suitable to my personal circumstances as a stay-at-home mother. I can now work from home.**

*Graduate from the youth training scheme*

## Employment training

Training on solar technology delivered by RE4R in Jordan has helped young people gain key skills to enter the renewable energy sector. Students have completed certified training to design, monitor, and maintain solar systems and on how to transition to employment, including interviewing skills and matching with employment opportunities.

### Project Achievements

<b>115</b>	youth trained in renewable energy vocational technical and employability skills
<b>107</b>	youth students have become certified technicians
<b>90</b>	youth students have been trained on environmental initiatives

## Streetlights

Following consultation with refugees, RE4R installed solar streetlights in three camps in Rwanda. Refugees prioritized the locations that needed lighting. These included health centres, water and sanitation facilities, markets, playgrounds, and sports fields, as well as access routes to them. Night-time lighting has transformed life after dark: shops stay open later, children are able to play and study, and residents feel safer moving around the camps after nightfall.

### Project Achievements

<b>185</b>	streetlights installed
<b>99%</b>	of streetlights functioning 24 months after installation
<b>62%</b>	of refugees report they are able to do business or productive activities after dark
<b>91%</b>	of refugees report they feel safer after dark

## Schools

Many schools in Irbid have been running double shifts to accommodate Syrian and Jordanian students since the influx of refugees in 2012. To support the schools' infrastructure, RE4R has installed on-site solar photovoltaic (PV) systems and made energy efficiency upgrades, such as installing LED lights, solar water heaters, and shading panels on windows. These changes have helped make schools more comfortable, cooler in summer and warmer in winter, and contributed to reducing their electricity bills. The teachers and students have been taught how the upgrades are not just better for them, but also better for the environment, which has helped to build local ownership of the initiative.

### Project Achievements

<b>14</b>	schools have had PV systems installed
<b>8</b>	schools rehabilitated with energy efficiency upgrades
<b>13,389</b>	students reached
<b>50</b>	government stakeholders trained in operation and maintenance

# SUPPORTING COMMUNITIES

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**In case a child would fall sick at night it would be impossible to take them to the clinic, which we can now do thanks to the light from streetlights.**

*Gihembe camp resident*

# AT THE GLOBAL LEVEL

RE4R made the case that investing in energy in humanitarian settings empowers refugees to become more independent, and to have more agency, dignity, and livelihood opportunities. We documented and shared the impact of our global activities, the lessons learned, the processes we followed and the decisions we took. This included showing what worked and, just as importantly, what didn't work, with the wider sector.

## Project Achievements

**78** policy forums and engagement events participated in

**31** knowledge products produced through RE4R

**4170** downloads of the knowledge products

# SUMMARY

Our Renewable Energy for Refugees project (RE4R) helped refugees, and the communities that host them, access renewable energy, build their economic independence, improve quality of life in homes and communities, and secure livelihoods.

**Donor:** IKEA Foundation



**Project dates:** April 2017 to March 2022

**Locations:** Rwanda – Kigeme, Nyabiheke and Gihembe refugee camps  
Jordan – Irbid

**Beneficiaries:** Rwanda – 66,000 / Jordan – 17,000

**Funding:** €8.6 million

**Project partners:**



For more information, visit:  
[practicalaction.org/our-work/projects/energy-for-refugees/](https://practicalaction.org/our-work/projects/energy-for-refugees/)



## About Practical Action

We are an international development organization putting ingenious ideas to work so people in poverty can change their world. Our vision is for a world that works better for everyone.

We help people find solutions to some of the world's toughest problems, including challenges made worse by catastrophic climate change and persistent gender inequality.

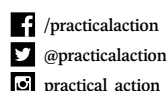
We believe in the power of small to change the big picture. And that together we can take practical action to build futures free from poverty.

**Big change starts small.**

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