

Microgrid development yemen

The conflict in Yemen has forced millions of people to flee their homes, and left communities facing poverty and hunger. Access to energy - low even before the fighting began - has been badly affected.

But the United Nations Development Programme has helped people in three off-grid communities set up solar microgrids, serving local homes or businesses. After initial training from UNDP and its partners, local people pooled cash grants from the organisation to buy the microgrid equipment and establish businesses selling energy to their neighbours. They were supported on the ground by UNDP's implementing partners - Care International and Sustainable Development Foundation.

Before the arrival of the grids, communities were reliant on diesel generators - polluting, expensive and vulnerable to sudden shifts in the price of fuel. Now solar electricity cuts bills for customers by more than 50%. In villages where families struggle to pay for food and healthcare, savings guard against the need to sell important assets such as livestock.

The microgrids now create a monthly income of up to \$70 for grid owners, and have become self-sustaining businesses - looking to expand and serve a growing waiting list of potential customers.

What's more, the grids are helping women take on new roles in their communities. One grid in the Abbas district is owned and run entirely by women, something extremely unusual in rural areas with strict gender restrictions.

Initially, the women faced scepticism and even mockery from some in the community. But tasks such as negotiating with tribal leaders and recruiting security guards saw them breakthrough local gender barriers. Now the whole community benefits and the women who made it happen are role models. The scheme has created other benefits for women too - as well as improving security by lighting settlements at night, the reduced financial pressure lessens the risk of families agreeing to under-age marriage for girls.

Yemen is still hard-hit by conflict, but none of the microgrids have been attacked or stolen. UNDP explains that this is because they are recognized by the whole community as important assets to be protected.

The United Nations Development Programme reported that only 40% of Yemeni households had access to electricity in 2021, primarily due to a severely damaged grid resulting from years of unrelenting war. Innovations in renewable energy in Yemen hold the potential to offer a sustainable solution to the immense human suffering caused by the lack of reliable electricity.

In 2020, Yemen's big cities experienced up to 20 hours of blackouts per day while the poorest and most rural Yemenis suffered even more. Renewable energy in Yemen has not become widespread enough to entirely



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make up for oil and diesel-based energy, resulting in reduced agricultural productivity. Businesses struggle to operate without reliable power, hindering the country's economic recovery.

Yemen's electric grid is dependent upon expensive, imported oil that the country sources unreliably. For example, in September 2022, a Saudi refusal to allow oil tankers to enter Yemen's Hodeidah port resulted in a severe energy crisis. Prices of electricity, foodstuffs and transportation soared, while economic activity ground to a halt. Rural farmers who relied on diesel to run their water pumps and irrigate their fields suffered greatly as the price of 20 liters of diesel rose from \$4 in 2015 to \$35 in 2022.

For those who do not want to rely on the public electricity grid, alternatives include subscribing to a private diesel-powered grid or using kerosene lamps, diesel generators, or personal solar panels to fill the gaps. But these systems are expensive and cheaper, low-quality versions often break down after just a few months, according to the World Bank.

New innovations demonstrate the potential for addressing Yemen's urgent need for more reliable and affordable energy. Yemen has access to a vast, untapped power source that can solve both of these problems: solar energy.

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Web: <https://www.sumthingtasty.co.za/contact-us/>

Email: energystorage2000@gmail.com

WhatsApp: 8613816583346

