

PROVIDING MODERN ENERGY ACCESS FOR ALL WITH RENEWABLES

Worldwide, nearly 1.3 billion people today do not have access to electricity, and 2.6 billion people do not have access to clean cooking facilities. This severely curtails their well-being and economic development, presenting a strong case for increased deployment of renewables.

Unless we change focus, 1 billion people will still be without electricity in 2030, and 2.6 billion people will be without clean cooking facilities, representing a massive loss of potential. Universal global access to electricity for lighting and other basic needs would raise global electricity demand by only 1%. IRENA analysis suggests that more than half of this demand could be met with decentralised renewable electricity.

Many renewable energy technologies are already significantly cheaper than diesel- or kerosene-based systems, and cheaper than extending the grid in areas with low population and per capita energy demand.

Many areas which are currently off the electricity grid are blessed with significant solar and other renewable energy resources. Solar photovoltaic (PV), wind, small hydropower and biomass power offer cost-effective and practical solutions for off-grid and mini-grid electricity access. Renewable energy also offers more security (with no need for imported fuel) and greater reliability than fossil fuels.

REmap analysis shows that the way in which traditional use of biomass is substituted can affect the future share of renewable energy significantly.

In 2010, half of renewable energy use worldwide was traditional use of biomass, accounting for nearly 9% of global energy consumption. This usage is unsustainable and is a major source of indoor air pollution. The bulk of traditional use of biomass is used for cooking and heating. Switching from polluting traditional cook stoves to modern clean biomass cook stoves could halve traditional use of biomass use and save 1 million lives a year due to reduced indoor air pollution.

Clean cook stoves and other modern renewable alternatives for traditional use of biomass can contribute substantially to the global doubling of the renewable energy share. The switch will also save the equivalent of 3% of today's energy use.

REmap 2030 points the way to sustainable solutions, including technological solutions as well as practical and cultural changes.

Various forms of modern renewable energy, such as biogas, provide opportunities to replace traditional biomass cooking. Currently, some 50 million biogas cooking installations exist worldwide, mostly in China and India. Bioethanol and electric cooking (using renewable energy sources to provide the electricity) are also gaining ground.

SYNERGY BETWEEN RENEWABLES AND ENERGY ACCESS

Although access to electricity is increasing, the replacement of traditional use of biomass is moving more slowly. To achieve this, governments will need to enhance access to the diversity of technology solutions that exist, including by making reliable and affordable equipment readily available and by helping to meet people's practical and cultural needs.

There are many successful examples of using renewable energy solutions to improve energy access.

- China has successfully provided electricity access to more than 50 000 villages through small hydropower mini-grids.
- The cost of solar lighting systems has come down dramatically and their uptake is rising rapidly. In Bangladesh, more than 60 000 such systems are sold every month, and 2.4 million systems have been installed.
- Diesel-based supply systems can be retrofitted with renewables. In Pacific islands such as Palau and Tonga, retrofit of diesel mini-grids with renewables is technically and economically feasible in all cases. Tokelau has transitioned to PV.
- Solar- and wind-based hybrid mini-grids are making inroads on islands and in rural areas of Africa and Asia, but the tariff benefits are not yet fully transferred to customers in all cases.

For more details, please visit www.irena.org/remap.

