Renewable Energy

On the rise

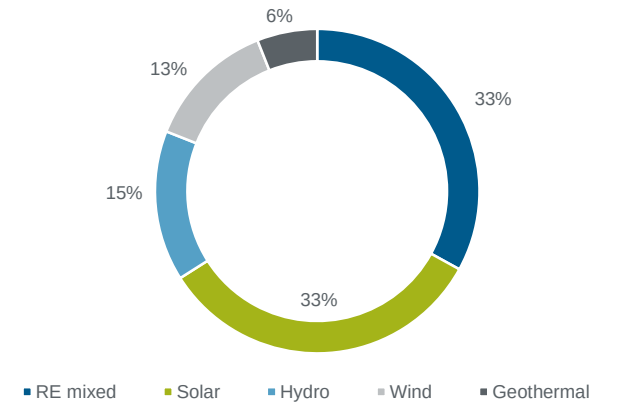
The use of renewable energies has become mainstream in many countries by now. The costs have been decreasing considerably during the past years; depending on the site and technology used it has in part already become competitive. In the meantime renewable energy covers 19% of worldwide energy use – and the trend is clearly going upwards. The further expansion of renewable energy plays a key role in reaching the internationally agreed goal of limiting the global warming to a maximus of two degrees. However, a great share of the potential in developing countries and emerging economies has not yet been tapped. In Africa alone, for instance, about 90% of the available hydropower potential for energy generation so far remains unused. Theoretically that would be enough to provide the whole continent with sustainable electricity. KfW Development Bank promotes the expansion of renewable energy worldwide and supports its partners in setting up clean and sustainable energy provision systems.

Context

According to estimates by the International Energy Agency (IEA) primary energy use will increase by about 40% until 2040. Around 90% of this increase will take place in developing countries and emerging economies. Carbon dioxide emissions will rise for some time longer before they will be stabilised or decrease. The 1.5- or 2-degree-target to combat the adverse effects of climate change – that has been internationally agreed upon - cannot be met if this scenario becomes reality. To make energy provision more sustainable all around the world, the use of fossil fuels, especially oil and coal, has to be reduced. At the same time, the great potential of energy efficiency and renewable energy has to be exploited fully.

Renewable energy sources include different types: from solar, hydro, wind and geothermal to the sustainable use of biomass and biogas as well as ocean power. Renewable energy serves as a basis not only for power generation, but also for the provision of space heating and cooling as well as process heating or cooling. The reasons why developing countries and emerging economies have not used their renewables' potential so far are manifold. Often, the legal and administrative framework is lacking. Non-cost recovering tariff systems and energy subsidies for fossil fuels prevent fair market conditions for renewable energies. Furthermore, some of the market participants, such as project developers, investors, local banks or political decision-makers, lack the necessary expertise. All in all, however, renewable energy shows a definite upwards trend. In fact the evolution of renewable energy has surpassed all the expectations and the costs for most technologies have decreased considerably.

Commitments to Renewable Energy 2014 – 2018
Total: EUR 6.2 billion



Source: own data

The KfW development approach

KfW Development Bank finances renewable energy projects in more than 30 countries on all continents. Between 2014 and 2018 grants and loans of about EUR 6.2 billion have been committed. Together with its domestic promotional activities in this area, KfW Group is presently the largest financier of renewable energies worldwide. Almost one third of KfW Development Bank's total commitments in the last five years were targeted programmes that did not cover only a single technology. Among them is for instance the contribution to the "Clean Technology Fund", administered by the World Bank. On behalf of the German Government KfW contributes EUR 500 million to this fund. The biggest part of renewable energy promotion goes to solar energy, followed by hydropower, wind energy and – with a larger interval - geothermal.

Depending on the local context, investments target either big grid-connected energy generation projects using hydropower and solar or geothermal energy where it is of great importance that grid integration is planned forward-looking. In addition, KfW Development Bank promotes smaller decentralised solutions like solar home systems or small island grids for the electrification of rural areas.

Besides grants and loans for public investors, KfW also provides credit lines for local banks in order to leverage private capital. Within the framework of accompanying measures, partner banks are supported in acquiring the appropriate know-how. Guarantees, especially in the area of geothermal energy, aim at reducing investors' risks. This is an essential prerequisite for the further development of this technology.

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Tremendous: Ruacana falls. Source: NamPower.

Namibia – Using the power of water

Namibia depends largely on expensive energy imports, which are mostly based on fossil fuels and mainly come from neighbouring South Africa. Because Namibia wants to become more independent of such imports and the energy demand continues to rise with further economic development, the government in the capital Windhoek seeks to tap new renewable energy sources within the country itself. It intends to establish a sustainable energy system and avoids possible electricity shortages that could occur because South Africa needs the produced electricity for its own purposes.

One important component of the strategy is the hydropower plant Ruacana, located at the Cunene River in the Namibian-Angolan border area. During the rainy season, the water drops down more than 130 meters at a width of 700 meters – which is why the location is particularly well suited for hydropower. Actually, turbines have been built in the rock for electricity production already in 1977. Until recently, there were three of them, a fourth generator unit was added in the year 2012 and increased the country's power generation capacity by 92 MW. KfW Development Bank financed the expansion of the power plant, which covers about half of the whole Namibian electricity demand, with EUR 35 million on behalf of the German government. Moreover, the modernisation of the original three turbines is currently ongoing in order to expand the Namibian capacities by another 15 MW.