

## Kinshasa green electricity

Electricity is a luxury in the Democratic Republic of the Congo (DRC) and is not available to the majority of the population; fewer than one in five residents draws electricity from the socket. Most have to use expensive diesel generators or do without power. Of the country's roughly eighteen million households, only two million have access to electricity at all, with major variation between urban and rural areas. This not only complicates living conditions, but also economic development. Power outages due to damage or overload hinder business operations.

The DRC has great potential for a sustainable energy supply, namely from hydropower. Two power plants on the Congo River, with installed capacity of more than 1.7 gigawatts, are the country's main energy suppliers - they alone generate 90% of the electricity consumed in the capital Kinshasa. These two run-of-river power plants Inga I and II are integrated into dams on the mighty Congo River, where it overcomes a drop of more than 90 metres.

KfW has provided EUR 20 million to finance the modernisation of the substation for the energy from the Inga I and Inga II hydropower plants, on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ). Another EUR 4 million was allocated to connect four turbines at the hydroelectric power plant to the new, modern switchgear control system. The Kinshasa control centre now has direct access to Inga II's substation. Faults are detected and corrected early, thereby stabilising the entire power grid and minimising energy losses.

The challenge in modernising the substation was that only individual parts of the plant could be shut down while the plant was still operating. This meant that the different areas had to be modernised bit by bit, which made work more difficult. The modernisation of the substation and control equipment was also delayed due to work restrictions and supply problems during the COVID-19 pandemic. However, work concluded successfully this year with the integration of the four generating units.

Hydrogen could soon become part of the energy mix in the province of Kinshasa in the Democratic Republic of Congo (DRC). This is the aim of an agreement reached between the provincial government of Kinshasa and Hydrogène de France (HDF Energy), which wants to use the new possibilities provided by the development of hydrogen technologies to reduce the intermittence of solar photovoltaic power stations.

The provincial authorities of Kinshasa are supporting HDF to make effective progress in the development of this first hydrogen power plant. The company, based in Bordeaux, France, is studying the possibility of establishing this power plant in the south of Kinshasa.

The population of the city-province is estimated at more than 17 million, equivalent to the population of a country like Chad, but spread over an area of more than 9 900 km<sup>2</sup>. Like other cities in the DRC, Kinshasa



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remains prone to load shedding, while the rate of access to electricity in the city-province is estimated at only 44% by the Agence nationale pour la promotion des investissements (ANAPI). The province of Kinshasa is therefore turning to solar energy with a potential (average sunshine) estimated at between 3.22 and 4.89 kWh per m<sup>2</sup> per day.

For the time being, Kinshasa and other provinces of the DRC are largely dependent on hydroelectricity. With an installed capacity of 2,844 MW, the Central African country produces 98% of its electricity from hydroelectric plants on the Congo, Ruzizi and Rutshuru rivers.

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