

# Solar Power for a Brighter Future

Solar power represents an opportunity for Afghanistan. The aim is to harness the sun's power to provide cleaner and more efficient energy, and initial projects have shown this works.

Afghanistan averages 8.8 hours of sunlight per day, which means that the South Asian country receives almost twice as many hours of sunshine as Germany. Afghanistan, one of the poorest countries in the world, would like to capitalise on this wealth of sunshine.

The Government of Afghanistan aims to increase electricity generation in the country significantly by 2032, with the help of renewable energy. According to the government's Renewable Energy Roadmap, an additional five gigawatts (GW) of energy are to be produced, including 1.5 GW generated using photovoltaics. Indeed, experts at the Afghanistan Renewable Energy Union (AREU) believe that up to three GW of solar power capacity can be installed and made economically viable within the next 12 years.

The state-owned power utility, Da Afghanistan Breshna Sherkat (DABS), is also optimistic about the energy transition. Not only does Afghanistan have enough sunshine, it also offers enough space in the deserts of Kandahar, Helmand, Hairatan and Laghman for the large-scale production of solar energy. 'From each square metre we could produce around 6.5 kilowatts (kW) of solar power per day, which is an extraordinary level of productivity,' explains Hamid Tawhidi, Solar Engineer at DABS.

Afghanistan expects the use of renewable energy, particularly photovoltaics, to boost development, as the supply of electrical energy has been inadequate and problematic so far. The country can cover only about a third of its energy needs, provided primarily by hydropower. Afghanistan also has coal and gas-fired power plants. Most of the country's power supply is imported from its neighbours, for instance from Iran and Uzbekistan. Only about 25% of the population draws electricity from the grid. In rural Afghanistan, home to three-quarters of the population, 90% of the people have no access to a regular power supply. When there is no supply or in the case of frequent power outages, the people usually manage with diesel generators. However, these generators are expensive to run and bad for the environment.

In this context, photovoltaic systems appear to be a viable alternative in every sense. Not only are they cheaper than the widespread diesel generators; they also contribute to environmental and climate protection, and this is important to the Government of Afghanistan. This is underlined by Mohammad Gul Khulmi, former Minister of Energy and Water: 'The



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world is facing the threat of global warming and the production of solar energy can help enormously in reducing the risk.’

A pilot plant installed on the roof at DABS, the electricity producer in Kabul, has been proving since mid-2017 that solar energy is not just a theoretical opportunity for Afghanistan but also offers some very practical advantages. The project is Afghanistan’s first on-grid solar rooftop plant that generates 38.61 megawatt hours (Mwh) of energy each year. Based on the current per capita energy consumption in Afghanistan, this could provide electricity to approximately 740 people a year. In addition, the plant reduces CO<sub>2</sub> emissions by around 27 tonnes per year and saves almost AFN 500,000 in costs – the equivalent of EUR 5,770.

The system has 90 solar panels and was installed by a local company that received technical and financial assistance from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry of Economic Cooperation and Development (BMZ).

Besides providing technical support, GIZ also promotes training for experts – including professionals at DABS – who can operate and maintain solar power plants. In addition, the Afghan Ministry of Energy and Water has had personnel trained. Within the framework of a programme for the promotion of young entrepreneurs, young people are also being trained for the solar industry.

Former Minister Khulmi supports this approach: ‘GIZ is helping us get acquainted with the work. It is not giving us fish but teaching us how to fish.’ He hopes that the expansion of solar energy combined with the necessary training will create new jobs.

The former Minister is particularly appreciative of the positive image of the first on-grid plant: ‘The pilot plant proves that implementing projects like this is absolutely realistic.’ The politician is hoping that the project will provide impetus for investment in solar plants and thus allow Afghanistan to harness its potential. The Ministry of Energy and Water has joined forces with the private sector and has already launched other projects in Kandahar and Nangarhar.

Afghanistan’s electricity producer DABS also relies on sun power. In cooperation with GIZ, DABS has set up battery backup solar power systems in Takhar province that supply a total of 240 kW of power.

Together with the Ministry of Energy and Water and the Ministry of Finance, DABS has devised a plan to produce 2,000 megawatts (MW) of solar energy in five zones across the country. Investors are required to achieve this goal and DABS would therefore like to keep the barriers to invest in solar energy as low as possible. Solar Engineer Hamid Tawhidi

makes it clear: ‘We would like everyone who wants to support solar energy production in Afghanistan to be able to start work immediately.’

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