

# The sun produces our energy

A small but great contribution of the GIZ ConoSur Agency to the production of clean energy

*A measure within the project Electricity Distribution 4.0*

According to the World Bank (2021), 93% of the world's population lives in countries with an average daily solar photovoltaic energy potential of 3 to 5 kilowatt hours per square meter (kWh/m<sup>2</sup>), meanwhile Peru has 5 to 7 kWh/m<sup>2</sup>, the potential is one of the highest photovoltaic energy potentials on the planet, as seen in the following table.

Comparative table of solar radiation and generation potential of solar energy

	Peru	Chile	Germany
Radiation (kWh/kWp/year)	1600 - 2600	1100 - 2700	800 - 1050
Radiation potential (kWh/m <sup>2</sup> /day)	5,3 - 7,1	3,1 - 7,4	2,2 - 3,0

Source: Generated by the authors, based on data from official sources

Acknowledging this huge potential, the GIZ ConoSur Agency, installed 16 solar panels on the roof with the intention of producing clean energy, contributing thus to the reduction of greenhouse gases.

The GIZ ConoSur Agency has had solar photovoltaic energy for nine months. In addition to the simple installation and easy maintenance, the main advantage of this 5.2 kWp system is the reduction of conventional electricity consumption, generating more than 15% of clean energy, which covers the energy consumption of about 150 laptops, 25 printers and four coffee machines per year.

This high value is mainly due to its location near the equator, translating into a great capacity to generate photovoltaic solar energy, one of the cleanest and most economical ways to produce electricity.

Even though the radiation in southern Peru is much higher, Lima is certainly not far behind. Despite its high nebulosity during six months of the year, the levels of radiation fluctuate between 5 and 6 kWh/m<sup>2</sup>. Thanks to this energy we can produce between 1600 and 1700 kWh per year for every kilowatt peak (kWp) photovoltaic installed. This means that three panels could cover the annual energy consumption of an average Peruvian household.



a) Installed panel on the roof of the ConoSur Agency in Lima

b) Typical profile of the solar generation and electricity demand of the GIZ ConoSur Agency.



c)



d)

c) Aerial view of the installed solar panels

d) The photovoltaic inverter (blue) that transforms solar energy for its domestic use.

This measure is a small contribution to improve energy efficiency in the country, which is promoted by the Ministry of Energy and Mining (Minem). With the support of the German development cooperation implemented by the GIZ, through the project Electricity Distribution 4.0, the Ministry is working towards an energy transition with a change in the energy mix through the improvement of the regulatory and legal framework. This would translate in public electricity distribution companies being able to integrate renewable energies and, in this way, the population as a whole would benefit from a safe, economic and environmentally friendly electricity supply.

In addition, the project provides technical assistance to electricity distribution companies so that they are able to integrate renewable energies into their grids and take advantage of the benefits of an electricity generation that reduces costs as well as energy losses and increases the quality of electricity services.

The experience of the GIZ ConoSur Agency will help to create awareness of the country's great solar energy potential, as well as demonstrate the favorable effects of the use of solar panels in cities.

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