



Solar Energy's Vital Role in Turkey's Earthquake Recovery and Reconstruction

Climate Action Network (CAN) Europe is Europe's leading NGO coalition fighting dangerous climate change. With over 185 member organisations active in 38 European countries, representing over 1,700 NGOs and more than 40 million citizens, CAN Europe promotes sustainable climate, energy and development policies throughout Europe.

Introduction

On the morning of February 6th 2023, a devastating wave of earthquakes struck Turkey, causing the strongest tremors the country had felt in nearly a century. According to official numbers, the seismic waves caused the death of more than 50,000 people, and left 850,000 displaced in Türkiye.

While the losses are massive and millions are still suffering the consequences, discussions about the need to support the recovery and reconstruction of affected areas have kicked off. With the fossil fuel crisis, the cost of living crisis as well as the climate crisis, CAN Europe and other civil society organisations in Turkey advocate for the key role that renewable energy should have in the forthcoming months and years, and urges relevant institutions in Turkey to ensure a sustainable and accountable reconstruction process that aligns with the country's commitment to achieve a 35% absolute reduction in greenhouse gas emissions by 2030, contributing in alleviating energy poverty and avoiding locking people's homes in fossil fuels.

After the earthquakes, climate and environment NGOs in Turkey started to work on the concept of "green reconstruction" in line with climate goals across Turkey, with a priority on the earthquake region. This briefing, which addresses the role of solar energy in emergency response and reconstruction/recovery, is the first output of this series of studies and includes key demands.

The significance of solar power in the emergency response phase:

The energy [consequences](#) of the earthquakes were massive, and access to grid electricity was interrupted in many regions, especially in the Kahramanmaraş and Hatay provinces. The Turkish Office of Presidency Strategy and Budget estimates that the public and private electricity sectors in the region incurred damages totalling around 570 million TL (US\$30 million). Solar energy associations and professional chambers delivered solar panels to cover the electricity needs of temporary shelters and search and rescue coordination teams in the immediate aftermath of the earthquake. Although local NGOs and private energy associations have played a vital role in providing temporary sustainable power to disaster victims, it is essential to put in place preparedness measures for such disasters to ensure a long-term solution.

Investing in off-grid electricity supply systems, such as solar panels and photovoltaic installations on rooftops of buildings and emergency gathering areas, could be a viable solution for addressing short to medium-length power outages during emergency response situations, including in search and rescue areas. If these systems are built with storage systems, in case of an interruption they will be able to supply electricity for 2-4 days, for all apartment residents' needs (refrigerator, lighting, modem, charging phone, etc.) or they can provide electricity in the emergency gathering areas.

The operation of fossil fuel generators currently used depends on the availability of diesel which can be disrupted in such times of disaster. Off grid solar storage systems without the need to use fuels, can even maintain a cost advantage in the medium and long term.

The role of solar power in emergency response and temporary housing:

At least 3.3 million people have lost their houses, while over two million people are currently housed in tents or containers. To address the housing crisis resulting from the devastating earthquakes and provide temporary shelter for those who have been displaced, emergency response housing is being deployed in the provinces that have been hit hardest by the earthquakes.

Temporary and emergency housing facilities are being constructed quickly in areas that already have grid infrastructure but rural regions affected by the earthquake and lacking access to grid electricity or experiencing significant grid damage could reap the benefits of implementing off

grid solar power systems. The design and implementation of these systems should take into account local needs, empowering people so that they can continue living in these areas.

These systems, designed based on local needs, should also be part of the longer term solutions, which both the Turkish Ministry of Environment, Urbanisation, and Climate Change, as well as local government institutions involved in post-disaster planning must consider.

The role of solar energy in new construction process:

Rebuilding cities devastated by earthquakes should encompass more than just one-dimensional engineering work of producing housing. The restoration and reconstruction process should not be rushed but should be based on a comprehensive design and planning that takes into consideration the various dimensions of urban identity, history, culture, climate, environment, economy, property, and finance. Additionally, disaster victims should have the opportunity to participate in this process alongside scientists and experts.

Considering this, we urge that the following aspects be considered for the optimal use of solar energy in the design, planning, and implementation process:

1. The Turkish Ministry of Environment, Urbanization and Climate Change should make the installation of solar panels on the rooftops of public services, infrastructure, and buildings mandatory. Moreover, common public spaces like parking lots, and open marketplaces should also have solar panels installed as per legal regulations.
2. The Ministry of Environment, Urbanization, and Climate Change should mandate the installation of solar panels for new private buildings. New building rooftops must be designed to be ready for solar panel installation. This involves ensuring that the roofs have the appropriate slope dimensions and are oriented towards the south, with ample space for the placement of solar panels.
3. The Ministry of Energy, along with the Energy Market Regulatory Authority (EMRA), should ensure that transformer stations for rebuilt cities that are constructed, are designed to allow for micro-grids and renewable energy sources to enter the system. Additionally, electricity distribution companies should adapt accordingly.
4. New buildings and cities should be designed and built in a way that supports the electrification of domestic uses such as heating-cooling, water heating, cooking and vehicle charging.

5. Buildings that will be retrofitted due to their risky condition should also be made ready for the installation of solar panels. In this process, support and obligation mechanisms for the use of solar panels should be considered after the necessary inspections are carried out in existing buildings, starting from a certain date.

The role of the solar power in the building of new economies:

The process of post-earthquake recovery not only encompasses the construction of new buildings but also entails the need to support and strengthen local and regional economies. Within this framework, solar solutions must be viewed not only in terms of providing energy but also as means to promote green development, taking into account their potential for generating employment opportunities, as highlighted by several [reports](#) conducted in Turkey and in other countries. Hence, the Turkish Ministry of Industry and Technology and the Presidential Strategy and Budget Directorate should promote the deployment and adoption of renewable energy, thereby laying the foundation for the development of new economies.

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