

This project is part of the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) supports this initiative on the basis of a decision adopted by the German Bundestag

Promotion of Grid-connected Renewable Energy in Turkey

Context

Turkey has significant available potential of renewable energies. Although legislation on the feed-in of renewable energy has now been introduced, there are still challenges in the practical implementation as well as with respect to the attainment of domestic value-added goals. The project aims to build the capacity of Turkish institutions to utilize German and international experience in the renewable energy sector and implement expansion targets on a sustainable basis.

The project consists of the following components:

1. Optimization of legal, economic and technical conditions for the feed-in of renewable energies.
2. Cross-sectoral policy dialogue involving the government, administration and private sector (including the banking industry) and civil society.
3. Support for grid operators and local electricity suppliers through knowledge transfer for securing the integration of renewable energies into the grid.

The project is expected to contribute to the reduction of greenhouse gas emissions and improve Turkey's supply of electricity from sustainable and locally available sources. This will assist protecting the climate, increasing energy security and strengthening the Turkish economy for the future.

Objective

The main objective of this project is to help the Turkish institutions to use German and other international experience in the field of renewable energies. The project will empower them to establish an improved environment for energy policy, promote the greater use of renewable energies and sustainably implement Turkey's goals of expanding power generation from renewable energies. Moreover, relevant Turkish institutions will possess the knowledge needed to establish the prerequisites for sustainably and advantageously integrating future growing shares of electricity generated from renewable energies.

Project name	Promotion of Grid-connected Renewable Energy in Turkey
Commissioned by	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Project region	Turkey
Lead executing agency	Republic of Turkey, Ministry of Energy and Natural Resources
Duration	2013 - 2017



Photos from the training on "Methodology for Determining Total Connectable RES Capacity of the Power System" in Ankara, Turkey

Our approach

1. The Turkish Government and relevant institutions are provided with the knowledge and tools they need to support the successful implementation of the legislation mentioned above, on the feed-in of renewable energies and other relevant frameworks, and to monitor progress.
2. Policy makers, businesses and civil society recognize the benefits afforded by the wider use of renewable energies and develop positions, policies and programmes for their expansion.
3. Institutions responsible for the transmission networks understand the grid-related challenges associated with more intensive use of renewable energies and have strategies and policies in place to deal with them.



Photo from the "Seminar on Evaluation of Biogas Investments in Turkey" in Izmir, Turkey

Results

- In September 2014, the needs for consultancy services on integrating renewable energies into Turkish grids were identified and assessed through several meetings and interviews with the stakeholders and were reported under a Needs Analysis Report.
- Regarding developing proposals based on legislative and constraint analysis considering international experiences, the relevant legislation & norms have been compiled and translated. This compilation is to be used for a further detailed Comparative Analysis of the German and Turkish Renewable Energy Systems (RES) legislations in order to define the topics to be restructured within the legal framework and enabling environment.
- In accordance with the assessment of the procedures for RES applications including technical methodology of evaluation in Germany, a technical report was prepared for licensed and unlicensed RES applications. The main goal of this activity was to provide a knowledge basis for the grid connection of Variable Renewable Energies in Germany.
- In order to ensure that the institutions responsible for the electricity grids know the challenges arising from increased use of RES in multiple grids, various trainings and workshops have been conducted, such as; "Workshop on Wind Energy and Military Air Traffic Control (Radar)" and "Workshop on Grid-integration of Renewable Energy in Turkey" (June 2014), "Training on Wind and Photovoltaic Integration into Power Systems and Introduction into Power Systems and Introduction to the Grid Study" (November 2015), "Training on Impact Assessment regarding RE support mechanisms" (June 2016), "Training on Methodology for determining total connectable (hosting) RES capacity of the power systems" (November 2016).
- In November 2016, a Technical Report on "Methodology for determining total connectable RES capacity of the power system" describing the technical methodologies for enhancing integration of renewables into grids was prepared. The report describes the challenges of power system operation and planning with increasing amounts of variable renewables (VRE) and explains how specific characteristics of VRE output, its penetration level, and grid characteristics affect the susceptibility to different impacts. Furthermore, the report outlines typical technical studies used to study the impacts of renewables with a view to the European and German grid codes, where the associated costs of different measures are compared to determine the least-cost alternatives to increase renewables integration and provides frameworks for the different approaches to enhance the hosting capacity of VRE.
- In respect to knowledge exchange and dialogue on Renewable Energy integration, grid operation and grid planning amongst Turkish institutions and between Turkish and international (German) institutions, delegations from partnering institutions participated to the "GIZ Renewable Energy Week 2014" with the core topic "Success factors for adequate energy systems analysis" in October 2014 and "GIZ Renewable Energy Week 2015" with the core topic "Designing power systems and increasing deployment of variable renewable energies" in October 2015.