

# RES-COOPERATION PERSPECTIVES BETWEEN THE EU AND TURKEY

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## Overview

The motivation to analyse renewable energy source (RES) potentials and possible exports of renewable electricity from Turkey to the European Union (EU) is given from the European as well as from the Turkish perspective: the successful implementation of the fourth cooperation mechanism (EU Directive 2009/28/EG) made cooperation possible to aid EU member states in reaching their goals for RES deployment – i.e. European countries could benefit from Turkish RES-imports by adding them to their share of renewables. At the same time, Turkey would benefit by increasing its own RES-deployment in an efficient way up to 2020 and beyond.

Turkey is a country exhibiting strong economic growth, high and increasing energy consumption and concomitant high and increasing greenhouse gas emissions. The country is highly dependent on imported fossil fuels, especially from Russia. Aside of aligning its renewables deployment with EU targets (in respect to the accession of Turkey to the EU), this also gives further incentives to Turkey e.g. more independence and an improved trade balance.

## Methods

Aside of assessing expectations and possibilities that would result from implementing a cooperation mechanism with Turkey, a through state-of-the art survey of the political framework for RES-cooperation in Turkey, as well as the overall state of the Turkish energy policy was performed. The focus was thereby laid on the electricity sector's role in the Turkish energy system. Historical developments were examined as well as the status quo, making out drivers and impediments of RES-deployment in Turkey.

The main analysis assesses short- and long term potentials for generation of electricity from renewable sources. In this respect, different scenarios were created with the Green-X model, taking into account different parameters (political support of renewables in different intensities as well as cooperation scenarios with and without Turkey becoming a member of the EU/Energy Community). This Bottom-Up Analysis was complemented by an integrated assessment of cooperation between the EU and third countries (namely the Western Balkans and North Africa). From these results, policy advice and political measures for future cooperation were derived.

## Results

The study's results show considerable RES potentials with a good resource quality in Turkey that are mainly untapped. Cooperation between the EU and its neighbouring countries would aid Turkey through investments and technology transfer – depending on the intensity of the cooperation, a surplus of electricity generation from renewable sources could be achieved that in turn would be exported and used by the cooperating EU member states to achieve their targets in renewables deployment. In this respect, the mid- (2030) and long-term (2050) perspective move into focus. Specific case studies show that especially onshore wind is a beneficial technology for joint cooperation projects between the EU and Turkey. Concerning impacts for the society and environment, increased deployment of RES technologies in Turkey would be mainly beneficial, especially in terms of CO<sub>2</sub> emission avoidance but also job creation, especially during the construction phase.

## Conclusions

The resource quality of RES in Turkey is high, such that import could be beneficial for countries currently experiencing problems with reaching their 2020 RES targets. Nevertheless, political and technical barriers would have to be removed to enable this cooperation. Furthermore it is of central importance to make the case for cooperation among Turkish policy makers, as cooperation in RES would lead to a win-win situation for both the EU and Turkey.

## References

- Atilgan C.A. "A Spotlight on Turkish Electricity Market," 2009.
- Caldés N., de la Rúa C., López-Doriga I., Turnali K. "Turkish Impact Assessment. Better Project. WP5 Deliverable.," 2014.
- Ortner et al. "Case study report on prospects for RES cooperation with Turkey using the cooperation mechanisms. Better Project. WP5 Deliverable.," 2014.
- Duhamel B., Beaussant H. "EU Energy Strategy in the South Mediterranean. Directorate General for Internal Policies Policy Department: Economic and Scientific Policy Industry, Research and Energy," 2011.
- EC - European Commission. "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Energy Infrastructure Priorities for 2020 and beyond - A Blueprint for an Integrated European Energy Network.," 2010.
- ENTSOE. "Electricity Transmission Systems in Permanent Synchronous Operation with Continental Europe.," 2014. <https://www.entsoe.eu/news-events/announcements/announcements-archive/Pages/News/Turkey-Albania-Continental-Europe.aspx>.
- ESMAP - Energy Sector Management Assistance Program. "Potential of Energy Integration in Mashreq and Neighboring Countries. Report No. 54455-MNA. Sustainable Development Department (MNSSD), Middle East and North Africa Region (MNA) - Document of the World Bank," 2010.
- Hawksworth, John, PricewaterhouseCoopers LLP. "The World in 2050: How Big Will the Major Emerging Market Economies Get and How Can the OECD Compete?," 2006.
- IEA – International Energy Agency. "Energy Policies of IEA Countries – Turkey 2009 Review," 2010.
- MENR. "Turkey's Electric Energy Market and Supply Security Strategy Paper," 2009. [http://www.enerji.gov.tr/yayinlar\\_raporlar/Arz\\_Guvenligi\\_Strateji\\_Belgesi.pdf](http://www.enerji.gov.tr/yayinlar_raporlar/Arz_Guvenligi_Strateji_Belgesi.pdf).
- OECD. "OECD Better Life Index – Turkey.," 2014. <http://www.oecdbetterlifeindex.org/countries/turkey/>.
- PRIMES. "EU27: Energy Efficiency," 2011.
- TURKSTAT. "Population and Demography Projections. Main Statistics.," 2013. <http://www.turkstat.gov.tr/>.
- Turnali K. "Sustainability Assessment of Electricity Production Base on the Turkish RES Scenario in 2020.," 2014. [www.better-project.net](http://www.better-project.net)