

RENEWABLE ENERGY SNAPSHOT:

Turkey

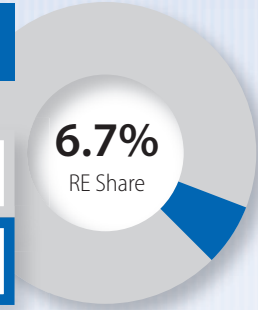
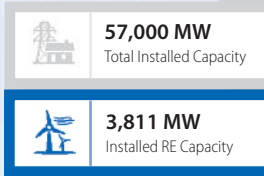


Empowered lives.
Resilient nations.

General Country Information

Population: 73,997,128
 Surface Area: 783,560 km²
 Capital City: Ankara
 GDP (2012): \$ 789 billion
 GDP Per Capita (2012): \$ 10,666
 WB Ease of Doing Business: 69

Electricity Generating Capacity 2012



- 
Biomass
- 
Solar PV
- 
Wind
- 
Small Hydro¹

Installed Renewable Electricity Capacity 2012 in MW

Technical Potential for Installed Renewable Electricity Capacity in MW

| | | | |
|---------------|------------------|----------------|--------------|
| 0 | 9 | 2,312 | 1,490 |
| 16,000 | 3,871,500 | 114,000 | 6,800 |

Source: WWEA (2013); Investment Support and Promotion Agency (2013); Benli (2013); Capik et al. (2012); Baris and Kucukali (2012); BP (2013); World Bank (2014); EIA (2013); SRS NET & EEE (2008); Hoogwijk and Graus (2008); Hoogwijk (2004); JRC (2011); and UNDP calculations.

Key information about renewable energy in Turkey

Turkey's economic and social development has led to a massive increase in demand for electricity over the last decade. The Turkish Electricity Transmission Company (TEIAS) estimates that demand will increase by 6 percent to 7 percent annually until 2023 (TEIAS, 2004). Since the country has no major oil or gas reserves, it is highly dependent on energy imports and is exposed to energy insecurity in the future (Yuksel, 2013). But Turkey does have huge potential for renewable energy exploitation. There has been a huge growth in the construction of wind power plants and small hydropower plants in recent years. To meet the growing energy demand, the Turkish Government has adopted a feed-in tariff, which is available for 10 years from commissioning of the plant.

1 2010 value

Feed-in tariffs in Turkey²

| Eligible technologies | Tariff applied \$/MW-h | Max. tariff possible if domestic equipment is included in \$/ MW-h |
|-----------------------|------------------------|--|
| Wind | 73 | 110 |
| Hydro | 73 | 96 |
| Biomass | 133 | 151 |
| Solar PV | 133 | 200 |
| Solar CSP | 133 | 225 |

Source: Government of Turkey (2011)

To promote the use of locally produced equipment, higher tariffs for five years are available to producers that install domestically produced equipment in their renewable energy facilities (Government of Turkey, 2011:Article 6B). This can be beneficial for foreign investors, because capital investment in \$/MW installed capacity for small hydropower plants in Turkey is significant less than in the rest of the world, resulting in a payback period of less than three years (Kucukali and Baris, 2009).³

Legislation and policy

Turkey targets a 30 percent share of renewable energy in power generation by 2023. Particularly the government aims to reach 20,000 MW of installed wind capacity, 3,000 MW of installed solar power capacity and the full utilization of its hydro potential by 2023 (Melikoglu, 2013). Power generation is subject to licencing (Electricity Market Licencing Regulation, Art 1). Renewable energy producers have to apply to the Energy Market Regulatory Authority by 31 October 2014 for a renewable energy source certificate (Government of Turkey, 2011: Art. 6)). Excluded from a mandatory certificate are renewable energy power plants with installed capacity up to 500kW (ResLegal, 2013). But other permission is often also required, for example permission from the State Hydraulic Works for the construction of a small hydropower plant. TEIAS is obliged to prioritize access to the grid for electricity produced from renewable sources (Government of Turkey, 2002: Article 38e).

2 Electricity from biogas and geothermal power plants are also eligible to receive a feed-in tariff (Government of Turkey, 2011).

3 By assuming a capacity factor of 0.4, a max. available tariff of \$96/MW-h and investment costs of \$8,454/kW.

Institutions

| Organization | Responsibility | Website |
|--|--|--|
| Ministry of Energy and Natural Resources | - Shapes policy in the energy sector | www.enerji.gov.tr |
| Energy Market Regulatory Authority (EMRA) | - Issues licences in the energy sector as e.g. generation licence - Sets pricing principles and regulates tariffs | www.emra.org.tr/ |
| Turkish Electricity Generation Corporation (EUAS) | - Biggest power generation company in the country owning 60% of the generation capacity | www.euas.gov.tr |
| Turkish Electricity Transmission Company (TEIAS) | - Operates the national grid and provides grid access | www.teias.gov.tr/eng/ |
| Republic of Turkey Prime Ministry Investment Support and Promotion Agency | - Responsible for the consultation and attraction of foreign investors | www.invest.gov.tr/ |

Opportunities to finance renewable energy projects in Turkey

| Financing organization | Details | Website |
|--|--|--|
| EIF | EU-backed loans up to €300,000 to small and medium enterprises and entrepreneurs are available via intermediary banks KGF, Finansbank and T.C. Ziraat Bankasi. | www.access2finance.eu/en/Turkey/cip/index.htm |
| TurSEFF | Credit lines will be provided by the European Bank for Reconstruction and Development through eligible commercial banks to financially viable private Turkish small and medium enterprises. A maximum loan of €5 million for renewable energy projects including technical assistance can be obtained. | www.turseff.org/ |
| Green Growth Fund | Provides direct and indirect (through financial intermediaries) financing for small scale renewable energy projects usually not larger than €50 million. | www.ggf.lu/ |
| International Finance Corporation (IFC) | Provides investments (e.g. equity, loans) and advisory services. In 2012 IFC invested \$450 million and mobilized \$130 million for 13 projects, including renewable energy and energy efficiency projects. The Country Partnership Strategy until 2015 aims to continue investment in renewable energy. | www.ifc.org/ |
| European Bank for Reconstruction and Development (EBRD) | Provides renewable energy developers with equity, loans and loan guarantees for projects with good commercial prospects of up to 15 years' duration. | www.ebrd.com/pages/workingwithus/projects.shtml |

Turkey

Recent projects

| Company | Project | Status |
|--|--|---------------------|
| Solimpex / Seiso (Australia) | Installed a 500 KW plant in the Turkish city of Burdur. | Commissioned |
| Borusan EnBW Energy (German/Turkish) | Borusan EnBW is a joint venture of German EnBW and Turkish Borusan operating wind power plants with operational capacity of 110 MW. | Commissioned |
| Energy Market Regulation Authority (EMRA) | According to Turkish newspapers, 500 companies with proposals for 9,000 MW solar installations applied to EMRA in the first half of 2013. This is 15 times as much as the 600 MW cap set by EMRA for 2013. | |

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