

TURKEY

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What has been happening in the Turkish renewable energy sector?

Turkey is a country with rapidly increasing energy consumption. It currently meets a large part of this energy demand (72 per cent) with imported crude oil and natural gas.¹ On the other hand, Turkey has a large renewable energy potential, with abundant renewable energy resources that have not been sufficiently utilised. In the last two years, Turkey has focused on utilising its renewable energy resources and has actively tried (and is still trying) to attract new investments through different methods including government support.

Turkey is placing great importance on its renewable energy potential and has set a very specific goal: to increase the share of electricity generated from renewable energy resources to 30 per cent by 2023.² By way of reaching this goal, Turkey more specifically aims to:

- increase wind power installed capacity to 20,000 MW;³
- establish new power plants with 600 MW of geothermal energy; and
- install new power plants with 3,000 MW of solar energy.

In terms of total capacity, 78 per cent of all new energy investments commissioned in 2012 and 54.8 per cent of new energy investments commissioned in the first ten months of 2013 were in renewable energy-based facilities.

Legislative actions

In order to reach its renewable energy potential, Turkey has enacted several significant pieces of legislation to promote the use of different renewable energy resources. With the enactment of amendments to the Law on the Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy⁴ (the 'RER Law') in 2010, a renewable energy support mechanism (RESM) was established. This mechanism includes the prices, terms, procedures and principles regarding payments, from which individuals

generating energy based on renewable energy resources within the scope of the RER Law can benefit. The RER Law provides that the prices in Schedule I (see below) will apply for ten years for generation licences subject to the RESM, which are commissioned until 31 December 2020.⁵

Facility Type	Applicable Price (USD cent/kWh)
Hydroelectric	7.3
Wind	7.3
Geothermal	10.5
Biomass	13.3
Solar power	13.3

Furthermore, the RER Law provides that renewable energy facilities can benefit from certain tax incentives upon a Council of Ministers' Decree. Additional incentives are provided if domestic equipment is used in facilities commissioned before 31 December 2020. In order to benefit from the incentives provided under the RER Law, the facilities must obtain a renewable energy resource certificate (the 'RER Certificate') from the Energy Market Regulatory Authority (EMRA).

Unlicensed generation

Under the Regulation on Generating Electricity without a Licence, generation facilities with an installed capacity of up to 1MW based on renewable energy resources are exempt from the requirement to obtain a licence. Moreover, if a company generates more electricity than it consumes, the surplus may be sold in the same distribution region, within the scope of the RER Support Mechanism.

Recent legislative developments

In line with Turkey's substantial potential and its renewable energy targets, Turkey enacted the following secondary legislation in 2013:

- the Regulation Regarding Generating Electricity without a Licence;



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- the Regulation on Documentation and Support of Renewable Energy;
- the Regulation on Technical Evaluation of Solar Energy Based Licence Applications;
- the Contest Regulation on Pre-Licence Applications Regarding Generation Facility Based on Solar and Wind Energy; and
- the Regulation on Renewable Energy Resources For Electricity Generation.

Recent sector developments

Benefiting from the RESM

After the RER Support Mechanism was introduced, renewable energy became much more appealing to investors. 78 companies obtained an RER Certificate in 2012 and 38 companies obtained an RER Certificate in 2013. EMRA recently announced the list consisting of 93 entities that applied for an RER Certificate in 2014. The breakdown of these 93 projects (excluding hydro power), with a total of 1,800 MW of installed capacity, is as follows:

- 23 biomass-based energy generation projects;
- nine geothermal-based energy generation projects; and
- 21 wind-based energy generation projects.

Wind power

In terms of total installed power, while the total share of wind-powered generation capacity was 0.8 per cent in 2008, it rose to four per cent in 2012. TESAŞ (the state electricity transmission entity) expects the share of wind power to reach five per cent in 2017. According to the European Wind Power Union, as of the end of 2013, Turkey ranked 10th in Europe in the list of countries with wind-based electricity generation.

In 2012, a total of 802 wind-based energy generation applications for a total capacity of 80,616 MW were concluded. After the contests held by TESAŞ in 2011, 177 projects with a total of 45,905 MW of installed power were found entitled to obtain licences. The construction works for some of these projects commenced in 2012. EMRA has announced that it will accept new applications for wind-based energy generation licences between 24 and 30 April 2015.

The year 2013 saw an increase in the use of wind power. Of the 222 power plant units commissioned that year, 41 units were wind power plant units, with a total of 498 MW of

installed power. As of the end of 2013, there were 72 wind-based power plants in Turkey, with a total of 2,796.6 MW of installed power. The total share of wind power has increased to 4.3 per cent, in terms of installed power.

Turkey's largest wind power plant started operation in 2013. The inauguration ceremony of the Balıkesir Wind-Based Energy Power Plant (BARES) was held on 11 May 2013. This power plant was constructed in Balıkesir by EnerjiSA, with an investment value of approximately €150m. The BARES, with 143 MW of installed power, became the largest wind power plant in Turkey.

According to EMRA, as of 21 April 2014, there are 261 wind-based energy generation licences in force. According to the Unlicensed Electricity Generation Association, as of 6 March 2014, 238 applications have been submitted for generating electricity without a licence, based on wind power.

Solar power

With a solar power potential of 380 billion kWh/year, Turkey is among the top European countries in terms of potential solar power. In spite of this large potential, the utilisation of solar power in Turkey is very low. As of 21 April 2014, EMRA has not granted any licences to solar power projects. However, Turkey's first approved photovoltaic system (solar power) was attached to the grid and started to generate unlicensed electricity in 2013. Anel Enerji constructed the Muğla Municipality's project, with 105 kW of installed power by using photovoltaic solar panels.

Applications for solar-based energy generation licences were submitted to EMRA between 10–14 June 2013. Although the designated total capacity for solar-based generation licences is 600 MW, 496 applications were submitted for a total capacity of 7,873 MW. Several contests will be organised in different regions, in order to decide who will obtain the generation licence for each relevant region. The first contest will be held on 12 May 2014 for Elazığ and Erzurum provinces. The next window for submitting applications for solar-based energy generation licences will be between one and seven April 2015.

Just as in the applications for solar-based generation licences, applications for generating electricity without a licence-based on solar power is booming. According to the Unlicensed Electricity Generation Association, as of 6 March 2014, 567 applications have been submitted.

Other renewable energy resources

Turkey uses only 311 MW of its 35,500 MW of geothermal power potential.⁶ Of this 311 MW, a little less than half was commissioned in 2013. Of the 222 power plant units commissioned in 2013, five units were geothermal-based energy power plants, with a total of 148.6 MW of installed power. The largest was the Kızıldere 2 geothermal power plant. The Zorlu Group constructed this power plant with an investment amounting to approximately USD 250 million in Denizli. The Kızıldere 2 geothermal power plant, with a capacity of 600 million kWh/year, will be the largest in Turkey after the Kızıldere geothermal power plant, which started operation in 1974 as the second geothermal power plant in Europe.

As of the end of 2013, in terms of installed power, the share of renewable energy based generation facilities (except for wind and hydro power) was 0.9 per cent. The number of these facilities is 52, with a total of 547.7 MW of installed power. As for generation licences, as of 21 April 2014, while there are 27 geothermal energy generation licences and 42 biomass energy generation licences in force, no generation licences have been granted for other types of renewable energy.

Investors are increasingly intrigued by the Turkish renewable energy sector's future. It is remarkable that all of the seven power plants, with a total of 101.5 MW of installed power, that became operational in March 2014 were based on renewable energy. As renewable energy means green energy, it also makes Turkish people hopeful for their country's future. However, in spite of the large amount of investments in the renewable energy sector during the last few years, Turkey still has a long way to go in order to reach its full potential.

Notes

- 1 Turkey's costs for importing crude oil and natural gas are currently as high as US\$56bn. This accounts for more than half of the country's foreign trade deficit.
- 2 This 30 per cent target includes the share of hydro power.
- 3 Turkey's potential total onshore wind power capacity is 40,000 MW.
- 4 This law governs electricity generation from renewable energy sources such as wind, solar, geothermal, biomass, biogas (including landfill gas), wave, current and tidal energy resources together with hydraulic generation plants, either canal or river type or with a reservoir area of less than 15km².
- 5 Although the initial date set in the RER Law was 31 December 2015, a Council of Ministers' Decree dated 18 November 2013 extended the incentive term until 31 December 2020.
- 6 Turkey is the richest country in Europe in terms of geothermal resources.