



Renewable Energy: Turkey's Hope for Energy Independence

Turkey is currently an energy-dependent country, with approximately 70% of its energy being supplied from imported sources. The remaining 30% of Turkey's electricity need is largely generated by power plants consuming coal, lignite, natural gas and fuel oil, while geothermal energy and hydro power plants have also been increasing in number. Turkey has no large oil and gas reserves. The primary indigenous energy sources are lignite, hydro and biomass. Although largely thanks to the liberalization of Turkey's electricity market, Turkey's electricity generation capacity has increased from 31,750 MW in 2002 to 44,600 MW in 2009, the growth in both industrial and domestic consumption has been causing Turkey to become increasingly dependent on foreign energy sources. During this period, 2009 posted the highest annual growth in capacity, increasing by nearly two-fold from 963 MW in 2008 to 2,834 MW in 2009. Of this figure, 1,455 MW of electricity was generated by natural gas-run power plants, 465.8 MW by hydroelectric power plants and 438.6 MW by wind farms. More investment in renewable energy has thus become vital for Turkey.

Turkey has a strong potential for renewable energy sources, including solar in its various forms; wind; biomass; hydro and geothermal. The annual biomass potential of Turkey is approximately 32 million toes. Turkey has a gross annual hydro potential of 433,000 GWh, which is almost 1% of world's total potential. Currently, Turkey's existing wind power capacity is around 1202.25 MW, with units located all over the country. Turkey's solar energy potential is estimated to be approximately 26.4 million toes as thermal and 8.8 million toes as electricity. Finally, Turkey's geothermal potential is approximately 38,000 MW.

Turkey enacted its first law specific to renewable energy on 18 May 2005: Law No. 5346 on the Utilization of Renewable Energy Sources for the Purpose of Generating Electrical Energy (the "**RES Law**"). The purposes of the RES Law are to expand the usage of renewable energy sources for generation of electricity; to ensure the reliable, economical and high quality contribution of these sources to the economy; to increase variety in energy sources; to decrease gas emissions; to make use of wastes; to protect the environment and to develop the generation market in order to help

achieve the said purposes. The types of renewable energy sources dealt with within the RES Law are hydraulic; wind; solar; geothermal; biomass; biogas; wave, current and tidal energy sources together with hydraulic generation plants either canal or run of river type or with a reservoir area of less than 15 km².

In May 2009, the High Planning Council adopted the "Electricity Market and Supply Security Strategy Paper". In this Strategy Paper, the long term primary target is stated as *"to ensure that the share of renewable sources in electricity generation is increased up to at least 30% by 2023"*. The Strategy Paper was adopted as a general road map to increase the share of renewable energy in electricity generation. Within the framework of the Strategy Paper, long term efforts will take into consideration the following targets by 2023:

- full utilization of the technically and economically available hydro-electric potential;
- increase of the installed wind power capacity to 20,000 MW;
- commissioning of all geothermal potential of 600 MW, considered as suitable for electricity generation;
- expanding the usage of solar energy for generating electricity;
- amendment of the RES Law in a manner encouraging the generation of electricity using solar energy; and
- preparation and production of plans that will take into account the potential changes in utilization potentials of other renewable energy sources based on technological and legislative developments.

In the same Strategy Paper of 2009, near-term targets are stated as follows:

- completion of the ongoing constructions of new hydro-electricity generation facilities, with an aggregate capacity of 5,000 MW;
- increasing the wind-powered generation facilities' aggregate capacity from 802.8 MW to 10,000 MW by 2015;¹ and
- increasing the geothermal generation facilities' aggregate capacity from 77.2 MW to 300 MW by 2015.²

Turkey is now at the stage of taking a significant further step in developing the usage of renewable sources for generating electricity. The Draft Law for Amendment of the RES Law (the "**Draft Amendment Law**") was brought to the Turkish Parliament's agenda on 14 November 2008. Its enactment was initially expected in the summer of 2009, but this was delayed due to the refusal of

¹ According to the public records of EMRA, the current total capacity of Turkey's wind-powered generation facilities is 1202.25 MW.

² According to the public records of EMRA, the current total capacity of Turkey's geothermal generation facilities is 94.2 MW.

Mr. Babacan, Minister of State responsible for the Treasury. At the time, Minister Babacan had commented that the proposed minimum electricity purchase prices were very high and could impose a significant financial burden on the Treasury.

After more than one year, the Draft Amendment Law is now again in the Parliament's agenda. In fact, it was widely discussed in the Parliament's session of 4 November 2010. By the time our readers get to read this article, the Draft Amendment Law may actually have become law, as the Parliament is expected to adopt a decision on it during the second week of November. The main novelty of the Draft Amendment Law is its aim to incentivize investments in renewable energy generation facilities. These incentives are provided through the following means:

(a) **Purchase Guarantees:** Under the RES Law, each retail licensee must supply a portion of its electricity from facilities generating electricity from renewable sources. The magnitude of the purchase obligation for each retail licensee for any given year is determined based on the ratio of such retail licensee's total sales in the previous calendar year, to the total amount of electricity sold in Turkey within that year. According to the Draft Amendment Law, the purchase guarantee for facilities having started operations prior to 1 January 2016 is ten years.

(b) **Price Incentives:** The Draft Amendment Law sets forth different purchase prices depending on the type of renewable energy source. At the time of its original announcement on 14 November 2008, these ranged from 7 Eurocents for hydraulic energy to 20 Eurocents for solar energy. According to the latest news, the revised minimum electricity purchase prices are as follows:

- wind-powered energy generation facilities: 5,5 Eurocents/kWh
- biomass-powered energy generation facilities: 14 Eurocents/kWh
- geothermal-powered systems and plants: 8 Eurocents/kWh
- solar-powered systems and plants: 10 Eurocents/kWh
- hydraulic-powered energy generation facilities: 5,5 Eurocents/kWh

for the first ten years following the relevant facility's operation commencement date.

The Draft Amendment Law provides that (i) the purchase price to be applied after the above-mentioned ten-year period for facilities having started operations prior to 1 January 2016; and (ii) the purchase price to be applied for facilities starting operations after 1 January 2016, should be the average electricity wholesale price of the previous year in Turkey as determined by the Energy Market Regulatory Authority ("**EMRA**"). The Council of Ministers will still be authorized to determine the purchase prices, provided that such prices are not below the average electricity wholesale price of the previous year in Turkey as determined by EMRA.

In a written statement, the Ministry of Energy and Natural Resources discussed the meetings that Turkish Energy Minister Taner Yıldız had in Brussels while attending the informal energy ministers meeting of the European Union on 6 - 7 September 2010. According to the statement, Minister Yıldız told the European Investment Bank (EIB) President Philippe Maystadt that over the course of the next four years, there will be tenders for renewable energy generation licenses, which may yield as much as \$20 billion.

The Competition Regulation on the Applications for Establishment of Wind-Power Generation Facilities (the "**Competition Regulation**") entered into force on 22 September 2010. Under the Competition Regulation, where several applications are filed for the establishment of wind-power generation facilities in the same region and/or in the same transformer station, a competition will be held to determine which applicant will be granted a license for that particular region or station. Reportedly, over 600 investors are predicted to compete to offer the highest contribution rate. According to Minister Yıldız, who gave a speech at the International Energy Conference in Ankara on 21 October 2010, there are currently no obstacles preventing EMRA from licensing new renewable energy projects, including wind-power facilities.

In October 2010, EMRA presented a portfolio of 1,698 renewable energy projects, capable of generating 31,555 MW of power. This accounts for approximately 70% of Turkey's current generation capacity, meaning that Turkey's independence in energy relies on renewable energy projects. The extent to which this potential can be realized will depend on the success of the amended RES Law.

by Okan Demirkan (odemirkan@kolcuoglu.av.tr) & Ayşegül Okyay (aokyay@kolcuoglu.av.tr)