

15. Turkey: Great Potential, Missing Will



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Turkey's energy policy focuses on the promotion of coal and nuclear power. Although sustainable energy legislation is in place and respective targets have been defined, implementation is lagging behind and sustainable energy takes a back seat in the country's political debate. Internationally, Turkey is concerned with regional (energy) geopolitics much more than with sustainability. In G20 negotiations on sustainable energy, Turkey might emerge as a laggard, particularly in matters related to the reduction of coal use.

More demand, more coal, more nuclear

Turkey's primary energy demand was 125 Mtoe (million tons of oil equivalent) in 2015. This was mainly met by natural gas (35%), coal (28.5%) and oil (27%). Hydropower contributed seven percent and new renewables 2.5 percent to meeting demand (MFA, 2015). As the country's 2015 National Renewable Energy Action Plan (NREAP, 2015) shows, final gross energy consumption is approximately 49 Mtoe for heating and cooling, 21.5 Mtoe for electricity and 18.5 Mtoe for transportation. The major political focus is on the electricity sector. In 2015, electricity was generated mainly via natural gas (37.8%), coal (28.4%) and hydropower (25.8%), with minor contributions from wind (4.4%), geothermal energy (1.3%), biogas (0.6%) and oil products (1.6%) (MFA, 2015).

The two definitive trends in the Turkish energy system are its overall expansion, and its growing reliance on coal and, potentially, nuclear power. Since the early 2000s, Turkey's major challenge has been to keep up with growing demand. World Bank data show that the country's Gross Domestic Product (GDP) has grown by an average of 4.7 percent annually since the ruling Justice and Development Party (AKP) came to power in 2003. During the same period, overall energy use has increased by around 4.1 percent annually. By 2023, overall energy demand is

expected to grow by almost three quarters, to 218 Mtoe (MFA, 2015).

Turkey's political targets are defined in the so-called 2023 vision (2023 being the hundredth anniversary of the Turkish Republic) that was revealed by President Erdoğan in 2011. The vision calls for making Turkey one of the world's ten largest economies by 2023. Its energy goals follow this expansive ambition. Mainly focusing on electricity, the vision calls for an increase of overall installed power generation capacity to 120 GW (from 64 GW in 2013) and for a significant expansion of transmission grid and power distribution capacity.

All types of resources are sought to contribute to capacity expansion. The second major trend is Turkey's focus on expanding nuclear and coal-fired power generation. The 2023 vision expects coal-fired capacity to rise from 15.9 to 30 GW, and the Energy Ministry's more recent Strategic Plan for the years 2015–2019 (MENR, 2015) calls for almost a doubling of coal-based electricity generation, from 32.9 billion kWh in 2013 to 60 billion kWh as early as 2019. Research suggests that these coal targets are likely to be overachieved, with more than 65 GW of new coal-fired generation capacity being announced or planned (Shearer et al., 2016).

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One major pro-coal argument is that the use of domestic coal reserves – mostly lignite rather than hard coal – would reduce Turkey's dependency on imported energy. Indeed, the Energy Ministry's Strategic Plan envisages the opening of several domestic coal fields. The government is furthermore preparing a law that would reintroduce exemptions from environmental regulations for coal-fired power plants after a similar initiative was previously rejected by the Constitutional Court. In a move to reduce "the negative effects of imports", Turkey also recently introduced an import tax of USD 15 per tonne on thermal coal used for power generation and originating from the US, Colombia, Russia and South Africa. This decision, in August 2016, came as a surprise to many coal traders and utilities (Platts, 2016). While it signals the prioritisation of domestic coal, it remains to be seen how it will fare in future.

Nuclear energy is the second major focus of Turkish energy policy: By 2023, two nuclear power plants are planned to be operational and a third plant is expected to be under construction. According to the Energy Ministry, the first of these plants in Akkuyu, located on the Eastern part of Turkey's Mediterranean coast, should be operational by 2019. A second plant at Sinop on the Black Sea coast should be under construction by then. Engineering surveys for the Akkuyu plant began in 2011. Construction was initiated in 2015, but halted in November 2015 after the Turkish army downed a Russian fighter jet at the Turkish-Syrian border. However, Russia and Turkey have recently reconciled their relationship with a visit by Erdogan to Russia in August 2016; talks at the G20 meeting in Hangzhou, China; and a visit by President Putin to Istanbul in October 2016. The revitalisation and speeding up of energy projects – such as the Akkuyu nuclear plant and the so-called Turkish Stream gas pipeline – is at the centre of this reconciliation.

Sustainable energy: little progress despite great potential

By the end of 2015, Turkey saw installed capacity of approximately 26.2 GW hydro, 4.5 GW wind and only 250 MW of solar power (MENR, 2016). Hydropower is well established as a part of Turkish electricity generation. The development of so-called new renewable energy resources, however, has been slow

in Turkey despite formidable potential and a well-developed legal framework (Baris & Kucukali, 2012).

Amongst European countries, Turkey ranks first for hydropower, wind and geothermal potential and second for solar power potential. In terms of legislation, a Renewable Energy Law was enacted in 2005 (No. 5346) that established a feed-in tariff and a purchase obligation for renewable energy production. In 2011, the law was amended (Law No. 6094) to increase feed-in tariffs, introduce a local content premium and to differentiate tariffs for individual renewable technologies. The Electricity Market Law of 2013 provided further support for renewables. The law raised the maximum capacity for facilities exempted from licensing from 0.5 MW to 1 MW and reduced licensing costs for other renewable facilities.

For the future, the 2023 vision holds that the share of renewable energy should increase to 30 percent of Turkey's electricity production. Priority is given to hydropower, the use of which is to be "maximised". The original 2023 vision furthermore envisaged installed capacity of 20 GW wind, 3 GW solar and 600 MW geothermal power by 2023. Regarding new renewables, more recent revisions to national targets suggest a shift of attention from wind to solar and, to a lesser extent, geothermal energy. The 2015 National Renewable Energy Action Plan pledges to increase solar and geothermal capacity to 5 GW and 1 GW respectively by 2023. Turkey's Intended Nationally Determined Contribution (INDC), submitted to the UNFCCC climate secretariat before the 2015 Paris climate conference, ultimately aspires to install 10 GW solar and 16 GW wind capacities by 2030. The solar target can be read as a continuation of existing plans. The wind power target, however, signals a clear and substantial reduction of ambition. Compared to the 2023 vision, it signals 4 GW less capacity within a period that is seven years longer. In terms of combined wind and solar capacity, the INDC suggests an increase of merely one additional GW capacity in the seven years between 2023 and 2030 compared to the updated vision 2023 targets presented in the National Renewable Energy Action Plan – a rather dim scenario for sustainable energy development.

Commentators highlight further road blocks to sustainable energy development. For one, they criticise the dominant role of hydropower. Hydropower

already contributes more than 25 percent of Turkey's electricity generation, and the 2023 targets hold that Turkey will exploit its full technically and economically feasible hydropower potential. While present capacity is approximately 26.2 GW, overall capacity is estimated to be 66 GW (Energy Charter Secretariat, 2014). This already high level of hydropower makes the 2023 renewable energy target of 30 percent look comparatively less ambitious. There has also been criticism of the side effects of hydro expansion: Projects can change river flows and negatively affect ecosystems. As the Ilisu Dam in Southeast Turkey demonstrates, land flooding can lead to the relocation of local populations and the loss of agricultural land and cultural sites.

Moreover, as an analysis by *Bloomberg New Energy Finance* (BNEF, 2014) observes, renewable energy targets are likely to be missed. Turkish policies are contributing to this anticipated failure. Investors and other critics highlight the comparatively low level and time span (10 years) of feed-in tariffs as well as substantial bureaucratic hurdles, particularly the rather complex, expensive and time-consuming licensing processes. Consequentially, large parts of the abovementioned solar power capacity of 250 MW result from so-called unlicensed (non-tender, small scale) projects. Conversely, the capacity of 600 MW that was offered in an initial tender in 2013 has remained largely unrealised. Energy Minister Albayrak recently announced a new tender for 1 GW capacity for the end of 2016. Given previous experiences, however, the success of this new tender remains uncertain.

Turkey's energy-saving potential has been estimated at more than USD 13 billion annually (Energy Charter Secretariat, 2014: 12). The country aims to reduce energy intensity by 20 percent by 2023 compared to 2011. Turkey enacted an Energy Efficiency Law (No. 5627) in 2007, followed by a Regulation on Increased Energy Efficiency in 2009, a Strategic Paper on energy efficiency in early 2012 and a subsequent Action Plan in 2014. In its Strategic Plan for 2015–2019, the Energy Ministry formulates several goals, such as reducing energy use for street lighting by 40 percent and that of Ministry buildings by 20 percent. It furthermore aims to increase public awareness and to curb the losses in electricity distribution from more than 15 percent to 10 percent.

Compared to renewable electricity governance, energy efficiency governance is still evolving. The Ministry thus also aspires to build further policy-making capacity and to further develop the regulatory framework for energy efficiency. Operational programmes include efficiency investment subsidies, voluntary agreements with industries, awareness-raising campaigns and support for small- and medium-sized companies through providing education and consulting. However, once more, there are doubts about whether Turkey will reach its 20 percent target. The country's National Renewable Energy Action Plan seems to imply that primary energy consumption might grow faster than GDP (cf. Figure 10, MENR, 2014). Furthermore, PwC's 2015 Low-Carbon Economy Index shows that Turkey actually performs worst among G20 countries in terms of the development of its carbon intensity – a measure partially related to energy efficiency. Turkey's economy's carbon intensity grew by 4.4 percent from 2013 to 2014 (PwC, 2015).

In terms of transportation, the National Renewable Energy Action Plan expects an increase of sectoral energy demand to 29.4 Mtoe in 2020 and 34.5 Mtoe in 2023. It calls for the use of renewable energy (electricity, hydrogen, renewable gas and biofuels) in transportation to increase (from less than one percent at present) to 10 percent by 2023. Existing policies, however, are limited in scope. They consist of biofuel content obligations (of 3%) and tax exemption for the added biofuel. There are no fuel economy standards in Turkey (Mock, 2016). Furthermore, while vehicle CO₂ labelling has existed since 2009, no CO₂ emissions standards have been implemented. Some indirect energy savings incentives are provided by a sales tax, and by an annual ownership tax that increase with larger engine displacement.

Fossil mindset, missing will, lacking investment attractiveness

Based on the above insights, it seems fair to say that decarbonisation of Turkey's energy sector is unrealistic in the short or medium term. The country's growing energy demand and its formidable renewable energy potential might – in theory – work as drivers for sustainable energy solutions. Nevertheless, at least three major barriers prevent the country from decarbonising.

The first of these is the country's policy focus on domestic coal, particularly on low-energy-content lignite (Stefanova & Popov, 2013): The financing of Turkey's coal plans has become one of the Turkish banking sector's priorities, and governmental financial support for coal substantially exceeds that for renewable technologies. As seen above, domestic low-energy lignite is furthermore supported by the new coal import tariff, plans to open coal fields and by the potential exemption of coal facilities from environmental regulations. If the Turkish Government should follow through on its projected coal expansion, this might increase energy sector carbon emissions by almost 150 percent by 2023 (Stefanova & Popov, 2013: 4).

A second significant barrier to decarbonisation is the lack of will among political elites to take sustainable energy policies seriously. This elite, including President Erdoğan, still seems to cherish the idea that expanding energy consumption is a sign of progress. Many officials like to point out that Turkey's energy demand growth is second only to China, implying that this is good news. The problem is replicated on the level of the bureaucracy. Here, the task to satisfy ever-growing energy demand has left energy planning in a rather reactive state of mind. Not only has planning often favoured established technologies, it has also tended to overlook the increasing competitiveness and potential value-added of renewable energy sources. For example, while IRENA reports onshore wind power generation costs of USD 0.09 or less per kWh, Turkey still pushes for building the Akkuyu nuclear plant that comes with a 15-year offtake agreement at a price of USD 0.1235 per kWh. The reactive approach has yet to give way to a policy approach built on solid, long-term planning and which is proactively embracing future chances and opportunities in the energy sector.

A third barrier is the sustainable energy sector's lack of attractiveness for investors. Fossil rhetoric and the absence of long-term planning increase policy risks and reduce investor attractiveness. The same is true for the regulative shortcomings highlighted above. This has led to a paradoxical situation: The attrac-

tiveness of renewable energy investment in Turkey is average at best, despite: Turkey's until recently booming economy; investor enthusiasm for Turkey's energy market; its large sustainable energy potential; and a global boom in renewable energy investment. In Ernst & Young's Renewable Energy Country Attractiveness Index, Turkey ranks 19th out of 40 states (EY, 2016). Furthermore, given Turkey's ongoing domestic political crisis, the situation might worsen. The unsuccessful coup attempt of July 2016 and the subsequent 'cleansing' of large parts of government by President Erdoğan's supporters might not only have negative effects on the country's capacity for effective governance; it is also likely to negatively affect the country's economic performance and raise doubts about Turkey's political stability. This would further hamper the willingness of (foreign) investors to commit to long-term sustainable energy projects.

Foreign policy focus on regional leadership and energy security

Turkey's energy foreign policy is based entirely on fossil sources, focusing on pipelines and energy security (Richert, 2015). The country is following an ambitious foreign policy agenda related to its 2023 vision, calling for making Turkey "one of the key players of global politics and a major actor for regional peace and stability" (AK Parti, 2016). The Turkish Foreign Ministry's energy policy thus focuses on Turkey's energy security, on reducing import dependency and the diversification of supply. Its second major ambition is to make Turkey an energy trade hub in the region. This implies a focus on expanding oil and gas pipeline infrastructure in the future. The Energy Ministry also defines two foreign policy goals in its Strategic Plan: first, to integrate Turkey into regional energy markets for electricity and gas; second, to make Turkey a powerful actor in the international arena. The latter is to be pursued in three ways: the acquisition of foreign coal, oil, gas and radioactive mineral fields; the expansion of staff in international organisations; and the opening of bilateral Representations of Energy and Natural Resources.²

² Priority is given to Representations in the United States, Russia, Azerbaijan, Iraq and France. These focus countries once again suggest the primacy of oil and gas (Russia, Azerbaijan, Iraq) and potentially nuclear power (United States and France) in Turkey's energy approach.

Sustainable energy is not part of foreign policy priorities. This is not surprising, given the domestic focus on further carbonisation. Turkey's 2015 G20 presidency featured the first ever G20 Energy Ministers' meeting, as agreed by G20 leaders at Brisbane the year before. Turkey chose to interpret the theme of "energy sustainability" in terms of energy access and investment rather than environmental sustainability and climate change. The Energy Ministers' meeting resulted in an Energy Access Action Plan. Also with regard to climate change, Turkey focused on issues of financing rather than reducing emissions. Analysis by the University of Toronto shows that Turkey subsequently failed to deliver on both of these pledges (G20 Research Group, 2016).

At the 2015 Paris climate summit, the targets presented by Turkey were weak: The country pledged to reduce greenhouse gas emissions by 21 percent (compared with a business-as-usual scenario) by 2030. Furthermore, the country's climate efforts have been evaluated as "inadequate" by the Climate Action Tracker (2016) and as "very poor" by the Germanwatch Climate Change Performance Index (2016). Its INDC furthermore emphasises Turkey's need to use its own resources. Given the abovementioned domestic situation, this would most certainly mean coal. Moreover, the contribution highlights special national circumstances and capabilities, mainly defined by the continuing growth of GDP and energy demand. Finally – and in gross contradiction of the global player and regional power rhetoric that Turkey tends to present in other contexts – the INDC stresses that Turkey experiences financial and technical constraints in fighting climate change, and that it would remain eligible for official development aid.

No impulses and the role of geopolitics

Turkey's current energy pathway is, by and large, rather contradictory to the overall agenda of decarbonising energy systems. Thus, given its domestic and international priorities, no positive impulses for a global transition towards sustainable energy are to be expected. Moreover, particularly in terms of reducing the use of coal, foot-dragging seems to be the most likely course of action.

It is furthermore important to note that Turkey tends to perceive energy negotiations in the context of – or as a proxy for – larger geopolitical constellations. This might have several implications: On the one hand, there might thus be some hope that Turkey remains neutral with regard to sustainable energy negotiations in the G20. The country's leader might be eager to avoid opening extra fronts of discontent internationally after heavy international criticism of the government's domestic political 'cleansings' that followed the failed coup attempt of July 2016, as well as the ever more apparent drift towards autocracy.

On the other hand, the connection of Turkey's position on energy to larger geopolitical constellations might also provoke a hardening of the Turkish position. Such hardening regarding sustainable energy issues might occur if it was seen as a way to foster Turkey's recent diplomatic rapprochement with Russia. Already, the Paris climate conference was perceived by President Erdoğan as an opportunity "to repair our relations with Russia", and the 2016 G20 meeting in Hangzhou served as an opportunity for the two parties to revitalise common fossil energy projects. The upcoming G20 events might be perceived in a similar light, making possible a Turkish–Russian energy coalition of the unwilling.

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