

#### FOREWORD

Since late 2019, the world has entered into a heightened period of volatility, uncertainty, complexity and ambiguity due to the COVID-19 pandemic. This new period requires uninterrupted flow of energy and market stability more than ever with increasing digitalization and home-based work. As Turkey, we felt the necessity to maintain and strengthen the resilience of the energy sector rapidly. There has been a greater need to adjust our energy policies, products and services to the new normal. The pandemic showed us that having flexible market structures in supply and demand plays a great role to tackle tough situations as we encountered.

Turkey's energy sector is in a transition to ensure self-reliance, robustness, diversification, supply security, competitiveness and low-carbon energy in compliance with its national circumstances. So far, the sector has been driven by two major characteristics: growing energy demand and import dependency, both of which are impacted by steady economic development with averagely 5% annual growth coupled with sectoral leaps in energy. To tackle these challenges, Turkey has had its own circumstantial energy transition phases, first of which lasted a decade over the period of 2001-2016. During this first stage, Turkey introduced radical reforms and restructuring in the energy sector including independent regulation of the sector by the Energy Market Regulatory Authority, enabling a level playing field for new market entrants, liberalization in power generation, distribution and trade as well as gas distribution and retail, and stepping up efforts to support the growth of renewable energy sources like solar and wind. Ensuring non-discriminatory access to energy markets mobilized sizeable private sector investments and involvement in energy activities. Since then the installed capacity in energy generation, for instance, has almost tripled and the energy landscape in Turkey's consumption and power generation patterns have altered.

Having reached a certain maturity threshold with the introduction of the Energy Exchange Istanbul (EPIAS) for electricity and natural gas transactions, Turkey has stepped into the second phase of the energy transition which is mainly inspired by the National Energy and Mining Policy Strategy announced in 2017. This new stage emphasizes the three main pillars of the Strategy, which are (i) reinforcement of security of supply, (ii) localization through renewable and domestic sources and (iii) enhancement of predictability in the market. Cross-cutting these pillars; market reforms, utilization of renewable resources, improvement of energy efficiency, deployment of new technologies and new infrastructure investments are the main objectives of our policy. This Strategy introduced a new framework for conceptualizing the progress we have already achieved long ago into a more structured and clear pathway.

In the light of the positive track record we have achieved in all sub-sectors of the energy sector, Turkey has achieved remarkable progress in creating a regulatory framework with a transparent and competitive market structure in convergence with EU markets. Political stability and good governance have eased the movements of private sector investments in the field of energy. In this context, one of the recent achievements in the electricity sector was the successful completion a new wind tender for an installed capacity of 1 GW. As a result of high level of competition, prices as low as US 3.53 cent/MWh were obtained. Moreover, Turkey's first integrated solar panel manufacturing facility, the first and only in Europe and the Middle East, went into operation in August 2020. The facility will produce 1,000-megawatt panels for the Karapinar solar power plant. In coming months, tenders for 74 PV power plants with a size ranging between 10-20 MW in 36 provinces are going to be held.

Faced with major challenges posed by the COVID-19 pandemic since early 2020, there has been a 6.3% decrease in power demand compared to the same period of 2019. During this period, energy consumption was mainly met by domestic and renewable sources accounting totally for about 60% of power generation. However, starting from June, Turkey has started to lift restrictions and normalize its economic activities resulting in a rapid recovery in energy consumption.

In 2020, Turkey has continued to be a safe harbor and a leading actor in its region for further investments. In line with this objective, we, as the Ministry of Energy and Natural Resources, published the Investor's Guide in the last quarter of 2018 and 2019 thanks to the high attention it has attracted.

Taking this opportunity, I would like to invite all investors to take part in Turkey's lucrative energy sector.



Fatih DÖNMEZ Minister of Energy and Natural Resources

INVESTOR'S GUIDE FOR ELECTRICITY SECTOR IN TURKEY

## WHY INVEST IN TURKEY?

#### Turkey's Macroeconomic Overview

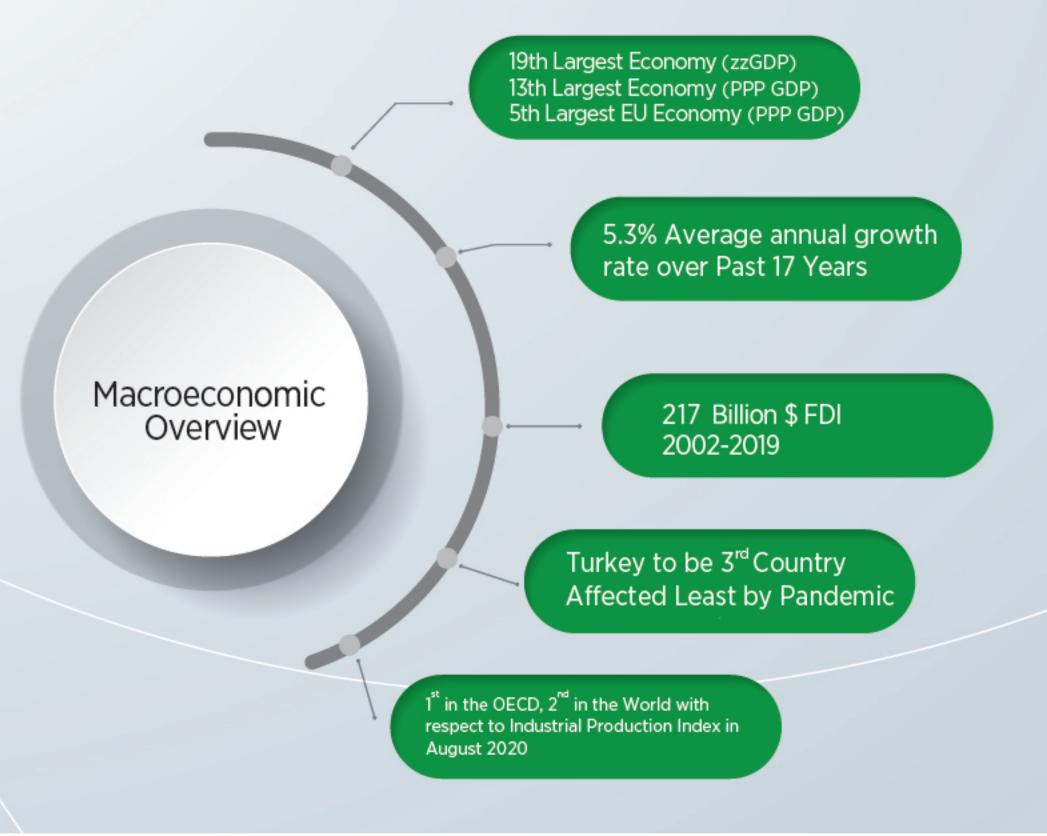
Over the past decade, Turkey has emerged as a strong regional player with global ambitions to be one of the top ten economies in the world. As of end-2019, Turkey is the 13th largest economy (GDP at PPP terms) in the world, with an **impressive** annual growth rate of 5.3% in the 2002-2019 period. Strong market fundamentals, such as a young and dynamic population with an average age of 32,4 a well-educated work force, increasing rates of employment over the years, a growing middle-class, and a unique geographical location, have all helped transform Turkey into one of the fastest growing and outstanding economies in the world.



Turkey is taking actions to improve its economic fundamentals. For instance, a series of government measures is set to reduce the current account deficit, with one such measure being that international investments can be used as leverage to support the localization of technologies and products. In addition, in priority sectors where Turkey is dependent on imports of intermediate goods, international companies are being attracted to the country to produce these goods locally.

An example of this is the energy sector, which had a very high external dependence a decade ago. With the implementation of various measures, it is expected that the localization rate in the sector could rise to over 65% in the coming 5 to 10 years.

Turkey enacted the Foreign Direct Investment Law in 2003, enshrining equal treatment for all investors, both foreign and domestic, and providing them with certain guarantees, such as international arbitration, guarantee of profit transfer, and protection against expropriation. The economic development and structural reforms have made Turkey one of the most attractive destinations for FDI. FDI inflow to Turkey amounted to USD 219 billion in the 2002-2019 period. In the same period, total FDI inflow to the energy sector stood at about USD 24.5 billion. Similarly, the number of companies with foreign capital in Turkey reached 74,227 as of December 2019, up from 5,600 in 2002.

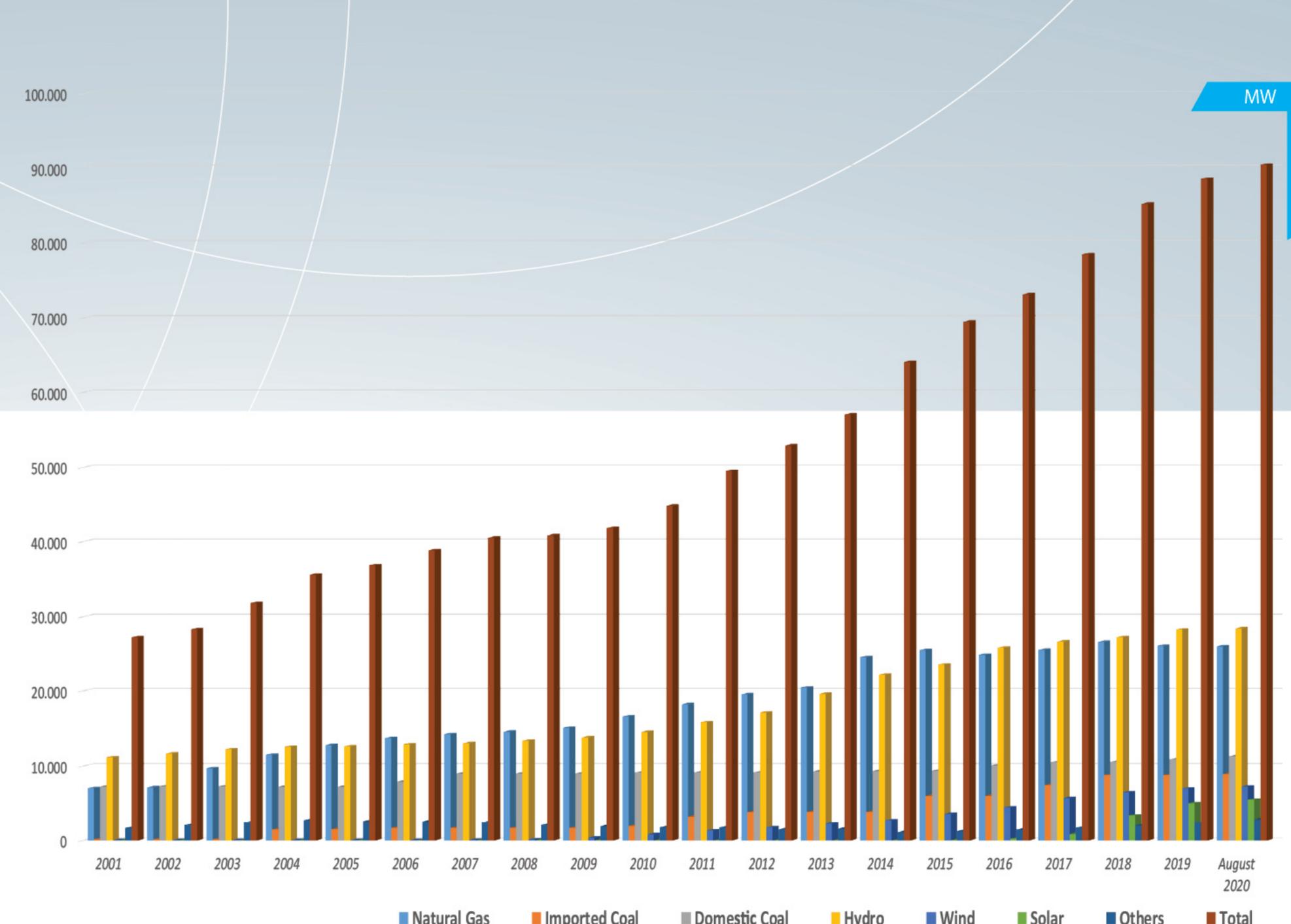


Demand for energy and natural resources has been increasing due to economic and population growth in Turkey. In recent years, Turkey has seen the fastest growth in electricity demand among OECD members, with an annual growth rate of 5% since 2002. Turkey will increase by 50% its energy use over the next decade. Moreover, the resources (MENR) confirm that this trend will continiue in the long term. Turkey's installed capacity has reached 91.3 GW in 2019 and 93 GW in August 2020. Turkey has achieved an additional capacity increase of 2,716 MW in 2019.

5% annual demand growth in electricity since 2002

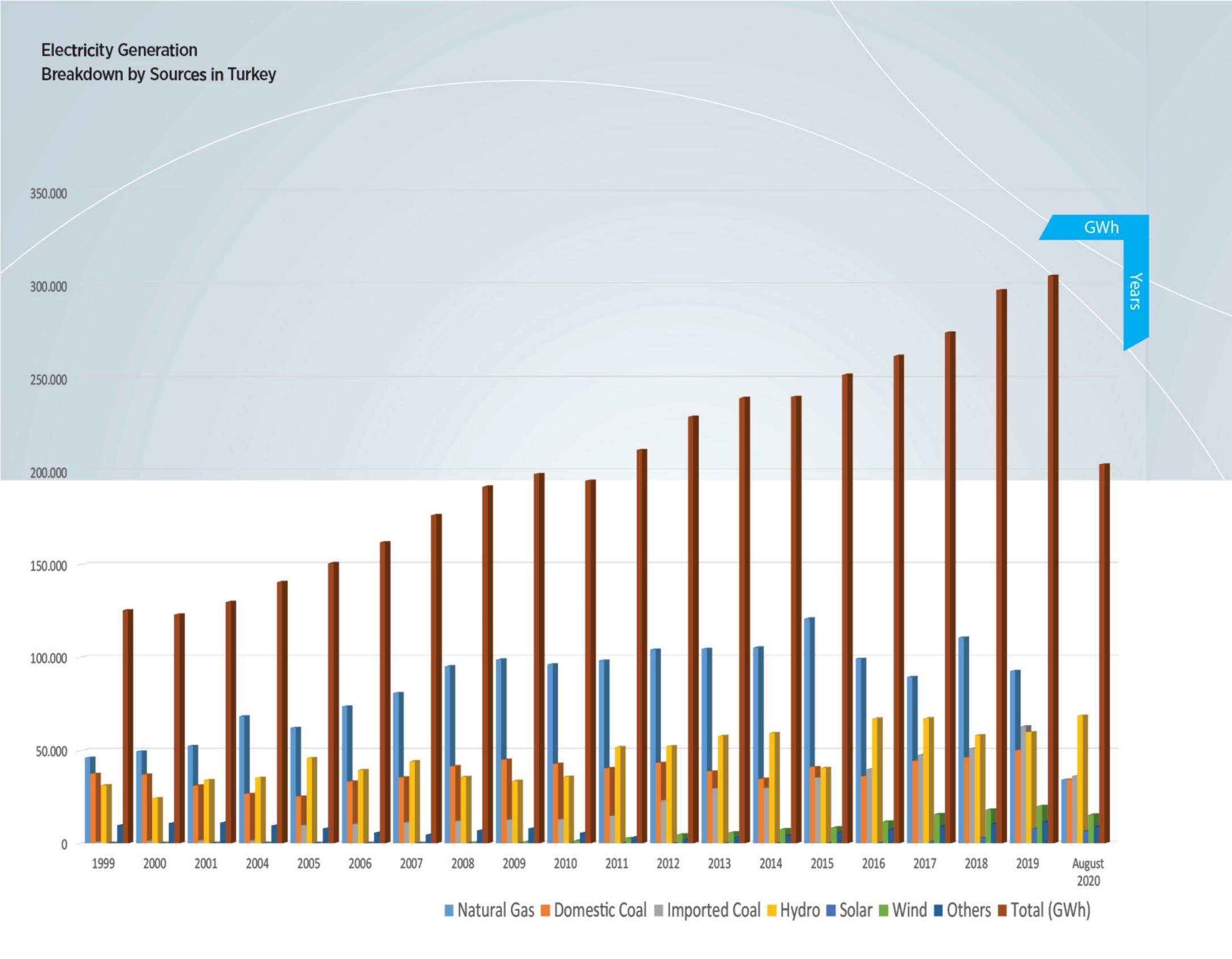
50% more energy use in next 10 years



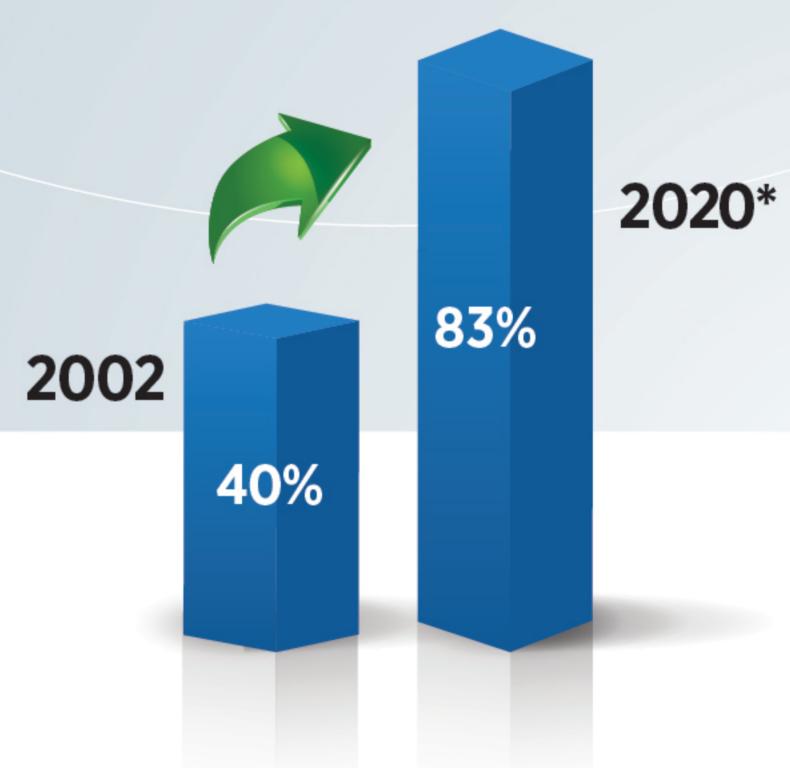


**Installed Capacity** 

Breakdown by Sources in Turkey

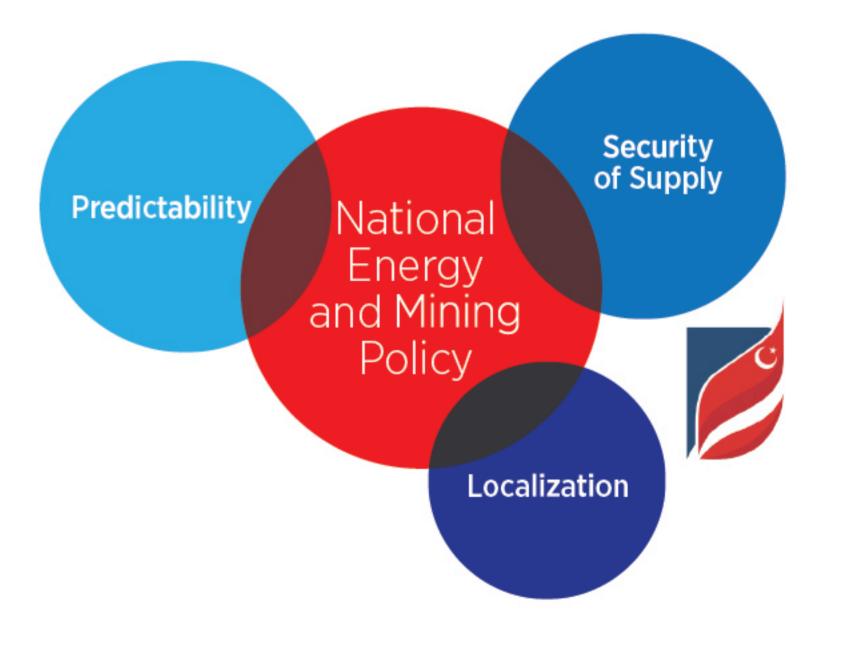


#### SHARE OF PRIVATE SECTOR IN ELECTRICITY GENERATION



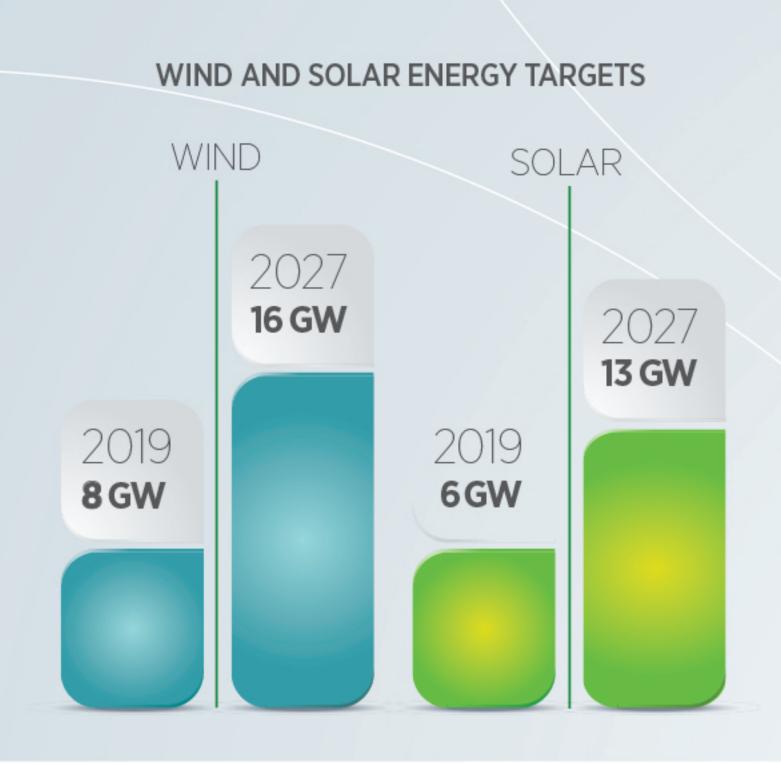
The majority of the capacity additions in Turkey have been realized in the last 15 years as a result of the investments made by the private sector. The share of the private sector in electricity generation rose from 40% in 2002 to 83% as of August 2020, along with the shrinking share of Build-Operate and Build-Operate -Transfer power plants during the period.

National Energy and Mining Policy in 2017 in order to increase the confidence in the energy sector and to update its targets. Ensuring security of supply, localization, and predictable market conditions are the main pillars of this policy. The top priority for Turkey is to decrease its import dependency by utilizing its domestic and renewable energy potential. Therefore, Turkey continues its efforts to increase the share of renewable energy sources and will add nuclear power to its energy mix. Furthermore, utilizing domestic and renewable energy potential is coupled with incentivizing local manufacturing of equipment, an example of which is the additional incentives for locally manufactured renewable energy equipment.



<sup>\*</sup>As of August 2020

Turkey has substantial amount of renewable energy potential, and the utilization of this potential has been increasing over the last decade. As of end of August 2020, hydro and wind resources constitute the vast majority of Turkey's renewable enegy capacity, accounting for 28.5 GW and 7.97 GW respectively of the total installed capacity of 93 GW. Furthermore, Turkey's target is to develop around 10 GW additional installed capacity each in solar and wind energy by 2026 compared to the 2016 baseline. Additionally, Turkey aims to increase the share of domestic and renewable energy in power generation to 2/3 by 2023. Renewable Energy Zones model was created for this purpose. Furthermore, a feed-in-premium mechanism (YEKDEM) is currently in place which is to be redesigned soon. Turkey also gives priority to the utilization of nuclear and coal resources as efficiently and environmentally-friendly as possible. Turkey will continue its studies towards utilizing domestic coal potential with clean coal technologies.



Share of RE and domestic sources in electricity generation is targeted to be

2/3 by 2023.

In terms of regulating **nuclear energy** and ensuring **nuclear safety**, in 1956, General Secretariat of Atomic Energy Commission was established in Ankara only to be restructured as Turkish Atomic Energy Authority (TAEK) in 1982 as the nuclear regulatory body. TAEK was responsible for ensuring nuclear safety and nuclear security by licensing and inspecting nuclear & radiation activities and facilities. In 2018, **Nuclear Regulatory Authority** was established to take over these duties from TAEK, leaving it in charge of only conduction, coordination and support for R&D activities in the nuclear field.

On the other hand, Turkey has been a **member of IAEA since 1957** as well as continuing the enhancement of its nuclear safety capacity by

virtue of the EU's instrument for Nuclear safety cooperation (INSC). Turkey is sharing experience and knowledge with other countries using the international platforms such as 'Organisation for Economic Co-operation and Development (OECD) - Multinational Design Evaluation Programme (MDEP)' and VVER Forum. Such platforms help us to increase infrastructure in the basis of nuclear safety.

import dependency and combating climate change, Turkey has take mportant steps to introduce the nuclear energy into its energy mix. Accordingly, Turkey signed an intergovernmental agreement with the Russian Federation in 2010 for the construction of a nuclear power plant with 4,480 MW capacity. Technical evaluations and assessments for the second and third nuclear power plants are on going and the share of nuclear energy power generation is targeted to be around 10% in the medium term in Turkey.





It is also worth mentioning that Turkey's natural gas sector has been steadily improving. Turkey commissioned two Floating Storage Regasification Unit (FSRU) terminals in 2018. One goal is to **expand Turkey's underground gas storage capacity to 11 bcm by 2023**, up from its current capacity of 3.3 bcm. Turkey has recently begun exploration activities in its seas with a drill ship it has purchased. Furthermore, the organized wholesale gas market operations started under the Energy Exchange Istanbul (EPİAŞ) as of September 1, 2019

All these developments pave the way towards a more competitive gas market. Last but not least, it is important to mention the steps Turkey has taken up until now and its goals in the field of energy efficiency. There is an important energy efficiency potential in Turkey. In the National Energy Efficiency Action Plan, which was adopted in 2017, Turkey aims to achieve **savings of USD 30.2 billion in total by 2033**. In this regard, an investment of approximately USD 11 billion will be made by 2023.

This will result in energy savings equivalent to 23.9 Mtoe. This saving is equal to reducing the primary energy consumption of Turkey by 14% in 2023 compared to the base scenario. As part of Turkey's efficiency efforts, Turkey will eliminate the need for USD 4.2 billion worth of power plant investments and also provide additional employment for 20,000 people by 2023.

WHY INVEST IN ELECTRICITY SECTOR IN TURKEY?

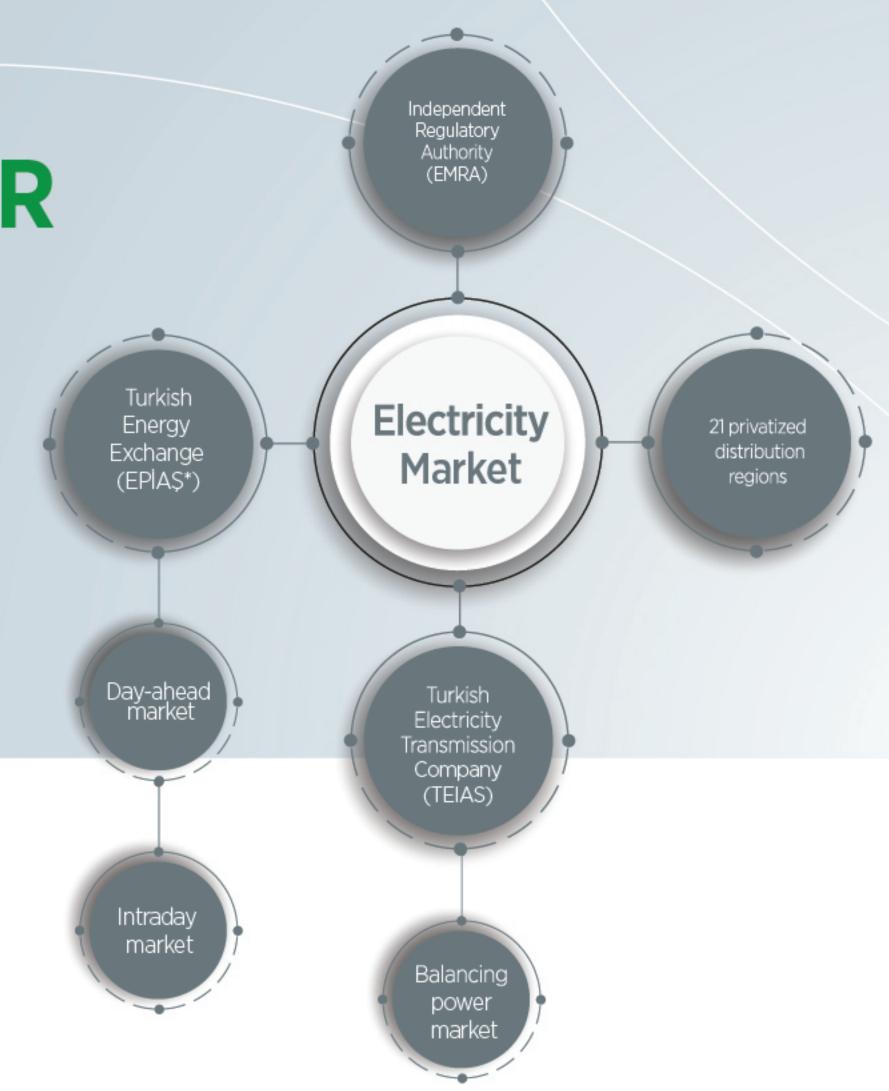
#### **Turkish Electricity Market Overview**

The Turkish electricity sector has gone through a significant transformation in the past two decades. Throughout this period, the electricity market underwent a liberalization process along with the establishment of a regulatory authority for the energy sector, went through reforms, and became a functional electricity market with large-scale private sector participation following privatization.

Seeking to become a full member of the European Union, Turkey took the initiative to open its electricity market to competition in 2001. This marked a turning point for Turkey, as the design and legal framework of the new market were adapted from those of the European Union. Since 2001, there have been some major developments in the market. In 2013, the new Electricity Market Law No. 6446 was published and the privatization processes of 21 distribution companies were completed.



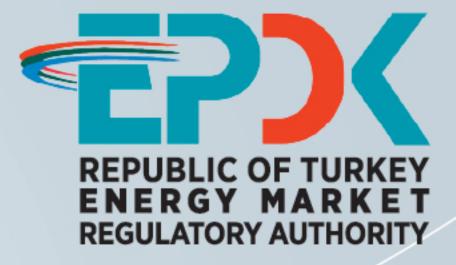
TEIAS
ENTSO-E
Observer
Member
since 2016



Drawing upon these developments, trial synchronous parallel operation of the Turkish Power System with the **ENTSO-E Continental Europe Synchronous Area (CESA)** began in 2010. Following the fulfilment of ENTSO-E's standards/obligations by Turkish Electricity Transmission Corporation (TEIAS), the Long Term Agreement was signed in April 2015 that turned TEIAS into an integral part of European network. The Observership Agreement was signed between TEIAS and ENTSO-E on January 14, 2016.

#### **Energy Market Regulatory Authority**

Energy Market Regulatory Authority (EMRA) was established in 2001 in order to perform the regulatory and supervisory functions in the energy markets. The fundamental objective of EMRA is to ensure the development of financially sound and transparent energy markets operating in a competitive environment. It is also EMRA's responsibility to maintain the delivery of sufficient, high-quality, low-cost and environment-friendly energy to consumers and to ensure the autonomous **regulation**, **licensing** and **supervision** of electricity, natural gas, and downstream petroleum and LPG markets.



## Independent regulatory authority

in the Energy Market since 2001:



<sup>\*</sup>EPİAŞ is a member of EUROPEX.



In 2015, Energy Exchange Istanbul was established to operate the organized wholesale markets. Energy Exchange Istanbul currently operates electrity and natural gas spot markets. It also charge of settlement of the balancing power market, ancillary services market, the system imbalances and YEKDEM (RE Support Mechanism) Additionally, Energy Exchange Istanbul publishes information on price and capacities traded on its transparency platform.

#### Wholesale Electricity Markets

As a part of the transition to a liberal and competitive energy market model, day-ahead, intraday, and balancing power markets were established to provide market participants a trading platform based on integrity, transparency, and competition. Day-ahead and intraday markets are operated by the independent market operator Energy Exchange Istanbul, and the balancing power market is operated by the transmission system operator Turkish Electricity Transmission Corportaion (TEIAS). All three markets are subject to regulation by EMRA.



#### The Day-Ahead Market

The day-ahead market is the main platform where the bulk of electricty trade takes places and the hourly market clearing price for the following day is reached. Imbalance settlement period is one hour. Market participants can place bids to balance the market positions of their portfolios and existing bilateral contracts. Bids can be hourly, flexible, or block-type (3 hour minimum) and lot size is 0.1 MWh. Energy Exchange Istanbul operates a price finding algorithm to match bids and provide a solution where total consumer and producer surplus is maximized. Also, Energy Exchange Istanbul is working on establishing Physically Settled Power Futures Market.

non-household consumers are **Eligible Customers** in electricity

Eligibility
threshold is annually
1400 kWh in 2020
down from
9 million kWh
in 2002

#### Intraday Market

The intraday market is set up to supplement the day-ahead market and to enable continuous trading close to real time. It serves as an additional trade platform for market participants to balance their positions and avoid imbalance charges. Bids can be hourly or block-type and the market operates on a first-come first-served basis, where bids of the participants, having the highest buying price and lowest selling prices, are matched.

#### Last Resort Supply Tariff

Last Resort Supply Tariff is applied to those who are non-user of their eligible consumer right. The main goal of this application is to form a free market and guarantee the development of it. In this vein, Last Resort Supply Tariff has been applied to consumers whose annual consumption exceeds 50 GWh for 2018, 10 GWh for 2019 and 7 GWh for 2020.

#### Balancing Power Market

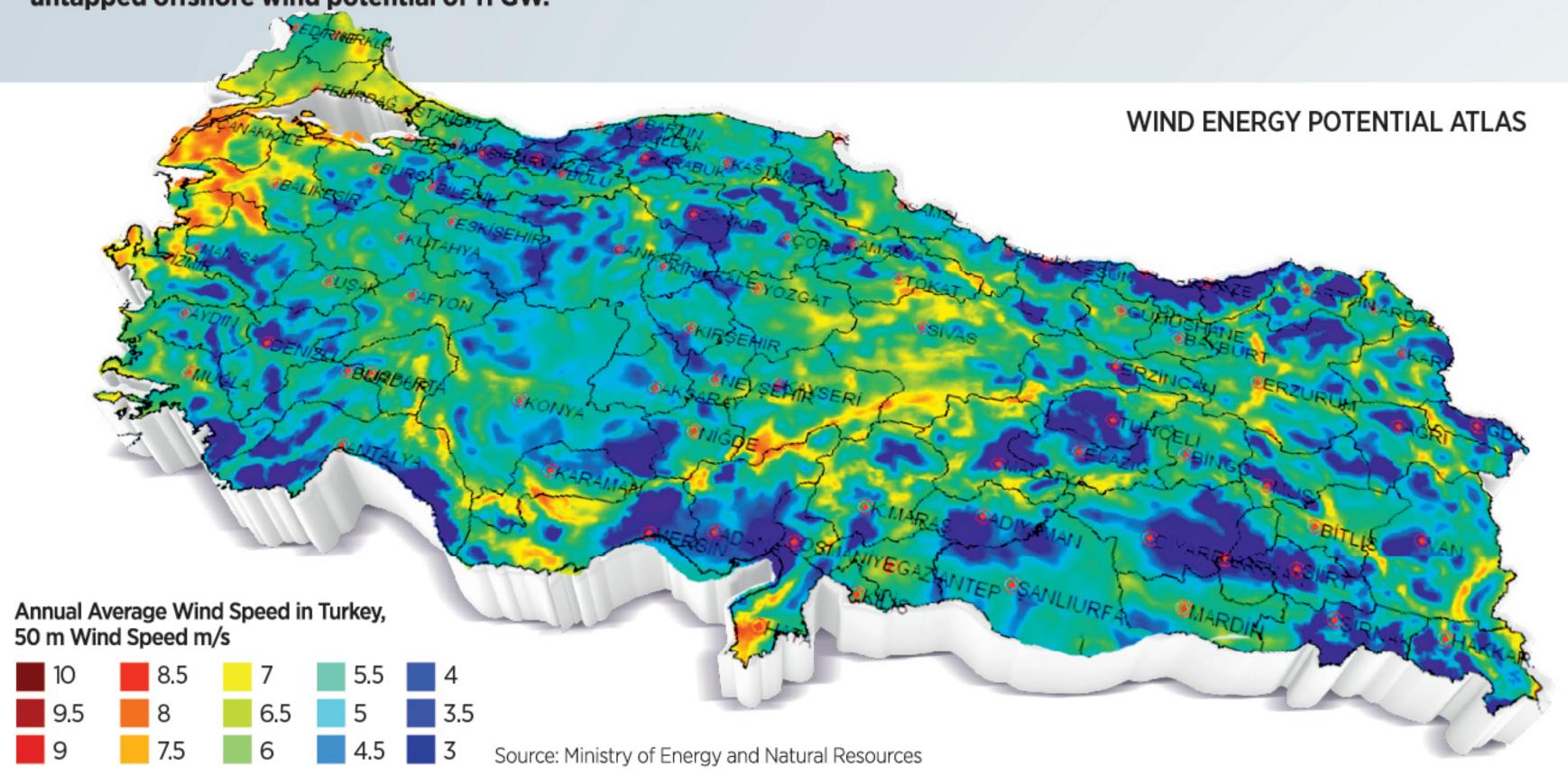
The balancing power market is operated by TEIAS to balance power supply and demand in the system and to provide system security. "Balancing units", with at least 10 MW capacity and the ability to alter production within 15 minutes, have to participate in the balancing power market. Loading and deloading bids are evaluated by TEIAS, and the system marginal price is found by the net volume and direction of TEIAS's orders. The market works on the marginal pricing principle, but TEIAS has the right to skip bids and accept less price-suitable bids in a pay-as-bid manner based on location, need, and the participants' prior actions.



#### RENEWABLE ENERGY

Making full use of the RE potential is at the top of Turkey's agenda, and the potential is still to a large extent untapped. As of August 2020, Turkey has an installed capacity of about 8 GW and more than 3 GW of licensed wind capacity is under construction. On the other hand, Turkey has an onshore wind potential of 37 GW and a completely untapped offshore wind potential of 11 GW.



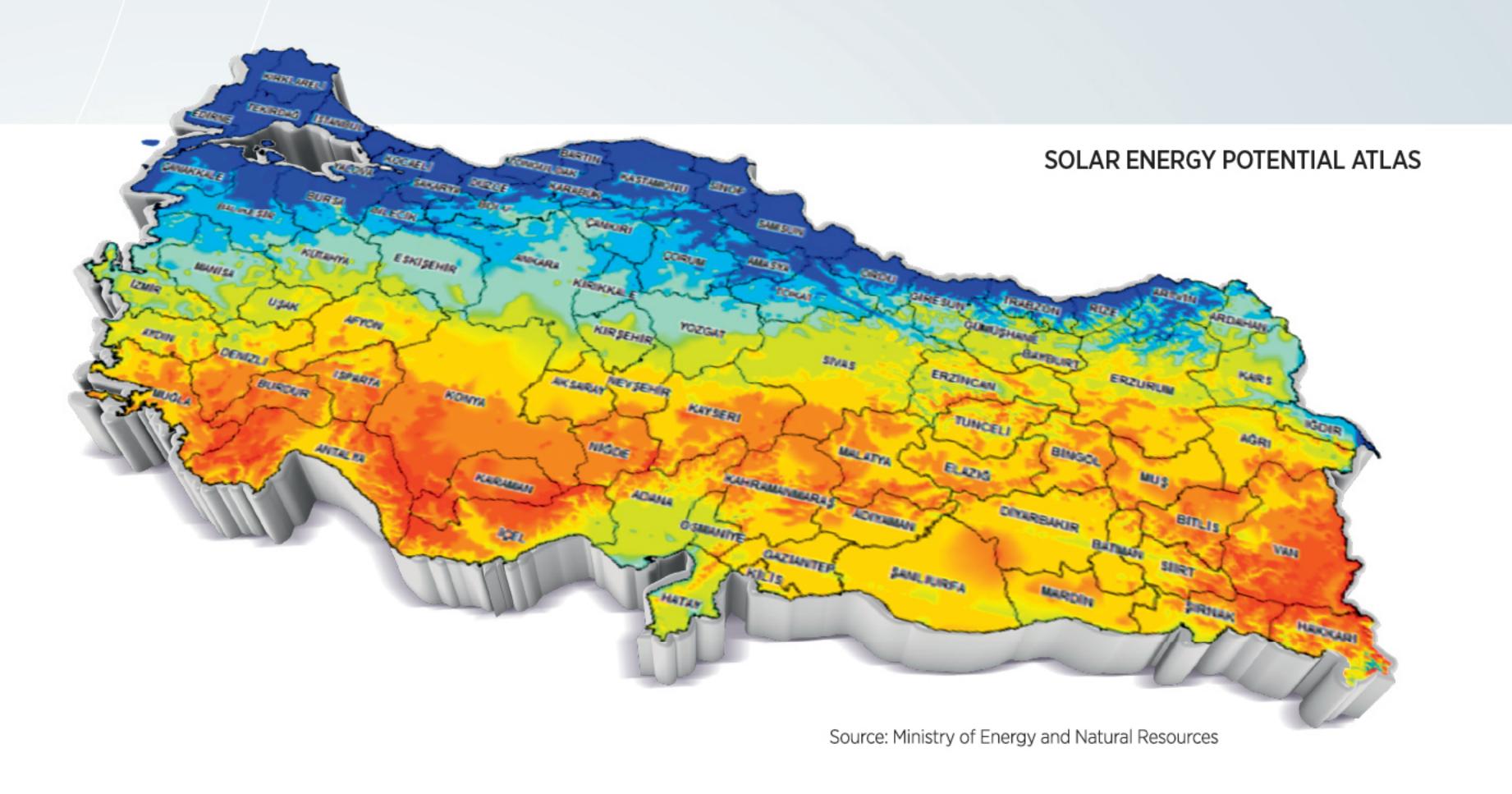


As for the solar potential, annual average daylight duration in Turkey is 7.5 hours and average annual radiation is 1,638 kWh/m2, which is higher than most of Europe. Turkey's installed solar capacity is only around 6.29 GW, although solar power potential in Turkey is nearly twice that size of Northern Europe's.

The effort to invest in RE will lead to growing demand for RE equipment such as turbines and photovoltaics (PV) panels. Turkey will continue to incentivize localization through providing bonuses for locally manufactured equipment.

#### Total Solar Radiation KWh/m2.a





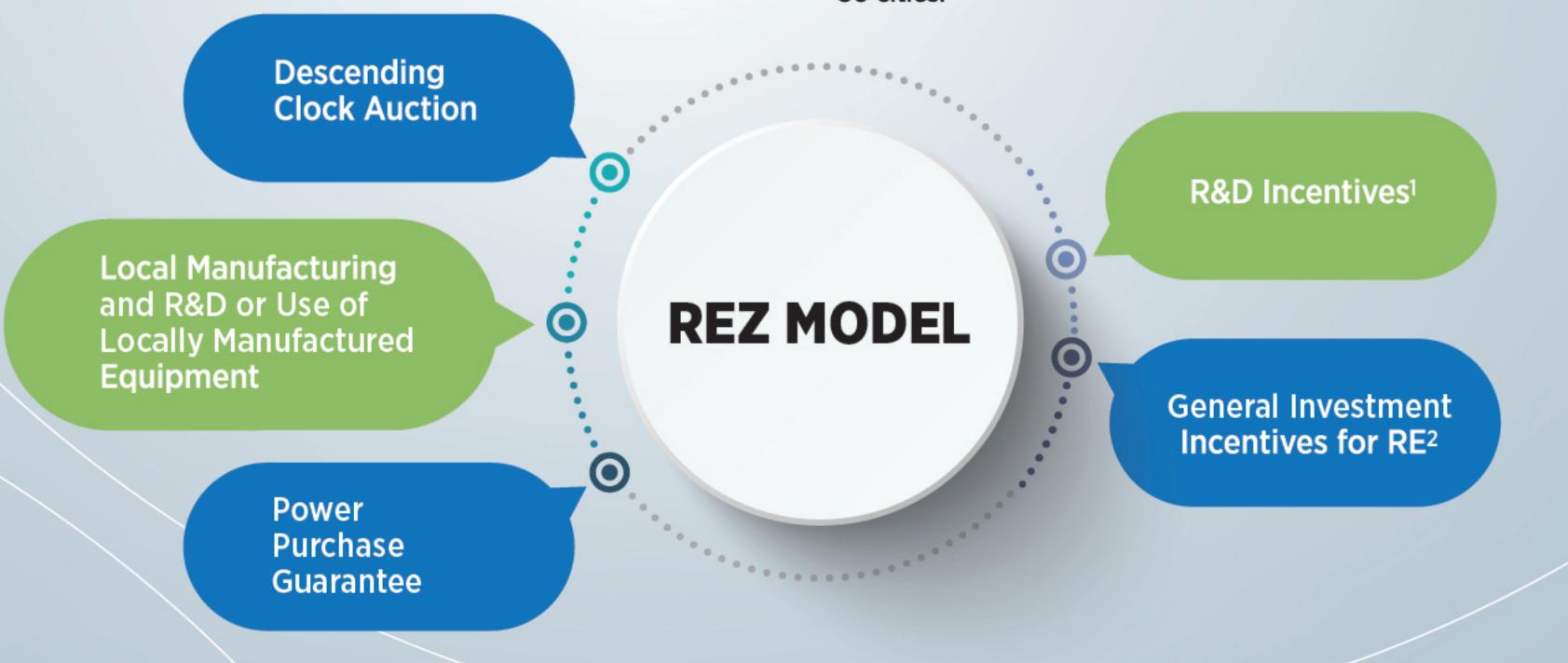


#### Renewable Energy Zones (REZ) Model

The REZ model was created by Turkey in order to ensure efficient and effective use of RE resources by setting up large scale REZs in selected areas. The model was designed in a way that also serves to help attain the localization target set in the National Energy and Mining Policy. The REZ model is in essence an auction mechanism where the winner of the tender is granted the right to generate and sell the electricity at a price determined as a result of the process. The tender involves the condition of the establishment of local manufacturing and R&D facilities or using locally manufactured equipment with an aim

to ensure localization. The REZ model is important for Turkey as it is a tool for fast tracking the realization of planned projects and technology transfer.

Turkey has been gearing up its RE investments, and one of the tools Turkey employs to this end is the REZ tenders. In 2017, Turkey held two tenders for solar and wind energy with 1 GW capacity each by using REZ auction. In 2019, a new wind tender covering 4 regions with a total installed capacity of 1 GW was completed. On July 3 of 2020 new solar tenders were announced in Official Gazette for totally 1 GW capacity. 74 competitions in capacities of 10, 15 and 20 MW will be held in 36 cities.



#### COMPLETED

Type of resource: PV
Capacity: 1 GW
Locations: Karapinar
Winner bid: US\$ 6.99 cent/kWh
Competition date: 20.03.2017

#### COMPLETED

Type of resource: Wind Capacity: 1 GW Locations: Edirne, Kırklareli-Demirköy, Sivas-Kangal, Sivas-Gürün Eskişehir-Tepebaşı Winner bid: US\$ 3.48 cent/kWh Competition date: 03.08.2017

### TURKEY'S TRACK RECORD OF REZ TENDERS

#### COMPLETED

Type of resource: Wind
Capacity: 1 GW
Locations: Muğla (250 MW), Çanakkale (250
MW), Balıkesir (250 MW), Aydın (250 MW)
Winner bid: Muğla US\$ 4.00 cent/kWh
Çanakkale US\$ 3.67 cent/kWh
Balıkesir US\$ 3.53 cent/kWh
Aydin US\$ 4.56 cent/kWh
Competition date: 30.05.2019

#### WHAT IS NEXT?

Possible tenders for: . Wind and Solar Tenders

. Storage Technologies such as pumped hydro storage and battery storage



## The main advantages of Renewable Energy Zone tenders

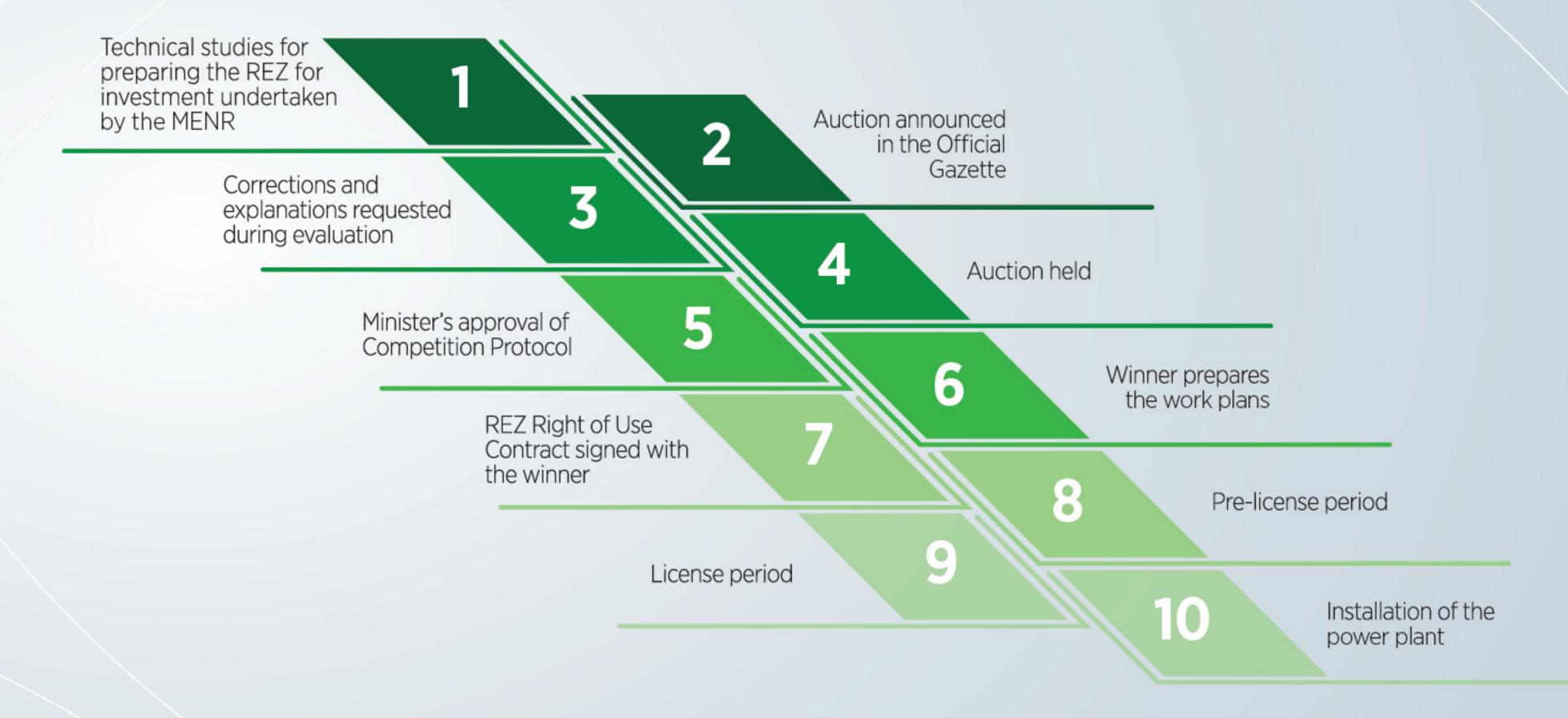
Resource abundant zones with high electricity generation potential are selected as REZs. As the projects are large scale (around 1 GW), the winner is expected to benefit from economies of scale.

The winner is granted a fixed and foreseeable price for its generation for a fixed duration. (The first tenders involved a power purchase guarantee for a period of 15 years). The winner is granted the right to use the designated area and grid connection.

If the tender involves an R&D facility, it is eligible to benefit from the incentives provided for R&D centers. Other incentives envisaged in Turkey's incentive system may apply to the plants and/or the manufacturing facility.



## HOW TO PARTICIPATE IN RENEWABLE ENERGY ZONE TENDERS?



#### STEP BY STEP RENEWABLE ENERGY ZONE TENDERS

1

#### **REZ** is determined

The first step of the REZ model is determining the resource zones. Either REZs are identified directly by MENR or following the allocation of grid connection capacity for REZs by MENR, zones are ascertained in cooperation with the tender winner.

2

#### Tender announcement is published

The "REZ Right of Use Competition Announcement" is published in the Official Gazette. The announcement includes technical details of the zone, administrative conditions, grid connection capacity, eligibility criteria, upper limit for the power purchase price, the envisioned duration of power purchase, etc. Investors have 30 days to submit applications.

3

#### Technical evaluation is carried out

A committee established for technical evaluation reviews the technical documents submitted by applicants. Applicants may be asked to correct their application or provide more information. Applicants who passed the technical evaluation are invited to the tender.

4

#### Tender takes place and winner is determined

All eligible applicants participate in a descending clock auction. In each step applicants are asked if they are willing to decrease their bidding price to a price below that of the lowest bidder. Those who will not decrease their bidding price are assumed to have withdrawn. At the end of the competition session, all participants but the winner withdraw from the competition.

5

#### The result of the auction is approved by the Minister

Upon completion of the auction, the Committee prepares a protocol outlining the results of the auction which is in turn approved by the Minister. After this approval, winner can obtain the Letter of Bank Guarantee submitted during the application.

6

#### Winner outlines its work plan

The work plan includes the expected time for the establishment of manufacturing facility and the starting date of electricity generation. This is in turn approved by the Ministry.

9

#### REZ Right of Use Contract is signed with the winner

After the contract, the winner starts the studies to propose the candidate REZs. Following the evaluation of MENR, REZs are published in Official Gazette and the winner applies for pre-license.

#### Winner applies for pre-license

The winner is exempt from submitting a wind or solar measurement report. The main responsibilities of the winner during this process are: (i) approval of zoning permits, (ii) preliminary project approvals, (iii) system utilization agreement with TEIAS, (iv) construction permit, and (v) environmental impact assessment decision.

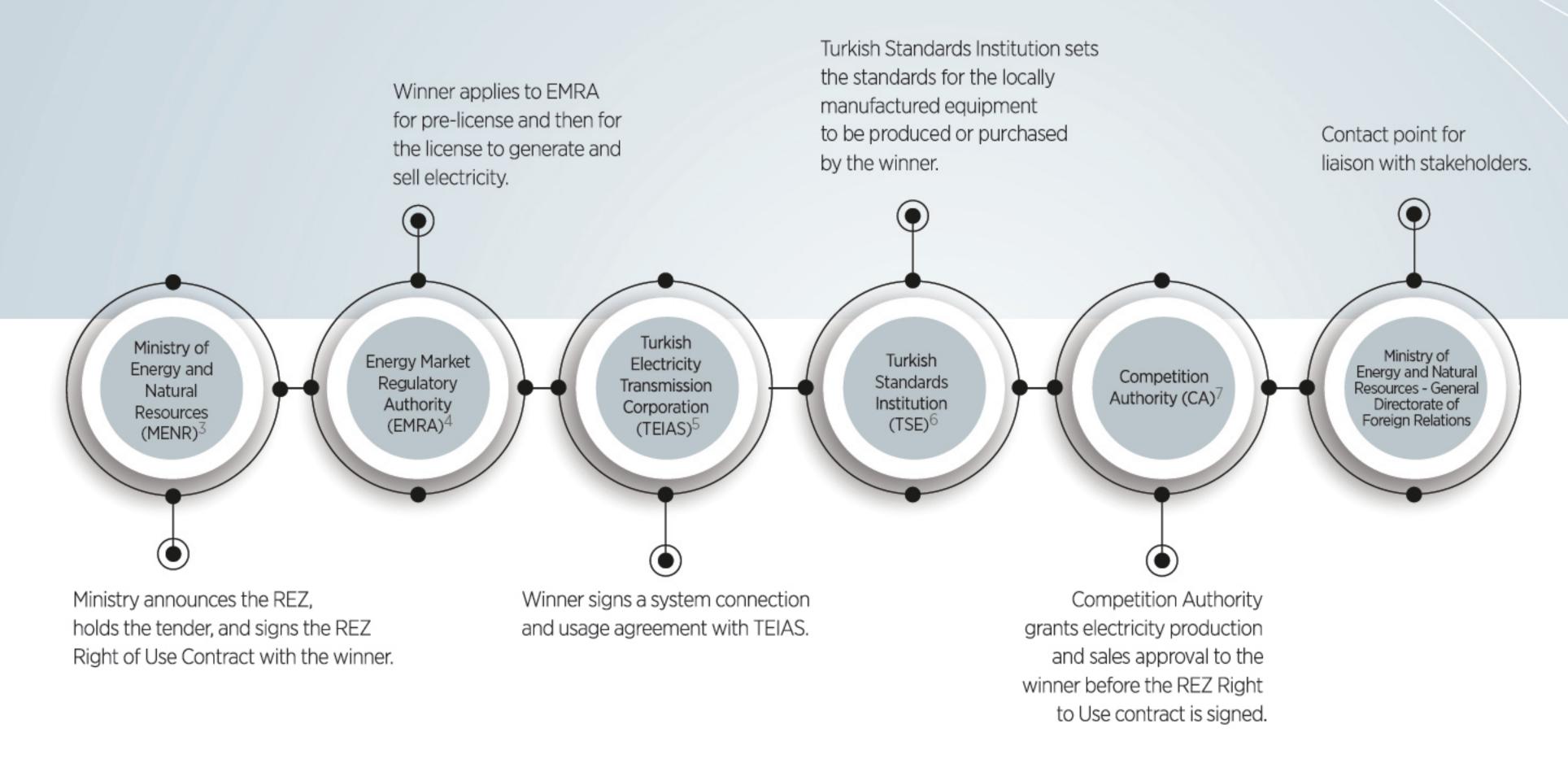
#### Winner applies and is granted a license

In order to obtain a license, the winner is expected to submit to Energy Market Regulatory Auhtority documents showing (i) that the applicant has completed all responsibilities during the pre-license period, (ii) timeline of construction, (iii) that minimum share capital is deposited, license fee is paid, letter of bank guarantee is obtained, etc.

10

Winner can start the installation of the power plant

# WHO ARE MY STAKEHOLDERS FOR RENEWABLE ENERGY ZONE TENDERS?





#### FAQ

#### How can I learn about the upcoming tenders?

Tenders are announced in the Official Gazette (www.resmigazete.gov.tr) at least 30 days before the application deadline as well as on the MENR's website (www.enerji.gov.tr). Terms of reference documents can be obtained from the Ministry.

#### What is the duration of the electricity sales? Who buys the electricity?

Duration is identified in the terms of reference. It was 15 years in the past 3 tenders. Winner sells the electricity to the YEKDEM mechanism.

#### Who can apply to participate in a REZ tender?

Those who satisfy the conditions set in the REZ Regulation and the terms of reference are eligible to apply. If there is to be any prerequisite of being legal person, a joint venture or a consortium, this is also ascertained in the terms of reference. The winner has to satisfy the conditions set for the legal persons in the Electricity Market License Regulation (date: 11/2/2013 O.G. No: 28809) to be able to obtain a pre-license.

#### Is the winner required to set up a factory and/or undertake R&D activities?

If the tender is conducted using the allocation in return for local production (and not for using local equipment) method, the winner is required to set up a factory and undertake R&D activities.

#### For how long is the REZ license? Is it possible to extend this duration?

The duration of the REZ license is set in the terms of reference. It is not possible to extend this duration.

#### What happens if the winner decides not to sign the REZ Right of Use Contract?

The letter of guarantee submitted by the winner during the application is recorded as revenue. MENR might invite the 2nd and 3rd lowest bidders to sign the contract.

### Does the winner have to install a power plant with an installed capacity equal to the grid connection capacity?

The minimum installation requirement of the allocated grid connection capacity is determined in the terms of reference.





## COAL

## WHY INVEST IN COAL-FIRED POWER GENERATION IN TURKEY?

Turkey aims to increase the share of domestic coal in electricity generation by transferring coal reserves to the private sector with the obligation of building and operating coal-fired power plants in the vicinity.

As of the end of August 2020, electricity generated from domestic coal is 28,254 GWh (14.2% of the total generation 199,229 GWh) and installed capacity of domestic coal is 11.3 GW (12.2% of total installed capacity 93 GW).

Target: Reaching
20 GW

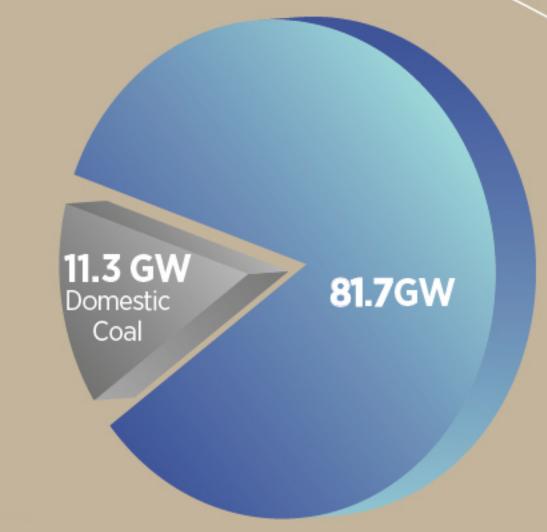
domestic coal share in installed capacity in the medium

to long term

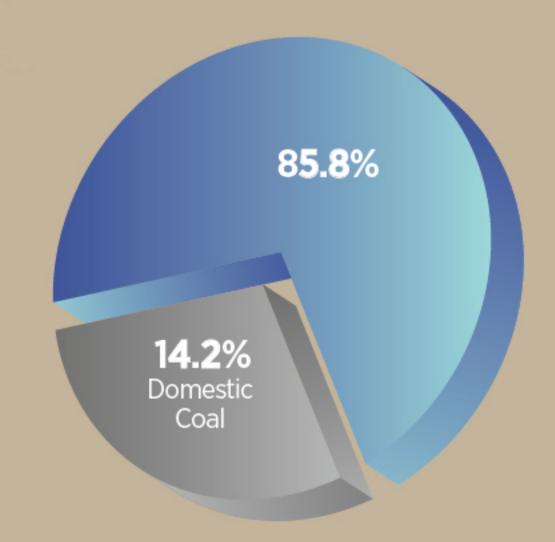




Turkey has a substantial amount of coal reserves, totaling 17.3 billion tons and composed of mostly lignite. Main coal reserves are located in Kangal, Orhaneli, Tufanbeyli, Soma, Tunçbilek, Seyitömer, Çan, Muğla, Çayırhan, Afşin-Elbistan, Karapınar, Tekirdağ, Alpu, and Afyonkarahisar. Among these reserves, the Afşin-Elbistan alone has 4.8 billion tons of lignite resources, which constitute 28% of Turkey's total lignite reserves. The reserves to be tendered with auctions bear 6.4 GW of installed generation capacity potential.



Share of domestic coal in installed capacity as of August 2020 ( GW)



Share of domestic coal in electricity generation as of August 2020 (including asphaltite and hard coal) (%)

# WHERE TO INVEST IN COAL-FIRED POWER GENERATION IN TURKEY?

Tender for Cayırhan-B Project contracted on July 11th 2017 at

July 11th, 2017 at US\$6.04 cents/kWh

Some of coal fields are either currently under tendering/have been contracted or will be tendered soon. For instance, the first one that was successfully tendered was Çayırhan-B Project, which was contracted on July 11th, 2017 with a consortium at US\$6.04 cents/kWh.

The coal reserves that are planned to be tendered by open auctions for thermal power plant - integrated investment projects are shown in the table.

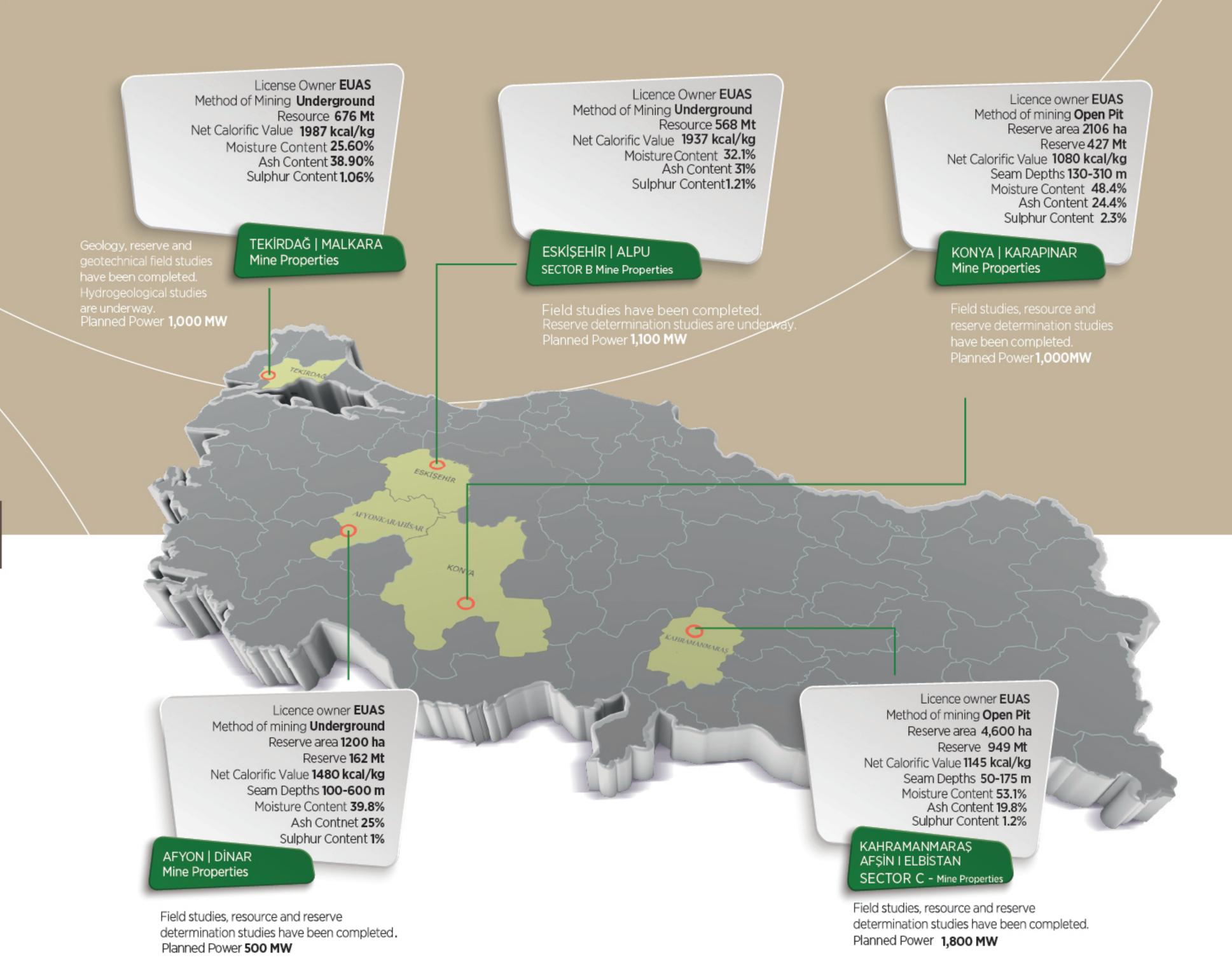
#### TURKEY'S TRACK RECORD OF COAL TENDERS

	WHAT IS NEXT?				
	Region   Basin	Total Reserves (Million Tons)	Total Resources (Million Tons)	Planned Installed Capacity (MW)	Current Status
1	Eskişehir I Alpu - Sector B	Reserve determination studies are underway	568	1100*	To be Tendered
2	Konya   Karapınar	427	1580	1000	To be Tendered
3	Afyon   Dinar	162	1482	500	To be Tendered
4	Kahramanmaraş   Afşin Elbistan Sector C	949	1430	1800	To be Tendered
5	Tekirdağ   Malkara	Reserve determination studies are underway	676	1000*	To be Tendered

<sup>\*</sup>Reserve determination studies are underway in Eskişehir-Alpu | Sector B and Tekirdağ Malkara fields; therefore planned installed capacity values may change depending on the estimated reserve for these fields.

TOTAL

5.400



# HOW TO INVEST IN COAL-FIRED POWER GENERATION IN TURKEY?

Reserves are going to be tendered by an open auction procedure to be executed by the Privatization Administration (PA) in accordance with Article 18:5 of the Electricity Market Law No. 6446. Investors are expected to bid at the auctions and the winners will be awarded with transfer of operating rights for coal reserves in exchange for building and operating coal-fired power plants in the vicinity with the specific incentives and obligations described on the next page.



Up to 35 years operating rights<sup>8</sup>

Base load

foreseeable revenue

15-20 years<sup>9</sup> of power purchase guarantee<sup>10</sup>

Environmental Impact Assessment (EIA), and Zoning Permit<sup>12</sup> procedures

Completed

Expropriation,

Exemption from Carbon taxes and fees Resource and Reserve Reports for all fields prepared in compliance with JORC

Standards

<sup>8</sup>Starting from Transfer of Operating Rights Agreement (TORA) signature date.

Including investment period. 15 years for unit/units that will become online until the total installed capacity reaches 400 MWe and 20 years for units that will become online until the total capacity reaches from 400 to 900 - 1,100 MWe. This period will be followed by sales to the electricity market.

As part of the PPA, for the first 15 years (incl. construction period), 6,500 hours of production will be purchased by EUAS from the determined price. 70% of the sales price will be paid in US\$/MWh terms (converted by CBRT US\$/TL selling rate). The remaining 30% will stay in TL/MWh terms and will be subject to PPI based yearly inflation adjustment. Also, the plants are eligible to sell its excess production to the market.

<sup>11</sup>In case there is carbon tax or any another fee of that sort, EUAS will be responsible for the payment of the amount with regards to the purchased amount of electricity by EUAS until the end of the guaranteed power purchase period.

<sup>12</sup>All to be completed and transferred to the investor by EUAS. After the transfer of the EIA positive document, all the changes will be made by the investor and obligations arising from these changes will belong to the investor.

WHY PARTICIPATE IN COAL TENDERS?

EIA prepared in line with Turkish and EU legislation

Flexible power plant technology and unit numbers at the investor's discretion

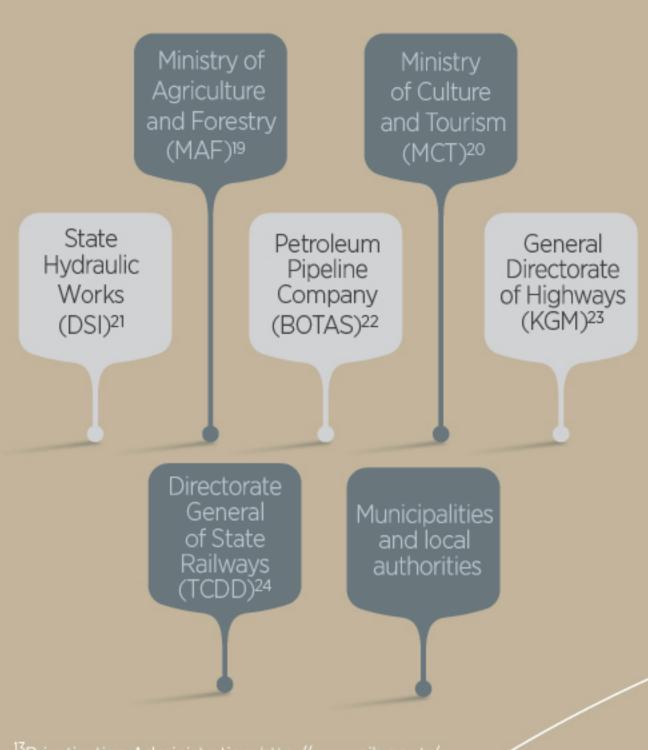
Obligation to use 1%

Of CAPEX

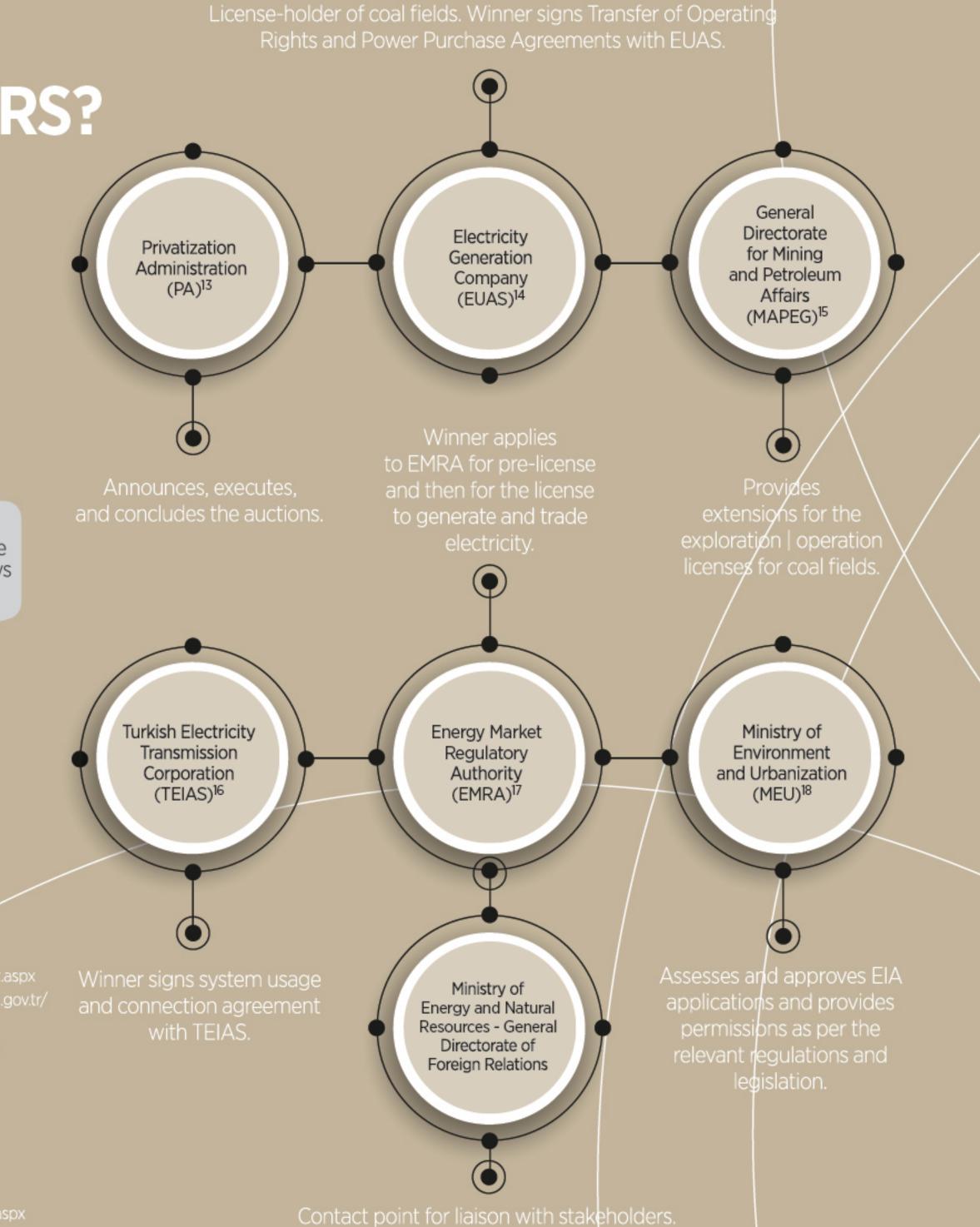
for making the power plant and coal mining area operational for local and national social responsibility projects sponsored by governmental institutions and organizations

WHO ARE MY STAKEHOLDERS?

The winner may be required to obtain clearance on certain issues relevant to the functional responsibility areas falling under the competence of the following institutions:



<sup>&</sup>lt;sup>24</sup>Directorate General of State Railways. http://www.tcdd.gov.tr/





<sup>&</sup>lt;sup>14</sup>Electricity Generation Company. http://www.euas.gov.tr/Sayfalar/default.aspx
<sup>15</sup>General Directorate for Mining and Petroleum Affairs http://www.migem.gov.tr/
<sup>16</sup>Turkish Electricity Transmission Corporation. https://www.teias.gov.tr/en

<sup>&</sup>lt;sup>17</sup>Energy Market Regulatory Authority. https://www.epdk.org.tr/Home/En

<sup>&</sup>lt;sup>18</sup>Ministry of Environment and Urbanization. https://csb.gov.tr/

<sup>19</sup>Ministry of Agriculture and Forestry. http://www.ormansu.gov.tr/

<sup>20</sup>Ministry of Culture and Tourism. http://www.kultur.gov.tr/

<sup>&</sup>lt;sup>22</sup>Petroleum Pipeline Company. https://www.botas.gov.tr/
<sup>23</sup>General Directorate of Highways.
http://www.lgm.gov.tr/Sayfalar/KGM/SiteEng/Root/MainPageEnglish.aspx



