

# TURKISH COAL ENTERPRISES (TKİ)



Coal Resource and  
Reserve Conditions in  
the World and Turkey

DEPARTMENT OF STRATEGY DEVELOPMENT  
Directorate of Strategy Development

## RESOURCES AND RESERVES

The total proven coal reserve in the world is around 1.07 trillion tonnes (BP, 2020). Out of the entire reserve, anthracite and bituminous coal have 749 billion tonnes, whereas sub-bituminous coal and lignite have a total reserve of 321 billion tonnes. The amount of coal resources is known to be at least twice the reserve value. (Figure 1).

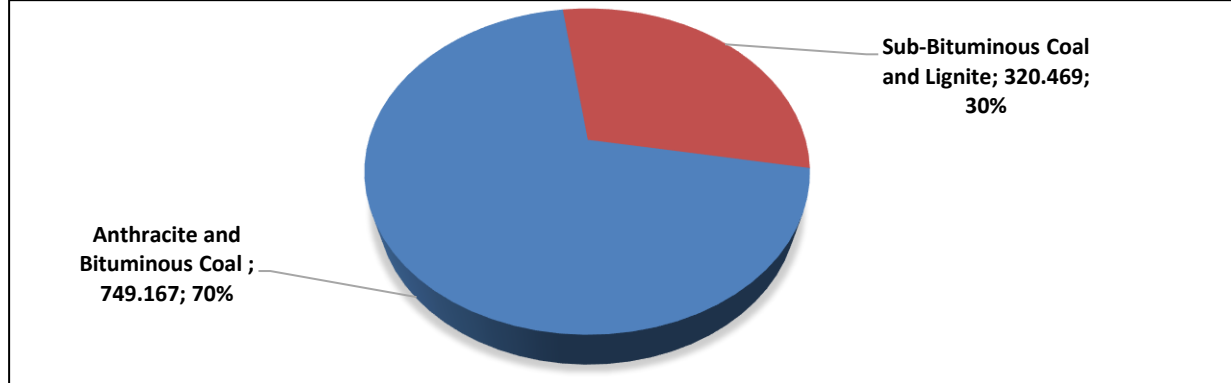


Figure 1: Distribution of World Coal Reserves by Categories (x1000 tonnes)

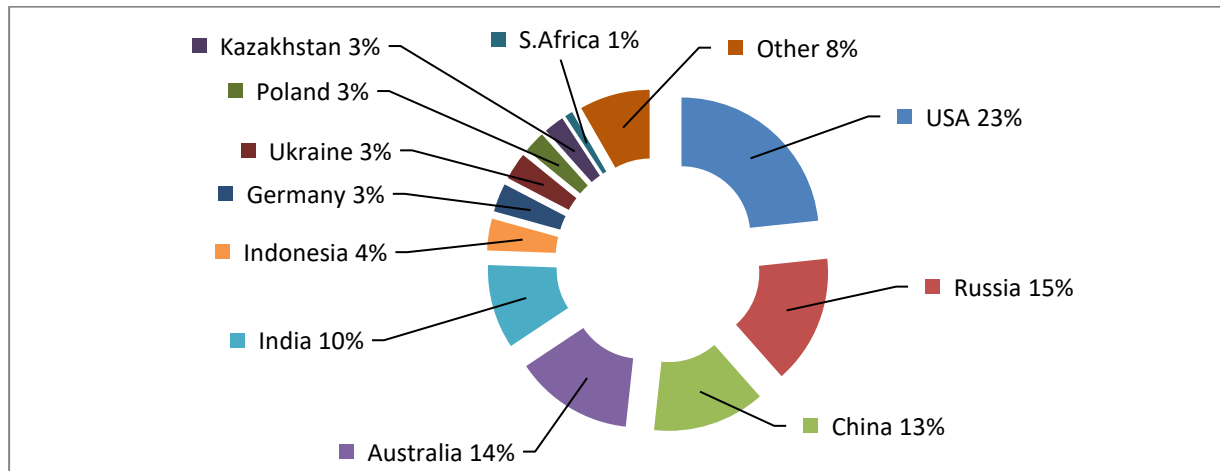


Figure 2: Coal Reserves in Percent by Countries

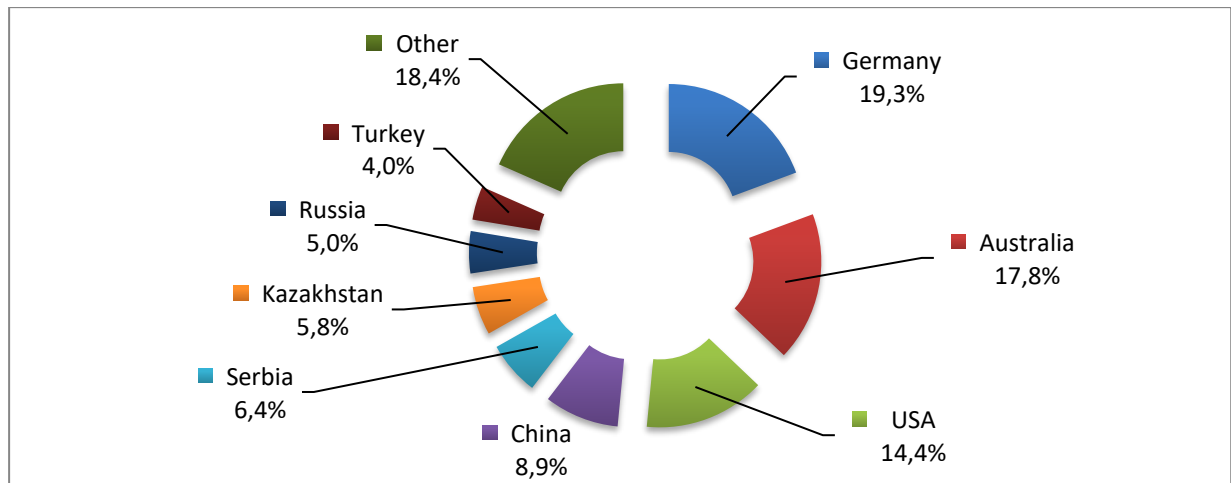


Figure 3: Lignite Reserves in Percent by Countries

Turkey is at a low level in hard coal (anthracite) and a mid-level in lignite coal in terms of reserve and production amounts. Turkey has 8.7% of the total lignite resource globally and 2.1% of the overall coal resource, including anthracite, where the share for sub-bituminous coal and lignite is 3.6%.

The total coal resource of Turkey, including lignite, asphaltite, and hard coal, is around 20.84 billion tonnes (MTA, 2019; TKİ, 2019) (Figure 4). The most critical hard coal resource in Turkey is located in and around Zonguldak. According to the up-to-date reports of the Directorate General of Mineral Research and Exploration (MTA), the total hard coal resource is 1.52 billion tonnes with a proven reserve amount of 736 million tonnes (TTK, 2020). A small part can be considered a reserve since the feasibility studies have been completed only for one-third of the coal resources.

As a result of a substantial increase in coal exploration activities carried out in recent years, the total lignite resource in Turkey has been increased significantly. MTA conducts prospecting and exploration studies to increase coal resources and discover new mining areas.

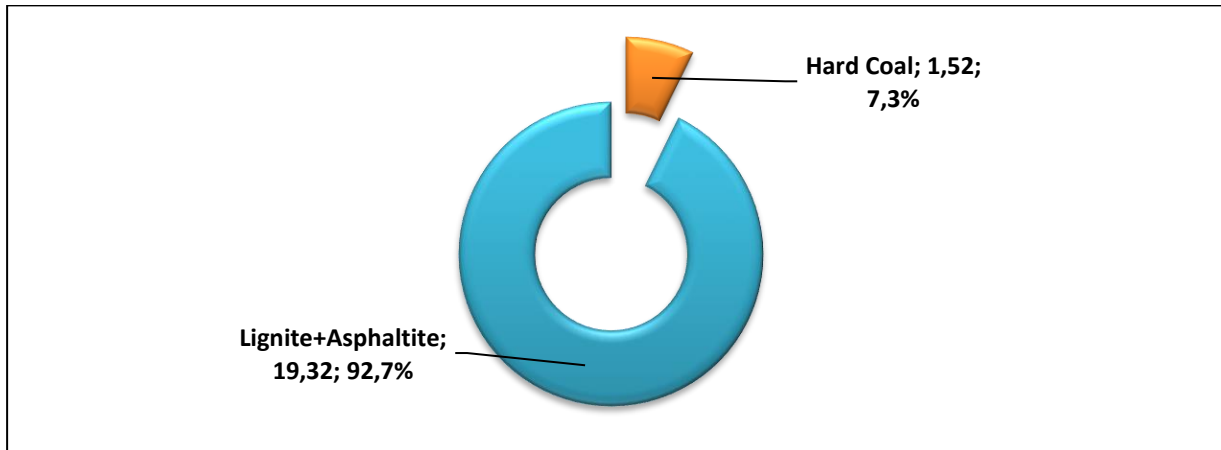


Figure 4: Percentile Distribution of Turkey Coal Resource (Billion tonnes)

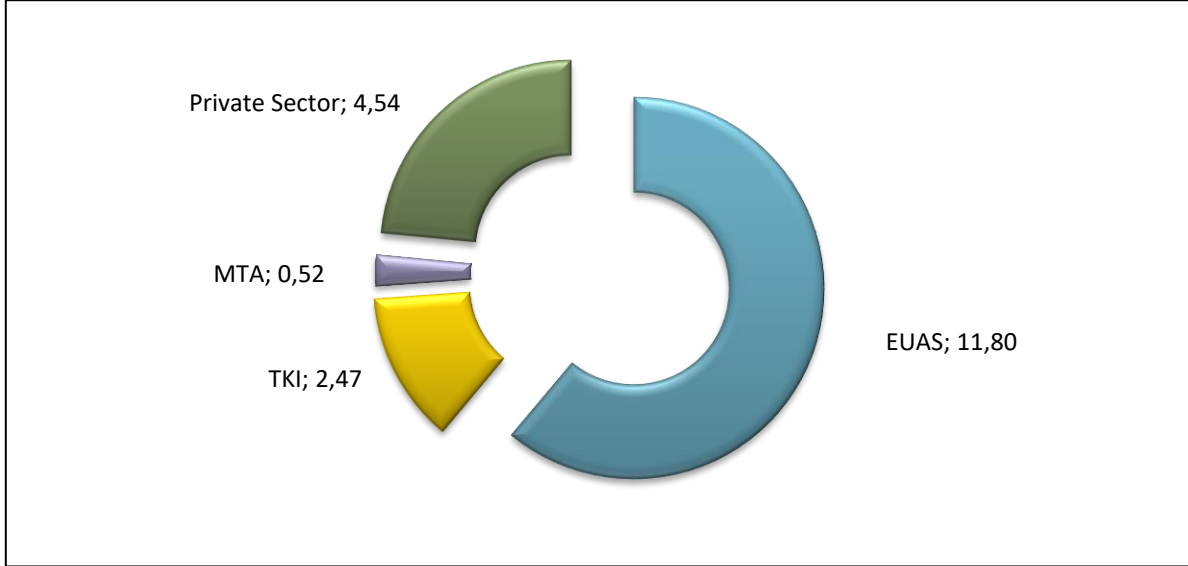
The majority of the total lignite resource, calculated as 8.3 billion tonnes by 2005, was discovered between 1976 and 1990. Any detailed exploration and drilling program for reserve development had not been performed after this period. The coal resource was increased substantially between 2005 and 2015 with a project entitled “Development of Lignite Reserves and Exploration of New Lignite Sites”, which is coordinated by TKİ and conducted under the responsibility of MTA with the participation of TP, EUAS, TTK, and DSI.

Within this project's scope coordinated by MTA, which was extended in content with a new title “Development of Mining and Geothermal Reserves and Exploration of New Mining Sites”, some additional lignite resources were discovered in Trakya, Manisa-Soma-Eynez, Eskişehir-Alpu, Afşin-Elbistan, and Konya-Karapınar. Thus, the total resource amount was increased from 8.3 billion tonnes to 19.32 billion tonnes by the end of 2019.

However, the calorific value of the lignite resource in Turkey is relatively low. Changing generally between 1.000 kcal/kg and 4.200 kcal/kg, about %90 of the total lignite resource has a lower calorific value below 3.000 kcal/kg.

**Table 1: Lignite Resources According to Enterprises, (x1.000 tonnes, by the end of 2019) <sup>1</sup>**

Enterprises	Measured	Indicated	Inferred	Total
EUAS	No data	No data	No data	11,800,000
TKİ	1,979,368	489,441	1,560	2,470,369
MTA	515,000	-	-	515,000
Private Sector	No data	No data	No data	4,538,809
<b>TOTAL</b>	-	-	-	<b>19,324,178</b>



**Figure 5: Distribution of Turkey's Lignite Resource (x1.000 tonnes), 2019**

<sup>1</sup> - There is not any exact information on the coal resources of the private sector. The numbers stated above were determined by subtracting the coal resources of state-owned enterprises from the total coal resource.

- 18.5 million tonnes of bituminous shale and 70 million tonnes of asphaltite are also included in the coal resource of TKİ.

- The reserve owned by MTA is located in Afşin/Elbistan.