



**Coal fired power plant
development
&
opportunities for
investment**

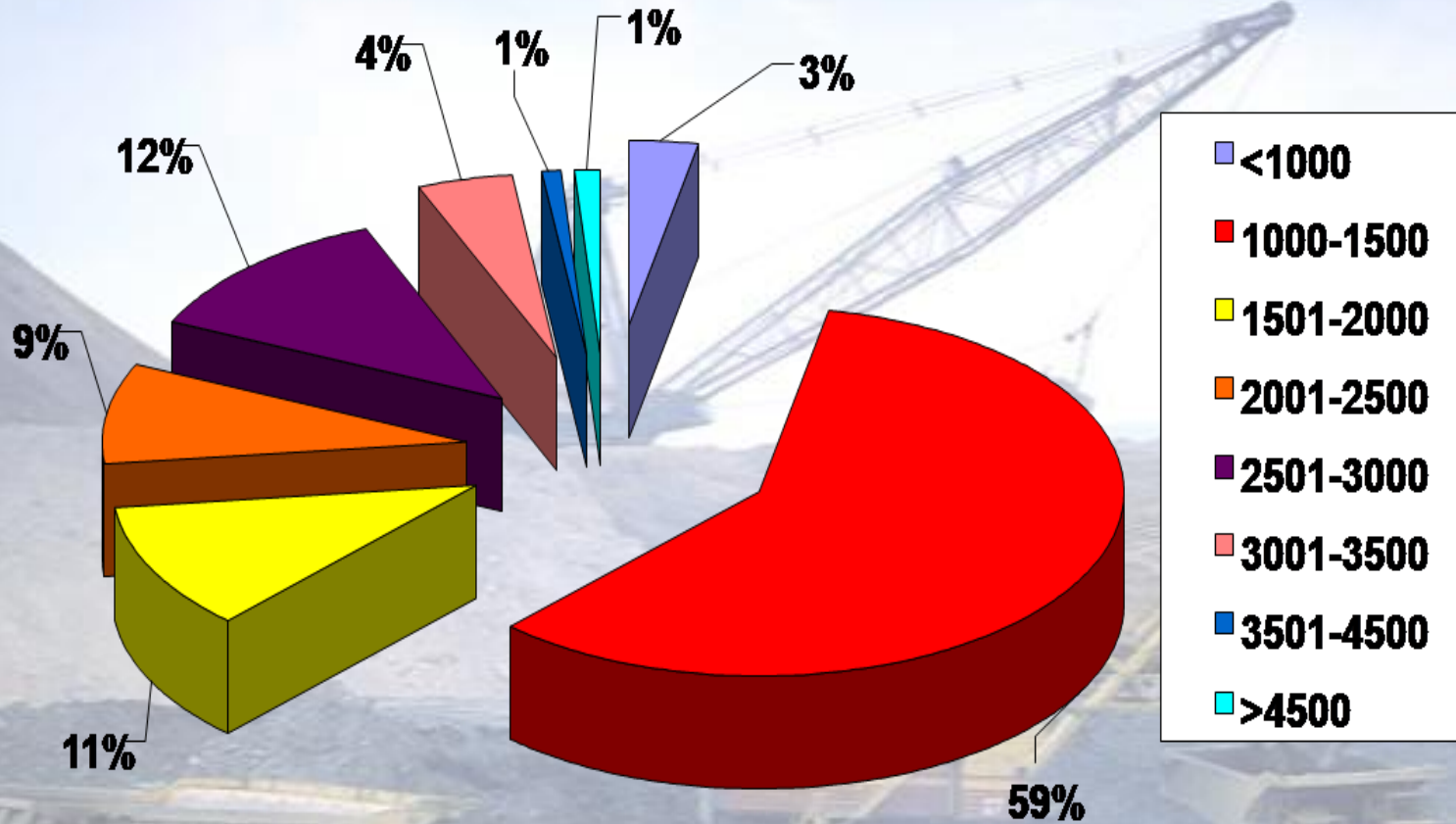


Lignite & Hard Coal

Fuel type	Lignite	Hard coal
Number of power plants	40	2
Total installed capacity (MW)	8.332	335
Share in electricity generation in 2010 (%)	16,9	1,7
Total reserve (billion tonnes)	11,7	1,3
World reserve (billion tonnes)	279,3	710,6



Quality of the Lignite Reserves





- Hard coal is found and mined in only one location, the Zonguldak Coal Basin on the North-West Black Sea Coast.
- The geological reserves of the basin - calculated down to 1 200 meters – are about 1.319 Mt of which 40 % (526 Mt) are proven reserves.
- The Zonguldak Coal Basin has a very complex geological structure which makes mechanised coal production impossible requiring labour-intensive conventional production methods.
- The calorific value of the coal varies between 6 200 and 7 250 kcal/kg.



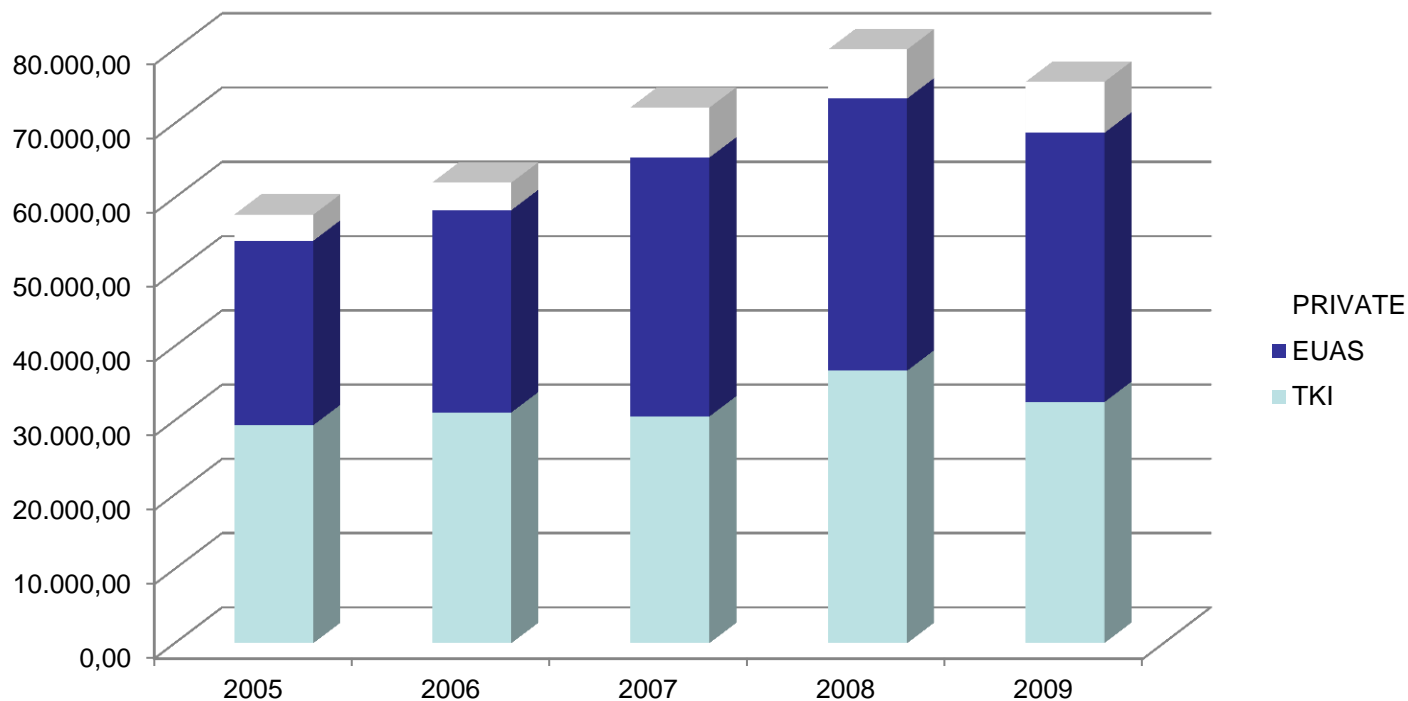
Coal Sector

- State-owned companies operating in the sector:
 - TTK Turkish Hard Coal Enterprise
 - TKI Turkish Coal Enterprises
 - EUAS Electricity Generation Company
 - MTA Mineral Research and Exploration Company
- TTK was the only company dealing with hard coal production but currently some of the hard coal production in the area is done by private sector companies also.
- TKI produces about half of all lignite production (app.45% in 2008)
- EUAS produces lignite for its power plants (app. 46% in 2008)
- MTA carry on exploration studies
- Private companies produce around 9% of total lignite production and currently around 35 % of total hard coal production



Lignite Production (1000 tonnes)

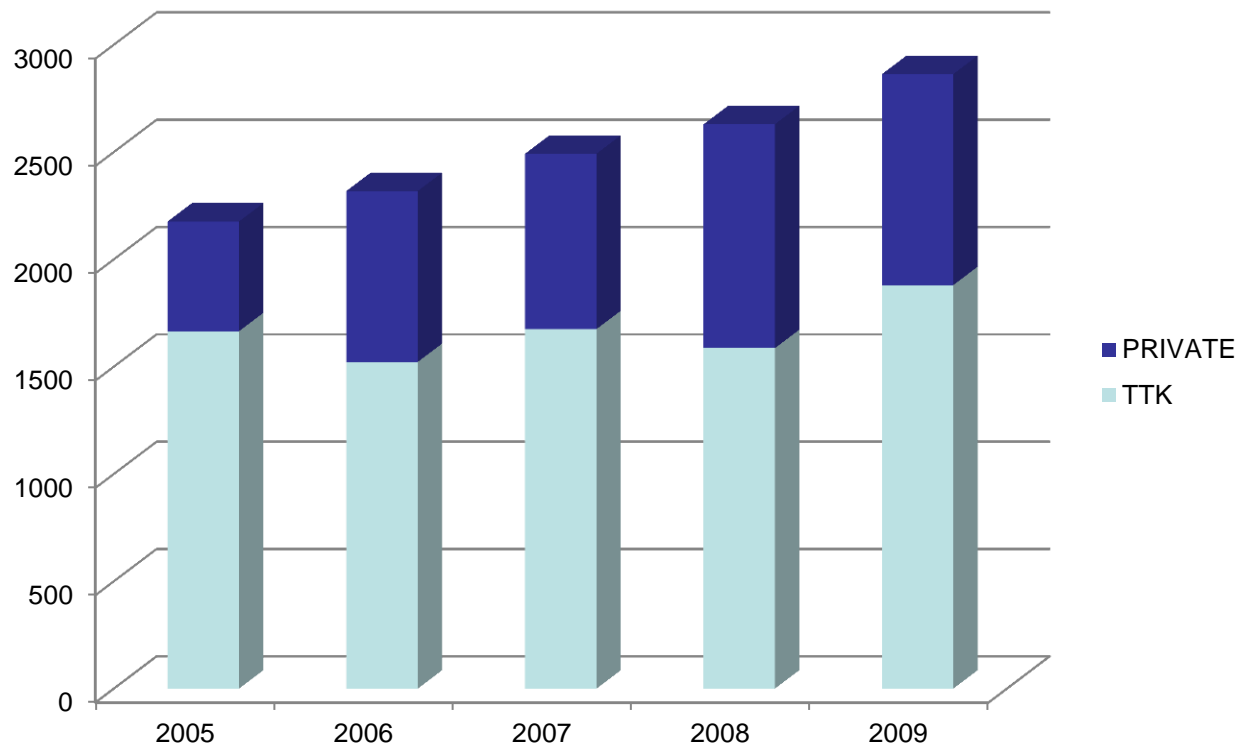
	2005	2006	2007	2008	2009
TKI	29,359	31,074	30,526	36,697	32,451
EUAS	24,844	27,243	34,871	36,658	36,267
PRIVATE	3,505	3,706	6,724	2,816	6,858
TOTAL	57,708	62,023	72,121	76,171	75,576





Hard Coal Production (1000 tonnes)

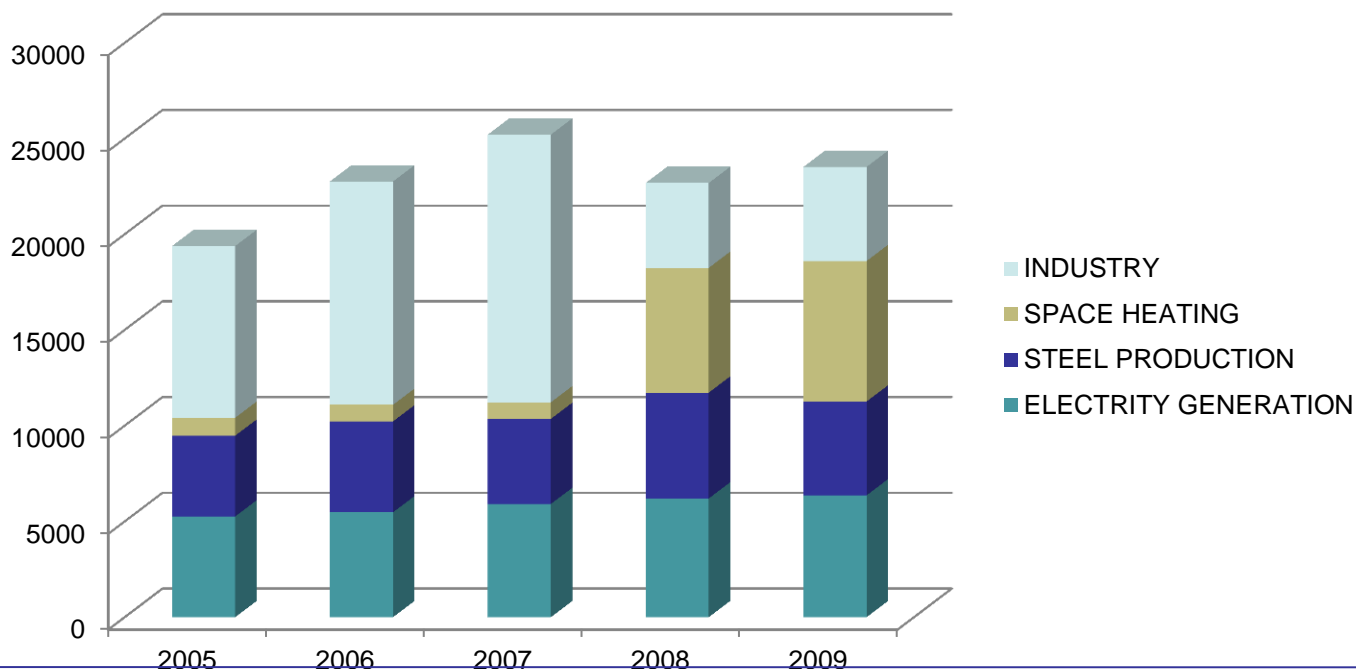
	2005	2006	2007	2008	2009
TTK	1,665	1,522	1,675	1,586	1,880
PRIVATE	505	796	787	1,043	983
TOTAL	2,170	2,318	2,462	2,629	2,863





Hard Coal consumption by sectors(1000 ton)

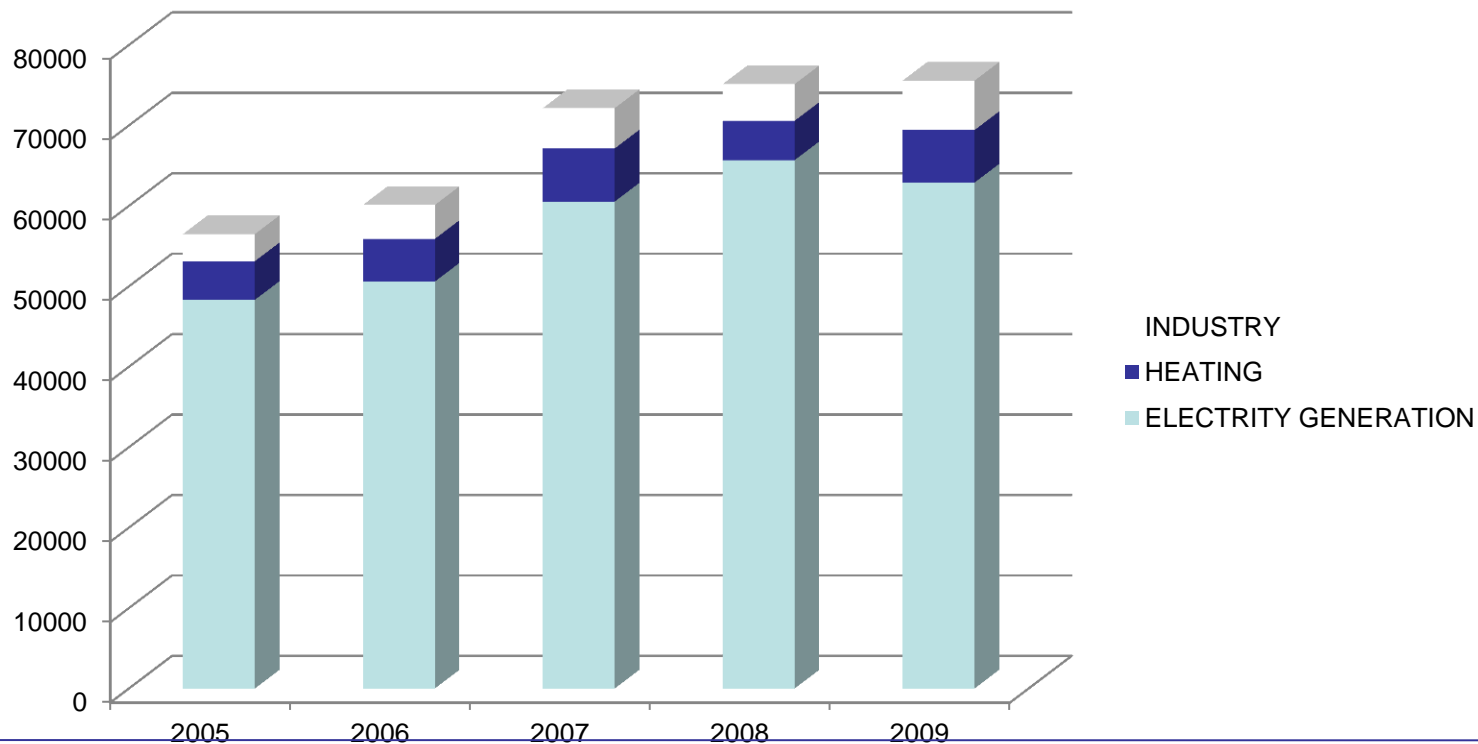
	2005	2006	2007	2008	2009
ELECTRITY GENERATION	5,259	5,477	5,912	6,197	6,361
STEEL PRODUCTION	4,218	4,745	4,443	5,526	4,900
HEATING	935	865	865	6,516	7,337
INDUSTRY	8,970	11,671	13,984	4,135	4,918
TOTAL	19,382	22,758	25,204	22,374	23,516





Lignite consumption by sectors (1000 ton)

	2005	2006	2007	2008	2009
ELECTRICITY GENERATION	48,319	50,584	60,536	65,685	62,894
HEATING	4,807	5,309	6,602	4,890	6,530
INDUSTRY	3,362	4,211	5,006	4,553	6,142
TOTAL	56,488	60,104	72,144	75,128	75,566



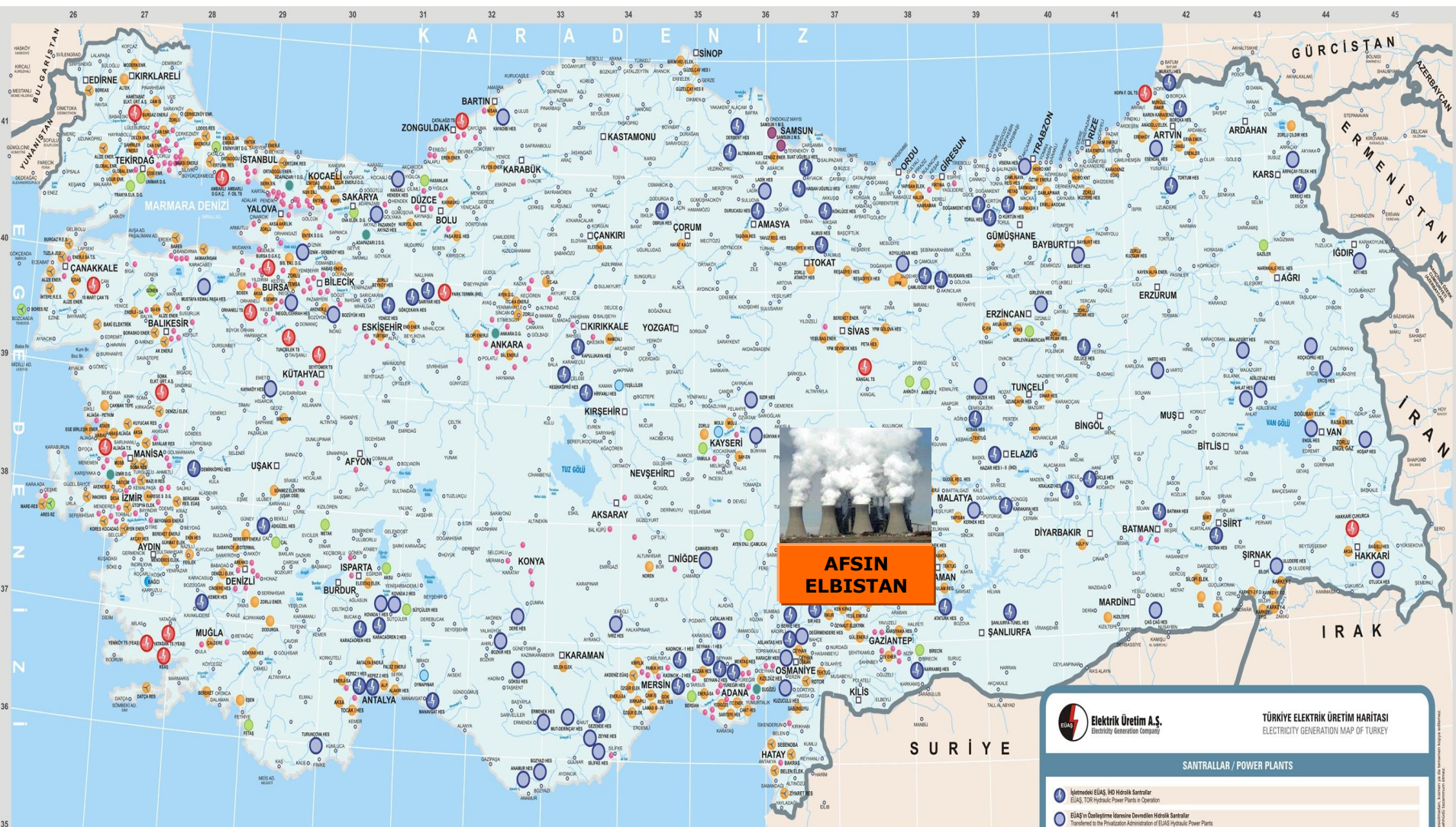


Lignite Basins

- KAHRAMANMARAS-AFSIN ELBISTAN**
- KONYA - KARAPINAR**
- TRAKYA**
- KAHRAMANMARAS- ELBISTAN**



AFSIN ELBISTAN Region



AFSIN ELBISTAN



TÜRKİYE ELEKTRİK ÜRETİM HARİTASI
ELECTRICITY GENERATION MAP OF TURKEY

SANTRALLAR / POWER PLANTS

- Hydroelectric (EH), No Hydroelectric
- EH&S (EH&S) Hydroelectric Power Plants in Operation
- EH&S (EH&S) Hydroelectric Power Plants Transferred to the Privatization Administration of EH&S Hydroelectric Power Plants



Afsin-Elbistan

- ❑ Total reserve: 4,9 billion tonnes
- ❑ About %42 of Turkey's total lignite reserve
- ❑ Total thermal power plant potential (30 years lifetime): 11.000 MW

Current installed capacity:

- ❑ Afsin A Power Plant : 1.355 MW
- ❑ Afsin B Power Plant : 1.440 MW

- ❑ Available capacity: 8.000 MW



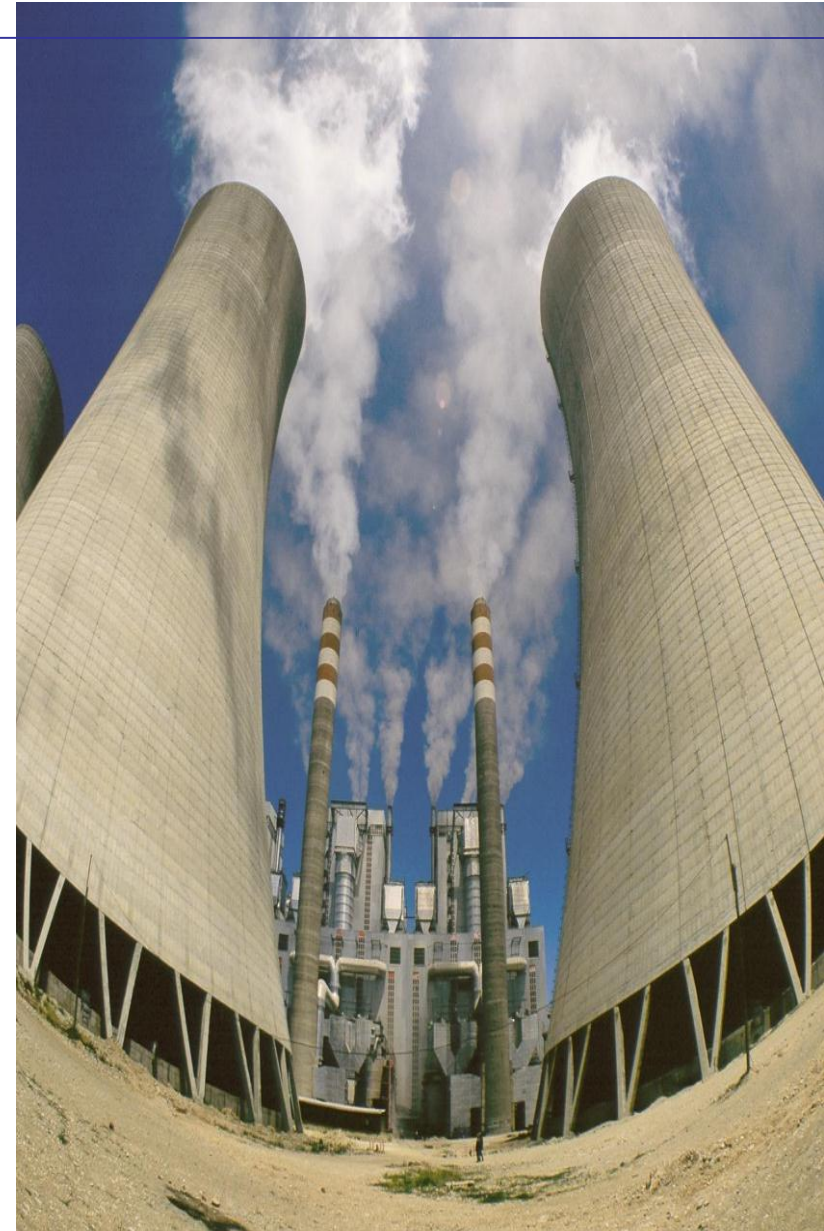
Afsin-Elbistan A & B Power Plants

AFSIN ELBISTAN A

Date of operation	1984
Installed capacity	1355 MW
Total theoretical generation	6.000.000 kWh

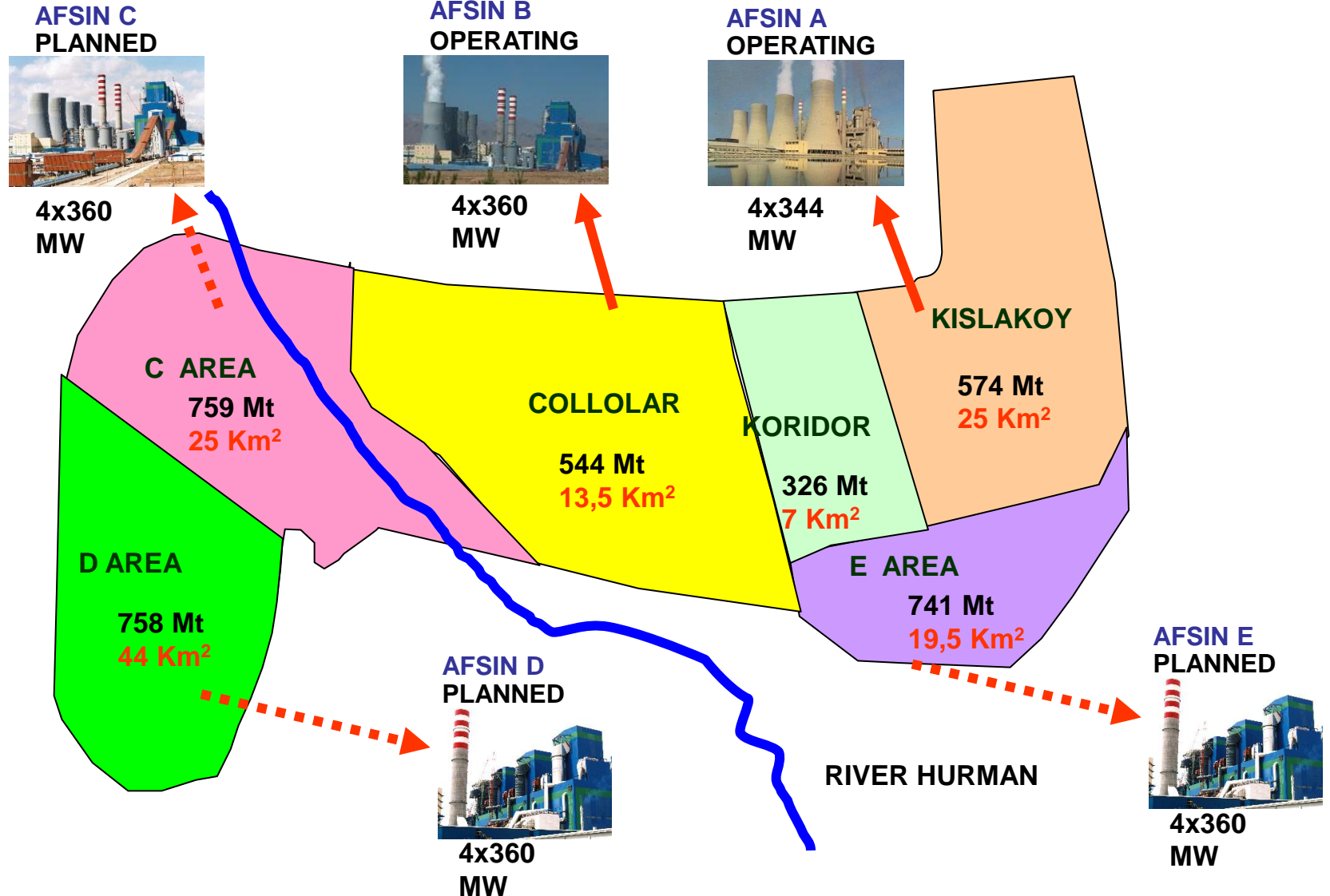
AFSIN ELBISTAN B

Date of operation	2004
Installed capacity	1440 MW
Total theoretical generation	10.000.000 kWh





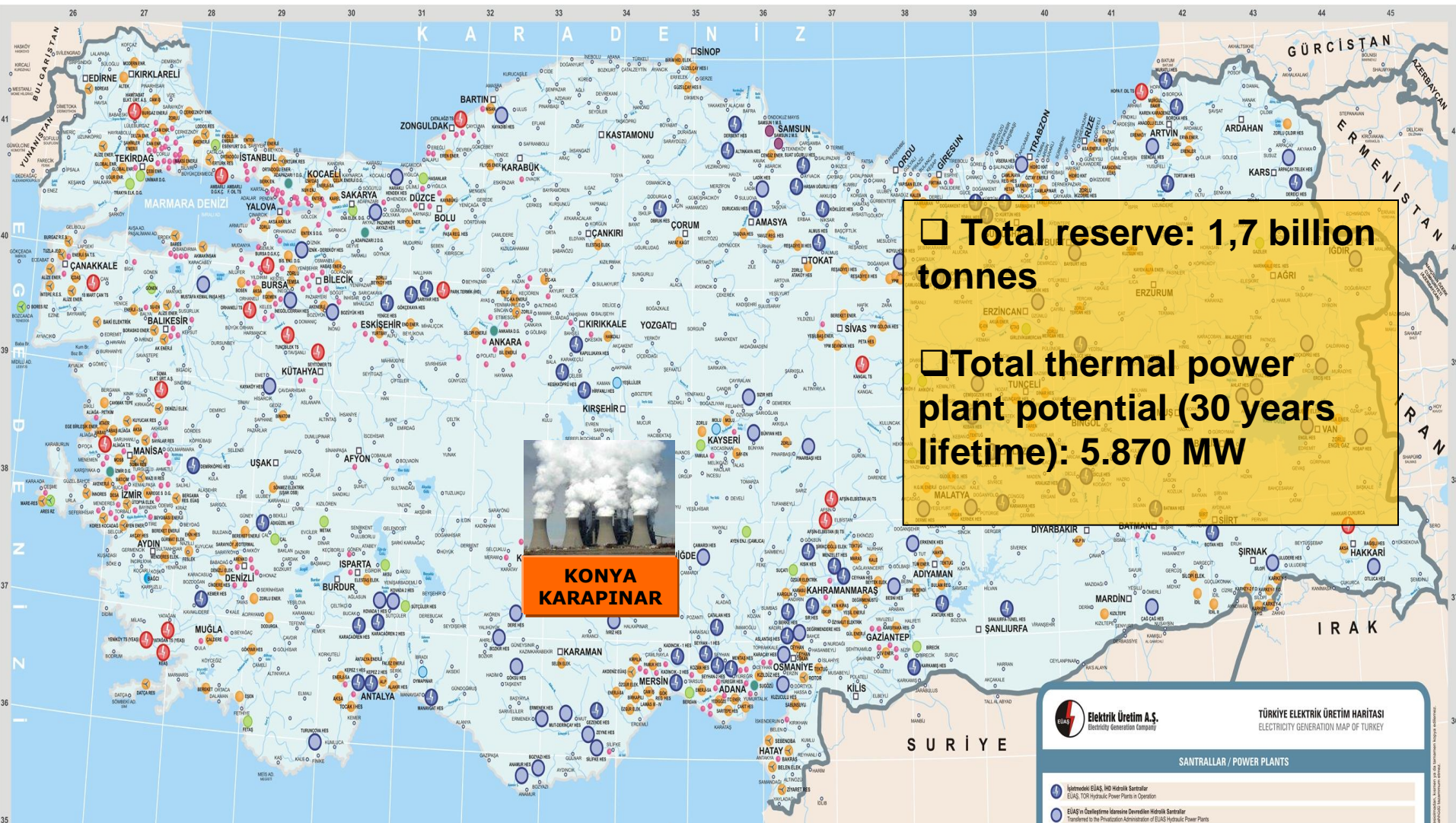
AFSIN-ELBISTAN REGION



Available lignite reserve for 40 years operation



KONYA KARAPINAR Region



□ Total reserve: 1,7 billion tonnes

□ Total thermal power plant potential (30 years lifetime): 5.870 MW

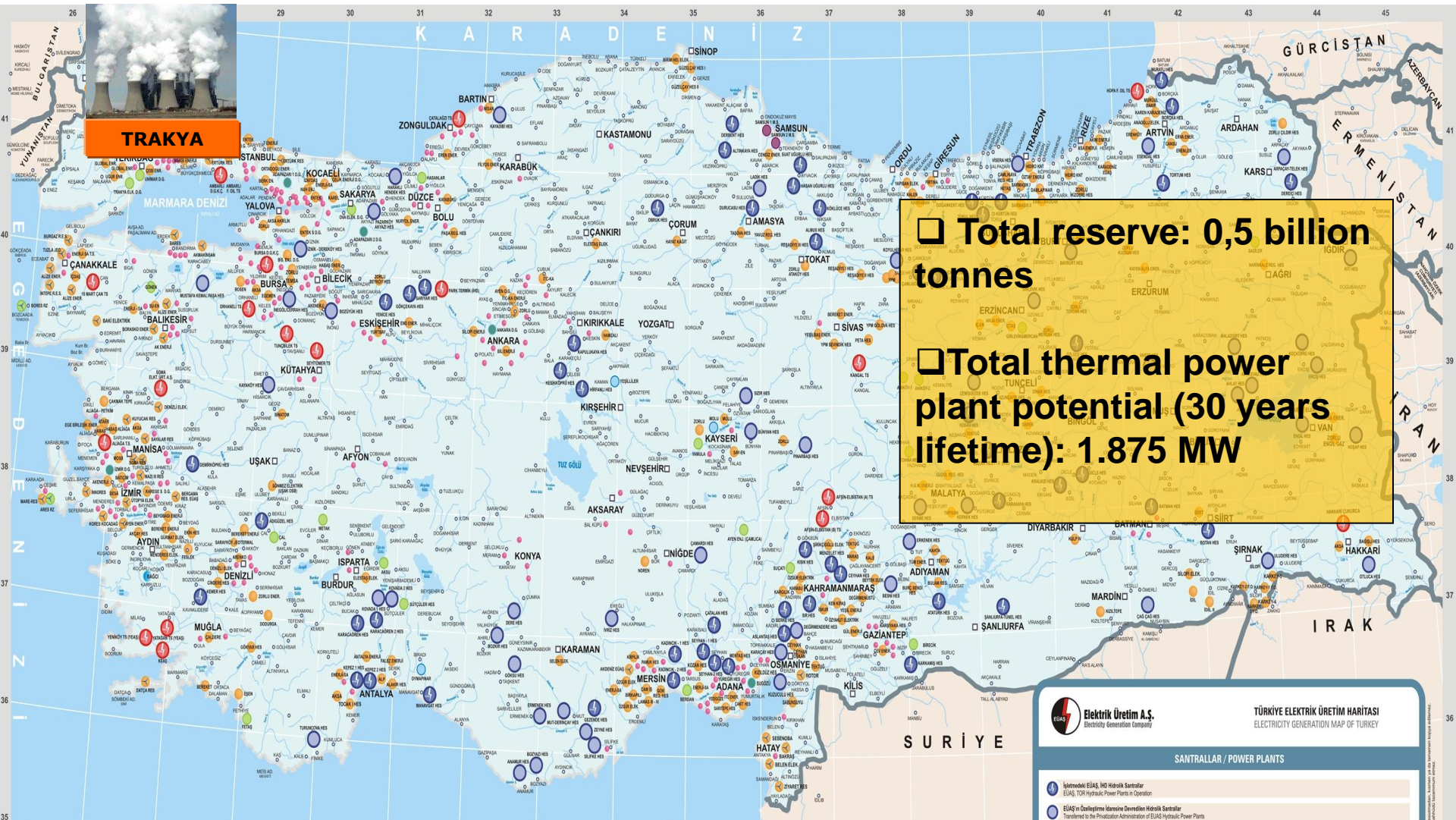


TÜRKİYE ELEKTRİK ÜRETİM HARİTASI
ELECTRICITY GENERATION MAP OF TURKEY

- SANTRALLAR / POWER PLANTS
- 1 Elektrik Üretim A.Ş. (EÜAŞ) Hidroelektrik Santralleri
 - 2 Elektrik Üretim A.Ş. (EÜAŞ) Termik Santralleri
 - 3 Elektrik Üretim A.Ş. (EÜAŞ) Çukurbayırı Hidroelektrik Santralleri
 - 4 Elektrik Üretim A.Ş. (EÜAŞ) Çukurbayırı Hidroelektrik Santralleri



TRAKYA Region



Total reserve: 0,5 billion tonnes

Total thermal power plant potential (30 years lifetime): 1.875 MW

EİAŞ Elektrik Üretim A.Ş.
Electricity Generation Company

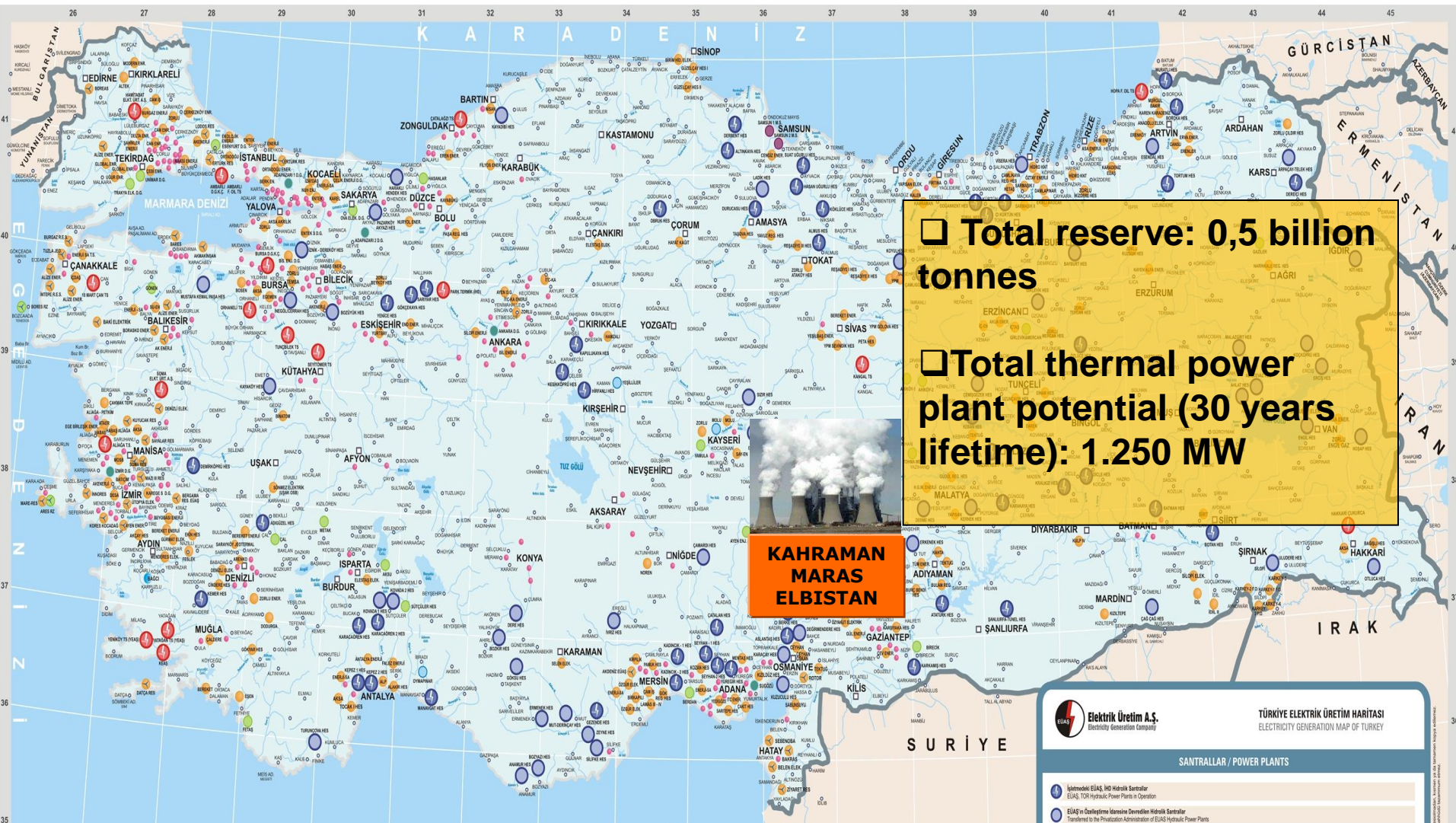
TÜRKİYE ELEKTRİK ÜRETİM HARİTASI
ELECTRICITY GENERATION MAP OF TURKEY

SANTRALLAR / POWER PLANTS

- İHİB (Hydroelectric) İHİB Hidroelektrik Santralleri
- İHİB (Hydroelectric) İHİB Hidroelektrik Santralleri
- İHİB (Hydroelectric) İHİB Hidroelektrik Santralleri



KAHRAMANMARAS ELBISTAN Region



□ Total reserve: 0,5 billion tonnes

□ Total thermal power plant potential (30 years lifetime): 1.250 MW

KAHRAMAN MARAS ELBISTAN

 **Elektrik Üretim A.Ş.**
Electricity Generation Company

TÜRKİYE ELEKTRİK ÜRETİM HARİTASI
ELECTRICITY GENERATION MAP OF TURKEY

SANTRALLAR / POWER PLANTS

- 1 İsmetpaşa EİAŞ, İMİ Hidroelektrik Santrali
- 2 EİAŞ, TSK Hidroelektrik Power Plants in Operation
- 3 EİAŞ'ın Çarşamba Havzasında Devredilen Hidroelektrik Santralleri
- 4 Transferred to the Privatization Administration of EİAŞ Hydroelectric Power Plants



Main Strategies in the Sector

- Ensuring the diversification of primary energy sources, reducing the import dependency and increasing the share of indigenous sources for supply security,
- Utilization of known lignite and hard coal reserves till 2023 for electricity generation,
- Increasing the share of power plants operating with domestic coal in the portfolio
- Power plants running with high quality import coal will also be preferred considering supply security
- Exploration of new coal fields and increasing coal production
- Utilisation of clean coal technologies to minimize the adverse effects of coal on the environment



THANK YOU
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