



T.R.

Ministry of Environment and Urbanization

**Regulation on “Energy and Large Combustion Plants
in Turkey”**



Gökşin TEKİNDOR
Expert

29.09.2011



Turkey and Energy

- Turkey is the only one among other OECD countries with its strongest demand growth for energy for the last decade.
- The whole petroleum and natural gas are imported whereas only one fifth of the coal is imported in Turkey. Rate of its dependence on import is 72%.



Main elements of Turkey's energy policy

- Reduction of foreign-source dependency in terms of energy supply
- Provide diversity for source, route and technology
- Maximum utilization of renewable energy sources
- To minimize the effects on environment
- To raise regional and global efficiency of Turkey in terms of energy
- To raise energy efficiency
- To make the energy available for customers in terms of costs, time and amount
- Set public and private facilities in motion in the competitive market practices



Strategies

Turkey's Energy Supply	Megaton Petroleum equivalent
2009	106.1
2015	170
2020	222

2023 targets

- All domestic coal and hydraulic potential will be used.
- Installed capacity for wind 20.000 MW,
- Geothermal 600 MW,
- Proportion of nuclear energy will be 5%.



Domestic Source Potential

Table-1. Domestic source potential of Turkey as of 2009*(14)

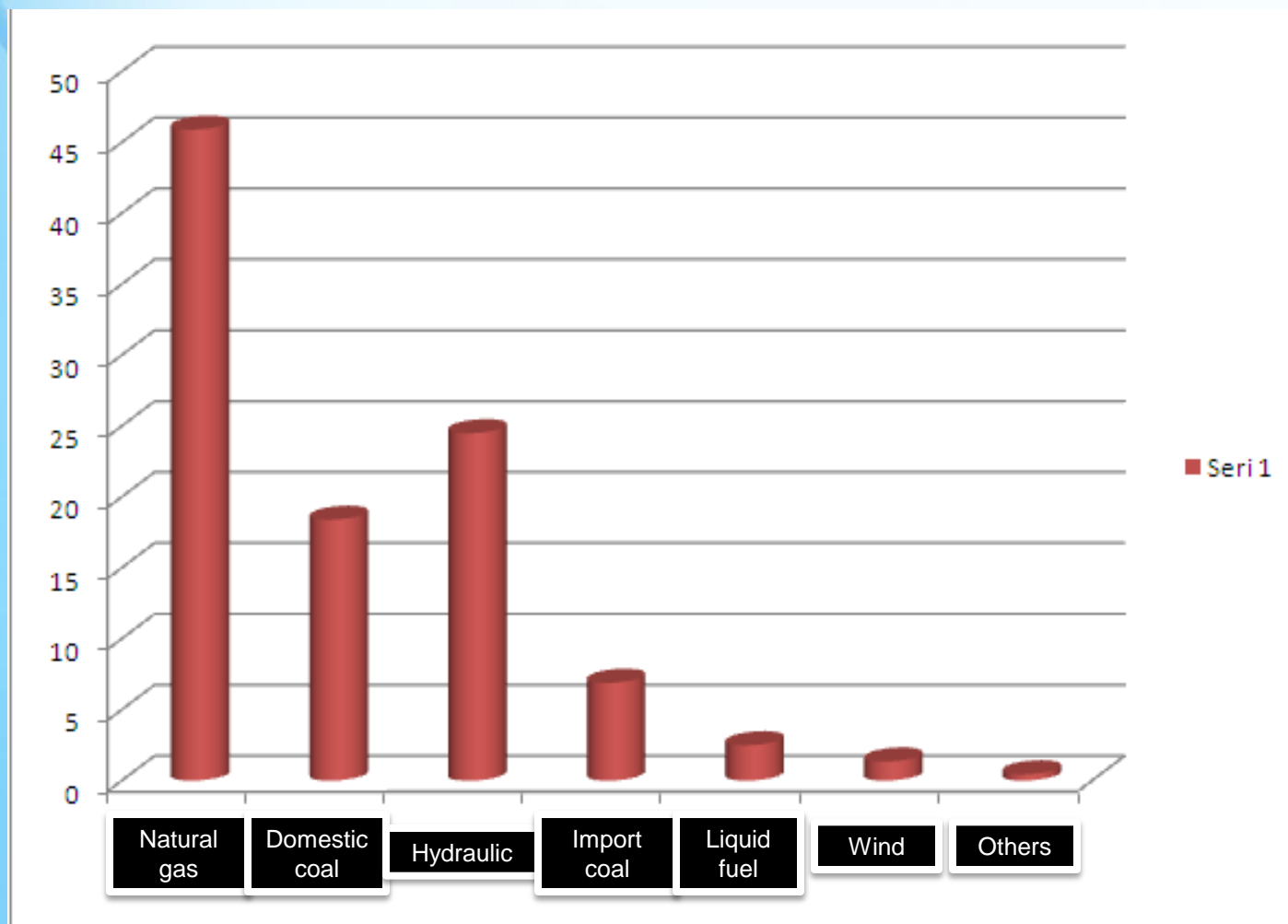
Source	Potential
Lignite	11.4 Billion-Ton
Coal	1.3 Billion-Ton
Asphaltite	77.0 Million-Ton
Crude oil	42.0 Million-Ton
Bitumen	18.5 Million-Ton
Hydraulic	129.4 Billion kWh/year
Natural gas	7.0 billion m ³
Wind	48,000 MW
Geothermal	32,010 MWt/year (510 MW of total is adequate for electricity generation)
Bioprocess	8.6 Mtep (Million-Ton Equivalent of Petroleum)
Solar energy	32.6 Mtep (Million-Ton Equivalent of Petroleum)
Natural Uranium	9,129 ton

*Figures are the total sum of visible, possible and feasible reserves.



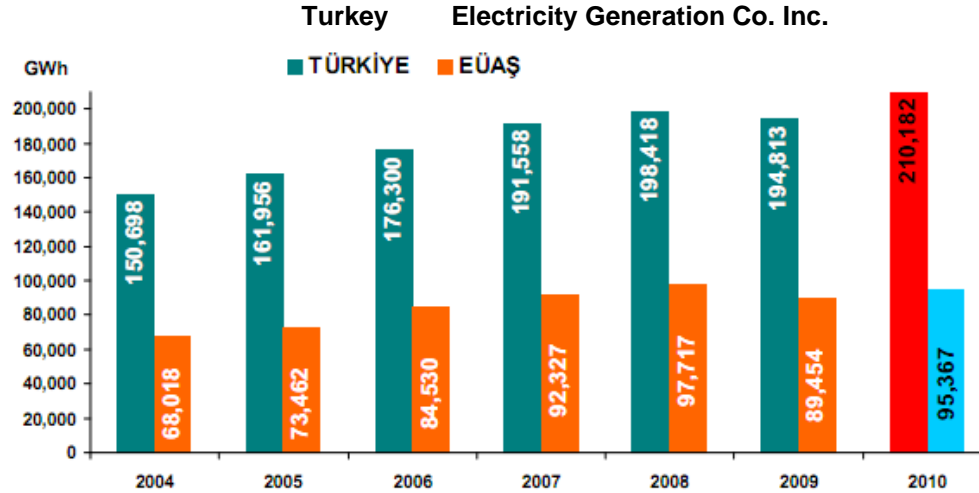
Installed capacity of Turkey

Total Installed capacity : 48.587 MW (2010)





Electricity Producers



Şekil-1. Türkiye Elektrik Üretim Değerleri ve EÜAŞ'ın payı.

Figure-1. Figures for Turkey's electricity generation and the contribution of Electricity Generation Co. Inc.

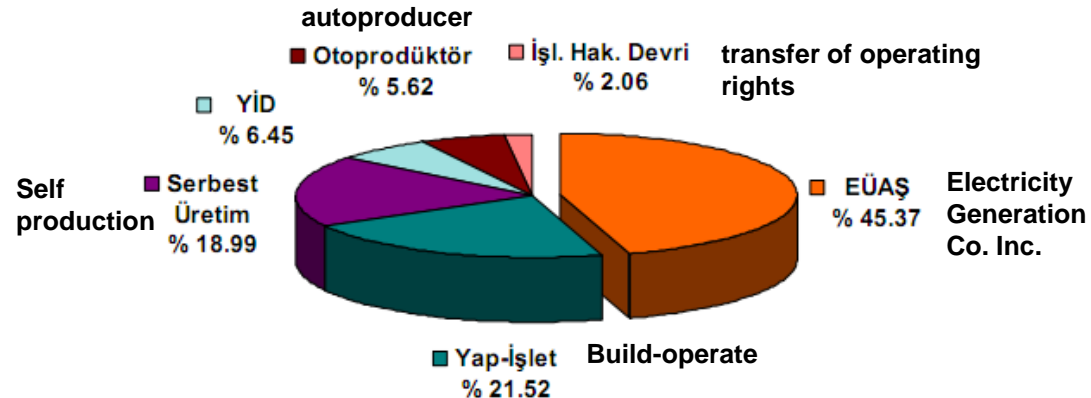


Figure-2. Distribution of Turkey's electricity generation for 2010

Şekil-2. 2010 Yılı Türkiye Üretim Kuruluşlarına Göre Dağılımı



Lignite fired combustion plants in Turkey

Name of the power plant	City	Total Installed Capacity (MWe)
Afşin Elbistan A	K.Maraş	1.355,0
Afşin-Elbistan B	K.Maraş	1.440,0
Orhaneli	Bursa	210,0
Seyitömer	Kütahya	600,0
Tunçbilek A	Kütahya	65,0
Tunçbilek B	Kütahya	300,0
Kangal	Sivas	457,0
18 Mart Çan	Çanakkale	320,0
Soma-A	Manisa	44,0
Soma-B	Manisa	990,0
Yatağan	Muğla	630,0
Yeniköy	Muğla	420,0
Kemerköy	Muğla	630,0
Çayırhan	Ankara	630,0
TOTAL		8091,0



Regulation on “Large Combustion Plants”

- Following the full transposition of LCP Directive (2001/80/EC), Regulation on “Large Combustion Plants” took effect (Official Gazette: 08 June 2010, no 27605)
- Target of the Regulation on “Large Combustion Plants” is about the abatement of pollutants arising from combustion plants with thermal input equal to 50 MW or less than 50 MW, regardless of fuel type to be used.
- The regulation sets limits on emissions for PM, SO₂, CO ve NO_x arising from combustion plants.



Regulation on “Large Combustion Plants”

- **Existing Plants means:** Combustion plants which had received any kind of permission for after/before activity before the issue date of this regulation.
- **New Plants means:** Any combustion plants other than existing ones.





Regulation on “Large Combustion Plants”

- New plants must comply with the ceilings laid down in the Regulation as soon as they come into operation.
- 9-year transition period has been set for the existing plants. As of 08.06.2019, ceilings laid down in the regulation will become effective.



Regulation on “Large Combustion Plants”

Ceilings for lignite fuel – Regulation on “Industrial Air Pollution Control” and “Large Combustion Plants” - New plants

Fuel Thermal Power MW	Emissions (mg/Nm ³) %6 O ₂							
	PM Regulation on “Large Combustion Plants”	PM Regulation on “Industrial Air Pollution Control”	CO Regulation on “Large Combustion Plants”	CO Regulation on “Industrial Air Pollution Control”	SOX Regulation on “Large Combustion Plants”	SOx Regulation on “Industrial Air Pollution Control”	NOx Regulation on “Large Combustion Plants”	NOx Regulation on “Industrial Air Pollution Control”
YIG<50		150		200				
YIG>50		100						
50 MW ≤ YIG<100	50		150		850	2000	400	
YIG > 100	30		200		200	1300	200	
YIG > 300							1000	



2001/80/EC Article 3

- Since the “National Abatement Plan” has not been prepared in Turkey for SO₂,NO₂ and PM; Article 3 of the 2001/80/EC does not take place in the Regulation on “Large Combustion Plants”



2001/80/EC Article 3.6

- Member States may, without prejudice to this Directive and Directive 96/61/EC, and taking into consideration the costs and benefits as well as their obligations under **Directive 2001/81/EC** of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants (1) and Directive 96/62/EC, define and implement national emission reduction plan for existing plants, taking into account, inter alia, compliance with the ceilings as set out in Annexes I and II.



Content of 2001/80/EC LCP Directive

ANNEX I

CEILINGS AND REDUCTION TARGETS FOR EMISSIONS OF SO₂ FROM EXISTING PLANTS ⁽¹⁾ ⁽²⁾

Member State	0	1	2	3	4	5	6	7	8	9
	SO ₂ emissions by large combustion plants 1980 ktonnes	Emission ceiling (ktonnes/year)			% reduction over 1980 emissions			% reduction over adjusted 1980 emissions		
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
		1993	1998	2003	1993	1998	2003	1993	1998	2003
Belgium	530	318	212	159	- 40	- 60	- 70	- 40	- 60	- 70
Denmark	323	213	141	106	- 34	- 56	- 67	- 40	- 60	- 70
Germany	2 225	1 335	890	668	- 40	- 60	- 70	- 40	- 60	- 70
Greece	303	320	320	320	+ 6	+ 6	+ 6	- 45	- 45	- 45
Spain	2 290	2 290	1 730	1 440	0	- 24	- 37	- 21	- 40	- 50
France	1 910	1 146	764	573	- 40	- 60	- 70	- 40	- 60	- 70
Ireland	99	124	124	124	+ 25	+ 25	+ 25	- 29	- 29	- 29
Italy	2 450	1 800	1 500	900	- 27	- 39	- 63	- 40	- 50	- 70
Luxembourg	3	1,8	1,5	1,5	- 40	- 50	- 60	- 40	- 50	- 50
Netherlands	299	180	120	90	- 40	- 60	- 70	- 40	- 60	- 70
Portugal	115	232	270	206	+ 102	+ 135	+ 79	- 25	- 13	- 34
United Kingdom	3 883	3 106	2 330	1 553	- 20	- 40	- 60	- 20	- 40	- 60
Austria	90	54	36	27	- 40	- 60	- 70	- 40	- 60	- 70
Finland	171	102	68	51	- 40	- 60	- 70	- 40	- 60	- 70
Sweden	112	67	45	34	- 40	- 60	- 70	- 40	- 60	- 70



THANK YOU VERY MUCH...