

MW100 Turkey

**Turkey power generation evolution and top
100 players by capacity**

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KEARNEY



Evolution of power generation industry

Turkey's power generation industry has significantly evolved in last 15 years.



In the last 15 years power generation capacity has more than doubled in Turkey. Source of power has diversified with new wind, solar, geothermal and biomass capacities.

Significant capacity additions in 15 years.

- In the last 15 years, capacity additions have been across all major energy sources; hydroelectric and natural gas powerplant additions made half of total additions.

Capacity additions continued in 2019.

- Power generation industry added an additional 2.7 GW in 2019, into domestic coal power and renewable energy, catalyzed by state-led incentives.

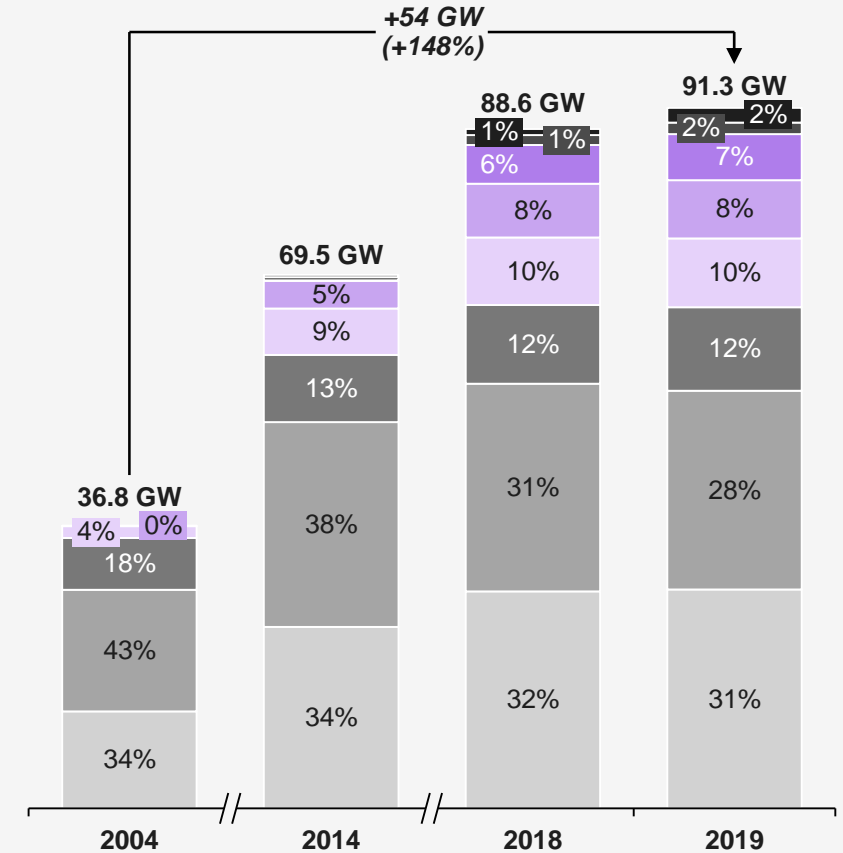
Energy transition has been a key source of capacity additions.

- In the last 15 years, with the help of state incentives, power generation industry has added significant capacity in renewable energy sources, especially in solar and wind.

Natural gas capacity has been decreasing due to unfavorable market conditions for 2 years.

- With the sharp increase of capacity, electricity prices have plummeted forcing some natural gas power plants to shut-down.

Turkey power generation capacity by source (MW)



Source: TEİAŞ, EPDK, EPIAŞ, ETKB, EÜAŞ, TÜİK, Kearney

Electricity demand and generation has doubled in 15 years. Demand has closely followed GDP trajectory.

Electricity generation has doubled in 15 years.

- In line with the GDP growth, electricity generation has doubled.
- Natural gas share in electricity production has plummeted in 2019 in parallel to plant shut-downs.

Electricity generation has slightly decreased in 2019 in line with GDP slow-down.

- 2019 electricity generation has been 304,3 TWh in parallel to 2018 level.

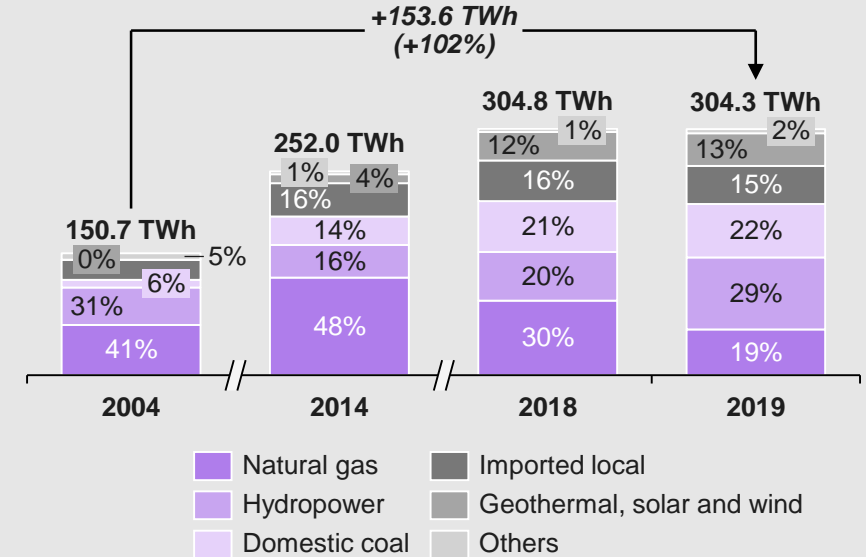
Share of renewable energy in total generation is consistently increasing.

- With significant capacity additions and better positioning in the merit order, renewable energy has increased its share in generation.

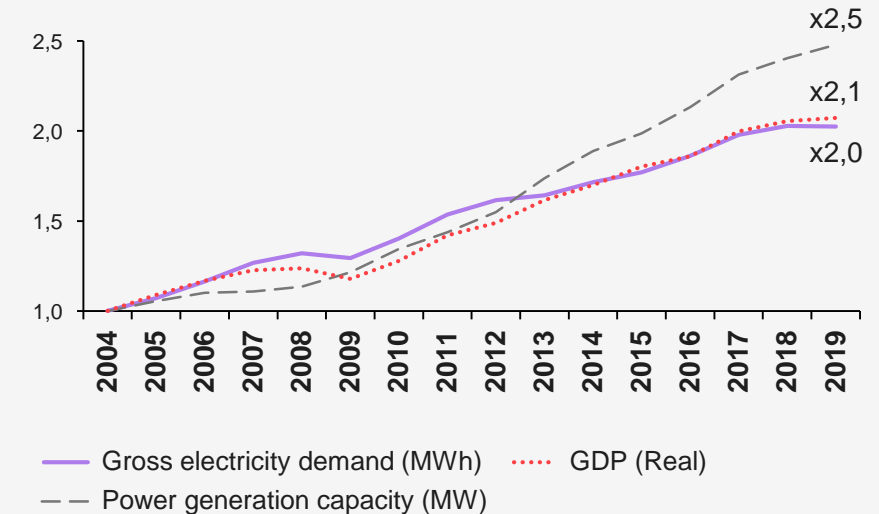
Natural gas power plants performed with record low capacity utilization in 2019.

- All-time low electricity prices forced most of the natural gas power plants to operate with low capacity utilization (average utilization is calculated as 25%).

Turkey electricity generation by source (TWh)



Evolution of electricity demand, capacity and GDP (2004=100)



Source: TEİAŞ, EPDK, EPIAŞ, ETKB, EÜAŞ, TÜİK, Kearney

Energy transition to renewable energy supports Turkey's goals to shift into domestic sources of energy in long-term.

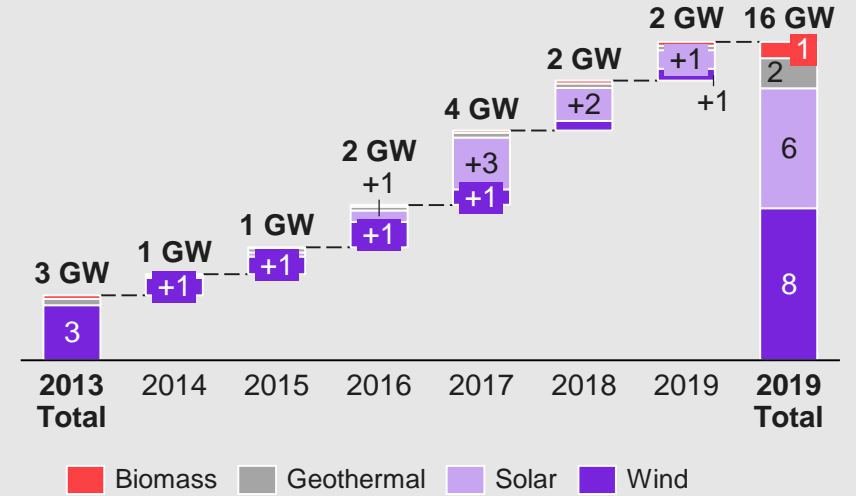
Renewable capacity has more than quadrupled in last 5 years.

- Capacity additions in solar and wind power plants are significant and make-up more than 60% of additions.

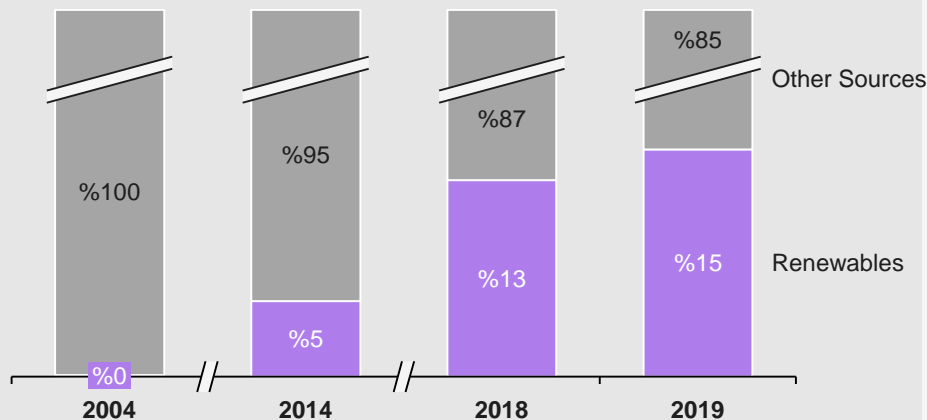
Share of domestic sources is increasing.

- With increases in renewable energy sourced production and decreases in natural gas power plant production, share of domestic sources is increasing.

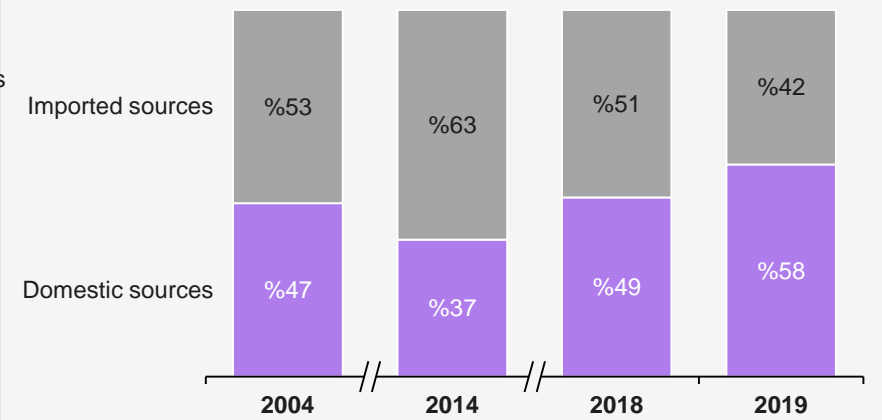
Renewable energy capacity additions in last 5 years (MW)¹



Share of renewables in electricity generation (TWh)¹



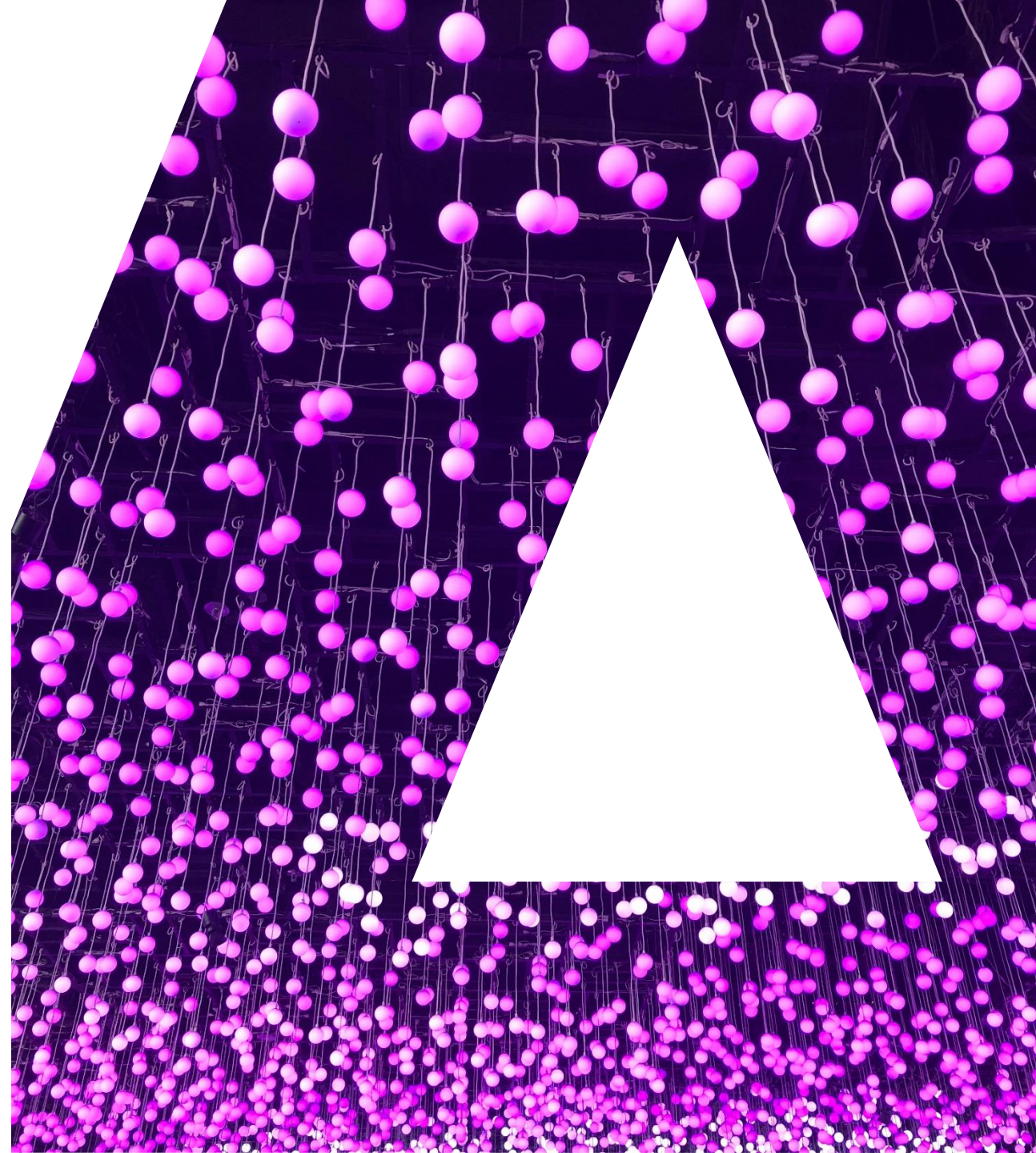
Share of domestic and imported sources in electricity generation (TWh)



1. Excluding hydropower
Source: TEİAŞ, EPDK, EPIAŞ, ETKB, EÜAŞ, TÜİK, Kearney

Top power generation players in Turkey by capacity

We have compiled more than 85% of power generation capacity of Turkey and identified top 100 players.



Methodology of the study.

Power generation capacity data was compiled as of 31.12.2019.

1

Turkey's Energy Market Regulatory Authority (EPDK/EMRA) data was used as a basis in data compilation.

2

Only power plants with a license issued by EPDK was considered in the study (as most of the solar power plants were installed under the unlicensed distributed generation regulation , solar capacities are lower than the market actuals.

3

Only power plants resided within Turkish borders was included in study.

4

Power plants that are currently in construction stage was excluded from the study or partially included (for those that partially commenced operation).

5

Allocation of power generation capacity to groups/companies was completed based on equity stake of each group/company.

6

Consolidation of power plants to groups/companies was completed based on information gathered from groups/companies, their websites and from general news sources.

7

Image by Legras



Summary results of the study.

EÜAŞ, the state-owned generation company, still tops the list, despite long history of privatizations in the Turkish energy markets.

- EÜAŞ holds 23% of total capacity of Turkey.
 - High capacity concentration of EÜAŞ enables the company to stabilize the electricity supply in market to ensure no outages and stable prices.
- ENKA is largest private-sector player with 4% of total capacity share.
- Enerjisa, Eren Enerji and Çelikler Holding follow ENKA and EÜAŞ making top 5.

Top 10 players hold half of market capacity.

48%

Capacity share of top 10 players

85%

Capacity share of top 100 players

Overall - Top 10

Rank	Name	Capacity (MWe)
1	EÜAŞ	20,541
2	ENKA	3,830
3	Enerjisa	3,598
4	Eren Enerji	2,824
5	Çelikler Holding	2,713
6	Cengiz Enerji	2,702
7	Limak Enerji	2,088
8	Aydem Enerji	2,063
9	İÇDAŞ	1,665
10	Bilgin Enerji	1,580

Source: TEİAŞ, EPDK, EPIAŞ, ETKB, EÜAŞ, TÜİK, Kearney

Top 10 players across segments.

Natural Gas (CCGTs)

Rank	Name	Capacity (MWe)
1	EÜAŞ	5,953
2	ENKA	3,830
3	Enerjisa	1,583
4	Aksa Enerji	1,047
5	ACWA Power	927
6	Ak Enerji	904
7	Limak Enerji	900
8	Bilgin Enerji	890
9	GAMA Holding	853
10	Cengiz Enerji	849

Coal

Rank	Name	Capacity (MWe)
1	Eren Enerji	2,790
2	Çelikler Holding	2,530
3	EÜAŞ	1,804
4	İÇDAŞ	1,605
5	Anadolu Birlik Holding	1,523
6	Diler Holding	1,200
7	Ciner Holding	1,049
8	OYAK Holding	953
9	Aydem Enerji	945
10	STEAG GmbH	673

Hydroelectric

Rank	Name	Capacity (MWe)
1	EÜAŞ	12,776
2	Enerjisa	1,353
3	Cengiz Enerji	1,181
4	Aydem Enerji	950
5	Özaltın Enerji	656
6	Limak Enerji	648
7	Sanko Enerji	548
8	Doğuş Enerji	536
9	Kolin	512
10	İC İçtaş Enerji	400

Wind

Rank	Name	Capacity (MWe)
1	Gürüş Holding	581
2	Polat Enerji	511
3	Demirer Holding	470
4	Borusan EnBW Enerji	445
5	Bilgin Enerji	370
6	Eksim Enerji	343
7	Fina Enerji	332
8	Akfen	290
9	Zorlu Enerji	260
10	Enerjisa	212

Top 100 players in power generation

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Full list



Long-list of top 100 groups / companies of Turkish electricity generation industry based on capacity. (1/4)

Rank	Companies	Natural gas	Domestic coal	Imported coal	Domestic or Imported coal	Fuel-oil	Others	Hydroelectric	Wind	Geothermal	Biomass	Solar	Total Installed Capacity
1	EÜAŞ	5,953	1,804	-	-	-	1	12,776	7	-	-	-	20,541
2	ENKA	3,830	-	-	-	-	-	-	-	-	-	-	3,830
3	Enerjisa	1,583	450	-	-	-	-	1,353	212	-	-	-	3,598
4	Eren Enerji	-	-	2,790	-	-	28	-	-	-	6	-	2,824
5	Çelikler Holding	2	1,955	-	575	-	-	27	-	154	-	-	2,713
6	Cengiz Enerji	849	-	660	-	-	12	1,181	-	-	-	-	2,702
7	Limak Enerji	900	210	-	315	-	-	648	-	15	-	-	2,088
8	Aydem Enerji	-	-	-	945	-	1	950	161	7	-	-	2,063
9	İÇDAŞ	-	-	1,200	405	-	-	-	60	-	-	-	1,665
10	Bilgin Enerji	890	-	-	-	-	-	320	370	-	-	-	1,580
11	Anadolu Birlik Holding	-	1,523	-	-	-	2	-	-	-	-	-	1,525
12	Aksa Enerji	1,047	270	-	-	-	-	15	153	-	-	-	1,485
13	Ciner Holding	379	1,025	-	24	-	-	-	-	-	-	-	1,428
14	Diler Holding	-	-	1,200	-	-	-	38	-	-	-	-	1,238
15	Ak Enerji	904	-	-	-	-	-	289	28	-	-	-	1,221
16	OYAK Holding	112	-	953	-	-	155	-	-	-	-	-	1,219
17	GAMA Holding	853	-	-	-	-	-	130	118	-	-	-	1,100
18	Kolin	-	510	-	-	-	-	512	-	-	-	-	1,022
19	Unit	727	-	-	-	-	-	212	-	-	-	-	938
20	ACWA Power	927	-	-	-	-	-	-	-	-	-	-	927
21	İC İçtaş Enerji	-	210	-	315	-	-	400	-	-	-	-	925
22	Alarko Holding	164	-	660	-	-	-	87	-	-	-	-	911
23	Gürüş Holding	-	-	-	-	-	-	104	581	210	-	-	895
24	Baymina Enerji	798	-	-	-	-	-	-	-	-	-	-	798
25	RWE-Turcas	776	-	-	-	-	-	-	-	18	-	-	794

Long-list of top 100 groups / companies of Turkish electricity generation industry based on capacity. (2/4)

Rank	Companies	Natural gas	Domestic coal	Imported coal	Domestic or Imported coal	Fuel-oil	Others	Hydroelectric	Wind	Geothermal	Biomass	Solar	Total Installed Capacity
26	Zorlu Enerji	100	-	-	-	-	-	119	260	260	-	-	739
27	STEAG GmbH	-	-	673	-	-	-	-	60	-	-	-	733
28	Sanko Enerji	11	-	-	-	25	-	548	100	15	-	-	700
29	Özaltın Enerji	-	-	-	-	-	-	656	-	-	-	-	656
30	Akfen	-	-	-	-	-	-	234	290	-	-	94	619
31	Doğuş Enerji	-	-	-	-	-	-	536	-	-	-	-	536
32	Polat Enerji	-	-	-	-	-	-	-	511	-	-	-	511
33	Borusan EnBW Enerji	-	-	-	-	-	-	49	445	-	-	-	494
34	BİS Enerji	486	-	-	-	-	-	-	-	-	-	-	486
35	ODAŞ Enerji	140	330	-	-	-	-	7	-	-	-	-	477
36	Demirer Holding	-	-	-	-	-	-	-	470	-	-	-	470
37	Eksim Enerji	-	-	-	-	-	-	62	343	-	-	-	405
38	Tüpraş	216	-	-	-	-	170	-	-	-	-	-	386
39	Doğan Enerji	-	-	-	-	-	-	204	168	-	-	-	372
40	Entek	97	-	-	-	-	-	264	-	-	-	-	361
41	Gülsan Holding	37	-	-	-	-	-	319	-	-	-	-	356
42	İzdemir Enerji	-	-	350	-	-	-	-	-	-	-	-	350
43	Fina Enerji	-	-	-	-	-	-	-	332	-	-	-	332
44	Çolakoğlu Metalurji	123	-	190	-	-	-	-	-	-	-	-	313
45	HABAŞ	242	-	-	-	54	-	-	-	-	-	-	296
46	Kipaş Holding	42	-	8	-	-	-	38	-	199	-	-	286
47	Şişecam Topluluğu	285	-	-	-	-	-	-	-	-	-	-	285
48	AGE Enerji	206	-	-	-	-	-	73	-	-	-	-	278
49	Ayen Enerji	-	-	-	-	-	-	169	106	-	-	-	275
50	SOCAR	222	-	-	-	-	-	-	51	-	-	-	273

Long-list of top 100 groups / companies of Turkish electricity generation industry based on capacity. (3/4)

Rank	Companies	Natural gas	Domestic coal	Imported coal	Domestic or Imported coal	Fuel-oil	Others	Hydroelectric	Wind	Geothermal	Biomass	Solar	Total Installed Capacity
51	Çakmaktepe Enerji	268	-	-	-	-	-	-	-	-	-	-	268
52	Türkerler Holding	-	-	-	-	-	-	121	72	71	-	-	264
53	Fernas Enerji	-	-	-	-	-	-	150	99	-	-	-	249
54	Erciyes Anadolu Holding	-	-	-	-	-	-	203	43	-	-	-	246
55	Göлтаş Enerji	-	-	-	-	-	-	205	-	-	-	-	205
56	Karadeniz Holding	-	-	-	-	172	-	9	-	24	-	-	205
57	Naksan Enerji	48	145	-	-	-	-	-	-	-	-	-	193
58	Palmet Enerji	124	-	-	-	-	-	34	28	-	-	-	186
59	Dost Enerji	-	-	-	-	-	-	-	185	-	-	-	185
60	Ünal Şirketler Grubu	-	-	-	-	-	-	185	-	-	-	-	185
61	Ece Tur	-	-	-	-	-	-	16	168	-	-	-	184
62	Tektuğ Elektrik	-	-	-	-	-	-	155	25	-	-	-	180
63	Kardemir	-	-	-	155	-	-	21	-	-	-	-	176
64	Sancak Enerji	-	-	-	-	-	-	-	175	-	-	-	175
65	Kalyon Enerji	-	-	-	-	-	-	173	-	-	-	-	173
66	Enda Enerji Holding	-	-	-	-	-	-	104	69	-	-	-	173
67	Yeşilyurt Enerji	158	-	-	-	-	-	-	-	-	-	-	158
68	Aksa Akriklik	145	-	-	-	-	-	-	-	-	-	-	145
69	Alto Holding	-	-	-	-	-	-	-	144	-	-	-	144
70	Yıldırım Holding	104	-	-	-	-	-	-	40	-	-	-	144
71	Rönesans Holding	-	-	-	-	-	-	143	-	-	-	-	143
72	Ansaldo Energy	138	-	-	-	-	-	-	-	-	-	-	138
73	Erdem Holding	-	-	-	-	-	-	13	124	-	-	-	137
74	Bades Elektrik	136	-	-	-	-	-	-	-	-	-	-	136
75	Ağaoğlu Enerji	13	-	-	-	-	-	20	97	-	-	-	130

Long-list of top 100 groups / companies of Turkish electricity generation industry based on capacity. (4/4)

Rank	Companies	Natural gas	Domestic coal	Imported coal	Domestic or Imported coal	Fuel-oil	Others	Hydroelectric	Wind	Geothermal	Biomass	Solar	Total Installed Capacity
76	Türkiye Şeker Fabrikaları	40	-	-	-	14	75	-	-	-	-	-	129
77	ITC Entegre Atık	-	-	-	-	-	-	-	-	-	128	-	128
78	Ataer Enerji	125	-	-	-	-	-	-	-	-	-	-	125
79	Statkraft	-	-	-	-	-	-	122	-	-	-	-	122
80	Özdoğan Enerji	-	-	-	-	-	-	121	-	-	-	-	121
81	Acarsoy Enerji	63	-	-	-	-	-	-	55	-	-	-	118
82	Beyçelik Gestamp	-	-	-	-	-	-	-	117	-	-	-	117
83	Arsan Group	-	-	-	-	-	-	110	-	-	-	-	110
84	Zafer Şirketler Grubu	-	-	-	-	-	-	20	84	-	-	-	104
85	Çalık Enerji	-	-	-	-	-	-	29	72	-	-	-	101
86	Gaziantep OSB Elektrik	97	-	-	-	-	-	-	-	-	-	-	97
87	Ortadoğu Enerji	-	-	-	-	-	-	-	42	-	54	-	96
88	Reşadiye Hamzalı Elektrik Üretim	-	-	-	-	-	-	93	-	-	-	-	93
89	Çanakçı HES	-	-	-	-	-	-	92	-	-	-	-	92
90	Kale Enerji	-	-	-	-	-	-	58	27	-	-	-	85
91	Yılsan Yatırım Holding	-	-	-	-	-	-	85	-	-	-	-	85
92	MOSB Enerji	85	-	-	-	-	-	-	-	-	-	-	85
93	Ado Enerji	-	-	-	-	-	-	19	63	-	-	-	82
94	Batıçım Batı Enerji	-	-	-	-	-	9	69	-	-	-	-	78
95	Edincik Enerji	-	-	-	-	-	-	-	77	-	-	-	77
96	Yüksel Enerji	-	-	-	-	-	-	74	-	-	-	-	74
97	Orya Enerji	-	-	-	-	-	-	74	-	-	-	-	74
98	MB Holding	-	-	-	-	-	-	-	-	68	-	-	68
99	Soyak Enerji	-	-	-	-	-	-	-	-	61	-	-	61
100	Uğur Enerji	60	-	-	-	-	-	-	-	-	-	-	60

Thank you

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