

MW100 Turkey

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

February 2023

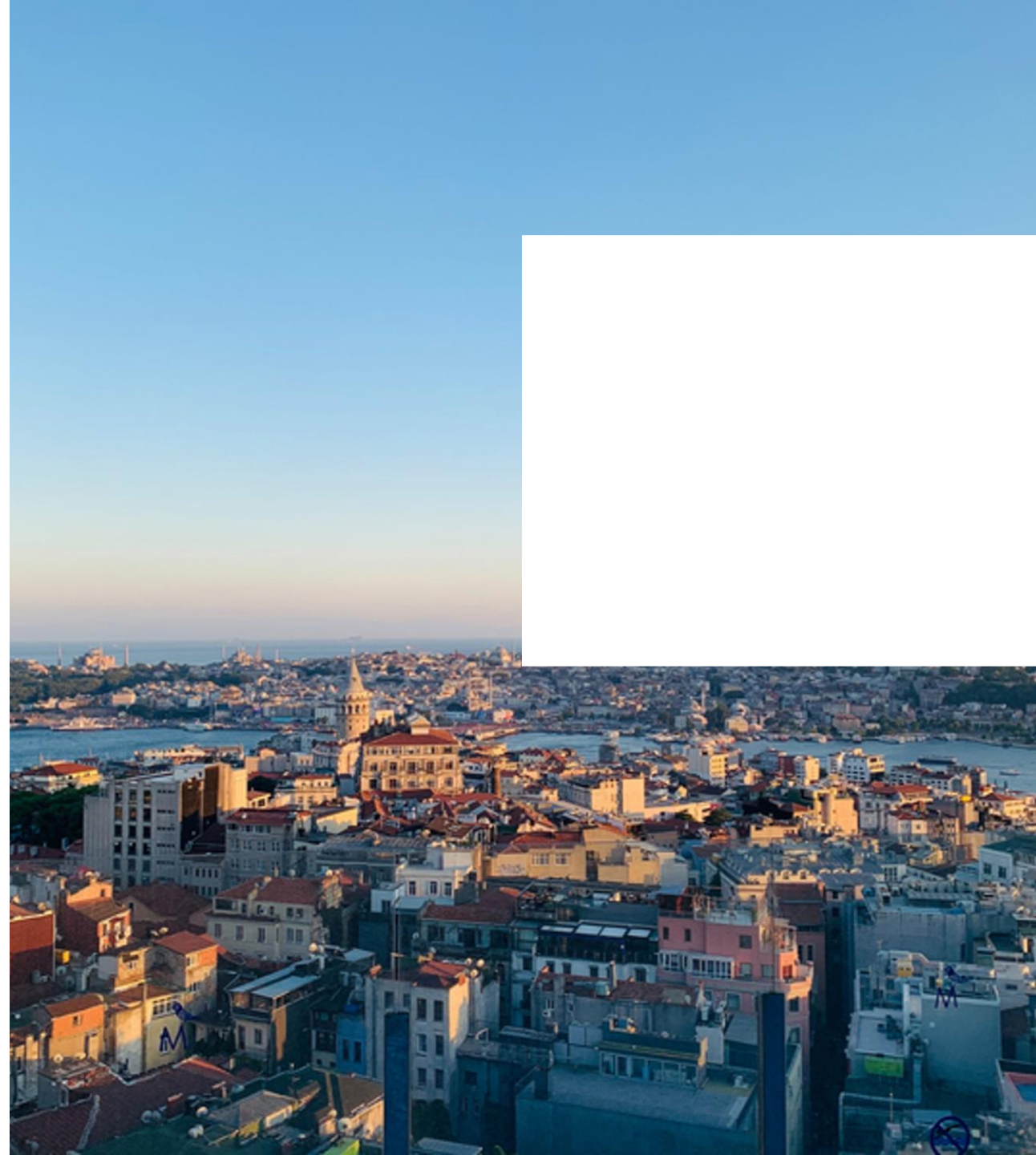
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KEARNEY



Evolution of power generation industry

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



In the past 15 years, power generation capacity has more than doubled in Turkey. The source of power has diversified, with additional wind, solar, geothermal, and biomass capacities.

There have been significant capacity additions in the past 15 years.

- In the past 15 years, capacity additions have been seen across all major energy sources; hydroelectric and coal power plant additions account for half of total additions.

Capacity additions continued in 2022.

- The power generation industry added an additional 4 GW in 2022, mainly driven by renewable energy.

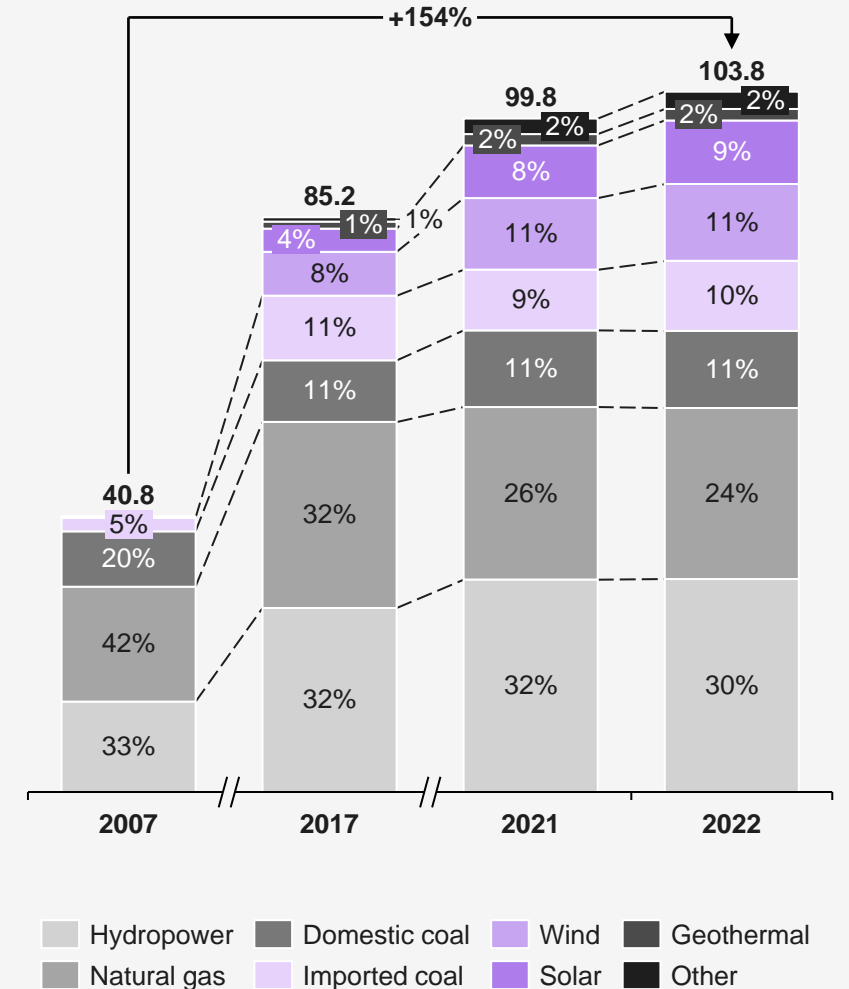
Energy transition has been a key source of capacity additions.

- Wind and solar power plant capacity additions totaled 1.6 GW in 2022, accounting for 40% of total additions.

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

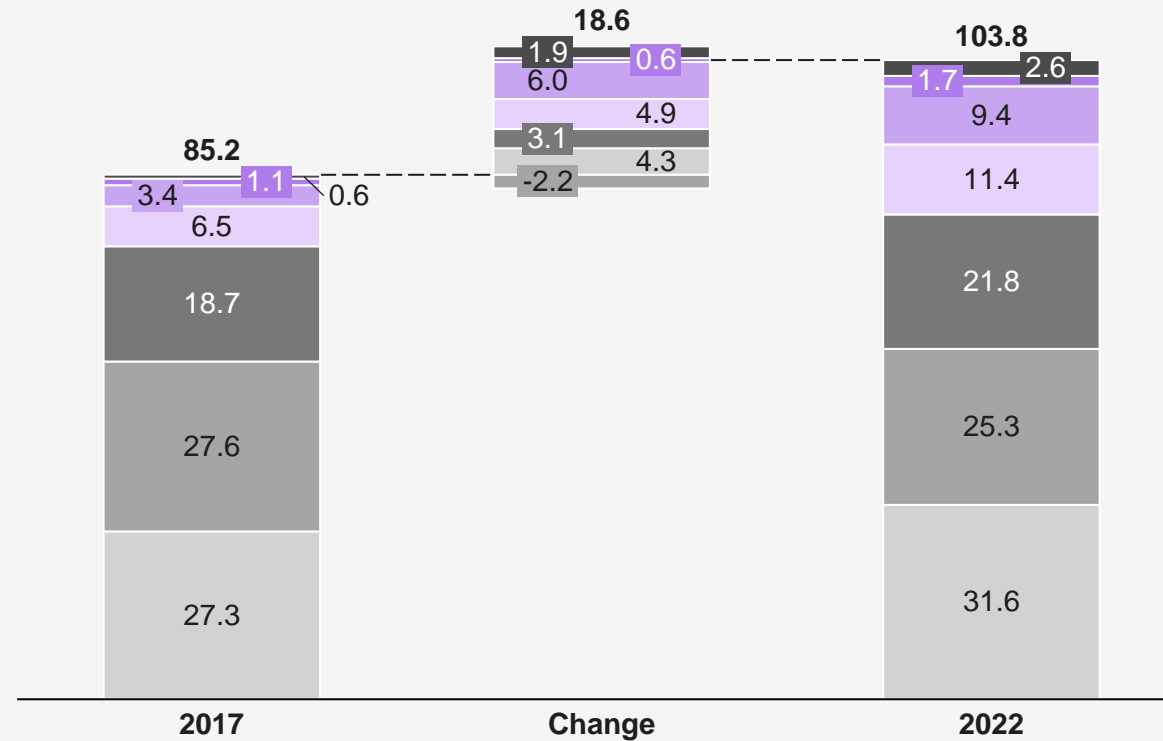
- With the sharp increase of capacity over the years, electricity prices have plummeted, forcing some natural gas power plants to shut down.

Turkey power generation capacity by source (GW)



In the past 5 years, capacity additions have been driven by renewable energy sources.

Energy capacity additions in the past 5 years (GW)



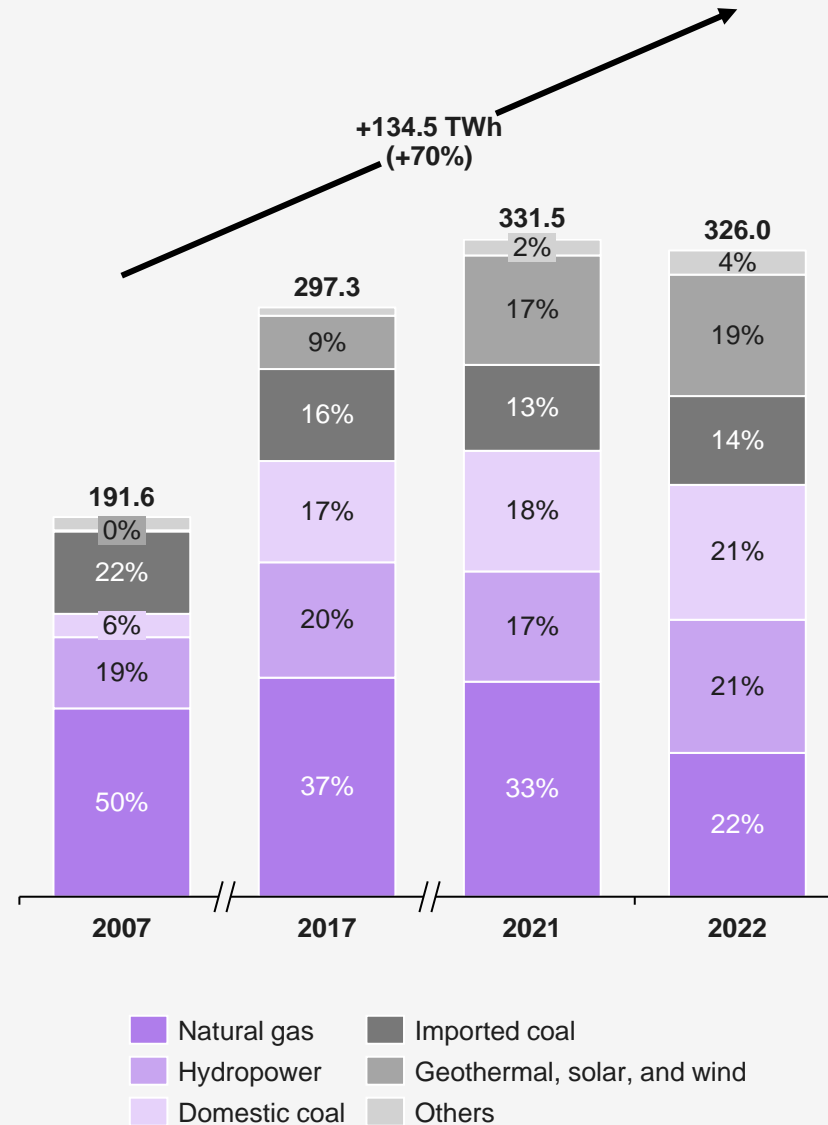
	CAGR (%, 2017–2022)
Geothermal	+9.7%
Solar	+22.5%
Wind	+11.8%
Coal	+3.1%
Natural gas	-1.7%
Hydropower	+3.0%

Power generation capacity has increased more than 20% in the past 5 years.

- Reported total installed capacity is **103.8 GW**, which consists of **31.6% hydropower**, **25.3% natural gas**, and **21.8% coal**.
- Natural gas capacity was the **only declining category**.
- Capacity additions in renewables are the main driver of growth as the total share of renewables in **total capacity addition was 85%**.
- Solar power showed the **largest increase in capacity** over the previous 5 years, with a total capacity increase of **~6 GW**.

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

Turkey electricity generation by source (TWh)



Electricity generation has nearly doubled in 15 years.

- 2022 electricity generation was 326TWh, a slight decrease since 2021 due to the milder summer and winter periods in 2022.
- The share of **geothermal, solar, and wind energy** has more than **doubled** in the past 5 years.

Energy generation from natural gas decreased by 33% compared to last year.

- Due to **capacity additions in renewable energy power plants**, energy generation from natural gas has decreased by 33% and it has been balanced with a **21% increase in hydropower**.

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

Renewable capacity has recorded significant growth in the past 5 years.

- Capacity additions in **solar and wind power** plants are leading the growth and make up **~85% of renewable capacity additions**.

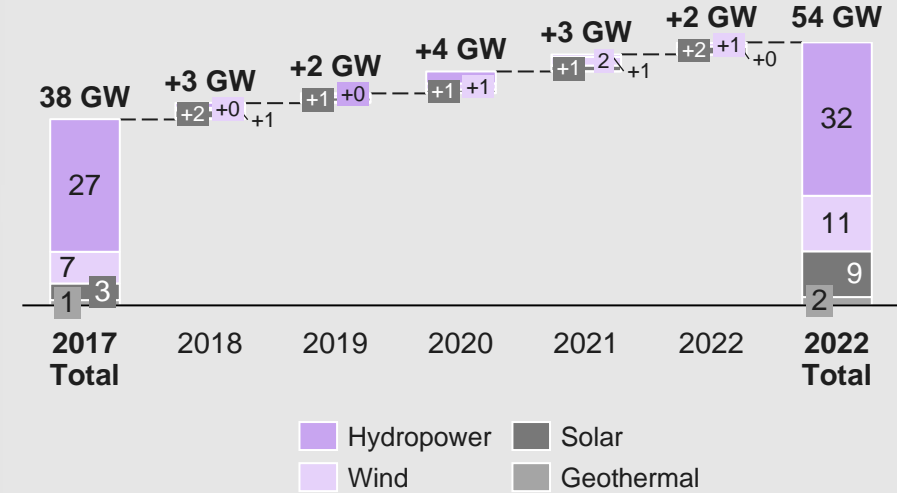
Total renewable energy generation is consistently increasing.

- With **significant capacity additions** and **state-led incentives**, total generation of renewable energy has **more than doubled** in the past 15 years.

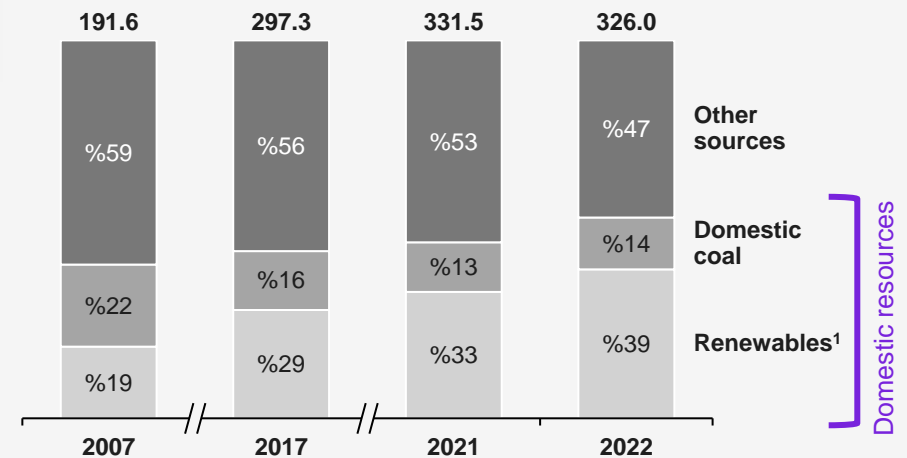
Share of domestic sources is increasing.

- 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 the past 5 years (GW)



Share of renewables in electricity generation (TWh)¹



¹ Renewables include hydropower, geothermal, solar, and wind. Sources: TEİAŞ, EPDK, EPIAŞ, ETKB, EÜAŞ, TÜİK; Kearney analysis

Top power generation players in Turkey by capacity

We have compiled more than 83% of the power generation capacity of Turkey and identified the top 100 players.



Methodology of the study

Power generation capacity data was compiled as of 31.12.2022.

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 were 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 were included in the study.

4

Power plants that are currently in the construction stage were 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



Summary results of the study

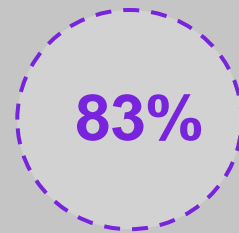
EÜAŞ, the state-owned generation company, still tops the list, despite the long history of privatizations in the Turkish energy markets.

- EÜAŞ holds 20% of total capacity of Turkey.
 - The high-capacity concentration of EÜAŞ enables the company to stabilize the electricity supply in market to ensure no outages and stable prices.
- ENKA is the largest private sector player with 4% of total capacity share.
- Enerjisa, Cengiz Enerji, and Eren Enerji follow ENKA and EÜAŞ, rounding out the top 5.

The top 10 players hold nearly half of market capacity.



Capacity share of top 10 players



Capacity share of top 100 players

Capacity: Top 10

Rank		Companies	Capacity(Mwe)
2022	2021		
1	1	EÜAŞ	21,254
2	2	ENKA	3,969
3	3	Enerjisa	3,727
4	5	Cengiz Enerji	3,361
5	4	Eren Enerji	2,818
6	6	Çelikler Holding	2,769
7	7	Limak Enerji	2,576
8	8	Aydem Enerji	2,016
9	9	İÇDAŞ	1,669
10	10	Bilgin Enerji	1,639

Generation: Top 10

Rank	Companies	Generation (TWh)
2022		
1	EÜAŞ	45.9
2	Eren Enerji	16.2
3	Enerjisa	15.5
4	İÇDAŞ	10.7
5	Çelikler Holding	9.3
6	Gama Enerji A.Ş.	9.3
7	Diler Holding	8.8
8	Aydem Enerji	8.2
9	ENKA	7.5
10	Anadolu Birlik Holding	6.2

Top 10 players across segments

Natural gas (CCGTs)

Rank		Companies	Capacity(Mwe)
2022	2021		
1	1	EÜAŞ	4,735
2	2	ENKA	3,969
3	3	Enerjisa	1,583
4	4	Aksa Enerji	1,047
5	9	Palmet Enerji	956
6	6	ACWA Power	927
7	7	Akenerji	904
8	8	Limak Enerji	900
9	10	Bilgin Enerji	887
10	5	HABAŞ	871

Coal

Rank		Name	Capacity
2022	2021		
1	1	Eren Enerji	2,790
2	2	Çelikler	2,530
3	3	EÜAŞ	2,424
4	4	İÇDAŞ	1,605
5	5	Anadolu Birlik	1,508
6	-	EMBA Power	1,320
7	6	Diler	1,200
8	7	Aydem Enerji	945
9	8	STEAG GMBH	673
10	9	Cengiz Enerji	660

Hydroelectric

Rank		Name	Capacity
2022	2021		
1	1	EÜAŞ	13,903
2	2	Cengiz Enerji	1,684
3	3	Enerjisa	1,353
4	4	Limak Enerji	1,113
5	5	Özaltın Enerji	908
6	6	Aydem Enerji	852
7	7	Sanko Enerji	548
8	8	Doğuş Enerji	535
9	9	Kolin	512
10	10	Energo-Pro	473

Wind

Rank		Name	Capacity
2022	2021		
1	1	Polat Enerji	698
2	2	Borusan ENBW Enerji	634
3	3	Güriş Holding	618
4	5	Fiba Yenilenebilir Enerji	529
5	4	Eksim Enerji	430
6	7	Demirer	419
7	34	RT Enerji	378
8	8	Bilgin Enerji	370
9	9	Akfen	349
10	17	Enerjisa	332

Top 100 players in power generation

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Complete list



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

Rank 2022	Rank 2021	Companies	Natural gas	Domestic coal	Imported coal	Domestic or Imported coal	Fuel oil	Others	Hydroelectric	Wind	Geothermal	Biomass	Solar	Total installed capacity
1	1	EÜAŞ	4,735	2,424	-	-	-	175	13,903	17	-	-	-	21,254
2	2	ENKA	3,969	-	-	-	-	-	-	-	-	-	-	3,969
3	3	Enerjisa	1,583	450	-	-	-	(0)	1,353	332	-	-	9	3,727
4	5	Cengiz Enerji	658	-	660	-	-	13	1,684	119	-	-	227	3,361
5	4	Eren Enerji	-	-	2,790	-	-	-	-	-	-	28	-	2,818
6	6	Çelikler	-	2,530	-	-	-	-	27	-	213	-	-	2,769
7	7	Limak Enerji	900	536	-	-	-	-	1,113	-	14	-	13	2,576
8	8	Aydem Enerji	-	945	-	0	-	-	852	213	7	-	-	2,016
9	9	İÇDAŞ	-	405	1,200	-	-	-	4	60	-	-	-	1,669
10	10	Bilgin Enerji	887	-	-	-	-	-	382	370	-	-	-	1,639
11	11	Anadolu Birlik	19	1,508	-	0	-	-	-	3	-	3	-	1,532
12	441	EMBA Power	-	-	1,320	-	-	-	-	-	-	-	-	1,320
13	12	Aksa Enerji	1,047	270	-	-	-	-	-	-	-	-	-	1,317
14	13	Diler	-	-	1,200	-	-	-	38	-	-	-	-	1,238
15	26	OYAK	189	-	641	-	239	137	-	-	-	21	1	1,227
16	14	Akenerji	904	-	-	-	-	-	292	28	-	-	-	1,224
17	35	Kalyon Enerji	-	-	-	-	-	-	174	-	-	-	962	1,136
18	15	Gama Enerji A.Ş.	853	-	-	-	-	-	130	118	-	-	-	1,100
19	17	Kolin	-	510	-	-	-	-	512	-	-	-	-	1,022
20	22	Güriş	-	-	-	-	-	-	99	618	260	-	-	978
21	18	İC İçtaş Enerji	-	559	-	-	-	-	415	-	-	-	-	974
22	23	Palmet Enerji	956	-	-	-	-	-	-	-	-	-	-	956
23	21	Özaltın Enerji	-	-	-	-	-	-	908	-	-	-	38	946
24	19	Alarko	163	-	660	-	-	-	87	-	-	-	21	930
25	20	ACWA Power	927	-	-	-	-	-	-	-	-	-	-	927

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

Rank 2022	Rank 2021	Companies	Natural gas	Domestic coal	Imported coal	Domestic or Imported coal	Fuel oil	Others	Hydroelectric	Wind	Geothermal	Biomass	Solar	Total installed capacity
26	24	Sanko Enerji	-	-	-	-	0	-	548	274	70	-	10	902
27	16	HABAŞ	871	-	-	-	-	-	-	-	-	-	-	871
28	47	TÜPRAŞ / ENTEK	112	-	-	-	387	-	264	66	-	-	-	829
29	25	Ciner	379	433	-	-	-	-	-	-	-	-	-	812
30	27	RWE-Turcas	776	-	-	-	-	-	-	-	18	-	-	794
31	28	Unit	519	-	-	-	-	-	218	-	-	-	-	737
32	32	Polat Enerji	-	-	-	-	-	-	-	698	-	-	26	724
33	30	Borusan ENBW Enerji	-	-	-	-	-	-	49	634	-	-	8	691
34	31	Akfen	-	-	-	-	-	-	236	349	-	-	92	677
35	29	STEAG GMBH	-	-	673	-	-	-	-	-	-	-	-	673
36	33	Zorlu Enerji	84	-	-	-	-	-	119	135	305	-	-	643
37	43	Fiba Yenilenebilir Enerji	-	-	-	-	-	-	-	529	-	25	-	554
38	37	Doğuş Enerji	-	-	-	-	-	-	535	-	-	-	-	535
39	46	Erciyes Anadolu	-	-	-	-	-	-	204	230	-	-	68	503
40	39	Eksim Enerji	-	-	-	-	-	-	63	430	-	-	-	493
41	40	BİS Enerji	486	-	-	-	-	-	-	-	-	-	-	486
42	41	Energo-Pro	-	-	-	-	-	-	473	-	-	-	-	470
43	42	Fernas Enerji	-	-	-	-	-	-	195	255	-	-	20	469
44	38	Doğan	-	-	-	-	-	-	202	222	-	-	34	458
45	34	Türkerler	-	-	-	-	-	-	121	250	78	-	-	448
46	45	Demirer	-	-	-	-	-	-	-	419	-	-	-	419
47	49	Gülsan	37	-	-	-	-	-	340	-	-	30	-	406
48	52	Kipaş	42	-	8	55	-	18	38	-	236	1	-	397
49	101	RT Enerji	-	-	-	-	-	-	-	378	-	-	-	378
50	36	Çolakoğlu Metalurji	377	-	-	-	-	-	-	-	-	-	-	377

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

Rank 2022	Rank 2021	Companies	Natural gas	Domestic coal	Imported coal	Domestic or Imported coal	Fuel oil	Others	Hydroelectric	Wind	Geothermal	Biomass	Solar	Total installed capacity
51	48	İzdemir Enerji	-	-	370	-	-	-	-	-	-	-	-	370
52	50	Ansaldo Energy	346	-	-	-	-	-	-	-	-	-	-	346
53	51	ODAŞ Enerji	-	330	-	-	-	-	7	-	-	-	-	337
54	53	Ayen Enerji	-	-	-	-	-	-	171	134	-	-	6	311
55	55	Şişecam	290	-	-	-	-	-	-	-	-	-	-	290
56	56	SOCAR	229	-	-	-	0	-	-	51	-	-	3	283
57	57	AGE Enerji	206	-	-	-	-	-	73	-	-	-	-	278
58	58	Ağaoğlu Enerji	-	-	-	-	-	-	20	236	-	14	-	270
59	61	Alto	-	-	-	-	-	-	-	256	-	-	-	256
60	59	Sancak Enerji	-	-	-	-	-	-	-	249	-	-	2	251
61	64	Ece Tur	-	-	-	-	-	-	18	171	-	-	50	240
62	60	Yeşilyurt Enerji	234	-	-	-	-	-	-	-	-	-	-	234
63	54	Yıldırım	-	-	-	-	-	-	157	76	-	-	-	233
64	66	Universal Wind	-	-	-	-	-	-	-	200	-	-	-	200
65	63	Dost Enerji	-	-	-	-	-	-	-	185	-	-	-	185
66	65	Ünal	-	-	-	-	-	-	185	-	-	-	-	185
67	69	Yılsan Yatırım Holding	-	-	-	-	-	-	111	43	12	-	19	184
68	67	Tektuğ Elektrik	-	-	-	-	-	-	155	25	-	-	-	180
69	68	Enda Enerji	-	-	-	-	-	-	101	64	8	-	-	172
70	83	Kıvanç Enerji	-	-	-	-	-	-	29	99	-	-	35	163
71	76	ITC Entegre Atık	-	-	-	-	-	-	-	-	-	150	-	150
72	72	Anatolia	-	-	-	-	-	-	-	130	-	-	19	148
73	70	Aksa Akriklik	21	-	124	-	-	-	-	-	-	-	-	145
74	71	Rönesans	-	-	-	-	-	-	144	-	-	-	-	144
75	75	Akiş Enerji	-	-	-	-	-	-	-	141	-	-	-	141

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

Rank 2022	Rank 2021	Companies	Natural gas	Domestic coal	Imported coal	Domestic or Imported coal	Fuel oil	Others	Hydroelectric	Wind	Geothermal	Biomass	Solar	Total installed capacity
76	73	Erdem	-	-	-	-	-	-	13	124	-	-	-	137
77	74	Bades Elektrik	136	-	-	-	-	-	-	-	-	-	-	136
78	-	Ekvator Enerji	-	-	-	-	-	-	118	-	-	-	14	132
79	206	Kardemir	-	-	-	108	-	-	21	-	-	-	-	129
80	77	Beyçelik Gestamp Yenilenebilir Enerji	-	-	-	-	-	-	-	129	-	-	-	129
81	81	Türkiye Şeker Fabrikaları	42	-	-	-	14	66	-	-	-	-	-	122
82	78	Statkraft	-	-	-	-	-	-	122	-	-	-	-	122
83	79	Özdoğan Enerji	-	-	-	-	-	-	122	-	-	-	-	122
84	80	Göлтаş Enerji	-	-	-	-	-	12	102	-	-	-	-	114
85	84	Zafer	-	-	-	-	-	-	20	86	-	-	-	105
86	85	Greeneco Enerji	-	-	-	-	-	-	-	-	105	-	-	105
87	86	Çalık Enerji	-	-	-	-	-	-	29	72	-	-	-	101
88	87	Oltan Köleoğlu Enerji	-	-	-	-	-	-	-	-	-	99	-	99
89	89	MÖN İnşaat Enerji	-	-	-	-	-	-	66	30	-	-	-	96
90	90	Yeşil Global Enerji	-	-	-	-	-	-	-	42	-	54	-	96
91	91	Çanakçı HES	-	-	-	-	-	-	92	-	-	-	-	92
92	92	Yıldızlar Enerji	-	-	-	-	-	-	55	35	-	-	-	90
93	93	Pakmem Elektrik	-	-	-	-	-	-	-	90	-	-	-	90
94	98	Melike Tekstil	10	-	-	-	-	-	79	-	-	-	-	88
95	94	Kale Enerji	-	-	-	-	-	-	58	28	-	-	-	86
96	95	İstaç	-	-	-	-	-	-	-	-	-	86	-	86
97	99	BATIENERJİ (BATIÇİM)	-	-	-	-	-	14	69	-	-	-	-	83
98	96	Peker Enerji	-	-	-	-	-	-	47	36	-	-	-	83
99	100	Edincik Enerji	-	-	-	-	-	-	-	77	-	-	-	77
100	102	Nokta Yatırım Holding	-	-	-	-	-	-	38	38	-	-	-	76

Thank you

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