OUTLOOK OF THE ENERGY MARKET IN TURKEY

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A. INTRODUCTION

Sarıibrahimoğlu Law office has conducted a research on Energy Market from a legal perspective. Since the legislation in connection with Energy related matters can be highly variable due to rapid changes in the needs of market actors, we have given our best efforts in order to review the most up to date regulations regarding energy law. As a result of such review, we have compiled the most important points of energy law related regulations for your consideration. Therefore, please kindly find below a brief review of the legislation re Energy Market in Turkey.

Thank you for your time and consideration.

If you need any further assistance, please do not hesitate to contact us.

B. LEGISLATION REVIEWED

Electricity Market Law, Natural Gas Market Law, Law on Utilization of Renewable Energy Sources in Electricity Generation, Law on Geothermal Resources and Mineral Waters, Law on Installation and Operation of the Nuclear Power Plants and Sales of Energy and regulations regarding the implementation of the aforesaid laws.

C. ENERGY MARKET ACTORS IN TURKEY

Starting the electricity transmission and distribution phases regarding energy law, it would be useful to introduce the governmental institutions, regulatory authorities and public companies activities and their functions in this field. You can also find the explanations of some concepts about this issue.

1. EÜAS: (Electricity Generation Company)

EÜAS[1] is an actor of energy producers in the energy production-distribution-transmission process. Shortly, it is a state-owned company which is founded to generate electricity under the guidance of economic and energy policies of state. It is the operator of the state-owned plants.

EÜAS has control of some lignite basins in Turkey and the Afşin-Elbistan lignite basin is one of the most important lignite basins in the country. This basin contains %33 percent of the lignite reserve of Turkey. On the other hand EÜAS maintains the two Nuclear Power Plant projects. Those two nuclear plants are planned to be active after 2020.

Looking to its historical background, in 1994 TEK (Turkish Electricity Institution) was split into a generation and transmission company, TEAS and a distribution company TEDAS. Turkish Electric market has undergone significant structural changes in the last 20 years. As a first step toward a competitive market, new electricity market law of 2001 re-organized state owned utility-TEAS into three successor companies, namely Electricity Generation Company (EÜAS), Turkish Electricity Transmission Company (TEIAS)[2] and Turkish Electricity Trading

[1] Elektrik Üretim Anonim Şirketi(EÜAŞ)
[2] Türkiye Elektrik İletim Anonim Şirketi(TEİAŞ)

and Contracting Company (TETAS)[3]. All of these four companies are fully nationally- owned. The law also established a new entity to oversee all energy market activities in Turkey, Energy Market Regulatory Authority (EPDK[4]).

EÜAS has 6.938,9 MW installed capacity of thermal plants and 13.146,708 MW installed capacity of HPP. It is actually a share of 25.5% in total installed power of Turkey. [5] Total electric power generation of EÜAŞ is 46.509,2 Gwh which covers the %17 percent electric power generation of Turkey.[6]

The power plants of EÜAŞ are as follows;

	Fuel Type	Name	Installed Capacity MW	Generation MWh
THERMAL POWER PLANTS	**Lignite**	Afşin-Elbistan "B"	1.440,0	2.440.228
		Afşin-Elbistan "A"	1.355,0	428.330
		18 Mart Çan	320,0	1.951.556
		SOMA "A"	44,0	-
	Natural Gas	BURSA	1.432,0	1.683.588
		İSTANBUL "A"	1.350,9	3.401.953
		İSTANBUL "B"	816,0	1.940.300
		ALIAĞA	180,0	751
	Diesel-Oil	ÇUKURCA	1,0	-
HPP		ADIGÜZEL	62,000	153.609
		AKKÖPRÜ	115,000	122.568
		ALMUS	27,000	94.239
		ALPASLAN-I	160,000	460.059
		ALTINKAYA	702,550	1.210.840
		ASLANTAŞ	138,000	481.726
		ATATÜRK	2.405,000	6.038.237
		BATMAN	198,475	292.142
		BERKE	510,000	1.101.557
		BİRECİK - NİZİP	672,600	505.455
		BORÇKA	300,600	953.828
		ÇAMLIGÖZE	32,000	118.161
		ÇATALAN	168,900	381.016
		ÇİNE	46,260	4.953
		DEMİRKÖPRÜ	69,000	111.931
		DERBENT	56,400	248.101
		DERİNER	669,600	1.986.501
		DİCLE	110,000	129.321

[3] Türkiye Elektrik Ticaret ve Taahhüd Anonim Şirketi (TETAŞ)
[4] Enerji Piyasaları Düzenleme Kurulu(EPDK)
[5] According to the yearly report of 2016
[6] http://www.euas.gov.tr/Documents/yillik_raporlar/EUAS_2016_YILLIK_FAALIYET_RAPORU.pdf

		ERMENEK	302,400	789.030
		GEZENDE	159,375	368.441
		GÖKÇEKAYA	278,400	438.459
		HASAN UĞURLU	500,000	1.311.153
		HİRFANLI	128,000	245.068
		KAPULUKAYA	54,000	142.781
		KARAKAYA	1.800,000	5.795.834
		KARKAMIŞ	189,000	417.603
		KEBAN	1.330,000	4.965.679
		KEMER	48,000	93.966
		KESİKKÖPRÜ	76,000	150.545
		KILAVUZLU	54,000	183.143
		KILIÇKAYA	120,000	425.038
		KÖKLÜCE	90,000	307.384
		KRAL KIZI	94,500	118.858
		MANYAS	20,250	49.649
		MENZELET	124,000	404.142
		MURATLI	115,000	482.466
		OBRUK	210,800	323.823
		ÖZLÜCE	170,000	349.273
		SARIYAR H.P.	160,000	319.197
		SEYHAN-I	60,000	223.203
		SIR	283,500	452.867
		SUAT UĞURLU	69,000	329.488
		SUÇATI	7,000	14.719
		TOPÇAM	60,000	5 110.925
		YENİCE	37,890	

The services and activities that EÜAŞ carries on is mentioned as below in the yearly reports;

a. Within the scope of relevant legislative provisions, generating electricity at power plants, contracting electrical energy sales and/or sub services,

b. Taking over the facilities that need to be taken over, operating the generation facilities which have not been transferred to the private sector through itself and/or its subsidiaries, or taking them out of the system when necessary,

c. Establishing, leasing, operating new generation facilities envisaged by the Ministry, holding the property of the facilities and enterprises and the additional investments of them, whose operating rights have been transferred or to be transferred to the corporate bodies, accomplishing the transfer of the facilities or shares in accordance with the relevant legislation,

d. In accordance with the relevant legislation about nuclear energy generation facility establishment, accomplishing the relevant procedures for site, construction, operation and similar permissions and licenses from the relevant authorities,

e. Procuring all kinds of studies, projects, constructions and facilities needed for electricity generation and taking all kinds of measures for concordance of these with the domestic environmental legislation and getting them taken by the related companies or organizations accordingly, leaving their legal and financial responsibilities as is,

f. Procuring all kinds of goods and services for the installation, maintenance, repair, rehabilitation, operation and development of the generation facilities domestically and/or via import,

g. Conducting research, development and training studies on the system, machinery and equipment necessary for the installation and operation of the power plants, and manufacturing or having them manufactured when needed considering the domestic availability.

h. Related to its targets and activity issues and utilizing its own capabilities, hiring out tools and machinery or leasing from third parties against remuneration, trading services and goods under the framework of the related legislation without interfering its core activities, trading all kinds of by-products during or after the electricity generation processes,

i. When needed;

• Operating the mines to be used for electricity generation and other resources at the existing and/or future thermal power plants or getting them produced via service procurement,

• Installing, making it installed, operating or having the mining facilities operated via service procurement,

• Leasing mining fields to the third parties for electricity generation

2. TETAS (Turkish Electricity Trading and Contracting Company)

TETAS purchases power from EÜAS's power plants and from the BOT (Build-Operate-Transfer), BOO (Build-Own-Operate) and TOR (Transfer of Operating Rights) plants, selling the output to the distribution companies. It is a state-owned trading and contracting company established in 2001 as a successor company of TEAS, engaged in wholesale activities. TETAS has been established principally to take over the BOO, BOT and TOR contracts in the context of market liberalization.

TETAS; takes over and executes the existing energy sale and purchase contracts, shall primarily purchase electricity from EUAS, can make new annual purchase contracts to meet contractual obligations to distribution companies (subject to the approval of EPDK). The purchase/sales agreements between governments (which are managed by TETAS) have a priority in the allocation of the cross-border transmission capacity. Having allocated the required capacity to TETAS, the remaining capacity is allocated by the methodof "Explicit Auction" in case of congestion.

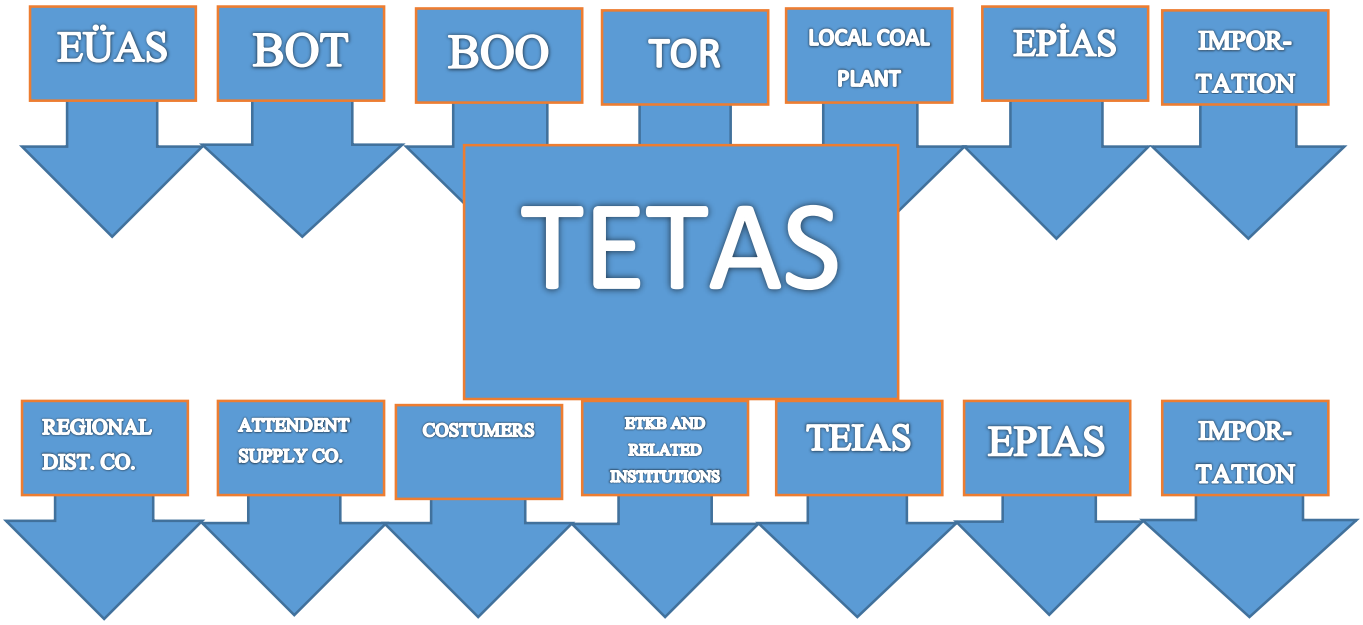
TETAS purchases energy from;

- *Hydroelectric Power Plants belonging to EUAS under the Transition Period Contract,*
- *BOT, BOO and TOR power plants under the long-term (for 15-20 years) purchase agreements,*
- *Other countries under the Import/Exchange Agreements,*
- *Balancing market operated by PMUM,*

and sells the energy to;

- *Electricity distribution companies*

- *Attendant supplier companies*
- *Customers Directly Connected to the Transmission System,*
- *Other countries under the Export/Exchange Agreements,*
- *Balancing market operated by (MFSC)*



Main Status of TETAS was published in the Official Gazette, dated 29.06.2001 and no 24447;

a. *To take over the Energy Purchase and Sales Agreements signed within the scope of the relevant legislation from TEAS and TEDAS and to conduct them,*

b. *To sign and execute Energy Sales Agreements and Energy Purchase Agreements the duration of which will not exceed one year when required, being limited to the conditions imposed by the Electricity Market Law (EPK),*

c. *To pay the Board the obtaining licence and licence prices determined by the Board and to operate as required by the provisions of the licence to be obtained,*

d. *To import and export electricity to/from the countries where the interconnection conditions occurred in accordance with the policies of the Ministry,*

e. *To prepare the Wholesale Tariff and to apply the approved tariff,*

f. *To purchase the electric energy generated from the Electricity Generation Corporation under the procedures and principles determined by the Board and during a period designated by the Board within the framework of the opinion of the Ministry formed in accordance with the Law No 3154 concerning the Organization and Commission of the Ministry of Energy and Natural Resources,*

g. *To take the necessary measures for the supply of sufficient, permanent and low-cost electric energy in order to fulfill its obligations,*

h. *To make required planning relevant to the area of activity of the Organization,*

i. To amend the Energy Purchase and Sales Agreements, to which the Organization shall be a party according to the changing sector conditions and in compliance with the legal regulations, provided to obtain the assent of the Under secretariat of Treasury,

j. To initiate the payment transactions of the invoices made up with respect to the purchase of the energy generated after the agreement to be made with the Electricity Transmission Corporation in line with the provisions of the article regarding the operation of the power plants specified in the respective Energy Purchase Agreements,

k. To provide the Electricity Transmission Corporation with all information to be required by it in connection with the execution of the functions of the Electricity Transmission Corporation,

l. To pay the Electricity Transmission Corporation the Connection and System usage fees arising in return for the service under the equal conditions with the other users subjecting to the transmission tariff for its operations arising from import-export,

m. To pay the relevant fees for the other services that it receives from the Electricity Transmission Corporation for the implementation of its agreements,

n. To possess the movables and immovables and all real and intellectual rights with regard to its areas of activity,

o. To carry on the bilateral and multilateral relations of TEAS on the current international issues concerning the Organization and to establish new relations with respect to the area of activity when required,

p. To fulfill the energy sales commitments undertaken against the distribution companies and TEDAS within the framework of the Transfer of Operating Rights Agreements completed within the transfer transaction period under the existing Contracts without delay in accordance with the Electricity Market Law provisions,

q. To perform the other tasks to be given by the legislation.

Turkish Electricity Trade and Contracting Corporation (TETAS), has been entrusted for 15 year period with the duty of purchasing the electrical energy to be generated by the Nuclear Power Plant which will be established in Mersin-Akkuyu with the capacity of 4.800 MW, pursuant to the agreement made between the Government of the Republic of Turkey and the Government of the Russian Federation to establish a nuclear power plant in our country.

Also the %100 of the electricity which will be generated in the nuclear power plant that will be constructed at Sinop Field will be purchased by TETAS.

TETAS, had undertaken the Energy Purchase Agreements for the power plants operated by the Build-Operate, Build-Operate Transfer and Transfer of Operating Rights models for 15-20 years previously signed by the public and so far sold the energy that it purchased to the distribution companies and independent customers without imposing additional burden on the public.

3. TEİAŞ: (Turkish Electricity Transmission Company)

TEIAS operates and maintains the transmission system, carries out dispatching, balancing and settlement, and makes forecasts of capacity and demand. It also operates the international connections, which exist for all neighboring countries. The company; engages in transmission of electricity in line with general energy and economy policy of the State. In compliance with the general economy policies of the State, TEIAS has been activated on 01.10.2001 so as to take over the all transmission facilities in the country and to carry out the planning of load dispatch and operation services.

Briefly; TEIAS, as the only transmission corporation having the transmission license in Turkey, has undertaken the duties such as; making investments for renewing and expansion of Transmission System, managing Electricity System, conducting of operation and maintenance of Transmission System, preparing Generation Capacity Projection and carrying out International Interconnection studies and alongside these operating the mainly financial "Electricity Energy Market", since 2001. TEIAS, has the endeavor of maintaining the electricity provided from production system to the distribution system for 24 hours and every second. Mission is not to leave the Country without electricity.

Company's role during EPDK licensing period is very important, as for every application EPDK is asking for the TEIAS opinion for the grid connection, licensing is possible only if TEIAS confirms grid connection and agrees to the duration of construction.

After the establishment of EPIAS in 2015, the duty of TEIAS to reconcile all the actors in market transferred to EPIAS.

TEİAS transmission network occurs of 59.934.4 km long energy transmission line, 718 transmission substation centers, 1675 large power substation and 145.940 MVA substation power and a total of 11 interconnection lines from neighboring countries.

4. TEDAŞ: (Turkish Electricity Distribution Corporation)

TEDAS is the state company which is in charge of distribution of the electricity in the country. It was established in 2001 but in accordance with the Privatization High Council decree no 2004/22, dated April 02, 2004, the state owned electricity distribution and retail activities have privatized, after the restructuring of distribution regions within the framework of the sector liberalization. The aim for that was to establish a competition environment in the market instead of monopolism of the city.

TEDAS has been divided into 21 distribution companies in preparation for privatization and the process ended in 2013. Consequently, TEDAS has been transferred into a privatization program. Within the scope of this program, the distribution regions were re-defined dividing Turkey into 21 regions and establishing 20 Electricity Distribution Companies. TEDAS's electricity distribution companies and the provinces they cover are;

- **Dicle Electricity Distribution Co.**

Diyarbakır, Mardin, Siirt, Şanlıurfa, Batman, Şırnak

- **Vangölü Electricity Distriution Co.**

Bitlis, Hakkari, Muş, Van

- **Aras Electricity Distribution Co.**

Ağrı, Erzincan, Erzurum, Kars, Bayburt, Ardahan, Iğdır

- **Toroslar Electricity Distribution Co.**

Adana, Gaziantep, Hatay, Mersin, Kilis, Osmaniye

- **Akdeniz Electricity Distribution Co**.

Antalya, Burdur, Isparta

- **Gediz Electricity Distribution Co.**

İzmir, Manisa

- **İstanbul Anatolian Side Electricity D. Co.**

İstanbul (Anatolian Side)

- **Boğaziçi Electricity Distribution Co.**

İstanbul (European Side)

- **Trakya Electricity Distribution Co.**

Edirne, Kırklareli, Tekirdağ

- **Sakarya Electricity Distribution Co.**

Kocaeli, Sakarya, Düzce, Bolu

- **Uludağ Electricity Distribution Co.**

Çanakkale, Balıkesir, Bursa

- **GDZ Electricity Distribution Co.**

İzmir, Manisa

- **ADM Electricity Distribution Co.**

Aydın, Denizli, Muğla

- **Osmangazi Electricity Distribution Co.**

Eskişehir, Bilecik, Kütahya, Uşak, Afyon

- **Meram Electricity Distribution Co.**

Konya, Aksaray, Kırşehir, Nevşehir, Niğde, Karaman

- **Başkent Electricity Distribution Co.**

Ankara, Kırıkkale, Çankırı, Kastamonu, Karabük, Bartın, Zonguldak

- **Kayseri Electricity Distribution Co.**

Kayseri

- **Akedas Electricity Distribution Co.**

Kahramanmaraş, Adıyaman

- **Çamlıbel Electricity Distribution Co.**

Tokat, Yozgat, Sivas

- **Yeşilırmak Electricity Distribution Co.**

Çorum, Sinop, Samsun, Amasya, Ordu

- **Çoruh Electricity Distribution Co.**

Giresun, Trabzon, Rize, Artvin, Gümüşhane

- **Fırat Electricity Distribution Co.**

Tunceli, Bingöl, Elazığ, Malatya

TEDAS conducts the following activities according to the yearly reports of TEDAS;

• Conducting the expropriation activities for electricity distribution plants in accordance with the relevant legislation;

• Performing the tasks assigned for general lighting works;

• Examining and inspecting the activities of electricity distribution companies in accordance with the authority assigned by the Ministry;

• Conducting operations and procedures that may be required in accordance with the principles defined by the Operating Rights Transfer Agreement as the owner of distribution plants in the distribution areas taken over and operated by private entities in accordance with the Laws No. 3096 and 4046;

• Examining and assigning priority to the investments of distribution companies by necessity, suitability, and characteristics, and monitoring their financial realization and electrification;

• Conducting or commissioning other entities to conduct activities related to electricity distribution and retail services when necessary or commissioned;

• Operating electricity distribution plants and engaging in the trade of electricity in Turkey and abroad when necessary and/or commissioned, and carrying out any activity in relation thereto;

• Conducting R&D studies to improve service quality and customer satisfaction, and to determine new performance criteria;

• Carrying out project inspection and approvals, and provisional and final acceptance of facilities, and so on. for a fee,

• Performing duties that may be assigned under the Regulation on Measures for Distribution and Supply Licenses in Electricity Market;

• Drafting the specifications of the materials and equipment used in distribution plants, and assessing the materials and equipment to be used in the grid for compliance;

• Defining, monitoring, and reporting performance criteria for call centers and providing monthly performance reports to the Ministry;

• Defining performance criteria based on outage and troubleshooting times, and monitoring and reporting malfunctions to the Ministry on a monthly basis;

• Performing procedures related to complaints;

• Establishing, participating, or cooperating with companies in Turkey and abroad;

• Engaging in energy consultancy and engineering activities for national and international distribution companies;

• Obtaining and/or granting documentation and certification related to its activities;

• Offering national and international training programs, awarding certificates to the public and private sectors, issuing professional competence certificates, and procuring services for such purposes when necessary;

• Providing all support services for a fee when requested by distribution companies;

• Evaluating yearly data in the energy industry and drafting a statistics book; • Preparing quantities of bills;

• Conducting or commissioning others to conduct surveys, plans, and projects related to its activities, and ensuring that relevant facilities and systems are established in relation thereto;

• Engaging in cooperative and coordinated activities with other natural and legal entities to execute its activities;

• Procuring goods and services from Turkey or abroad as required for its activities;

• Performing research and development on systems and machinery equipment related to its activities; manufacturing or commissioning others to manufacture such systems and equipment when necessary, depending on their domestic availability;

• Owning movable and immovable property as well as any rights in kind and intellectual rights, selling, purchasing, leasing in and leasing out movable and immovable property;

• Insuring and securing distribution assets;

• Purchasing services while performing its activities;

• Performing duties and liabilities as assigned by the Electricity Market Law No. 6446;

• Performing the works required by the activities, which may arise from other legislation,

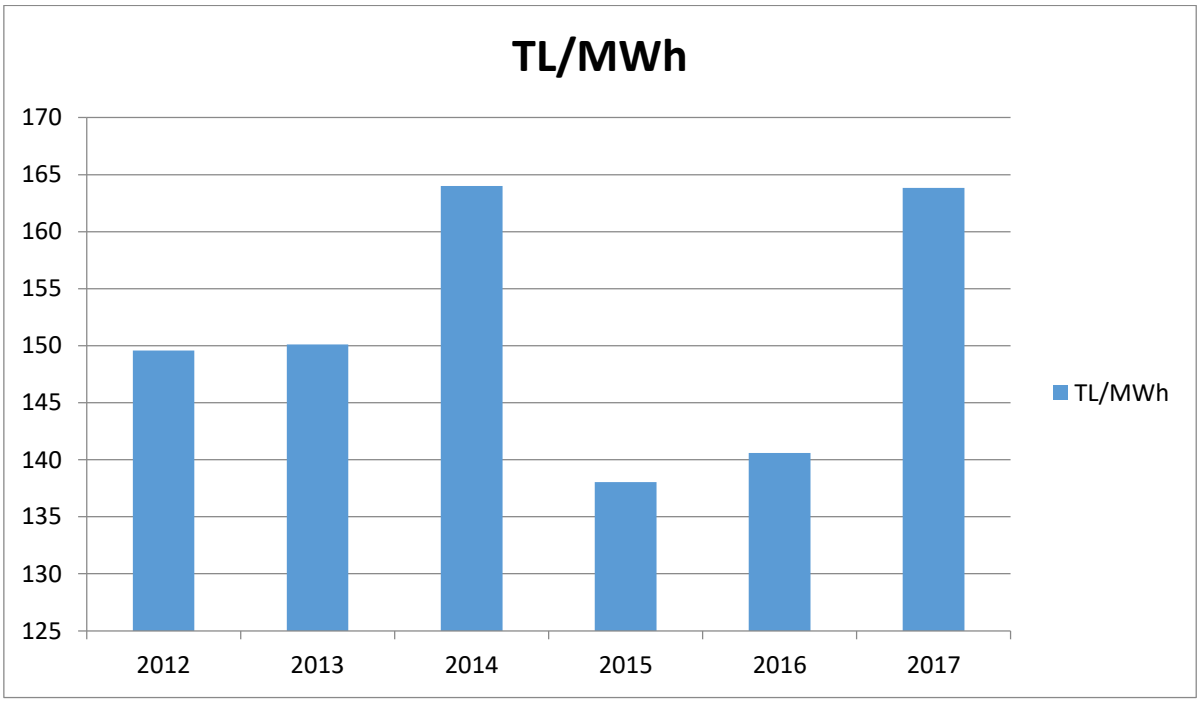
that started to operate on 01/03/2005 as we have already mentioned.

5. EPIAS (Electricity Market Operating Company)

EPIAS[7] is a recently established state company, the establishment date of it is 18 march 2015. The main aim and activity of EPIAS is "to plan, establish, develop and operate energy markets which are included in the market operation license in an effective, transparent, reliable and energy market to meet their needs. Providing reliable reference price formation without discrimination among equal parties and becoming an energy market operator that allows the liquidity to reach the highest level with the increasing number of market participants, product variety and transaction volume and to make trade through market mergers". EPIAS ensures reliable marketing prices in the sector.

The partnership structure of EPIAS splits as %39,17 private companies, %30,83 BIST[8] and %30 TEIAS. The activity areas of EPIAS are; day ahead market transactions, intra-day market transactions, pre-day, intra-day, balancing power markets reconciliation and financial transactions, negotiation of the Ancillary Services Market, operation of YEKDEM, free consumer transactions, invoicing.

According to the data of EPIAS, daily exchange price is as below;



EPIAS organizes also the gas market in Turkey and provides work in order to provide independency of the gas market.

[7] Elektrik Piyasaları İşletmesi Anonim Şirketi (EPİAŞ)
[8] Borsa Istanbul A. Ş. (Stock Market Istanbul Company)

6. TKI: (Türkiye Kömür İşletmeleri/Turkish Coal Mining Administration)

TKI[9] was established in 1957 under the Law No: 6974. The main field of operations of TKI, which is a state-owned economic enterprise, can be listed as: to explore and extract all types of energy sourcing minerals including lignite, peat, shale and asphaltit; to set up and operate necessary industrial facilities on the mining fields; to make utmost contribution to the economy of the country, to make preliminary studies and observations needed for mining; to carry out all contracting and trading activities regarding these resources, meeting the requirements of the country, arranging, and following up the plans and programs, determining and ensuring the realization of the application strategies. 20% of the total lignite reserves in Turkey as well as 55 percent of the lignite production capacity belong to the general Directorate of TKI. TKI, realizes its production process completely on the basis of the demand of thermal power plants and heating and industry, it has been increasing its sales to the thermal power plants in the recent years by taking into consideration the electrical energy needs of Turkey.

7. TTK: (Türkiye Taşkömürü Kurumu/Turkish Coal Corporation)

TTK was established in 1983 under the Law No:2680. The institution has the similar duties with TKİ, but it is responsible from Coal (mineral coal).

When we examine the figures for lignite and coal, we see that; the share of lignite and asphaltit in the electricity production is %49,3, coal has the share of %4.6, when we look at the shares among the demand, lignite and asphaltit has %14.5, whereas coal has %16.2.

Turkey has app 12.5 (11.2 visible) billion tons of lignite reserves and 1.5 (515 visible) billion tons coal reserves. All the coal reserves are owned by TTK. When we look at the lignite reserves, 2.5 billion tons are owned by TKİ as we already mentioned above, 4.8 billion tons owned by EUAS, 3.4 billion tons owned by MTA, 1.5 billion tons owned by private sector.

When the 2010 data is taken into consideration, total lignite production of Turkey is 70 million tons. %46 of this production is done by EUAS, %43 by TKİ, the rest %11 is done by private sector. Coal production in 2010 was 2.6 million tons. In 2011 lignite production reached 73 million tons and coal production reached 2.62 million tons. In 2011 lignite demand in Turkey was 113.9 million tons, coal demand was 31.3 million tons. Coal import is app. 24 million tons. %30 of the coal is used for electricity, %40 of it used by industry, %29 is used for heating. %76 of lignite is used for thermal power plants, %10 is used by industry, %10 is used for heating.

8. DSI: (General Directorate of State Hydraulic Works)

DSİ was established in 1953 under the law No:6200. DSİ is the primary executive state agency for Turkey's overall water resources planning, managing, execution and operation. The main objective of DSİ is to develop all water and land resources in Turkey. DSİ is empowered to plan, design, construct and operate dams, hydroelectric power plants, domestic water and irrigation schemes. Irrigation, hydroelectric power generation, domestic and industrial water supplies for large cities, recreation and research on water related planning, design and construction materials are other interrelated functions of DSİ.

[9] Türkiye Kömür İşletmeleri (TKİ)

Right now HPP installed capacity of Turkey is app. 17.500 MW. App 11.000 MW of this installed power is constructed by DSİ. When we consider October 2011 data, we see that, HPP projects prepared by DSİ and assigned to EUAS for management has 11500 MW of installed power with a number of 56 HPP's. HPP projects prepared by DSİ assigned to EUAS and then privatized HPP's has an installed capacity of 795 MW with a number of 60 HPP's.

For the realization of the hydroelectric energy projects, DSI requested from the Grand National Assembly of Turkey to prepare a law so that private sector can invest for the realization of project for shorter period than DSI.

This law is called "4628 Electricity Market Law" and its licensing regulation which comply with the free market economy. This agreement also defines the procedures and principles of water uses together with the other user's rights.

"4628 Electricity Market Law" has become effective in 2001. The first article of this law defines the objective, which is to supply electricity to the users in adequate quantity, in high quality, continuously and compatible with the environment by providing financially strong stable and transparent and competitive electricity market complying with the special law rules and independently controlled.

Within the framework of the "4628 Electricity Market Law", regulation related with the procedures and principles of signing Water Use Right Agreement for production activities in electricity market was prepared in 2003, and private sector applications according to this regulation has started since then. The projects available for application is listed on DSİ website and companies who sign Water Usage Right Agreement with DSİ has the right to apply to EMRA to get a production license.

Within the framework of Law No 4628 HPP's planned and managed by private sector has an installed capacity of 3014 MW with a number 128 HPP's, according to the October 2011 values. Among 1602 projects which are made available for private sector applications by DSİ, private sector applied for 1502 projects for making developments on them and 524 of the applications has been licensed.

9. BOTAŞ: (Petroleum Pipeline Corporation)

BOTAŞ was established on August 15, 1974 by The Turkish Petroleum Corporation (TPAO) under Decree No 7/7871, for the purpose of transporting Iraqi crude oil to the Ceyhan (Yumurtalık) Marine Terminal, in accordance with the Iraq-Turkey Crude Oil Pipeline Agreement signed on August 27, 1973 between the Governments of the Republic of Turkey and the Republic of Iraq.

Because of Turkey's increasing need for diversified energy sources, since 1987 BOTAŞ has expanded its original purpose of transporting crude oil through pipelines to cover natural gas transportation and trade activities, therefore becoming a trading company.

BOTAŞ's monopoly rights on natural gas import, distribution, sales and pricing that was granted by the Decree of Natural Gas Utilization No. 397 dated February 9, 1990, were abolished by the Natural Gas Market Law. The Law covers import, transmission distribution,

storage, marketing, trade and export of natural gas and the rights and obligations of all real and legal persons related to these activities.

BOTAŞ undertakes on its activities as a major market player pursuant to the Natural Gas Market Law No. 4646.

BOTAŞ has Natural Gas Purchase Agreements with 5 countries; among these 5 countries 2 of them are LNG agreements.

Purchase Agreement	Date	Operation Date	Duration	Completion
Russia (Westward)	February 1986	June 1987	25	June 2011
Algeria (LNG)	April 1988	August 1994	20	April 2014
Nigeria (LNG)	November 1995	November 1999	22	December 2021
Iran	August 1996	December 2001	25	October 2026
Russia (Black Sea)	December 1997	February 2003	25	2028
Russia (Westward)	February 1998	Marc 1998	23	August 2021
Turkmenistan	May 1991	1991	30	2021
Azerbaijan	March 2001	July 2007	15	July 2022

Natural Gas Production of Turkey is 793,4 mcm in 2011. Average daily production is 2,17 mcm. Production can only satisfy %2 of the consumption. Natural Gas import in 2011 was 43.874 mcm and it is expected to be 48.500 mcm in 2012. Botaş sold 39.838 mcm Natural Gas in 2011. When we examine the figures, the role of BOTAS and agreements done by the Corporation has a major effect on electricity prices of Turkey, as in 2011 Total Thermal Power Plant share in Electricity Production is %75.13, with a production of 171.626.94 GWh, and Natural Gas has %44.71 share among this %75.13.

D. SECTOR ANALYSIS:

1) GEOTHERMAL ENERGY

a) LEGISLATION

The legislation of Geothermal Energy is governed by the Law on Geothermal Resources and Mineral Waters 6/3/2007 dated 5685 numbered. The main purpose of this Law is to set forth the rules and principles for rightful ownership of the resources, during the exploration and operational periods of the geothermal and natural mineral water resources and further examinations by competent authorized.

First of all, according to our law system, geothermal resources and natural mineral waters shall be under the governance and execution of the State. It means that they are not inclusive of the land ownership rights. It is mandatory to obtain a License per the hereby Law in order to carry out operations pertaining to the resource.

- **Exploratory License Process**

  Applications for exploratory licenses not exceeding five thousand hectares shall be submitted to the administration by the interested party, with a 1:25000 scale exploration project map including the name of the plot and the coordinates. According to the Law, the right of priority shall form the basis of applications.

  - **Duration :** The duration of the exploratory licenses are three years.
  - **Extension :** In the event of the operations progressing positively and requiring additional works, a revised project schedule shall be submitted and if the Administration finds it acceptable, the duration may be extended for another year and a notice of such extension shall be given to General Directorate of Mining Affairs herein after referred as MIGEM.

  During exploratory license period, production shall only be carried out for testing purposes and on condition that the Administration is informed and that the environment is not be polluted.

- **Operating License Process**

In the event of the exploratory license holder submitting an application to the administration for operating license along with an operating project prior to the expiration date of the current exploratory license, an "operating license" shall be issued to the applicant and MIGEM shall be notified, along with blocked areas determined, if any.

The operating license holders shall be liable to obtain the required permissions from the relevant institutions in order to initiate operations.

In the event of the operating license holder not starting operations within the specified duration or in the event of the operating license being revoked for any reason, the guarantee shall be recorded as revenue and the site shall be placed for a bid tender by the administration. Of the bidders who participate in the tender with their operating projects, the bidder with the highest revenue proposal to the administration shall be granted the operating license and.

Renewals of any wells included in the project, increasing the quantity or capacity of any wells, injection, re-injection, all drilling operations for production purposes, along with other project amendments and revisions shall not be carried out without the consent of the administration. When necessary, the administration may request evaluation from MTA; provided that the cost is covered by the administration.

The duration of the operating licenses are thirty years. If the license holder requests an extension at the end of the license term, the duration shall be extended in ten year interval periods. MIGEM shall be notified of the time extensions.

- **Technical responsibility and activity report**

Throughout the duration of exploration and operating licenses, it is mandatory to have the operations carried out under the supervision of an engineer with a relevant degree. In the event of carrying out operations without a technical supervisor, the guarantee of the license shall be recorded as revenue and operations shall be ceased.

- **Inspection of Operations**

Operations shall be inspected annually by the Administration.

- **Transfer, registry, bid tender, fees, guarantee and Administration's share**

Exploration and operating licenses are transferable.

Licenses that are dropped, abandoned or neglected may be opened to exploration & operations by the Administration via bid tenders.

1000 Turkish Liras shall be collected for geothermal resources and 500 Turkish Liras shall be collected for natural mineral waters, as exploration licensing fees. The operating license fees shall be four times these amounts.

Based on the licensing process, a license guarantee in the amount of 1% of the licensing fees per hectare shall be collected.

Administration's share, which is 1% of the gross proceedings of the facilities where the liquid is directly and/or indirectly utilized, shall be paid to the Administration on an annual basis, by the end of the June.

In the event of the rights holder not depositing the fees and guarantees within 15 days upon notification of the application acceptance, he/she is considered to have forfeited the request.

- **Easement and Expropriating**

In the event of the exploratory license holder not reaching consent with the owner of the real estate where the exploratory operations shall take place, the license holder may apply to the Administration and request exercise of the easement rights.

During the operating license period, in the event of not reaching consent with the owner of the land, the license holder may apply to the Administration and may request exercise of expropriating or easement rights.

The expropriated real estate shall be registered to the deed under the administration's name, and shall be assigned to the name of the license holder for the duration is of licensed operations.

- **Establishment of pledge, confiscation, provisional injunction and lien**

Integral parts pertaining to the production of the resource, such as wells, all types of facilities, equipment, water conveying pipelines and systems, tools along with other annual operating material that are required for the operation of the licensed area may not be severally confiscated nor can they have provisional injunctions established, however, in case of a full transfer it can be possible to establish confiscation and provisional injunctions. In the event of a decision to establish provisional injunction on all of them or to conduct sale by execution, the operations of the business shall not be interfered.

b) MARKET IN TURKEY

Turkey is a rich country with regards to geothermal resources since it is located on a tectonically active region. There around 1000 natural outflows with different heat levels all around the country.

Geothermal potential of Turkey is estimated around 31.500 MWt, %78 of such potential is in West Anatolia. %90 of the geothermal resources of Turkey have moderate heat levels which are suitable for direct use implementations (heating, thermal tourism, mineral lode etc.) and the other %90 are suitable for indirect use implementations (electricity generation).

Turkey is one of the first five countries around the globe with respect to direct implementations of geothermal resources.

With recent developments Turkey’s geothermal capacity was increased to 5000 MWt heat energy has been obtained including the natural outflows.

According to Ministry of Energy and Natural Resources,

- Number of fields suitable for electricity production reached from 16 in 2002 to 25 in 2017.
- While 500.000 m2 of greenhouses were heated from geothermal energy in 2002, 3.931.000 m2 greenhouses were heated with geothermal energy in 2017.
- Residential heating with geothermal energy has increased from 30.000 RE in 2002 to 114.567 RE in 2017.
- Electricity generation from geothermal energy has increased from 15 MWe in 2002 to 860 MWe in 2017.
- Geothermal heat capacity has increased from 3.000 MWt in 2002 to 15.500 MWt in 2017.

c) PRIVATIZATIONS

According to government sources, due to privatization policies implemented in recent years, installed direct use capacity and installed power capacity have been striking % 160 and % 800 respectively.

Privatization announcements can be followed from the website of the Privatization Administration(http://www.oib.gov.tr/T%C3%BCrk%C3%A7e/Kategoriler/Tum_Kategori_Uyeleri.html).

Tender process is regulated under the Privatization Administration Tender Regulation ('Tender Regulation'). According to Article 8 of the Tender Regulation, a tender specification indicating all of the conditions of such tender shall be issued by the Administration. Conditions to apply the tender, documents to be submitted to the Administration, contractual penalties, dispute resolution, the amount and form of the tender warranty and performance warranty shall be indicated herein.

As per the Article 16 of the Tender Regulation, procedure of the announcement of the tender shall be determined by the tender committee. The announcement shall be made fifteen days beforehand.

According to Article 24 of the Tender Regulation following methods may be applied to privatization tenders subject to decision of the head of the Administration;

- Sealed bid method;
- Quota and bid request method,
- Open bid method,
- Restricted procedure method,
- Competition method.

Main reasons before preferring to enter into privatization tenders for an already operating power plant instead of making a greenfield investment, are the high cost and complicated license procedures thereof.

2) NUCLEAR ENERGY

a) LEGISLATION

The legislation of Nuclear Energy is shaping mainly under the international agreements and the 9/11/2007 dated 5710 numbered "*Law on Installation and operation of the nuclear power plants and sales of energy*".

Law on Operating of Boron Salts, Trona, Asphaltite Minerals, Nuclear Energy Raw Materials Mines and Return of The Lignite And Iron Sites is another legislation regulating the operation of important raw materials with respect to nuclear energy such as uranium.

There are plenty of international agreements on nuclear energy that Turkey is party to. They can be listed as follows;

International Convention on the Prevention of Nuclear Terrorism (INSANT); is one of the key international regulations aimed to meet security, and non-proliferation conditions at exploiting nuclear energy. It was signed in 2012.

Partial Nuclear Test Ban Treaty is a 1963 dated international treaty which was signed in 1996 by Turkey. This agreement prohibits all kinds of nuclear experiments that will cause explosions.

Nuclear Security Convention is an agreement that aims to build nuclear security in the community and protection of people. This agreement was signed in 1995

Treaty on the Non-Proliferation of Nuclear Weapons is an s an international treaty whose objective is to prevent the spread of nuclear weapons and weapons technology,

Agreement on Implementation of the Security Audit with respect to NPT between IAEA and Turkey,

Paris Convention on Nuclear Third Party Liability is a special international regime for nuclear third party liability is necessary since ordinary common law is not well suited to deal with the particular problems in this field,

Convention on Early Notification of a Nuclear Accident is a 1986 International Atomic Energy Agency (IAEA) treaty whereby states have agreed to provide notification of any nuclear accident that occur within its jurisdiction that could affect other states,

Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency,

Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention,

Convention on Nuclear Safety is a 1994 International Atomic Energy Agency (IAEA) treaty that governs safety rules at nuclear power plants in state parties to the Convention,

Comprehensive Nuclear-Test-Ban Treaty (CTBT) is a multilateral treaty that bans all nuclear explosions, for both civilian and military purposes, in all environments,

2004 Protocol to Amend the Paris Convention,

Statute of the International Centre for Synchrotron Light for Experimental Science and Applications in the Middle East,

Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management,

Convention on the Prevention of Nuclear Terrorism.

In addition to pledging to use the nuclear energy for peaceful purposes according to such international agreements, with the ratification of the Treaty on the Non-Proliferation of Nuclear Weapons in March 1980, Turkey has also pledge not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices.

Further internal legislation regarding the nuclear energy will be enacted through adaptation of the aforesaid international regulations.

b) MARKET IN TURKEY

In Turkey there are no active Nuclear Power Plants operating at the moment but there are two plants under construction, one in Mersin(Akkuyu) and other in Sinop.

According to the statements of the incumbent Turkish President Recep Tayyip Erdoğan; there will be two Nuclear Power Plants in Turkey until 2023 which will be the 100th anniversary of the Republic of Turkey.

Actually historically, since 1970 various attempts have been made to start the Nuclear Power Plant phase in Turkey but none of them was finalized. The said reasons of those unsuccessful attempts were the short-termed governments. According to the farsighted energy schedule of Turkey, it was seen that the energy requirement of the country was increasing and the energy production would not be enough without a Nuclear Power Plant in 2020. Still, after the implementation of Law on Construction and Operation of Nuclear Power Plants and Energy Sale (Law No: 5710, dated 20.11.2007), the process fastened.

Therefore, the works for a new Nuclear Power Plant has been started in 2011 accordingly to the agreement signed with Russian Federation. It is planned to finish the project until 2022 and introduce the plant.

Another Nuclear Power Plant project in Turkey is the Sinop Nuclear Power Plant Project. This project is a Japanese-French mutual design. Its expected to finished in 2028. Both projects will be explained in detail below.

Pursuant to the law TAEK (The Turkish Atomic Energy Authority) the authority of Nuclear Power Plants in Turkey, is responsible for setting the criteria to be met by investors who will construct and operate nuclear power plants.

c) NUCLEAR ENERGY PROJECTS

Akkuyu Nuclear Power Plant Project: The power plant is already under construction at Akkuyu, Büyükeceli, Mersin Province, Turkey. The Akkuyu NPP project will have 4 power units with capacity of 1200 MW each. Akkuyu NPP is an NPP-2006 serial project based on the Novovoronezh NPP-2 (Russia, Voronezh region). The service life of Akkuyu NPP is 60 years. Slightly enriched uranium dioxide serves as the fuel.[10]

The power plant is being constructed under the BOO (built-own-operate) model by Akkuyu Nukleer Joint Stock Company (Akkuyu Nükleer Anonim Şirketi). The company is mostly owned and financed by Russian companies.

Major construction works has started in March 2018. First power unit is expected to be in operation in 2023. Other three units will be in operation by the end of 2025.

Sinop Nuclear Power Plant Project: The power plant is being planned to be built in Sinop Province, Turkey. The contract under which the project will be applied is based upon BOT (built-operate-transfer) model. The project will be carried out by Atmea, a joint consorsium between Japanese Mitsubishi Heavy Industries and French Areva.

The project is planned to be taken into operation by 2023.

3) THERMAL ENERGY BASED ON FOSSIL FUELS

a) LEGISLATION

In general, power plants based on coal and natural gas are subject to Electricity Market Law and Electricity Market Licensing Regulation. Therefore, standard processes of preliminary license and license application are also applied to such power plants.

During the preliminary license period, the capital of the applying company shall be increased to % 5 of the total investment amount of generation facilities, respectively. Such proportion shall be applied as % 1 for coal-fired and nuclear power plants. On the other hand, for license application, the capital of the company shall be increased to % 20 of the total investment amount for generation facilities. Such proportion is % 5 for coal-fired and nuclear power plants.

Environmental impact assessment report for power plants based on domestic coal must be obtained during the preliminary license period. For other power plants such report must be submitted with the preliminary license application.

It should be noted that during the preliminary license period share transfers, other than the exempted ones in the Article 57 of the Electricity Market Licensing Regulation are prohibited. Additionally, legal persons applying for preliminary license shall be incorporated as joint stock or limited liability company. Shares of the joint stock companies apart from stock exchange securities, shall be registered.

[10] http://www.akkunpp.com/npp-2

b) MARKET IN TURKEY

Electricity generation based on coal and natural gas still holds the biggest share in the electricity generation of Turkey. According to Ministry of Energy and Natural Resources, there are 40 coal based and 288 natural gas based power plants in Turkey[11]. % 49,6 of the total installed capacity was based on coal and natural gas in 2017 and these facilities produced % 70 of the total electricity production in the period of January-March 2018.

c) PRIVATIZATIONS

List of the power plants privatization of which have been finalized is as follows,

Privatized Power Plant	Capacity	Transfer Date	Transfer Price
Seyitömer Coal Fired Plant	600	2013	2.248 Mn $
Kangal Coal Fired Plant	457	2013	985 Mn $
Hamitabat Natural Gas Cycle Plant	1.156	2013	105 Mn $
Yatağan Coal Fired Plant	630	2014	1.091 Mn $
Kemerköy Ve Yeniköy Coal Fired Plant and Kemerköy Port Area	1050	2014	2.671 Mn $
Çatalağzi Coal Fired Plant	300	2014	350 Mn $
Orhaneli Ve Tunçbilek Coal Fired Plant	575	2015	521 Mn $
Soma B Coal Fired Plant	990	2015	685,5 Mn $

[11] http://www.enerji.gov.tr/en-US/Pages/Electricity

Power plants that are considered to be included in the privatization program may be followed from the Privatization Administration's website.

4) HYDROELECTRIC ENERGY

a) LEGISLATION

For hydroelectric power plants, the main law are as follows:

- Law On Utilization Of Renewable Energy Sources For The Purpose Of Generating Electrical Energy numbered 5346
- Energy Efficiency Law numbered 5627
- Law On Approval of Participation to Kyto Protocol to the United Nations Framework Convention on Climate Change
- Electricity Market Law numbered 6446

The main point that must be taken in to consideration for investors different from other power plant project is that the inventors wishing invest into a hydroelectric project must execute Water Utilization Right Agreement with General Directorate of State Hydraulic Works.

Procedures set forth in Electricity Market Licensing Regulation are also applied to hydroelectric power plants.

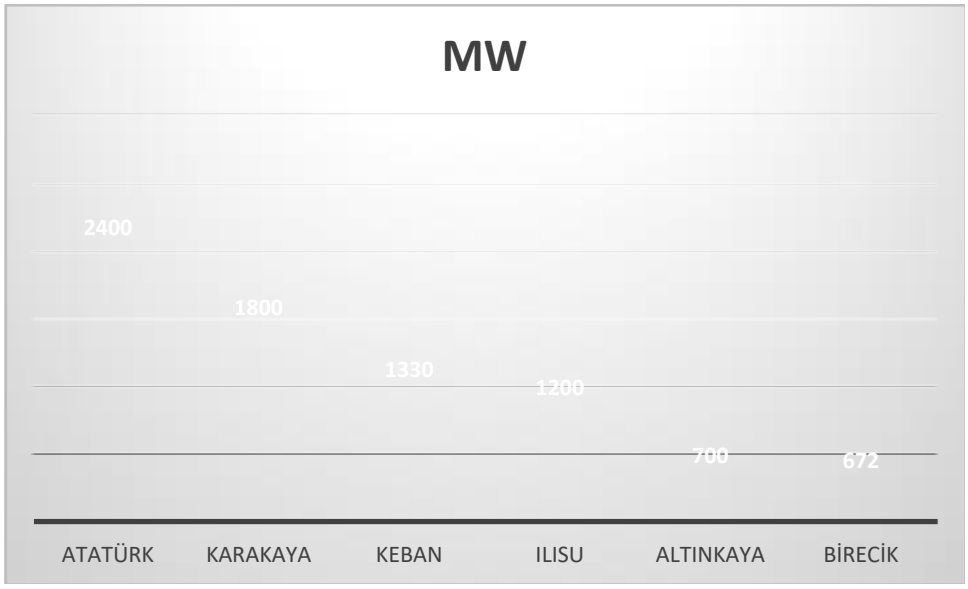
b) MARKET IN TURKEY

According to Ministry of Energy and Natural Resources %28 of the installed power was based on hydraulic power in 2017. Hydroelectric power plants produced %18,7 of the total electricity production in the period of January-March 2018.

Contrary to general perception Turkey is not a rich country with respect to fresh water resources. Fresh water per capita is % 80 less than the water rich countries of the Northern Europe and North America. Fresh water per capita is around 2000 cubic meter. As a result of this fact, propriate use of fresh water resources is essential for a sustainable water policy.

Turkey's big hydraulic energy potential does not come from rich water resources. Such potential is a result of the Turkey's mountainous landscape. So far installed capacity of hydraulic power plant is around 27.457 MW.

A graphic showing the installed capacity of the most significant hydraulic power plants in Turkey can be found below.



c) PRIVATIZATIONS

List of the power plants privatization of which have been finalized is as follows,

Privatized Power Plant	Capacity	Transfer Date	Transfer Price
57 Adet Küçük Hes	280	2008 -2014	957 Mn $
Karacaören 1 Ve 2 Hes	78	2016	515 Mn $
Manavgat Hes	48	2016	370 Mn $
Fethiye Hes	17	2016	128,025 Mn $
Kadıncık 1 Ve 2 Hes	126	2016	864,1 Mn $
Doğankent, Kürtün and Torul Hes	263	2016	1.225,1 Mn $
Şanlıurfa Hes	51	2017	247,5 Mn $
Adıgüzel and Kemer Hes	110	2017	324,1 Mn $
Almus, Köklüce Hes	117	2017	750,5 Mn $
Yenice Hes	38	2017	130,3 Mn $

Suçatı, Değirmendere, Karaçay and Kuzuculu Hes	8,2	2017	30,5 Mn $
Anamur, Bozyazı, Mut-Derinçay, Silifke Ve Zeyne Hes	2,8	2018	9,04 Mn $
Menzelet Ve Kılavuzlu Hes	178	2018	1.276 Mn. $

5) SOLAR ENERGY

a) LEGISLATION

Electricity generation based on solar energy is regulated in Electricity Market Law, Law on Usage of the Renewable Energy Sources in the Electric Production Process (YEK), Electricity Market Licensing Regulation, Regulation on Unlicensed Electricity Generation in Electricity Market.

b) MARKET IN TURKEY

Solar energy is a newly growing market in Turkey. Turkey has a high potential in solar energy. % 1.3 of the electricity generation was based on solar energy in the first quarter of 2018. With the realization of the new investments, this ratio is expected to increase in near future.

c) LICENSED ELECTRICITY GENERATION

In general, procedure of licensed electricity generation is regulated under Electricity Market Licensing Regulation ('**License Regulation**').

According to Electricity Market Licensing Regulation, legal persons wishing to generate electricity based on solar power must apply to Energy Market Regulatory Authority ('**EMRA'**) for preliminary license with the certain documents specified in License Regulation.

As we mentioned above, candidate legal persons shall be incorporated as Limited Liability or Joint Stock Company in accordance with the Turkish Commercial Code numbered 6102. Additionally, shareholders, managers and members of the board of directors of the candidate company shall not be restricted persons specified in the Article 5 of the Electricity Market Law.

Candidate company must also a certain amount of warranty to be determined in proportion to the capacity of the solar power plant. In addition, During the preliminary license period, the

capital of the applying company shall be increased to % 5 of the total investment amount of solar power plant, respectively.

Licensing fee must be paid to EMRA.

EMRA announces the capacity for every connection point or region up to May, 1 annually. Applications for such capacity must be made within the first five days of November. Solar activity measurements for the site on which the solar power plant will be built must be included to application documents. Such measurements must be contained the values of the last five years.

Technical assessment of the project is made after the application by General Directorate of Renewable Energy. If such assessment is concluded positively, EMRA shall request the opinion of Turkish Electricity Transmission Company ('**TEIAS'**) and/or the distribution licensee in the distribution region wherein the generation facility is located, regarding the connection to the transmission and/or distribution system and system use by the generation facility to be constructed.

In case technical assessment is concluded negatively or opinion of TEIAS is not in favor of the project, the applications will be rejected. If all of the conditions set forth in the Licensing Regulation is met, preliminary license shall be granted to the candidate.

During the preliminary license period following conditions shall be provided by the preliminary licensee;

a. Preliminary licensee shall obtain the ownership or usage right of the relevant site,
b. Environmental Impact Assessment decision shall be submitted,
c. Approval of the zoning plans shall be obtained,
d. Preliminary project, project, and final project approvals must be obtained from the relevant authority in connection with the facility to be constructed,
e. Application shall be made to TEIAS in order to execute the connection agreement,
f. Building permit shall be obtained, and
g. Solar Power Plant Contribution Agreement shall be obtained.

Individuals providing abovementioned conditions shall be entitled to obtain generation license. Construction period and planned installed capacity of the power plant shall be indicated in the license.

Power plant is deemed to be completed with the finalization of the provisional acceptance procedure.

d) UNLICENSED ELECTRICITY GENERATION

Unlicensed electricity generation is an exclusive system based on the use of renewable energy resources which provide the electricity subscribers with the chance to produce their own electricity and to sell the surplus in accordance with the conditions envisaged within the Unlicensed Electricity Generation Regulation.

Electricity Market Law is the main legislation for the activities related to electricity market in Turkey. Unlicensed electricity generation is regulated under the Article 14 of the Electricity Market Law. Generation facilities based on wind and solar power resources, (i) which have the installed capacity of maximum one (1) MW, or (ii) which utilize all of their generated energy without supplying the produced energy to the grid and which utilize their generation and consumption at the same location, may generate electricity without obtaining a license.

There are two different legislation regulating the unlicensed generation as secondary legislations: Unlicensed Electricity Generation Regulation and the Communiqué on Unlicensed Electricity Generation. Along with the Article 14 of the Electricity Market Law, Article 5 of the Unlicensed Electricity Generation Regulation and Article 4 of the Communiqué on Unlicensed Electricity Generation envisaged the same conditions with respect to the unlicensed generation and establishing a company in order to generate electricity and lists the generation facilities that may be benefited from such exemption.

In principle, every person or legal entity is entitled to construct an unlicensed electricity generation facility with the condition that such person is an electricity subscriber. In relation to installation of capacity of maximum one (1) MW facilities mentioned in (i), principally, only one (1) generation facility up to one (1) MW based on renewable energy sources can be established per each consumption point represented by an electricity subscriber. Provided, however, that the relevant distribution system has enough capacity, more than one (1) generation facilities with total capacity under one (1) MW, may be established for each consumption point.

It should also be noted that the the power generation and consumption points are required to be in the same distribution zone.

In principle, the objective of the unlicensed electricity generation is limited to electricity generation only for the needs of the relevant consumption facility. On the condition that the surplus energy generated from wind and solar energy resources, such energy can be sold back to the relevant distribution company for a period of ten (10) years, at the price of the Renewable Energy Sources Support Mechanism[12], envisaged under the Renewable Energy Law. In addition, utilization of domestic equipment and materials for solar and wind energy facilities is incentivized by Renewable Energy Support Mechanism.

Unlicensed electricity producers shall not be entitled to sell such surplus energy by concluding separate agreements with the third parties. Unlicensed producers right to sell the surplus energy is only limited to the relevant distribution company.

[12] Yenilenebilir Enerji Kaynakları Destekleme Mekanizması (YEKDEM).

6) WIND POWER

a) LEGISLATION

The wind power energy industry in Turkey was pretty calm until 2005 since the 5346 numbered *Law on Usage of the Renewable Energy Sources in the Electric Production Process (YEK)* came out. This law regulated the renewable energy industry in the country and according to the first article of this law the purpose of the law is explained as above;

"The purpose of this law is; the expansion of the use of renewable energy sources for electric energy production, the improvement of the manufacturing sector which is needed in order to make these resources economical in a reliable, economical and quality way, to increase resource diversity, to reduce greenhouse gas emissions, to evaluate wastes,"

This law provides a system named "YEKDEM" which is a state support mechanism for renewable energy. The details of this system are explained under the title of "YEKDEM" in the page.

As explained before, the Minister of Energy and Natural Sources Berat Albayrak declared previously that YEKDEM project will not be active anymore further after 2020. He added that this project was very effective for the last 15 years in Turkey but a system that will support all parties effectively would be more effective on the sector.

b) MARKET IN TURKEY

Turkey has 81 555 MW of licensed, 3645 MW of unlicensed, and 85 200 MW in total installed power as of the date 01.01.2018. When comparing the installed power of 2016-2017 by source, the type of welding which shows the highest increase in installed capacity is Wind and Imported Coal Power Plants.

Actually, the renewable energy market in Turkey was almost nonexistent before 2005. With the project of YEKDEM, the sector succeeded big growth in last 20 years.

c) YEKDEM

YEKDEM is a state-based support project for the renewable energy sector in Turkey. It is subject to the 5346 numbered law. It was basically created to support the private sector energy investors for the development of renewable energy sector in the country.

It is specially created in order to make the building of renewable energy power plants attractive in the sector.

In short terms, with this project, the investors that have set up an energy plant that works with water, solar system, wind power, geothermic or biomass energy can buy electric cheaper on fx rate for 10 years from the first set up of the installed power.

The prices are published every year by EPDK. The unit YEKDEM prices for 2018 are published as below by the EPDK;

Type of production (additions will be made for every 5 years according to the 5346 numbered law)	**Price to be applied (ABD Dollar cent/kWh)**
Hydroelectric production plant	7,3
Wind energy production plant	7,3
Geothermic production plant	10,3
Biomass production plant	13,3
Solar production plant	13,3

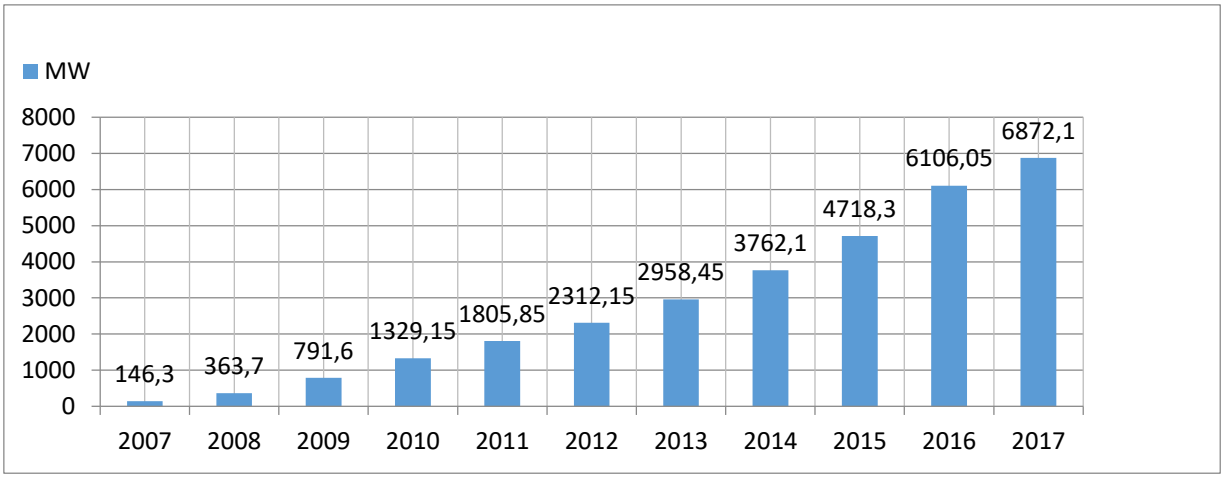
Applications will be made for the next year until 31 October with the application form published by the EPDK. The applications will be also made to EPDK.

The power plants that were installed before 2005, can also apply for YEKDEM. Also, both licensed and unlicensed electricity plants can apply for YEKDEM. The remaining time of it is 10 years after becoming the YEKDEM certification.

YEKDEM was created in 2005 with the 5346 numbered law and according to the statements of the Energy and natural resources minister Berat Albayrak, it will end in 31/12/2020. According to the minister's statements, it is needed to give equal opportunities to all players in the sector and this is the reason why YEKDEM will not go further.

It can be said that in 15 years this project caused a big growth especially in hydraulic, geothermic and wind power energy sector in country. Still lot of criticism was made that it was causing rise of prices and disorder in the sector. Still it is a good opportunity for the renewable energy investors in Turkey. Therefore this project welcomed many investor subjects al around the world to the country.

YEKDEM was actually an entrance to the renewable energy sector in Turkey and the industry of wind power developed parallel with the renewable energy sector. Related to it, the numbers of wind power plants in the country are as below;



[13]

According to the governmental reports[14], the total wind power energy in 2017 was 6872 MW and the %62 percent of the new installed power in 2017 was by the renewable energy sources. Still compering to the other renewable energy investments, wind power was much more under the hydraulic energy power plants which were about 27.273 MW in 2017. Still wind power investments are higher than geothermic (1028 MW in 2017) and solar (2653 MW in 2017) energy plants. Compering to international market, Turkey was in the 7th place for new wind power investments in 2017 among the international area. Actually, latest years were milestones for wind power plant investments and according to the ministers wording, this kind of governmental support might not be found after 2020.

The energy minister mentioned; "Even the YEKDEM will not be continuing, the YEKA project will be proceeding". YEKA project consist energy investment areas that the state will provide with special requirements. The difference between the YEKA concept and other licensed or unlicensed investments of the market is that it has installed power in high scale / volume connected to domestic equipment production conditions. YEKA includes an wind YEKA project which is a 1000MW worth project.

YEKA includes provisions to support the domestic production in the country. According to "the Regulation of YEKA" the project has to be %65 percent domestic. This provision provides new developments in the country. For example, since %65 of the wind tribunes have to be domestic, a need of domestic wind tribune factory

Related to WindEurope and GWEC reports Germany takes the first place in Europe in with 50.019 MW installed wind power, Spain takes the second place with 23.075 MW, England takes third place with 14.542 MW and in this list, Turkey is in the 7th place with 6106 MW installed wind power.

On the other hand, the wind power potential of Turkey was calculated as 48.000 MW by the energy ministry. The total area corresponding this potential value is the %1.30 percent of Turkey. In this regard some cities in the country are critical for wind power potential and the most critical city is İzmir which consists %19 percent of the installed wind power in the country.

[13] Turkey Wind Energy Assosiation statistics report january 2018
[14] YEGM birim faaliyet raporu 2017

The directorate of renewable energy of the ministry publishes the energy potentials of the cities[15]. Some of the potential cities are as below with the potential values;

İzmir

Wind power in 50m (W/m^2)	Wind speed in 50m (m/s)	Total space (km^2)	Total installed power (MW)
300-400	6.8-7.5	933,09	4.665,44
400-500	7.5-8.1	868,30	4.341,52
500-600	8.1-8.6	317,68	1588,40
600-800	8.6-9.5	251,78	1258,88
>800	>9.5	0,02	0,08
		2.370,86	**11.854,32**

Çanakkale

Wind power in 50m (W/m^2)	Wind speed in 50m (m/s)	Total space (km^2)	Total installed power (MW)
300-400	6.8-7.5	863,70	4.318,48
400-500	7.5-8.1	802,99	4.014,96
500-600	8.1-8.6	761,09	3.805,44
600-800	8.6-9.5	174,74	873,68
>800	>9.5	0,00	0,00
		2.602,51	**13.012,56**

Balıkesir

Wind power in 50m (W/m^2)	Wind speed in 50m (m/s)	Total space (km^2)	Total installed power (MW)
300-400	6.8-7.5	1.511,42	7.557,12
400-500	7.5-8.1	850,96	4.254,80
500-600	8.1-8.6	284,51	1.422,56
600-800	8.6-9.5	115,23	576,16
>800	>9.5	3,34	16,72
		2.765,47	**13.827,36**

Manisa

Wind power in 50m (W/m^2)	Wind speed in 50m (m/s)	Total space (km^2)	Total installed power (MW)
300-400	6.8-7.5	474,35	2.371,76
400-500	7.5-8.1	301,57	1.507,84
500-600	8.1-8.6	193,86	969,28
600-800	8.6-9.5	90,69	453,44
>800	>9.5	0,00	0,00

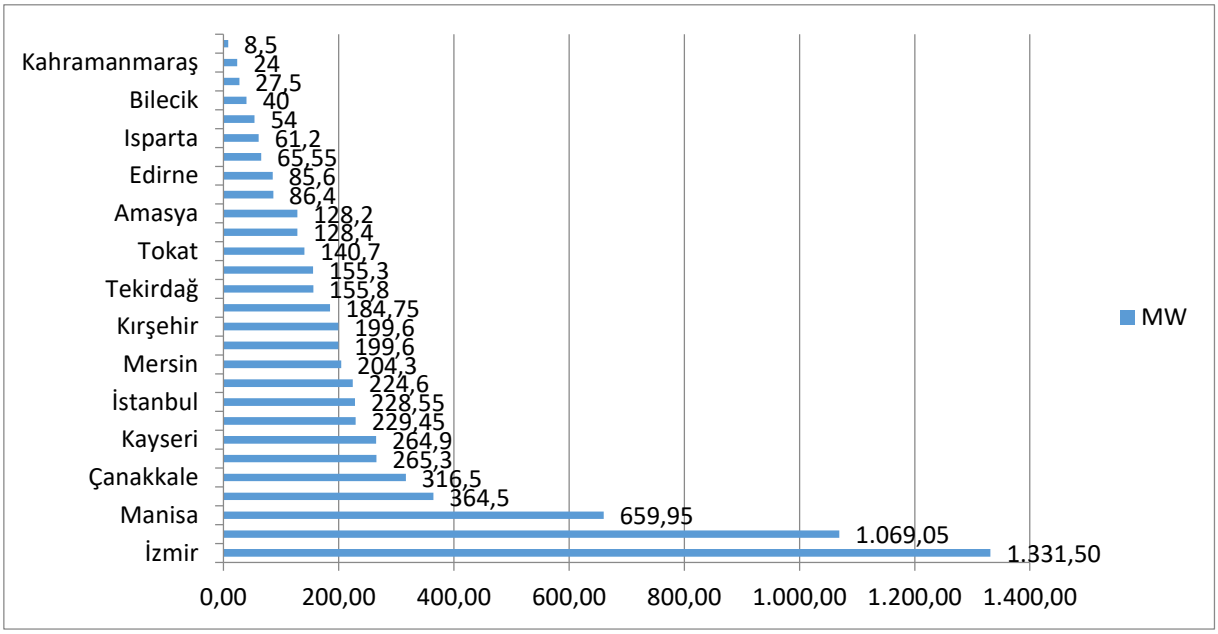
[15] http://www.eie.gov.tr/yekrepa/repa-duyuru_01.html

		1.060,46	**5.302,32**

İstanbul

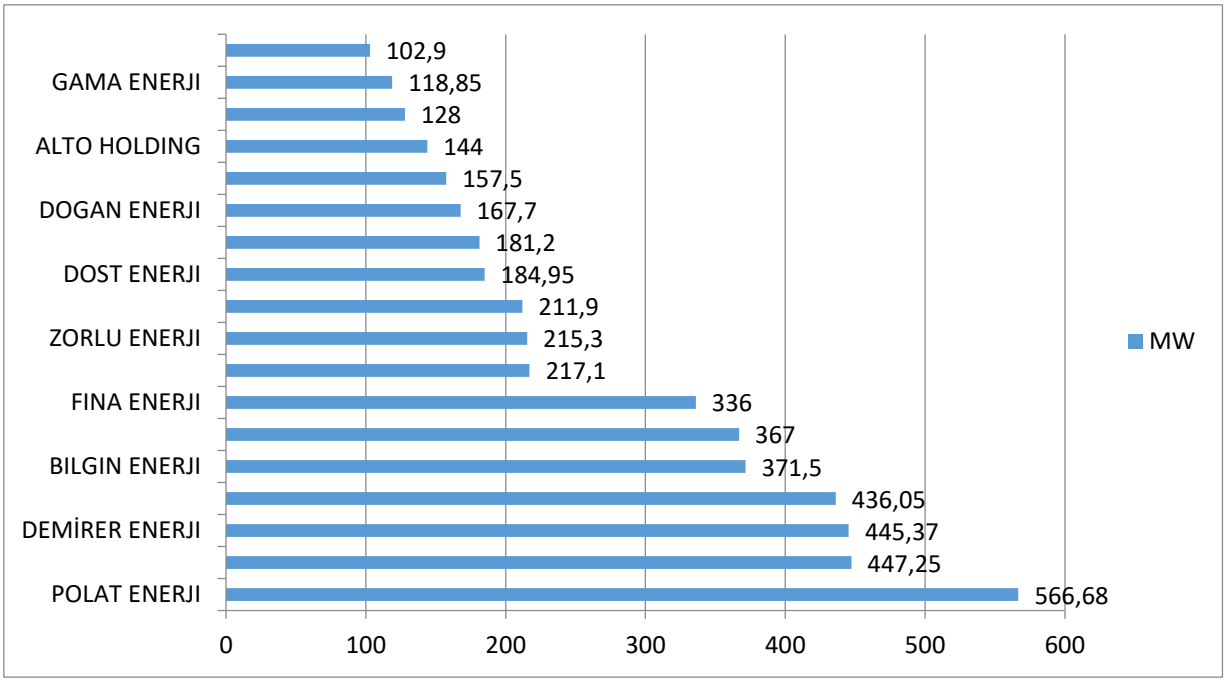
Wind power in 50m (W/m^2)	**Wind speed in 50m (m/s)**	**Total space (km^2)**	**Total installed power (MW)**
300-400	6.8-7.5	832,91	4.164,56
400-500	7.5-8.1	2,48	12,40
500-600	8.1-8.6	0,00	0,00
600-800	8.6-9.5	0,00	0,00
>800	>9.5	0,00	0,00
		835,39	**4.176,96**

According to the report that TWEA[16](Turkish Wind Energy Association) has prepared, the range of the wind power plants are as below;



The range of wind power plant investors in Turkey are as below;

[16] http://www.tureb.com.tr/en/



There are 65 licensed (2696,60 MW capacity), 39 pre-licensed (1656,50 MW capacity) wind power plants according to the data of January, 2018. 72 power plants (3170,50 MW capacity) are in the pre-license process and also 26 wind power plants (552,78 MW capacity) are under construction. In total 164 plants (6872,10 MW capacity) are active.[17]

The wind power plants are also subject to electricity license mentioned in the 6446 numbered law. Still there are also exceptions for install of unlicensed wind power plants.

In the 6446 numbered electricity market law, the unlicensed electricity generation activity is explained in the 14th article. According to this article, the producers that produce less than 1MW wind energy can work unlicensed. Every person who has electricity subscription has the right to install a wind power plant.[18]

E. RESERVATIONS

We have the following reservations;

[17] TWEB January 2018 wind power statistics report

- We have not undertaken any investigation of governmental records or other public records and have relied on the referred legislation and documents provided to us are accurate and up to date;
- This legal opinion is prepared only with respect to circumstances existing on the date hereof.

This legal opinion is prepared solely for the Client's benefit and is not to be relied upon by any other person or for any other purpose without our consent.

Please do not hesitate to contact if you have any questions or comments on this legal opinion or need any further clarifications in regard to the subject matter of this legal opinion.

SARIİBRAHİMOĞLU LAW OFFICE

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