



**EPIAŞ**

Turkish Energy  
Exchange

**ANNUAL REPORT**  
**2019**



1 JANUARY 2019 - 31 DECEMBER 2019

This annual report was submitted to the General Assembly for approval as per the decision taken at the Turkish Energy Exchange Board of Directors Meeting dated February 21, 2020.

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## CHAIRMAN'S MESSAGE

Energy is an essential element of development and welfare. The Ministry of Energy and Natural Resources cooperates with the private sector and various institutions and organizations in every field from agriculture to industry and from healthcare to housing to ensure that high-quality energy is offered sufficiently, continuously and economically without harming the environment.

Turkey saw significant developments in energy in 2019. Several energy projects have considerably improved supply security, including TANAP, the most crucial component of the Southern Gas Corridor that will shape the future of energy in Turkey and in Europe, as well as TurkStream and other natural gas infrastructure projects. Turkey has also taken important steps in renewable energy. Electricity generation from domestic and renewable sources rose above 60 percent for the first time in 2019. Further efforts are being made to ensure that this success is maintained. In addition to ensuring the security of energy supply, these investments allow Turkey to fulfill its objective of becoming a regional trade hub.

EPIAŞ maintains its market operations to make the energy sector more effective, transparent, and sustainable. We follow the latest trends, improve our operations with the latest technologies and approaches, and continue to develop new products and services in line with the needs of the sector.

The National Energy and Mining Policy sets out the principal parameters of the transformation in the energy sector. EPIAŞ contributes to increasing the volume in electricity and natural gas markets to ensure a reliable market atmosphere, which is a key factor of the National Energy and Mining Policy.

Engaging in spot market operations and contributing to such markets' development, EPIAŞ also made significant efforts for the Electricity Futures Market to help market actors hedge against price risk and see price expectations for 2019. Furthermore, EPIAŞ develops new products by taking a participatory approach and effectively communicating with the sector under the leadership of EMRA and in line with the strategies developed by the Ministry of Energy and Natural Resources. The organization aims to put the Electricity Futures Market that it will develop by its own means into the service of the market and its participants in late 2020. In 2019, EPIAŞ also started to work on introducing the Gas Futures Market to its futures products with physical delivery.

This Annual Report highlights the outstanding work done by EPIAŞ in 2019. While presenting this report to our shareholders, I would like to thank all our stakeholders, primarily our market participants who help our energy market develop further.

Best regards,

**Abdullah TANCAN**

Chairman of the Board of Directors

## GENERAL MANAGER'S MESSAGE

Turkish Energy Exchange (EPIAŞ) is committed to its mission of operating and developing the Turkish energy markets in an efficient, transparent, and sustainable way, as well as its vision of becoming a global reference point for energy exchange markets. Currently, EPIAŞ operates the electricity day-ahead and intraday markets and the natural gas spot market; engages in the settlement and financial transactions of said markets; carries out the settlement of the balancing power market; and operates Renewable Energy Resources Support Mechanism (RESSUM) and conducts eligible customer transactions.

As of the end of 2019, 1199 electricity market participants and 45 natural gas market participants were registered in the markets operated by EPIAŞ. In 2019, the quantity of matching in the day-ahead market was 152 TWh. On the other hand, the quantity of matching in the intraday market was 5.45 TWh with an 86.08 percent increase over 2018. The yearly volume of transactions in the day-ahead market in 2019 rose by 17.22 percent year-on-year, reaching a total of TRY 81.69 billion. Meanwhile, the intraday market's transaction volume reached TRY 2.78 billion. Given the transaction volume in both markets, it is clear that more than 40 percent of the transactions made in the Turkish electricity market took place in the markets operated by EPIAŞ. Moreover, the yearly total matching quantity in the natural gas market in 2019 was 1,275.2 million Sm<sup>3</sup> and the total matching amount was TRY 1,882 million.

To carry out our operations more efficiently, we began serving our participants in our new campus in February.

2019 was a fast-paced year in terms of several projects that we launched to serve our participants better and to contribute to the development of the energy markets. We strived to develop the markets we operate and focused on Organization Limit Transactions, the Day-ahead Market Multi-zone, New Bid Types for the Day-ahead Market, and Non-covered Market Transactions in the electricity market, and Weekly Product in the natural gas market.

Additionally, the development of the electricity and natural gas futures market was on our agenda in 2019. EPIAŞ was designated as the operator of the Electricity Futures Market with Physical Delivery under the amendment to Electricity Market Law, dated January 30, 2019. Promoting a participatory approach, EPIAŞ has collaborated with the Turkish Ministry of Energy and Natural Resources, the Energy Market Regulatory Authority and with the sector stakeholders to establish its Electricity Futures Market (EFM). EFM intends to create a market where our participants will be able to hedge against price risk by fixing the purchase or sales prices, and see price expectations. In addition to EFM, we have started working on developing the Gas Futures Market (GFM). We made significant efforts in the Energy Markets Management System (EMMS) to give a faster, more flexible, and more modern response to the needs of the market using next-generation software infrastructure by restructuring the existing BPMMS software and data architecture.

In 2019, we have raised the amount of data sets published on our Transparency Platform from 106 to 130 as we continued our operations by acknowledging that transparency is extremely important for a reliable and sustainable market. We also conducted a Participation Satisfaction Survey to measure the satisfaction level of our market participants concerning our products and services, to identify our areas of improvement and to make necessary changes accordingly. I would like to thank our participants once more for sharing their valuable opinions and suggestions with us in the face-to-face survey. I believe that the data we derived from the survey will guide us in improving our service quality and developing new products.

In 2019, we ran projects concerning the integrated management system, the help desk and the workflow management system to improve our internal processes so that we could build up our corporate capacity and serve our participants better.

I am happy to present to all our shareholders and stakeholders the Annual Report which contains data about the operations, projects, and activities carried out by EPIAŞ in 2019. I would like to thank each of my colleagues who put their efforts into this report and with whom we have made significant achievements.

Best regards,

**Ahmet TÜRKOĞLU**

General Manager

BOARD MEMBERS



**ABDULLAH TANCAN**  
Chairman of the Board of Directors



**ALPARSLAN BAYRAKTAR**  
Vice Chairman of the Board of Directors



**TAHSİN YAZAR**  
Board Member



**MUHAMMED MAHMET ER**  
Board Member



**MUSTAFA KARAHAN**  
Board Member



**MEHMET ERTÜRK**  
Board Member



**FARUK BOSTANCI**  
Board Member

First Name and Last Name	Title	Share Group	Office Term
Abdullah Tancan	Chairman of the Board of Directors	A	22.10.2018 to Present
Alparslan Bayraktar	Vice Chairman of the Board of Directors	A	22.03.2019 to Present
Tahsin Yazar	Board Member	B	22.03.2016 to Present
Muhammed Mahmut Er	Board Member	B	18.01.2019 to Present
Mustafa Karahan	Board Member	C	12.03.2015 to Present
Mehmet Ertürk	Board Member	C	22.03.2019 to Present
Faruk Bostancı	Board Member	Independent	12.03.2015 to Present
Himmet Karadağ	Board Member	B	06.05.2016 – 22.03.2019
Ömer Demirhan	Board Member	B	01.08.2017 – 18.01.2019

COMMITTEES OF THE BOARD OF DIRECTORS

Early Detection of Risk Committee

Since November 6, 2015, the Early Detection of Risk Committee (EDRC) has been operating pursuant to Paragraph 7 of Article 9 of the EPIAŞ Articles of Incorporation, under Articles 8 and 10 of the Regulation on Organizational Structure and Operating Rules of EPIAŞ, and in line with the duties assigned to it under the Policy on EDRC Duties and Operating Principles.

In 2019, the Committee was made up of our Board Members Mehmet Ertürk, Mustafa Karahan, and Faruk Bostancı, and it was presided over by Mehmet Ertürk. The Risk Management Department carries out the secretarial works of the committee. In 2019, six Risk Reports were prepared and included on the agenda of the Board of Directors.

Audit and Compliance Committee

The Audit and Compliance Committee (ACC) has been operating since November 6, 2015, pursuant to Paragraph 7 of Article

9 of the EPIAŞ Articles of Association; Articles 8 and 9 of the Regulation on Organizational Structure and Operating Rules of EPIAŞ, and in line with the duties assigned to it under the Policy on Duties and Operating Rules of ACC. In 2019, Faruk Bostancı, Mehmet Ertürk, and Muhammed Mahmut Er were the ACC members with Faruk Bostancı being the head of the committee. The Internal Audit Department acts as the secretary of the ACC. Having convened four times in 2019, the ACC

- ▶ assessed the 2019 Audit plan and resolved to put it into effect.
- ▶ collected information about the internal audit activities carried out in 2019 and made assessments accordingly.
- ▶ evaluated and submitted the Independent Audit Report of 2018 to the Board of Directors.



### The Fourth Ordinary General Assembly of EPIAŞ

The 2018 Ordinary General Assembly of Turkish Energy Exchange convened in Istanbul on March 22, 2019.

The examination of the list of attendants revealed that the company's capital amounts to TRY 61,572,770 divided into 61,572,770 shares each with a nominal value of TRY 1, of which 49,168,785 shares were represented in person/by proxy, thus ensuring the minimum meeting quorum as stipulated by the law and Articles of Association. The general assembly was held with the participation of the Board Members Abdullah Tancan, Tahsin Yazar, Muhammed Mahmut Er, Mustafa Karahan, Faruk Bostancı, and the independent auditor, Erman Durmaz.

The General Manager, Ahmet Türkoğlu, made a presentation about our activities in 2018. The Board of Directors Annual Report, balance sheet, and income statement were unanimously accepted.

The appointment of Abdullah Tancan to the Board Member position vacated by the resigning Board Member Fatih Dönmez who represented the Group (A) shares of EPIAŞ and the appointment of Muhammed Mahmut Er to the Board Member position vacated by the resigning Board Member Fatih Dönmez who represented the Group (B) shares of EPIAŞ in 2018 were submitted to the General Assembly for approval and unanimously accepted as per the provisions of Article 363 of the Turkish Commercial Code and Article 8 of the Articles of Incorporation. It was resolved upon the voting that the Chairman and the Board Members be released from the 2018 accounts and transactions individually.

As per Resolution No. 14 at the Board Meeting No. 2019/2 dated February 15, 2019, it was decided that (1) a legal reserve fund will be set aside from the Company's net profit shown in the financial statements issued according to the Financial Legislation for the period between January 1, 2018, and December 31, 2018, pursuant to the Articles of Association and Turkish Commercial Code No. 6102; (2) of the amount remaining after subtraction of legal reserve fund, TRY 10,387,944.79 will be distributed to the shareholders in proportion to their shares; (3) the ultimately remaining amount will be reserved as extraordinary reserve fund; (4) and Board of Directors is authorized to determine the payment schedule of dividends.

Lastly, considering the opinion of the Audit and Compliance Committee, it was unanimously resolved that Güreli Yeminli Mali Müşavirlik ve Bağımsız Denetim Hizmetleri A.Ş. be appointed our Company's independent auditor to engage in auditing activities of our Company's 2019 financial reports for a period of one year, in line with the resolution at the Board Meeting on February 28, 2019.



**The 2018 Ordinary General Assembly of Turkish Energy Exchange convened in Istanbul on March 22, 2019.**





## DIRECTORS



Left to Right

**Muhammed Mahmut Er**-Board Member, **Faruk Bostancı**-Board Member, **Tahsin Yazar**-Board Member,  
**Abdullah Tancan**-Chairman, **Alparslan Bayraktar**-Vice Chairman,  
**Mehmet Ertürk**-Board Member, **Mustafa Karahan**-Board Member



**NEZİR AY**  
 Deputy Director of Market Operations



**AVNİ ÇEBİ**  
 Deputy Director of Strategy Development



**MUSTAFA KAYIRICI**  
 Director of Information Technologies



**MEHMET HALUK YILMAZ**  
 Director of Internal Control and Risk Management



**RAMİS KULAK**  
 Director of Finance and Support Services



**MUHARREM ELİŞ**  
 Legal Counsel



## ➤ EPİAŞ GENERAL INFORMATION





EPIAŞ ENERGY MARKET DATA IN 2019

Electricity Market Data

EPIAŞ Registered Market Participants	1,199
DAM (Day-ahead Market) Average MCP	TRY 260.32 per MWh
DAM Matching Quantity	152.12 TWh
DAM Trading Volume (Total of purchases and sales)	TRY 81.69 billion
IDM (Intraday Market) Matching Quantity	5.45 TWh
IDM Trading Volume	TRY 2,778.30 million
Block Sales Matching Rate	28%
Hourly Sales Matching Ratio	72%
Market Quantity Distribution: Bilateral Contracts	56.6%
Day-ahead Market	39%
Balancing Power Market	2.9%
Intraday Market	1.4%
Total Production*	281.26 TWh
Total Consumption**	280.49 TWh
Installed Capacity of the Power Plants Registered to EPIAŞ***	89,629 MW
Installed Capacity by Resource Thermal	51.50%
Hydraulic Resources	31.81%
Wind	8.47%
Solar	6.39%
Geothermal	1.65%
Other	0.19%
RERTP (Renewable Energy Resources Total Price)	TRY 38.03 billion
RESSUM Average Unit Cost	TRY 83.51 per MWh
Installed Capacity of Plants Covered under RESSUM Scheme	27,261 MW
Approximate Transmission System Loss Coefficient	2.16%
Eligible customer Limit	1,600 kWh

Natural Gas Market Data

CTP Registered Participants	45
Annual Total Number of Bids	20,533
Daily Average Number of Bids	56.3
Average Gas Reference Price (GRP)	TRY 1,479.86 per 1000.Sm <sup>3</sup>
Annual Total Market Matching Quantity	1,275.2 million Sm <sup>3</sup>
Annual Total Market Matching Amount	TRY 1,882.0 million

*\*Supply Quantity Subject to Settlement (MWh) According to indefinite data, the gross electricity generation in Turkey was 304.3 TWh in 2019.*

*\*Draw Quantity Subject to Settlement (MWh) According to indefinite data, the gross electricity consumption in Turkey was 303.7 TWh in 2019.*

*\*\*\*According to indefinite data, the total installed capacity of all power plants in Turkey was 91,267 MW as of the end of 2019.*





MISSION, VISION, AND CORPORATE PRINCIPLES



MISSION

- ▶ Operating and developing energy markets in an effective, transparent, and sustainable manner.



VISION

- ▶ Becoming a global reference point for energy markets



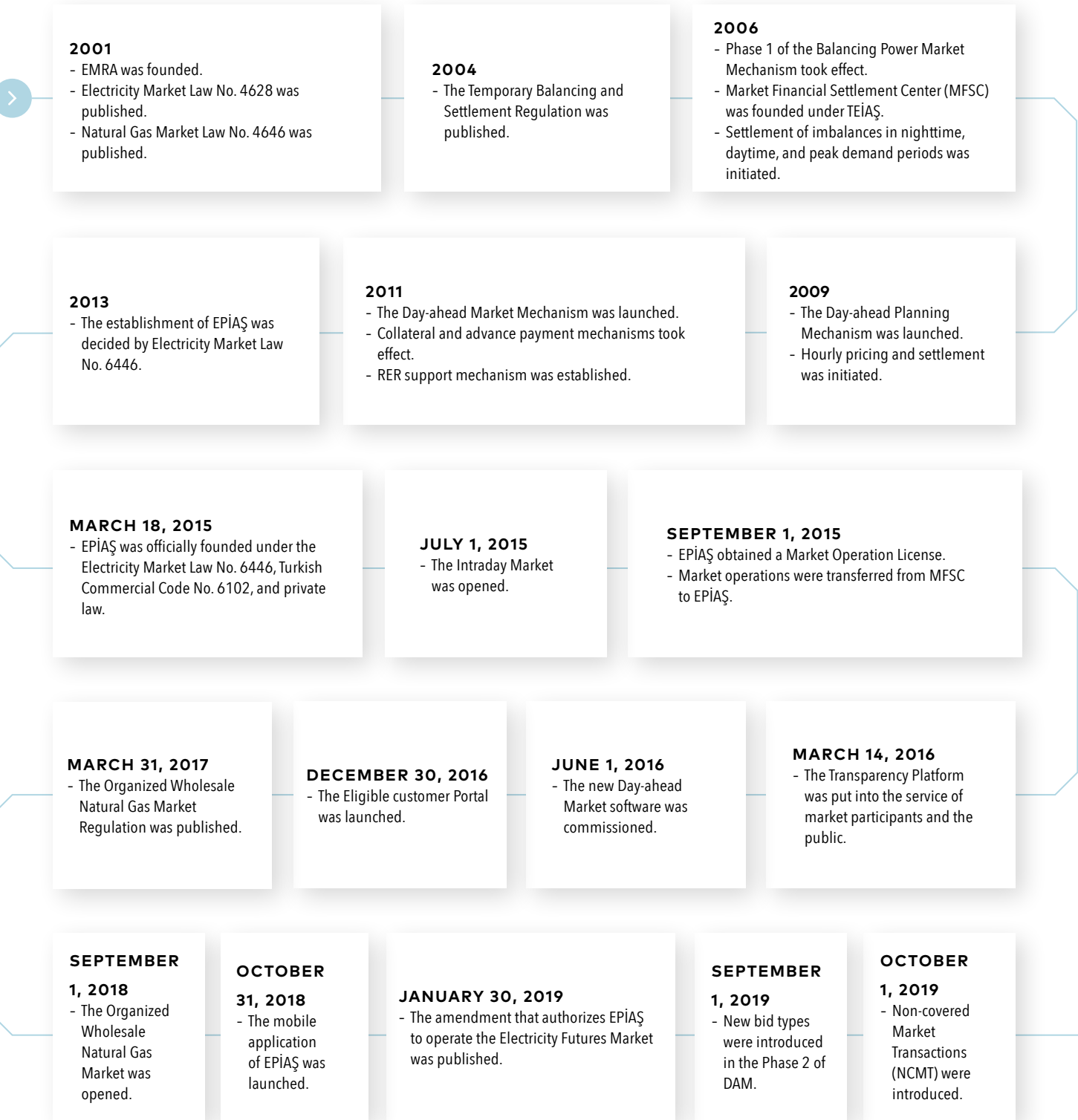
CORPORATE PRINCIPLES

- |                        |                         |
|------------------------|-------------------------|
| ▶ Fair Approach        | ▶ Participation         |
| ▶ Reliability          | ▶ Innovation            |
| ▶ Transparency         | ▶ Respect for Employees |
| ▶ Customer-orientation | ▶ Social Responsibility |
| ▶ Sustainability       |                         |

FIELD OF ACTIVITY

- ▶ Electricity Market Day-ahead Market Operations
- ▶ Electricity Market Intraday Market Operations
- ▶ Organized Wholesale Natural Gas Market Operations
- ▶ Day-ahead, Intraday, Balancing Power, and Natural Gas Markets Settlements and Financial Operations
- ▶ Organized Wholesale Natural Gas Market Settlement and Financial Operations
- ▶ Auxiliary Services Market Settlements
- ▶ RESSUM Operations
- ▶ Invoicing (Credit and Debit Notices for Market Participants)
- ▶ Eligible Customer Operations

EPIAŞ AND DEVELOPMENT MILESTONES OF ENERGY MARKETS





## SHAREHOLDER STRUCTURE

The paid-in capital of EPIAŞ is TRY 61,572,770. The company's capital is divided into 61,572,770 shares, each with a nominal value of TRY 1. Those shares are classified into three categories, namely: Group (A) representing 18,471,831 shares, Group (B) representing 18,471,831 shares, and Group (C) representing 24,629,108 shares.

EPIAŞ has not acquired any of its shares, nor has it any direct or indirect subsidiary. Group (A) shares representing 30 percent of our total shares are owned by TEİAŞ, and half of the Group (A) shares will be transferred to BOTAŞ depending on the developments in the natural gas market as per Article 7, Paragraph 1 of the EPIAŞ Articles of Association, which states that "50 percent of Group (A) shares will be transferred to the legal entity which will operate the national natural gas transmission system following the split of the Petroleum Pipeline Corporation, in compliance with the legislation." Group (B) shares that represent 30 percent of our total shares belong to Borsa İstanbul A.Ş.

Regarding the Group (C) shares representing 40 percent of the total shares of EPIAŞ, Article 7, paragraph 3 of the EPIAŞ Articles of Association reads that "Group (C) shares may only be transferred between Borsa İstanbul A.Ş. and (1) the legal entities that hold a power generation license and whose power plants have commenced operations under an electricity supply license in the electricity market, (2) the legal entities that hold wholesale, import or export license in the natural gas market, or (3) the license-holding legal entities that retail natural gas." In this respect, 39.17 percent of the Group (C) shares of our Company is held by said license-holding companies, and the remaining 0.83 percent of it is held by Borsa İstanbul A.Ş.

There are no preferential shares regarding dividends or voting rights as of 2019.



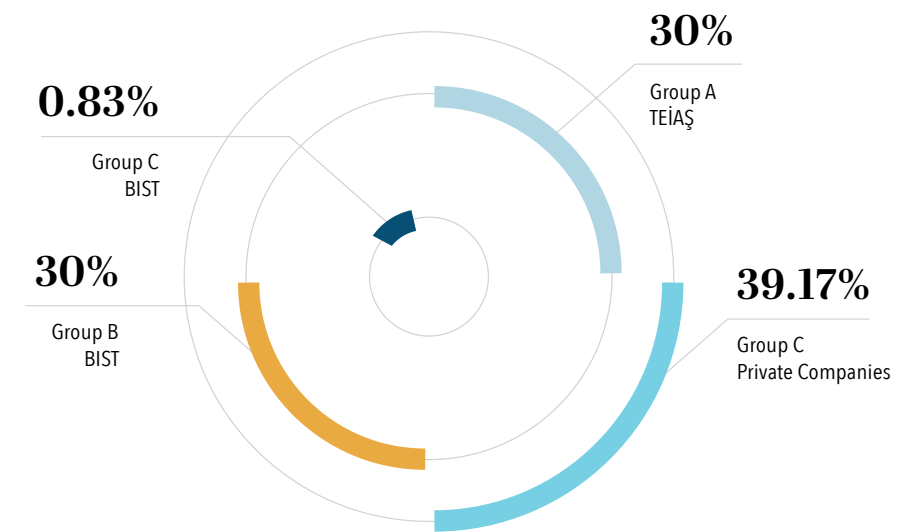
**The paid-in capital of EPIAŞ is TRY 61,572,770. The company's capital is divided into 61,572,770 shares, each with a nominal value of TRY 1. Those shares are classified into three categories, namely: Group (A) representing 18,471,831 shares, Group (B) representing 18,471,831 shares, and Group (C) representing 24,629,108 shares.**

Transfers of Group (C) shares in 2019 are given in the table below.

Transferor	Transferee	Number of Shares	Percentage of Shares (%)
Angoragaz Doğalgaz Toptan Satış İthalat İhracat Sanayi ve Ticaret A.Ş.	Türkerler İnşaat Turizm Madencilik Enerji Üretim Ticaret ve Sanayi A.Ş.	50,000	0.081
Turcas Elektrik Toptan Satış Anonim Şirketi	Turcas Kuyucak Jeotermal Elekt. Üretim A.Ş.	50,000	0.081
Naturgaz Doğalgaz İthalat İhracat Sanayi ve Ticaret Anonim Şirketi	Kolen Elektrik Toptan Satış İth. ve İhr. A.Ş.	412,408	0.67
AP Enerji Tedarik A.Ş.	Meltem Enerji Elektrik Üretim A.Ş.	412,408	0.67

The shareholder structure is shown in the table below.

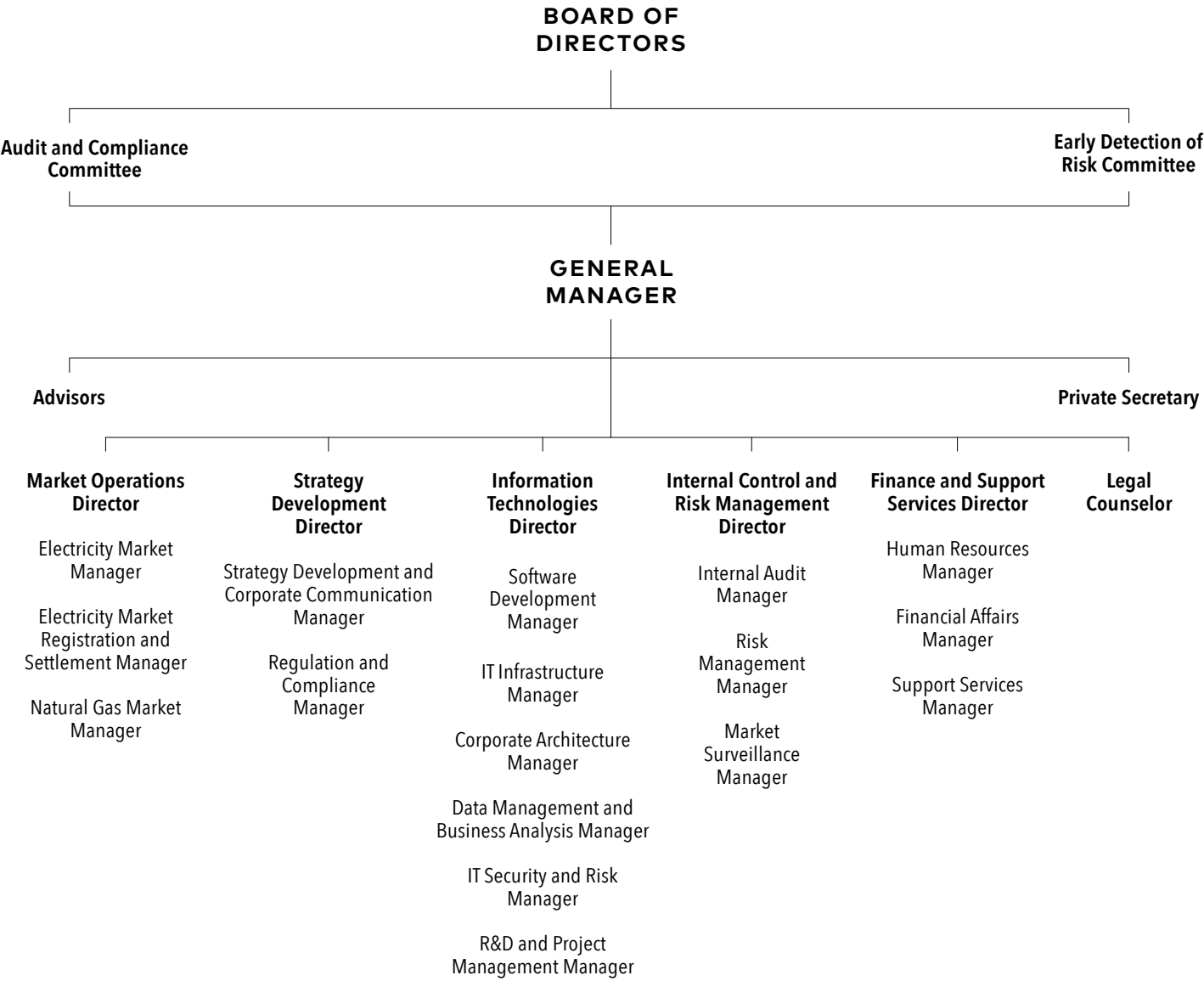
Shareholders	Group	Number of Shares	Value of Shares (TRY)	Percentage (%)
Turkish Electricity Transmission Corporation (TEİAŞ)	A	18,471,831	18,471,831	30.00
Borsa İstanbul A.Ş. (BIST)	B	18,471,831	18,471,831	30.00
Borsa İstanbul A.Ş. (BIST)	C	511,590	511,590	0.83
Private Companies	C	24,117,518	24,117,518	39.17
<b>TOTAL</b>		<b>61,572,770</b>	<b>61,572,770</b>	<b>100</b>



ORGANIZATIONAL CHART

The organizational structure of our company is designed by the Regulation on the Organizational Structure and Operating Principles of EPIAŞ and the EPIAŞ Organizational Policy which was put into effect by the Board of Directors. The organization is made up of five Directorates, a Legal Counselor’s Office, and Advisors and a Private Secretariat reporting to the General Manager. Our company has 18 departments in total.

Our Company's organizational chart as of the end of 2019 is as follows:

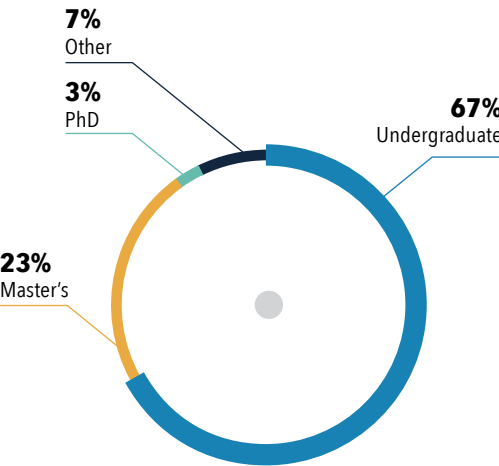


EMPLOYEE PROFILE

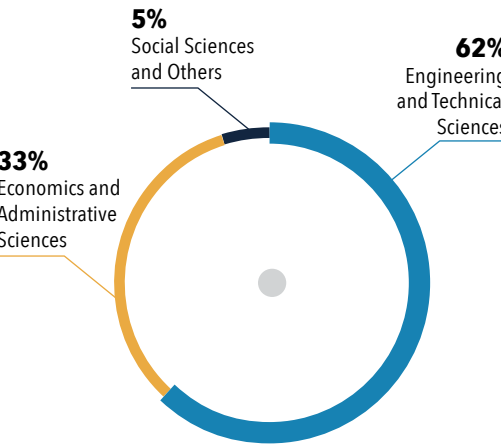
Under Labor Law No. 4857 and Article 4/a of Law No. 5510 on Social Insurances and General Health Insurance, EPIAŞ employs permanent staff as per the Organizational Structure Policy of EPIAŞ. In 2019, 49 recruited employees enhanced our human resources further, and our Company continued to operate with 221 competent and qualified employees as of the end of 2019.

As of the end of 2019, holders of bachelor’s degrees, master’s degrees, and PhDs constituted 67 percent, 23 percent, and 3 percent of our Company’s employees, respectively. Accordingly, 93 percent of our employees hold at least an undergraduate degree.

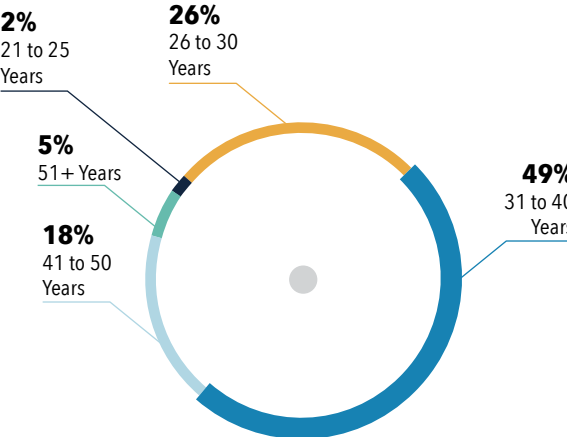
EDUCATIONAL BACKGROUND



DEPARTMENT GRADUATED



AGE



As of the end of 2019, employees aged 21 to 25 constituted 2 percent of our Company’s human resources, those aged 26 to 30 constituted 26 percent, those aged 31 to 40 constituted 49 percent, and those aged 41 to 50 constituted 18 percent. Employees aged 51 and above accounted for 5 percent of the total number of employees.

The average age of our Company’s employees is 36, and the average professional experience of our employees is 10.3 years. 20 percent of the employees are female.



## > EPİAŞ IN 2019



EPIAŞ IN 2019

MARKET OPERATIONS

ELECTRICITY MARKETS

EPIAŞ operates day-ahead and intraday markets as part of its market operations. We are currently working to introduce the Electricity Futures Market at the end of 2020.

The quantities of purchases and sales as well as market clearing prices are announced in line with the bids of participants in the Day-ahead Market, and matches are made by continuous trading in the Intraday Market.

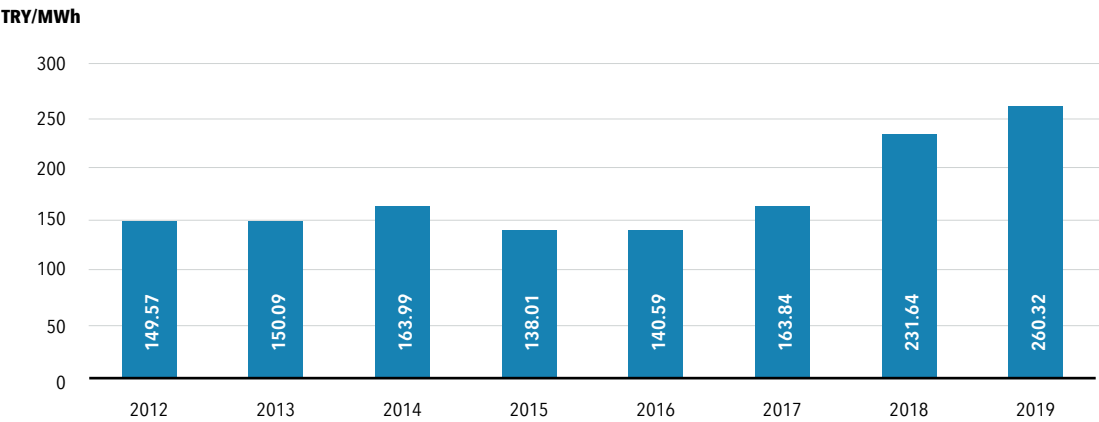
The software of the Day-ahead and Intraday Markets are provided with English language support for the convenience of foreign traders. The user's manuals of the market software are available in both Turkish and English.

Call center service is available to market participants to obtain effective and fast service on a 24/7 basis. On first entry into the market, participants are informed on how to avail themselves of support, and any users experiencing difficulty making bids or experiencing difficulties with any other matters are quickly offered support.

The objections filed by participants on spot electricity market transactions are assessed and concluded. Users are informed about technical problems and time extensions through the website, mobile application, and SMS.

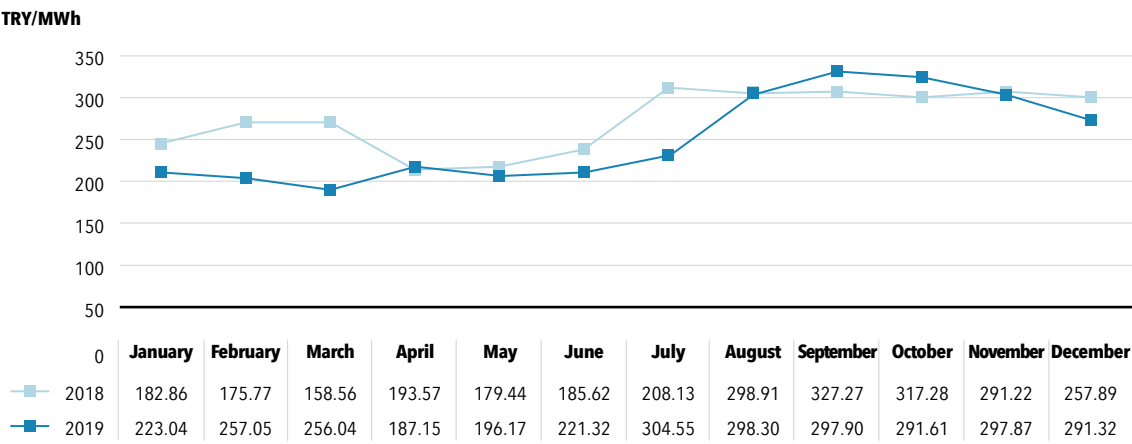
DAY-AHEAD MARKET

ANNUAL AVERAGE MARKET CLEARING PRICE



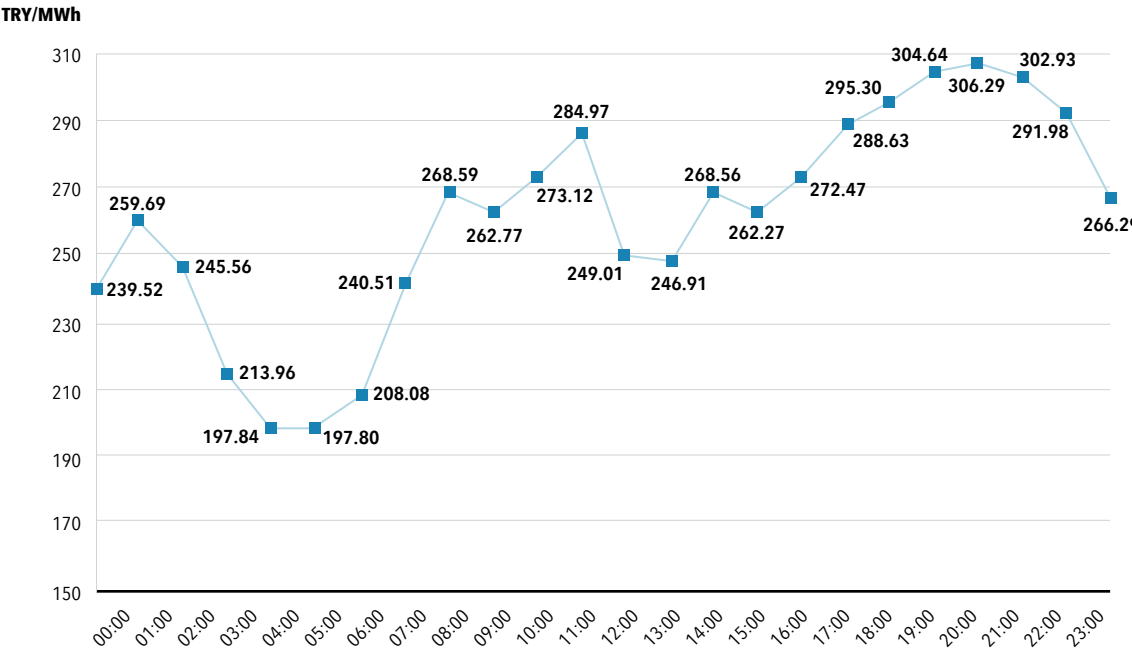
► In 2019, the annual average Market Clearing Price in the Day-ahead Market was 260.32 TRY/MWh with a 12.38 percent increase over the previous year.

MONTHLY AVERAGE MARKET CLEARING PRICE FOR 2018-2019



► The highest Market Clearing Price in 2019 was 500 TRY/MWh at 15:00 on Thursday, June 27, and the lowest Market Clearing Price was 0 TRY/MWh for 52 hours.

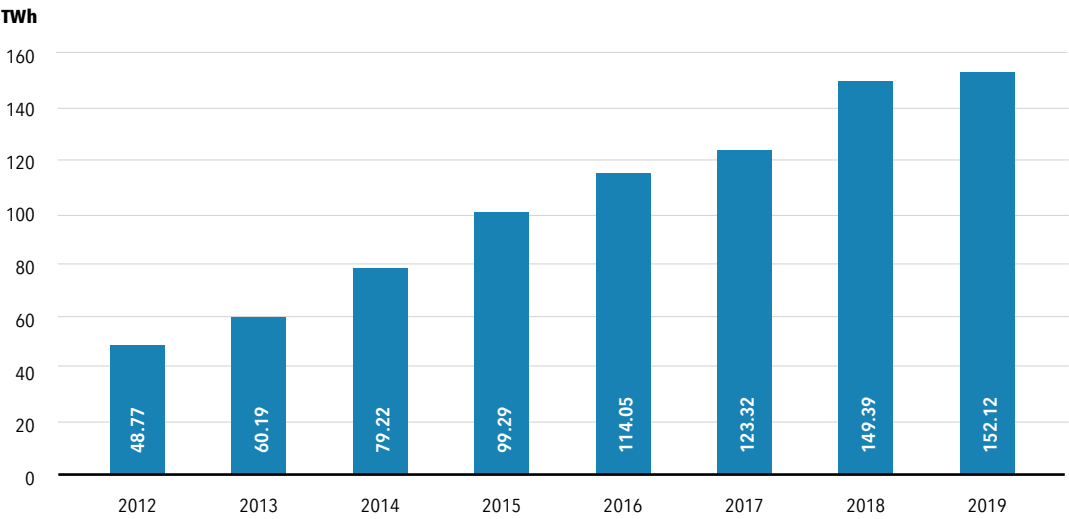
HOURLY AVERAGE MARKET CLEARING PRICES



► Hourly Average Market Clearing Prices reveal that the average Market Clearing Price was the lowest at 05:00 with 197.80 TRY/MWh and the highest at 20:00 with 306.29 TRY/MWh. The average of nighttime, daytime, and peak demand hours increased in comparison with the previous year.



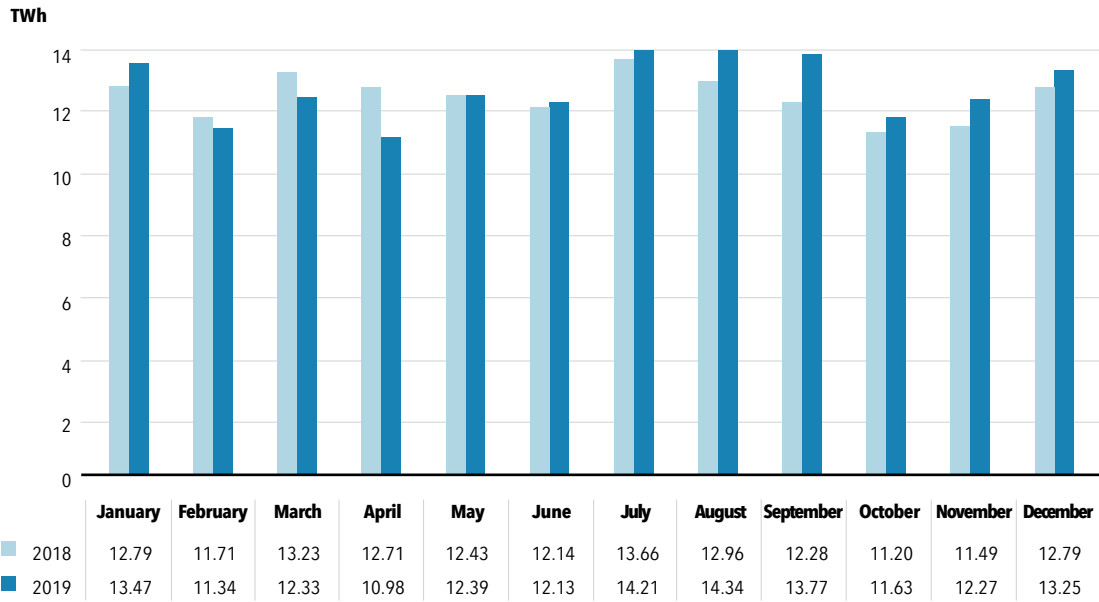
ANNUAL MARKET CLEARING QUANTITIES



► The matching quantities of the Day-ahead Market increase every year. The market clearing amount in the Day-ahead Market was 152.12 TWh with a 1.83 percent increase over the previous year.

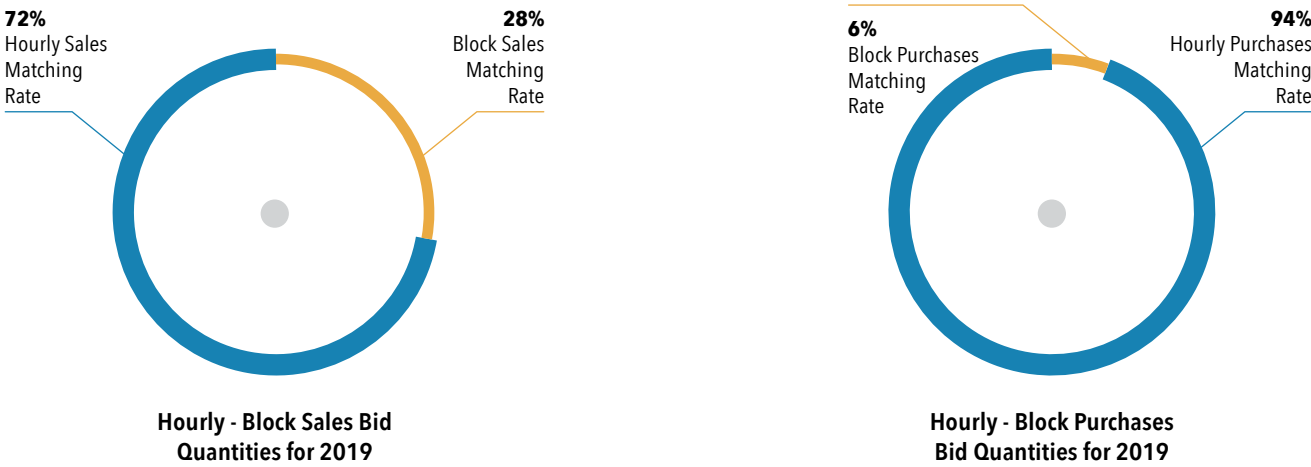
\*"Matching quantity" signifies the sum of Day-ahead market sales quantities.

MONTHLY MARKET CLEARING QUANTITIES FOR 2018 - 2019

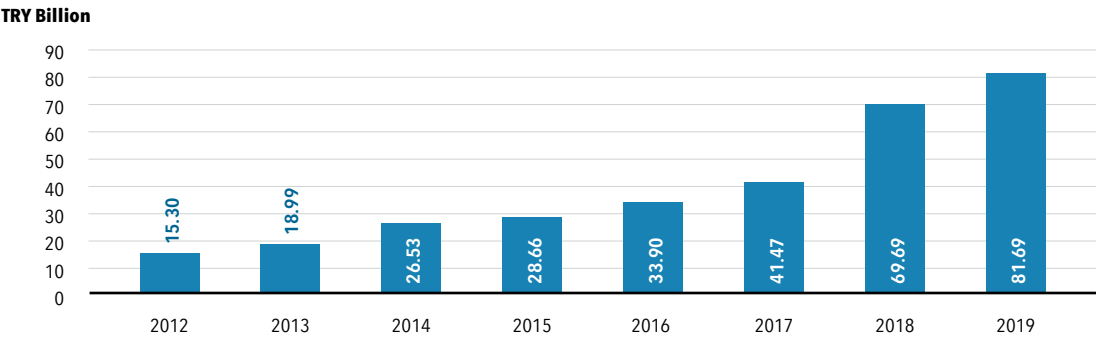


► The lowest trading volume in 2019 was 9,957 MWh at 04:00 on Thursday, June 6, and the highest trading volume was 27,073 MWh at 14:00 on Monday, August 5.

HOURLY - BLOCK BID MATCHING RATES



DAY-AHEAD MARKET ANNUAL TRADING VOLUME



► In 2019, the Day-ahead Market annual trading volume increased by 17.22 percent compared to the previous year, reaching TRY 81.69 billion.

\*Trading volume includes the total quantity of purchases and sales.

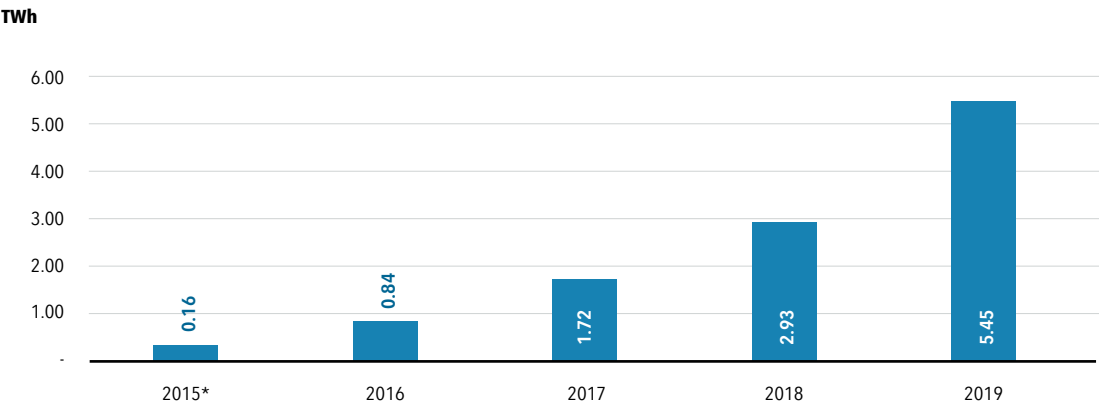
NUMBER OF BIDDERS IN THE DAY-AHEAD MARKET

January	February	March	April	May	June	July	August	September	October	November	December
774	759	771	773	776	780	769	759	763	765	782	796

► 772 participants per month submitted their bids in the Day-ahead Market in 2019.

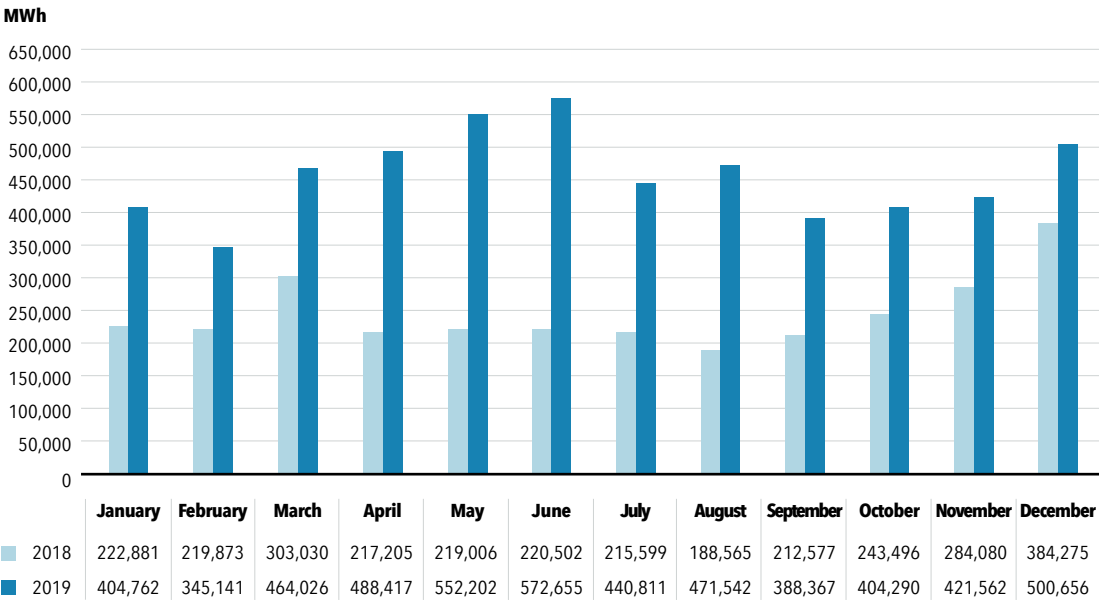
INTRADAY MARKET

INTRADAY MARKET ANNUAL MATCHING QUANTITIES



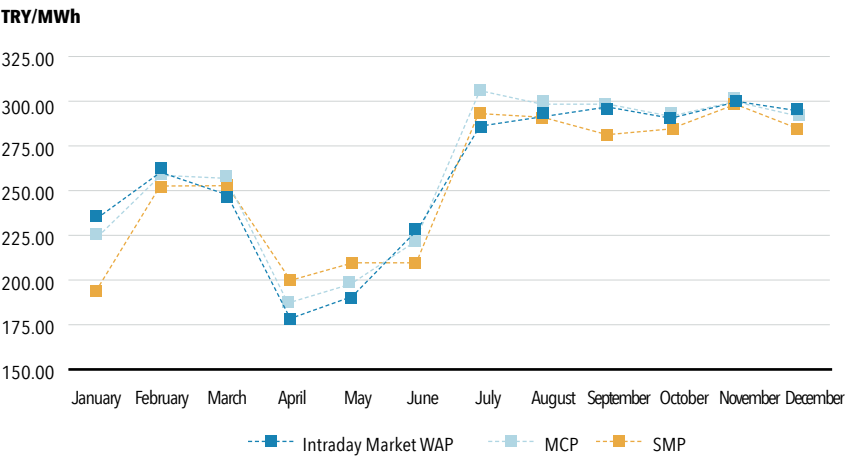
- \*The Intraday Market started its operations on July 1, 2015.*
- The quantity of matching in the Intraday Market was 5.45 TWh in 2019 with an 86.08 percent increase over 2018.

MONTHLY MATCHING QUANTITIES IN 2018 - 2019



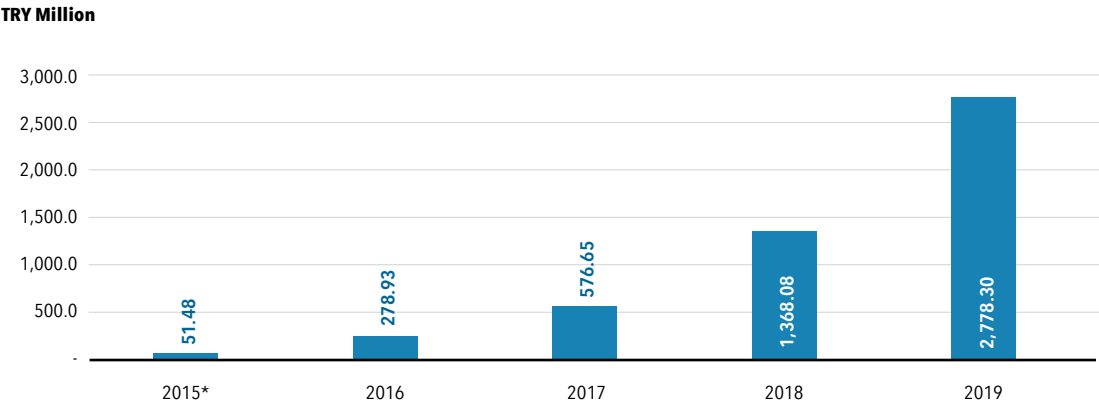
- The highest daily trading volume in 2019 was 36,072 MWh on Thursday, August 15, and the highest hourly matching quantity in 2019 was at 18:00 on Thursday, August 15.

MONTHLY INTRADAY MARKET WEIGHTED AVERAGE PRICE - MCP - SMP FIGURES



- While the annual Intraday Market weighted average price in 2019 was 254.68 TRY/MWh, the arithmetic average of the annual MCP was 260.32 TRY/MWh, and the arithmetic average of the yearly SMP was 253.46 TRY/MWh.

INTRADAY MARKET ANNUAL TRADING VOLUME



- \*The Intraday Market started its operations on July 1, 2015.*
- In 2019, the annual trading volume of the Intraday Market was TRY 2,778,302,426 with a 103 percent increase over 2018.

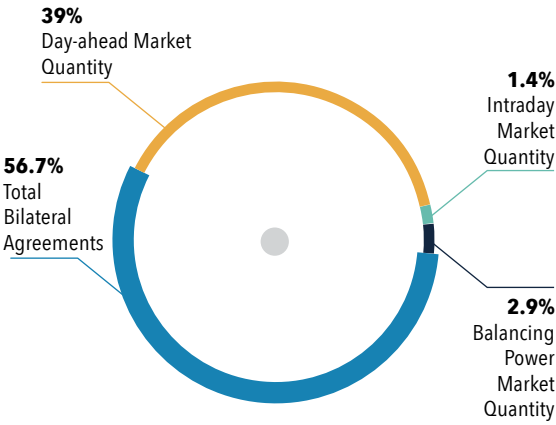
NUMBER OF BIDDERS IN THE INTRADAY MARKET

January	February	March	April	May	June	July	August	September	October	November	December
452	449	461	488	477	459	459	467	475	490	506	541

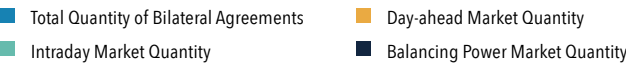
- 447 participants per month submitted their bids in the Intraday Market in 2019.



ANNUAL MARKET QUANTITY DISTRIBUTION



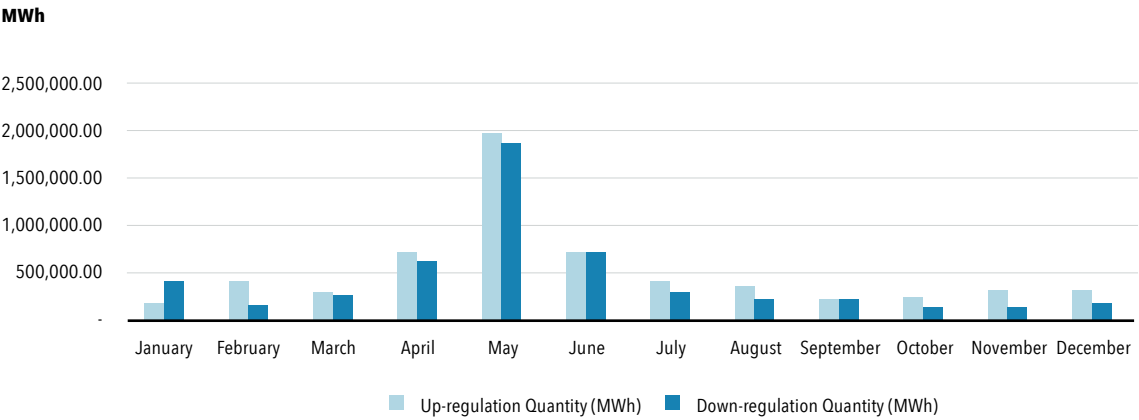
In 2019, the total quantity of bilateral agreements was 220.72 TWh, the Day-ahead Market matching quantity was 152.12 TWh, the Intraday Market matching quantity was 5.45 TWh, and the Balancing Power Market matching quantity was 11.43 TWh.



REGISTRATION AND SETTLEMENT IN THE ELECTRICITY MARKET

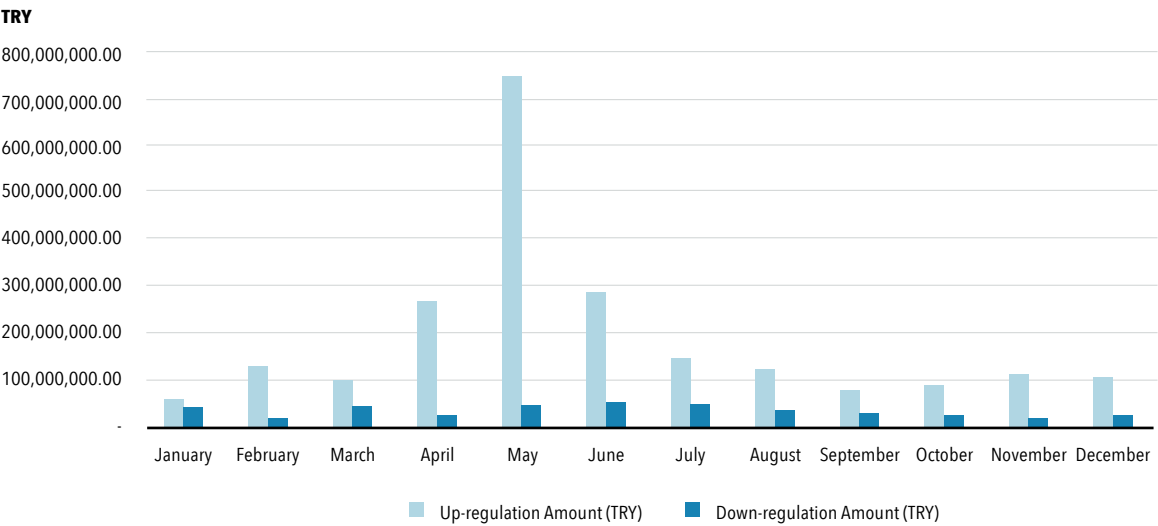
Settlement includes calculation of the credits and debits arising from the Day-ahead Market, Intraday Market, Balancing Power Market, RESSUM and energy imbalances.

BPM INSTRUCTION QUANTITIES IN 2019



The graphic above shows the quantities of final up-regulation and down-regulation instructions given in the balancing power market.

BPM INSTRUCTION AMOUNTS IN 2019

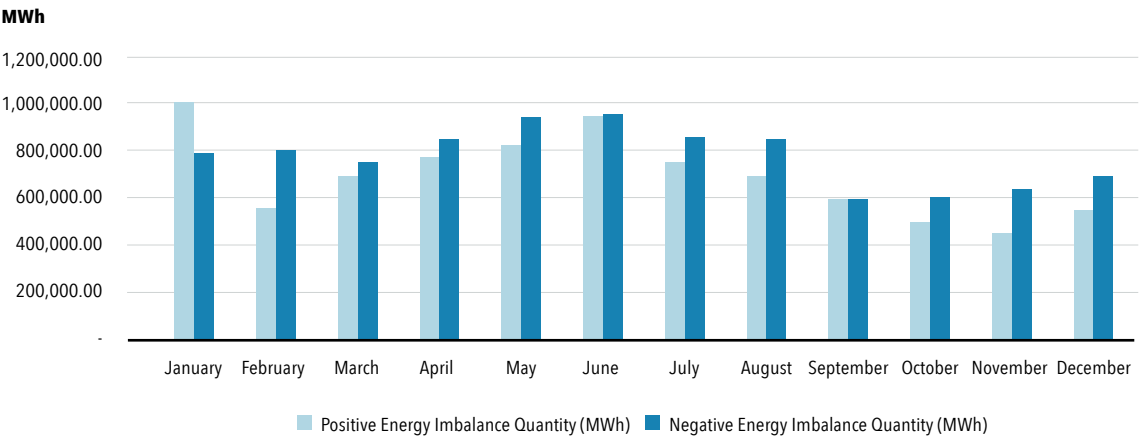


This financial graph shows the monetary amounts of final up-regulation and down-regulation operations settled in the balancing power market.

ENERGY IMBALANCE IN 2019

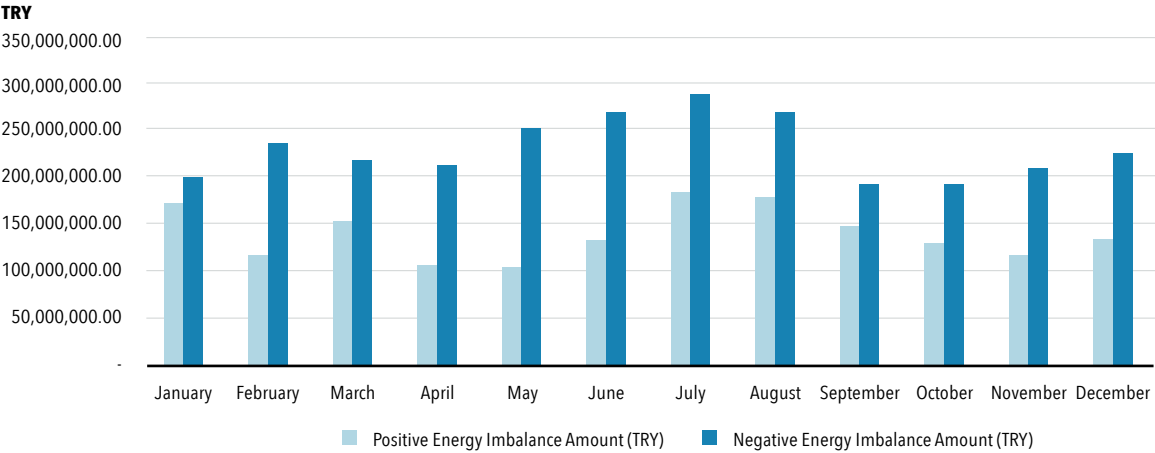
Energy imbalances of market participants are calculated and reflected to the participants on a monthly basis. The energy imbalance quantities and amounts in 2019 are given below.

ENERGY IMBALANCE QUANTITIES IN 2019



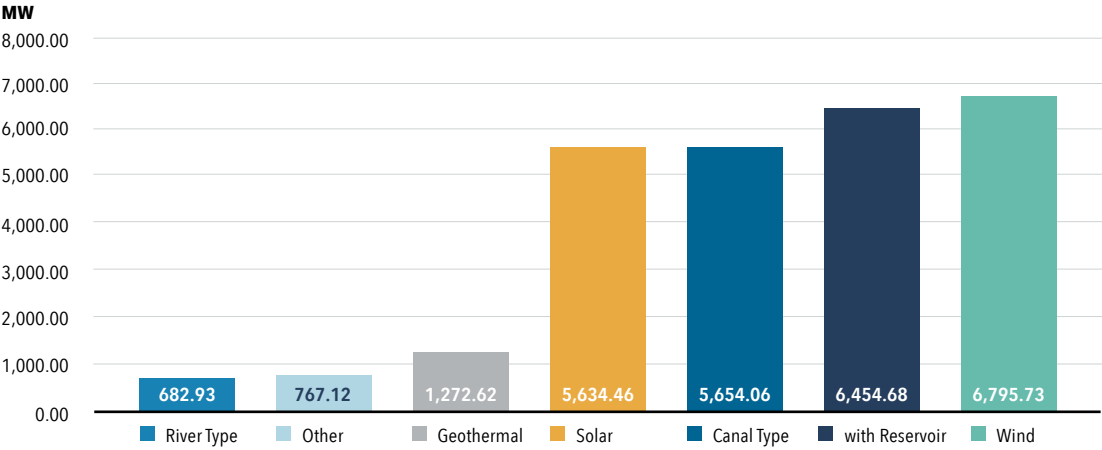
In 2019, the highest imbalance occurred in June, and the lowest imbalance occurred in November.

ENERGY IMBALANCE AMOUNTS IN 2019



► The monthly distribution of the monetary volume of the imbalances in 2019 is shown in the graph above. The volume of the imbalance was highest in July and lowest in October.

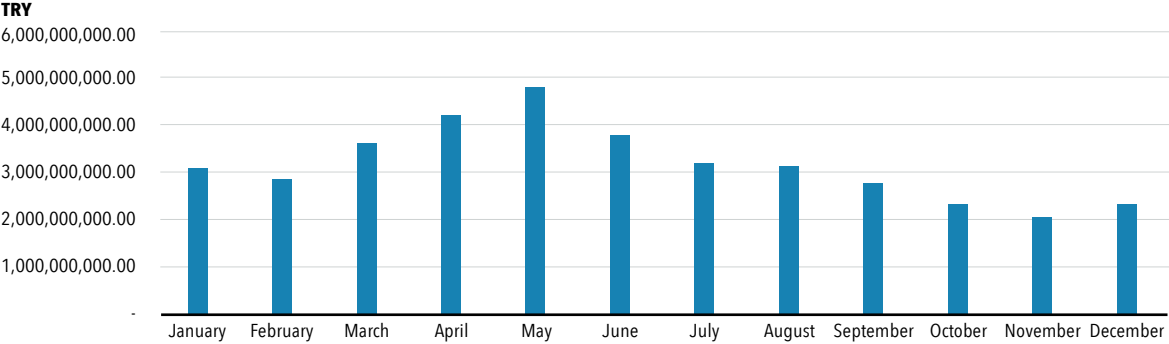
RESSUM INSTALLED CAPACITY IN 2019



\*Unlicensed power plant data are provisional data of December 2019.

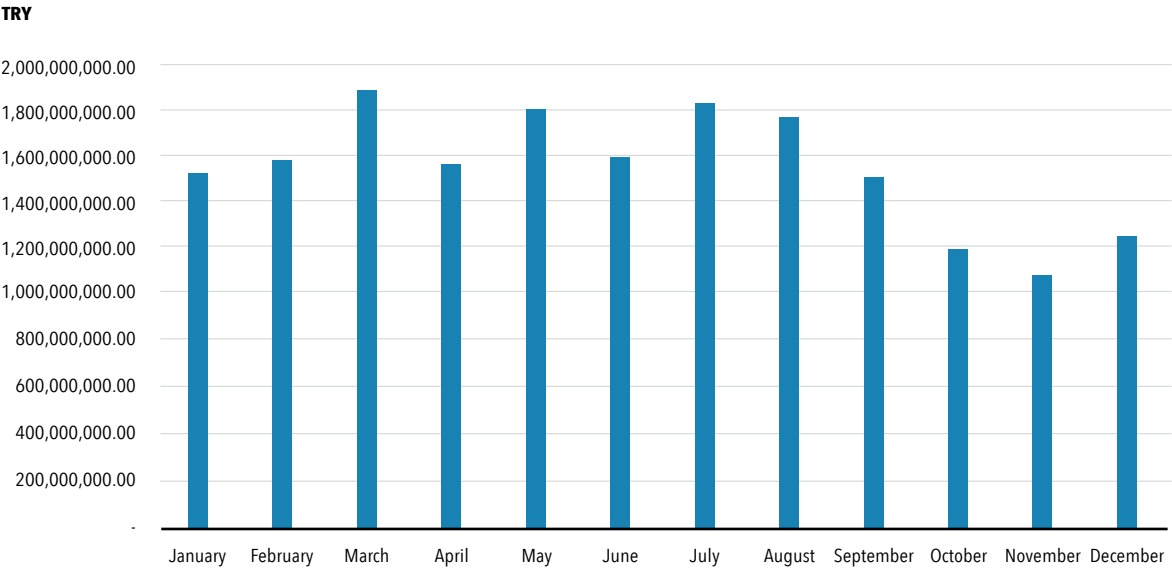
► RESSUM settlement is announced monthly under RESSUM Credit and Debit Items.

RERTP AMOUNTS IN 2019



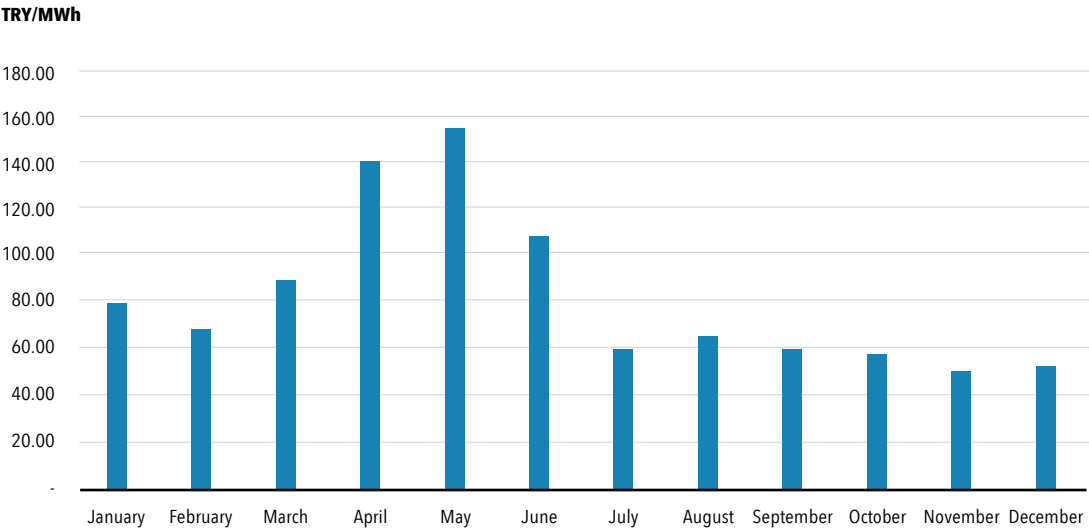
► The monthly changes in the total amounts paid to the RESSUM participants are given in the graph above. The highest amount was paid in May, and the lowest amount was paid in November.

RER INCOME IN 2019



► The monthly changes in RER income are illustrated in the table above. The RER income was the highest in March and the lowest in November.

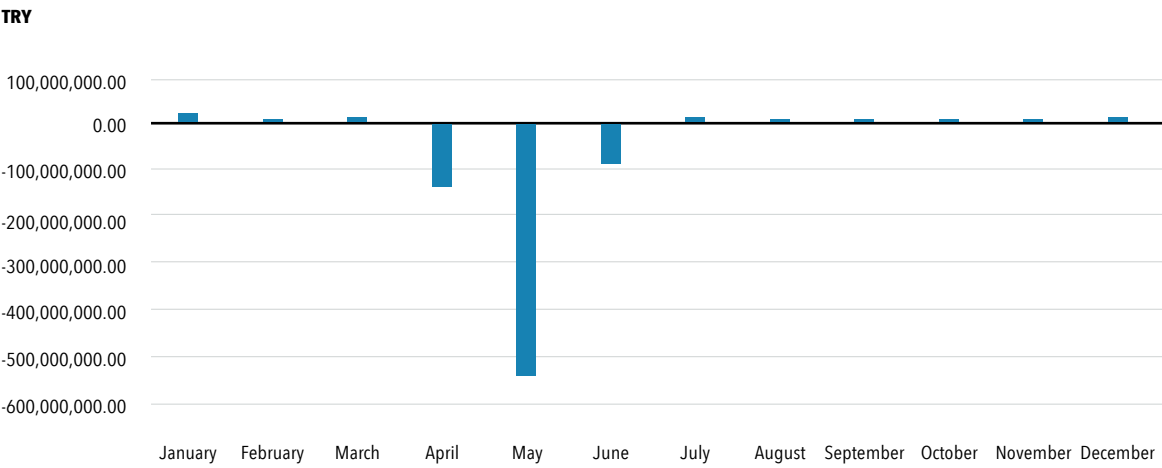
MONTHLY RESSUM UNIT COSTS IN 2019



► The graph above reveals the monthly average unit costs per MWh reflected to market participants after RESSUM settlement. The RER cost per MWh was the highest in May and the lowest in November.

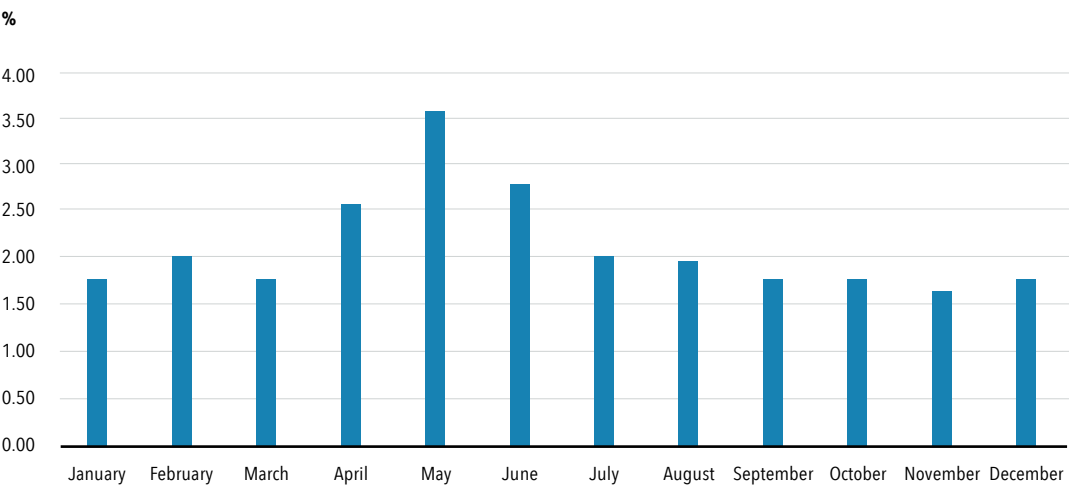


ZERO BALANCE ADJUSTMENT AMOUNTS IN 2019



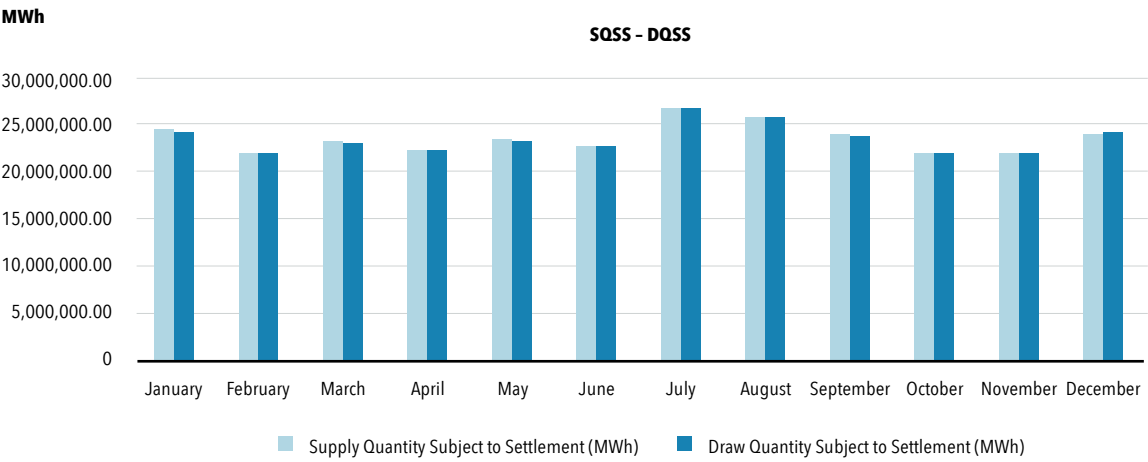
► The graph above demonstrates the changes in the Zero Balance Adjustment Item in 2019 on a monthly basis.

TRANSMISSION SYSTEM LOSS COEFFICIENTS IN 2019



► The table above illustrates the monthly arithmetic averages of the Transmission System Loss Coefficient (TSLC) for 2019.

MONTHLY SUPPLY - DRAW QUANTITIES IN 2019

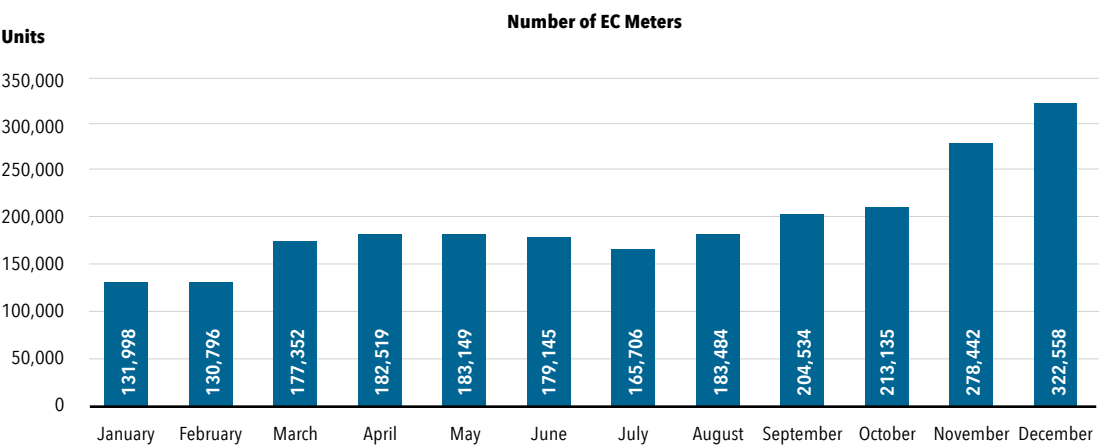


► The table above shows the changes in the supply and draw quantities subject to settlement in 2019.

MONTHLY CHANGES OF THE ORGANIZATIONS REGISTERED TO EPİAŞ IN 2019

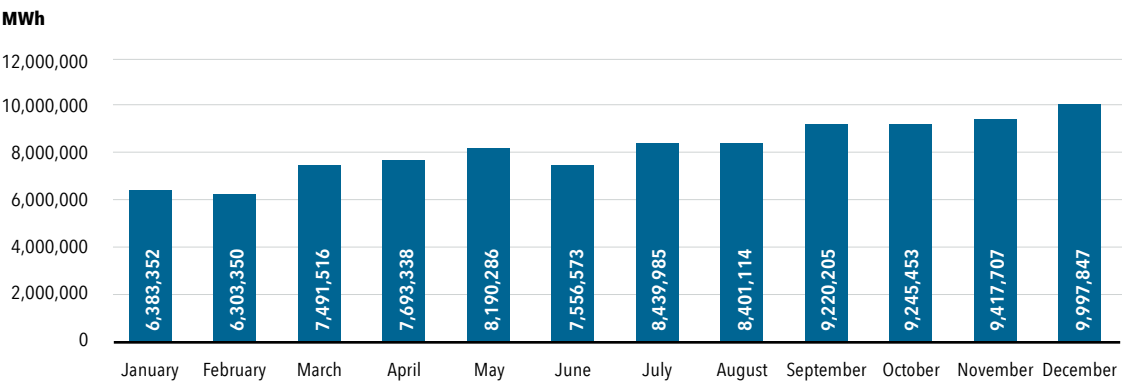
Period	Distribution	Retail in Charge	Transmission	OIZ Production	Supply	Production	Grand Total
January	21	63	1	1	153	902	1,141
February	21	63	1	1	150	903	1,139
March	21	63	1	1	149	906	1,141
April	21	63	1	1	147	908	1,141
May	21	63	1	1	148	909	1,143
June	21	63	1	1	146	909	1,141
July	21	63	1	1	146	919	1,151
August	21	63	1	1	145	931	1,162
September	21	63	1	1	144	940	1,170
October	21	63	1	1	145	963	1,194
November	21	63	1	1	147	963	1,196
December	21	63	1	1	146	967	1,199

MONTHLY CHANGES IN THE NUMBER OF ELIGIBLE CUSTOMERS (EC) IN 2019



► The table above demonstrates the number of consumers who exercised their eligible customer rights in 2019. While 131,998 eligible customers exercised their right in January, this number rose to 322,558 in December.

THE CONSUMPTION OF THE CONSUMERS WHO EXERCISED THEIR ELIGIBLE CUSTOMER RIGHTS IN 2019



► The table above shows the monthly changes in the consumption of the consumers who exercised their eligible customer rights in 2019. The consumption of such consumers was highest in December and lowest in February.

ELIGIBLE CUSTOMER MOVES IN 2019

Period	New EC	Supplier Change	Departure from Portfolio
January	2,748	546	10,140
February	9,151	509	7,449
March	50,662	119	3,668
April	9,517	1,168	4,870
May	5,561	658	4,517
June	3,943	32	7,505
July	1,958	397	15,365
August	21,028	177	2,877
September	27,332	213	6,065
October	9,981	144	977
November	66,974	271	1,160
December	46,456	186	1,622
Grand Total	255,311	4,420	66,215

NATURAL GAS MARKET

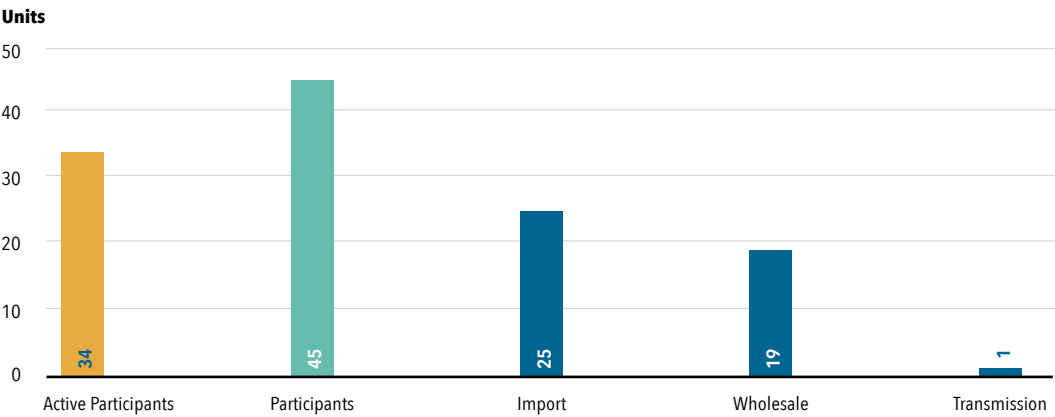
The Continuous Trading Platform (CTP) has been operating since September 1, 2018, under the natural gas market operations. Transactions on the CTP are performed by a continuous trading technique. The weighted average of the purchase and sale matches formed by the bids of the market participants constitute the Daily Reference Price (DRP).

The number of documents required for registration was reduced from seven to three, and the forms used were merged and reorganized so as to simplify the participant registration process in 2019. Thus, the participant registration renewal has been made easier until the PUE article requires re-submission of their documents. We began preparing daily and monthly reports and now publish them on our website.



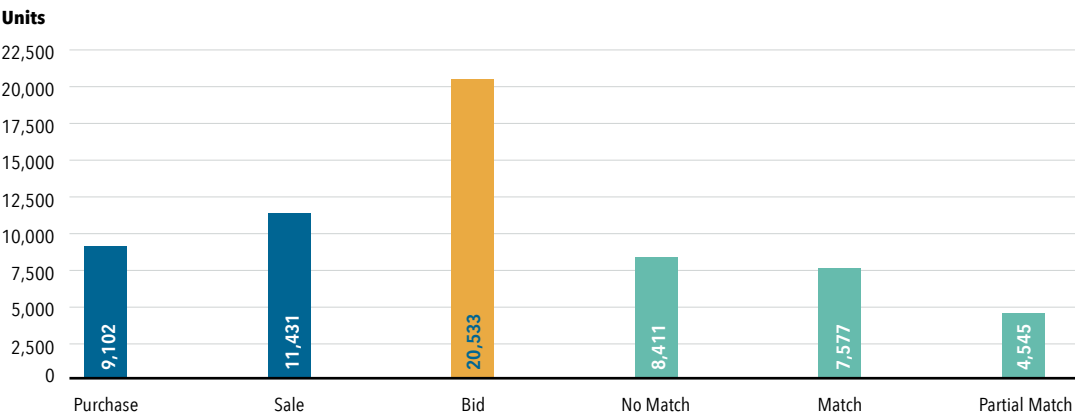
REGISTERED ORGANIZATIONS BY THEIR LICENSE TYPES

PARTICIPANT - LICENSE DISTRIBUTIONS



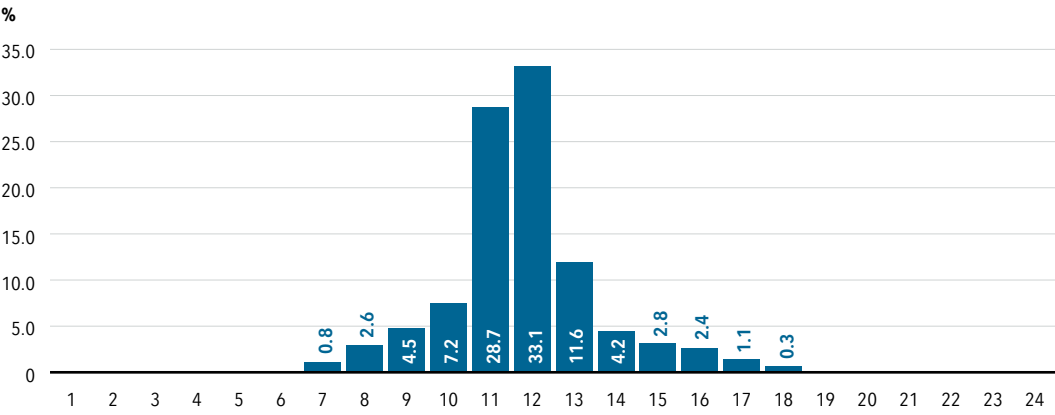
- ▶ *Active Participants: The number of organizations that made transactions in the market (75.6%)*
- ▶ *45 organizations operating with various licenses in the organized wholesale natural gas market completed their CTP registration for 2019, and only 34 of them made transactions on the CTP. The graph above shows the distribution of registered organizations by their license type and their active participant status.*

BIDS AND MATCHES



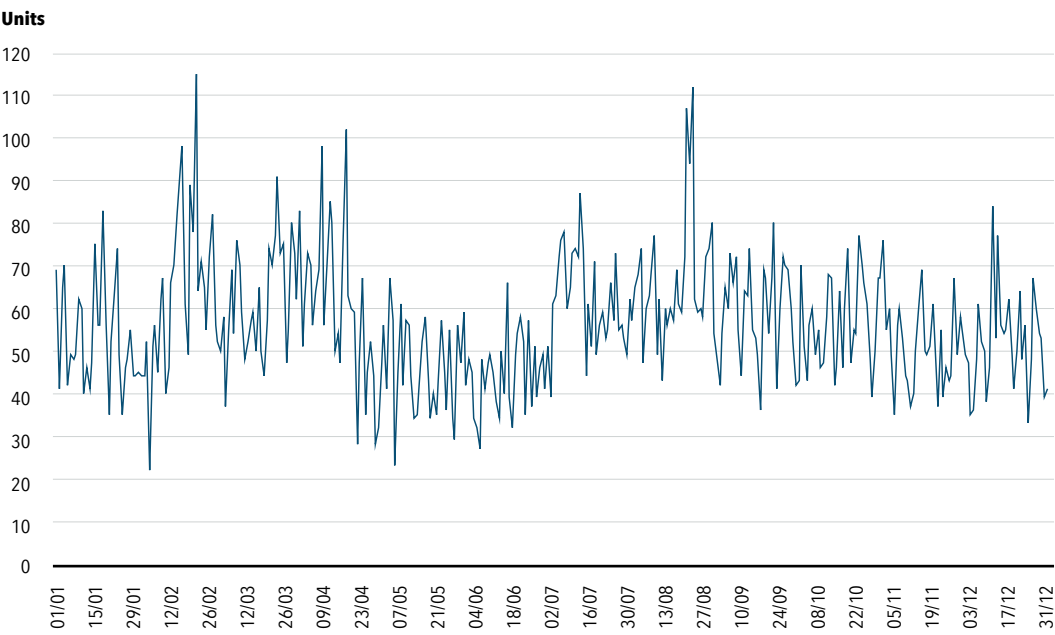
- ▶ *59 out of each 100 bids matched.*
- ▶ *Active organizations made 20,533 bids (56.3 bids per day) in 2019. Buys account for 9,102 (44.3%) and sells account for 11,431 (55.7%) of that amount.*
- ▶ *With 59 out of each 100 bids matched, a total of 12,122 bids matched at the end of the year (33.2 bids per day). 37.5 percent of the matches were “partial match.”*

HOURLY DISTRIBUTION OF TRANSACTIONS



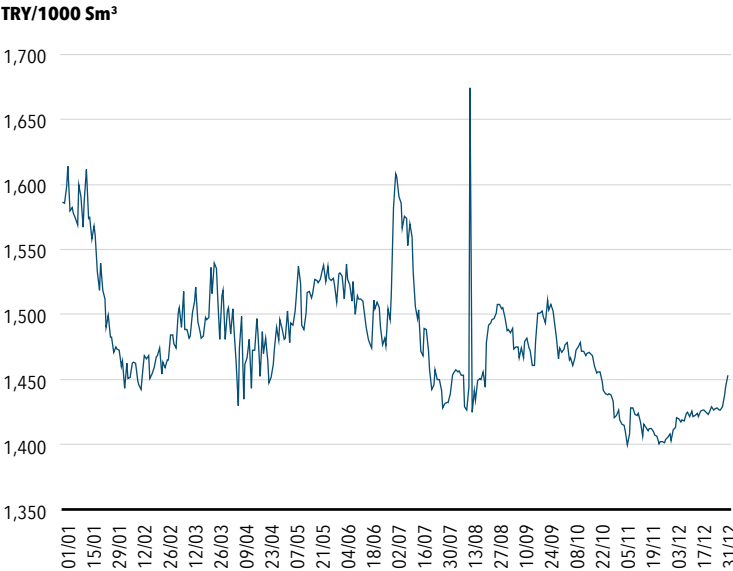
- ▶ *The graph above shows the hourly distribution of the number of transactions (bids or matches) on the market where 99.4 percent of all transactions take place between 07:00 and 18:00.*

DISTRIBUTION OF CONTRACT TRANSACTIONS



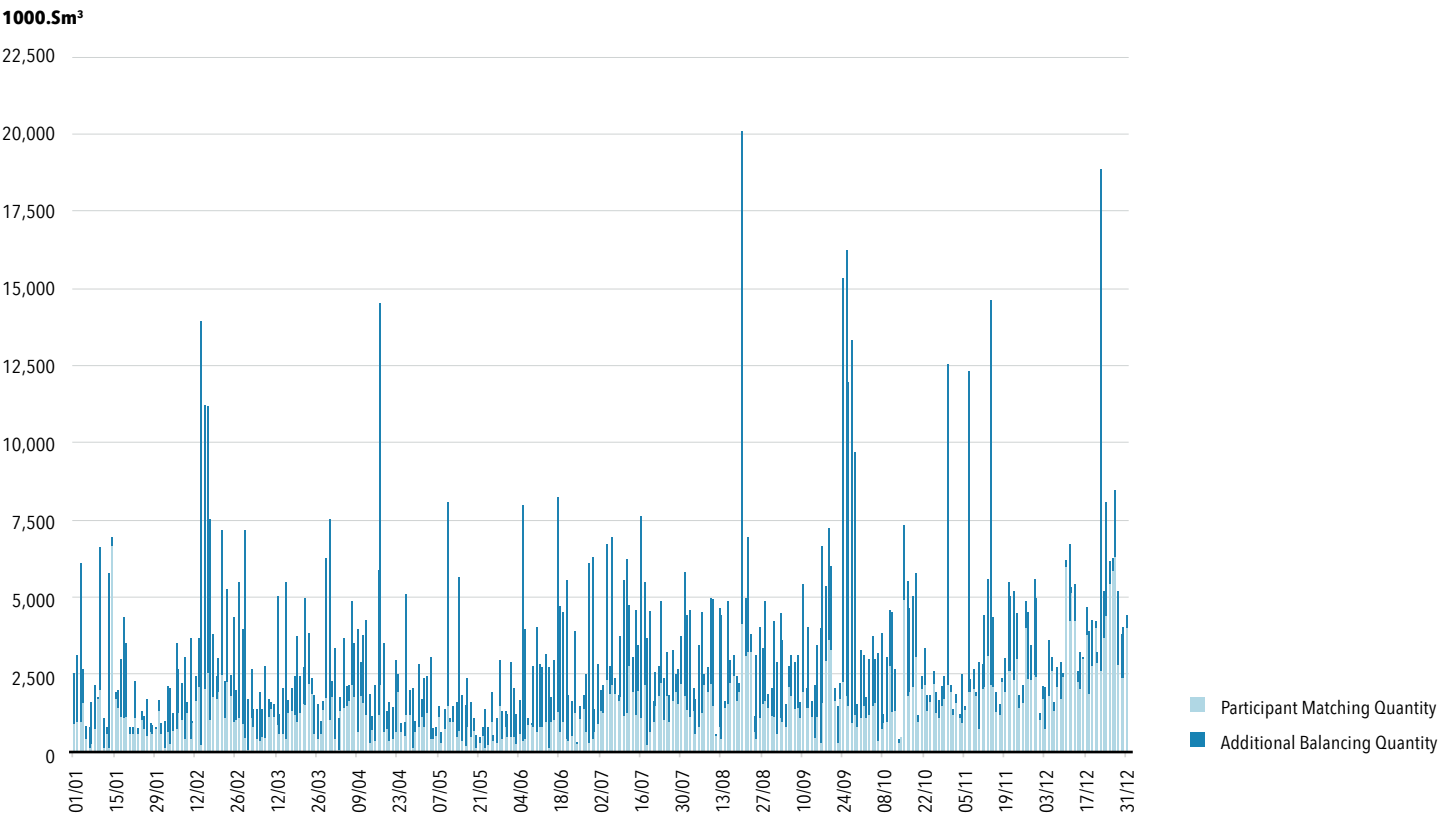
- ▶ *The graph above illustrates the daily distribution of the number of transactions (bids or matches) on the market.*

DAILY REFERENCE PRICE CHANGES



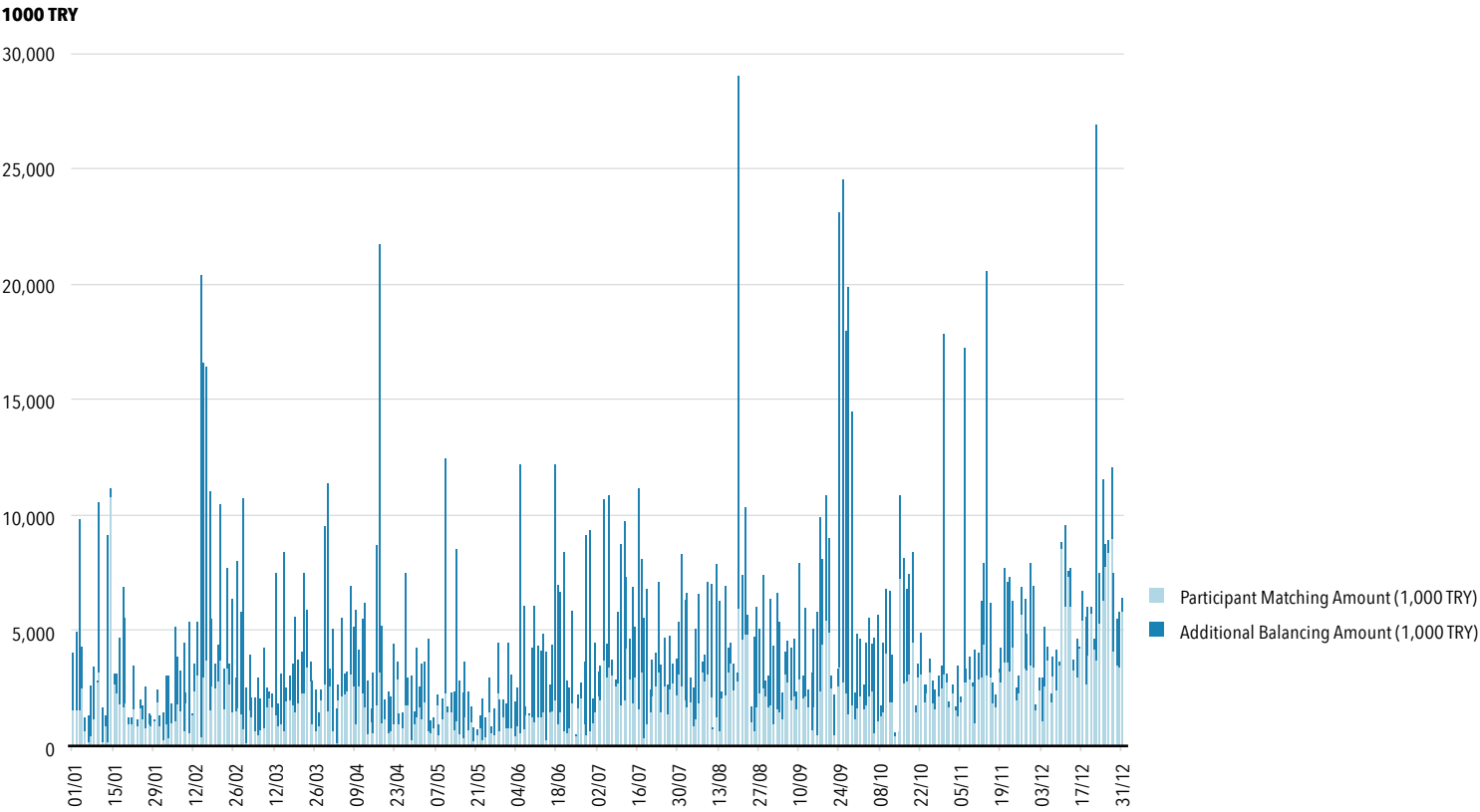
► As shown in the graph on the left, the DRP in 2019 was the highest on August 12 as 1,675.01 TRY/1000.Sm<sup>3</sup> and the lowest on November 6 as 1,399.18 TRY/1000.Sm<sup>3</sup>. The annual average DRP was 1,479.86 TRY/1000.Sm<sup>3</sup>.

DAILY MATCHING QUANTITY



• In 2019, the total matching quantity in the market was 1.275 billion Sm<sup>3</sup>. The share of Additional Balancing Transactions on it was 59.3%. The daily average matching quantity for the same period was 3.494 million Sm<sup>3</sup>.

DAILY MATCHING AMOUNT



► In 2019, the total matching amount in the market was 1.882 billion TRY. The share of Additional Balancing Transactions on it was 59.5%. The daily average matching amount in the same period was 3.08 million TRY.





SETTLEMENT AND BALANCE ZEROING (BAST) DATA

The monthly results of settlement of market operations and imbalances are given in the table below as operating fee, invoice and balance zeroing amounts in TRY.

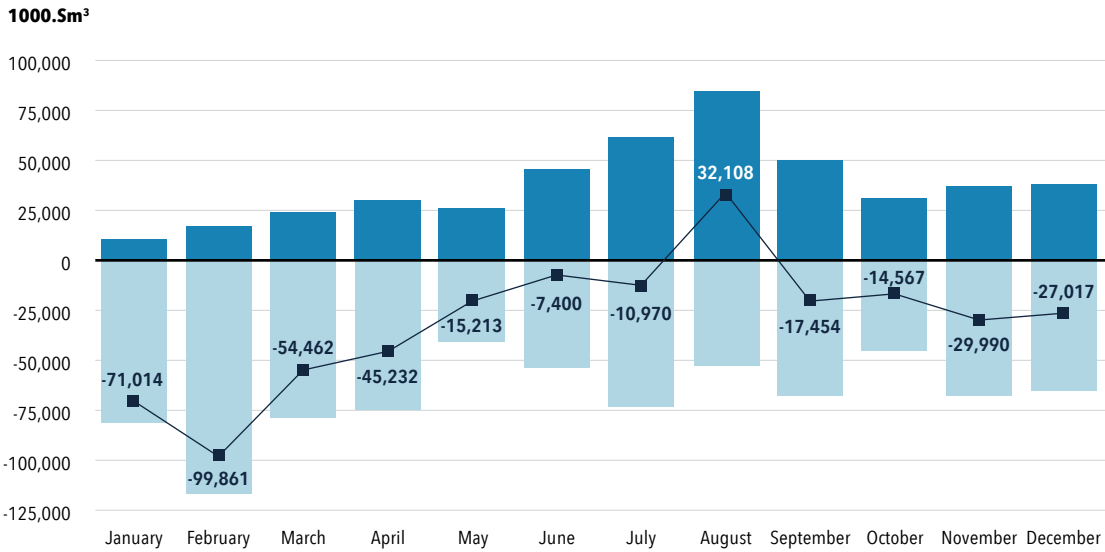
Period	Operating Fee (VAT included)	Invoice (VAT included)	BAST
January	802,445	295,458,883	637,922
February	434,210	426,957,391	478,822
March	319,443	330,147,870	488,988
April	358,268	335,038,905	486,977
May	218,860	211,968,753	340,621
June	327,664	335,341,629	449,883
July	424,781	432,690,980	1,051,784
August	439,600	427,738,488	1,291,805
September	477,920	456,918,471	835,724
October	311,791	298,510,284	662,147
November	396,649	352,282,213	1,124,668
December	439,600	427,738,488	665,364

SHIPPER IMBALANCES

Any Imbalances caused by the shippers in the natural gas market are settled by EPIAŞ on behalf of BOTAŞ. The following graph shows the negative and positive imbalances of all shippers in

the relevant month. The net imbalance was negative except in August, and the highest imbalance occurred in February.

SHIPPER IMBALANCES



TRANSPARENCY PLATFORM

Launched in 2016, the Transparency Platform is being developed within the framework of the Board Decision of EMRA with respect to the data to be published on the Platform which was updated on June 22, 2018. Accordingly, in 2019, The data, are coming from Petroleum Pipeline Company (BOTAŞ),

General Directorate of Energy Affairs (EİGM), and Electricity Generation Company (EÜAŞ), were published on the Transparency Platform. Furthermore, 24 new data generated by BOTAŞ, EİGM, RİTM, EÜAŞ and our Company were presented to users on the Transparency Platform. The published data are given below.

Data Class	Number of Data 2017	Number of Data 2018	Number of Data 2019
Markets	29	36	42
Production	5	5	6
Consumption	8	10	11
RESSUM	10	14	16
Transmission	3	4	10
Natural Gas Transmission	0	12	13
Natural Gas CTP	0	16	23
Dams	0	8	8
Market Messaging System	1	1	1
Total	56	106	130

The following data are started to be published on the Transparency Platform under the title of Natural Gas Transmission: (1) the BOTAŞ data on the daily realization quantities of the underground storage units; (2) the wind data by the Wind Power Monitoring and Forecasting Center of EİGM; (3) the EÜAŞ data on the bilateral agreement quantities of the incumbent supply companies under the regulated tariffs; (4) the EPİAŞ data on Electrical Energy Volumes (MWh) by distribution companies which are subject to RAI; Notifications of Additional Balancers of the Natural Gas Continuous Trading Platform; Allocation Data - Physical Realization, Allocation Data - Virtual Realization - System Direction; Quantity of Imbalances; and Balance Zeroing Quantity (BAST), and (5) TEİAŞ data on auxiliary services, Settlement Based Final Generation Plan, and Real-time

Generation and Interconnection Data on Power Plant Basis. All stakeholders may send their suggestions and requests with regard to the platform at any time. In this respect, daily requests are assessed and answered as soon as possible, and improvements and updates are made if necessary. This means that improvements and developments are made continuously.

The Transparency Platform served 438,254 individual users from 117 countries with 130 report screens, 122 web services, and 6.17 million page views in 2019. Transparency Platform, which is one of the major steps taken by EPİAŞ for market transparency, continues to provide services in line with the purpose of publishing all market related data through a single data center in a fast, reliable, continuous and healthy manner.



## OUR STRATEGY

### MONITORING AND ASSESSMENT OF THE STRATEGIC PLAN FOR 2019

The Strategic Plan monitoring and assessment process facilitates corporate learning and helps us to continuously track and improve our operations. In this respect, a “Strategic Plan Monitoring Report” is prepared for the first six months of each year. These reports are intended solely for monitoring purposes and do not focus on assessment. A “Strategic Plan Assessment Report”, on the other hand, is prepared by the end of February of the next year. The Strategic Plan Assessment Report evaluates all the planned actions and performance indicators in the relevant year, and thus monitors and reports the organizational progress with respect to the goals and objectives.

The directorates and departments were provided with monitoring and assessment tables and asked to give information about their activities. Accordingly, meetings and discussions were held. Such studies were turned into semiannual and annual reports to be presented to the General Directorate. As part of the monitoring and assessment efforts, performance



**The Strategic Plan monitoring and assessment process facilitates corporate learning and helps us to continuously track and improve our operations.**

indicators were monitored to evaluate the extent to which the objectives were achieved. And the actions performed by the relevant directorates to achieve a given performance indicator were assessed by taking their deadlines into consideration.

Key operations of our Company in 2019 are given as follows:

- ▶ The business development and legislation efforts of the Electricity Futures Market were completed, and consequently, software development was commenced.
- ▶ The existing Day-ahead Market was made suitable for regional operation.
- ▶ In line with the Strategic Plan and our participants' demands, a help desk platform was procured in order to increase customer satisfaction as well as regular communication channels. This platform will be used to respond to the suggestions/requests/complaints of all market participants.
- ▶ An Integrated Management System was installed to enhance the corporate and industry-related capacity.
- ▶ Yearly performance indicators have been successfully completed to strengthen the Human Resources Management System and increase employee satisfaction.
- ▶ A satisfaction survey to be implemented on a regular basis was prepared for the market participants in order to collect their opinions, suggestions, and requests on our efforts. The collected data help us improve our operations.
- ▶ A Workflow Management System for electronic documents was established to ensure that all documents and forms used in our Company are transferred and reported in a faster and more reliable manner. The project is expected to be completed in the first quarter of 2020.



OBJECTIVES

The 2019-2023 Strategic Plan was prepared in 2018 to execute energy market operations in an effective, efficient, and reliable manner based on their strategic priorities. The Monitoring and Assessment activities in 2019 revealed that the Strategic Plan for 2020 should be updated to a certain extent. The EPİAŞ Strategic Plan was updated on December 31, 2019, by making use of the outcomes of the 2019 Monitoring Report, adding and/or revising the 2020 performance indicators and the actions to taken for certain objectives, in line with the changing conditions. In the end, the 2020 objectives were not changed.

Purposes and objectives of our Strategic Plan are given below.

Goal 1	Enhancing Sustainability and Predictability of Energy Markets
Objective 1.1	Continuously improving the Transparency Platform
Objective 1.2	Increasing participant satisfaction and regular communication channels
Objective 1.3	Maintaining a high level of system continuity and infrastructure service quality
Objective 1.4	Keeping the Market Surveillance System functioning
Goal 2	Developing New Products and Services in Energy Markets
Objective 2.1	Establishing Electricity and Natural Gas Futures Markets with Physical Delivery
Objective 2.2	Ensuring the participation of the demand side in the Spot Electricity and Natural Gas Markets
Objective 2.3	Drawing a road map for Voluntary Green Certificate practices
Objective 2.4	Updating the existing Electricity Market Practices with new technologies in line with emerging needs
Goal 3	Improving Regional and Global Effectiveness in Energy Markets
Objective 3.1	Making regional energy market analyses and engaging in cooperation
Objective 3.2	Taking part in international events and organizations
Goal 4	Enhancing Corporate and Industry Capacity
Objective 4.1	Enhancing the Human Resources Management System
Objective 4.2	Establishing Integrated Management Systems
Objective 4.3	Improving employee satisfaction, competence, and corporate loyalty
Objective 4.4	Improving corporate brand recognition
Objective 4.5	Reducing internal and external bureaucratic steps for faster and more efficient decision-making

INFORMATION TECHNOLOGY ACTIVITIES

Our company's information technology activities are classified under the categories of software development, demand management, software tests, data warehouse and business intelligence, infrastructure development, operational security, security tests and vulnerability management, technical assessment works, standardization, and business continuity.

Software Operations

As part of our software operations, in 2019, we updated or developed the Electricity Futures Market (EFM), Energy Markets Management System (EMMS), Day-ahead Market (DAM), New Bid Types, and Non-covered Market Transactions (NCMT) projects, and other business processes. These projects are detailed under the title of “R&D and Business Development.”

Demand Management

As part of Demand Management, EPİAŞ has met the demands for more than 600 market practices, data warehouse and business intelligence, which were communicated via the IT Service Management Platform. The demands filed by the directorates were assessed, detailed, prioritized and properly managed. Accordingly, some improvements were made by taking into account certain requirements, and the system and user acceptance tests were carried out. Afterwards, the go-live process was regularly monitored.

Software Tests and Test Automation Architecture

Tests were carried out for the projects “DAM Multi-zone and New Bid Types,” “Non-covered Market Transactions,” and “Upgrading Oracle Databases to the Version 12c.” The demand for change in “Natural Gas Continuous Trading Platform, BOTAŞ Network Code (ŞİD), and NCMT”, and “Natural Gas Continuous Trading Platform ŞİD” also required us to run certain tests. Performance tests were done for IDM, DAM, and Transparency practices. Out of 400 software tests launched as part of the projects and modification requests, 376 were completed and closed.

Automation developments with the Java language support

were done on open-source servers as part of the software test automation. Also, a test execution program was positioned for an integrated structure for the running and saving of tests and the reporting of their results in all possible scenarios of a project at predetermined times.

Open-source libraries Selenium and Cucumber were used to start creating a Test Automation environment by BDD (Behavior Data Driven) principles for faster test automation development using the minimum amount of code. The software test automation of the EMMS and EFM projects is intended to be developed in the new test automation environment.

Business Analysis

The business analysis activities of the Energy Markets Management System (EMMS), which will replace the BPMMS, the Electricity Futures Market (EFM) and Non-covered Market Transactions (NCMT) projects were completed. The business analysis of the demands put forward by the Demand Management process was completed.

Data Warehouse and Business Intelligence

The impact of the projects “DAM Multi-Zone and New Bid Types” and “Non-covered Market Transactions” on our data model was analyzed, and the business development of data transfers on the data warehouse were completed. The business units management console was updated according to the innovations and changes introduced by these two projects on our business intelligence portal, and the necessary development works were concluded and went live on dynamic reporting environments.

From our business unit, 279 requests were concluded. At the end of this process, needs analyses were carried out for 115 new tasks on the Business Analysis Portal and 426 new tasks on the business intelligence portal. Accordingly, such tasks were improved and put into our business units’ use.



**A centralization and backup project was initiated for the databases utilized by corporate applications and security products. The project is in progress and is planned to be completed by the end of 2020.**

EPIAŞ has initiated technical analysis on the EMMS project, and prioritized the presentation of the Transparency Platform with a new data infrastructure. The transparency data and other data from the EMMS system are intended to be introduced in separate environments and with better performance.

#### Development of IT Infrastructure

A system room and wiring infrastructure featuring the latest technology and standards were installed in the new office in Maslak to ensure that the applications and the Internet access work smoothly.

Major version upgrades of the databases that hold the market and corporate application data were completed successfully in scheduled downtimes and alternative backups were taken by data backup tools. A centralization and backup project was initiated for the databases utilized by corporate applications and security products. The project is in progress and is planned to be completed by the end of 2020. Analysis and assessment works for converting the licensed database applications to open-source products were started in coordination with consultancy firms. As part of DevOps activities, infrastructure

development for the transition of market applications to the container architecture were started, and their test environments were prepared. As a pilot project, the Transparency Platform was fully moved to the container architecture. The infrastructure required by corporate practices (workflow application, quality management system, etc.) was developed to serve the company users.

#### Operational Security and Monitoring

Cybersecurity risks were minimized using an Attack Prevention System, Advanced Threat Detection/Prevention System, and using enhancement policies for firewalls in order to secure the servers, applications, and clients. Periodical Log Analyses were done to analyze the network infrastructure events, troubleshoot, and take relevant actions.

#### Data Access Governance

A Data Access Governance Project was completed to keep the audit logs of the actions on the Active Directory which holds the data of the objects, the users, and the accounts on our network and allows us to manage and use such resources. This project also keeps the audit logs of the processes on file servers and email servers.

#### Penetration Tests and Vulnerability Management

Two penetration tests were done on our information systems and on the applications from our local network and the internet. These tests included the distributed denial-of-service (DDoS) attacks and social engineering.

The systems and market applications that we develop are regularly scanned to analyze their security vulnerabilities by using network vulnerability scanners and web application security scanners.

#### IT Budget and Master Plan

To response to the business units' needs regarding IT, an Information Technologies Development Plan and Master Plan was devised, and an Information Technologies budget was formed.

#### Technical Assessments

We technically analyzed 151 technical purchase requests and put them into the purchasing process. We prepared 16 technical assessment reports and information notes. Company meetings, on-site visits, demos, and PoCs were done as part of the selection and purchase of database security products and corporate architecture products. A search for an alternative open-source API Gateway product compatible with the container architecture was coordinated, and a technical assessment report was made.

#### Standardization and Documentation

A lifecycle process was designed for the devices given to staff to keep the technological inventory of EPIAŞ up-to-date and to shorten the purchase request periods. Additionally, a technical assessment report on new technologies was prepared, and

the relevant standards were formed, and the procedures were published. An IT Infrastructure Capacity Planning process was designed and the relevant process was published in cooperation with the IT Infrastructure Department. The efforts to update and digitize all IT processes and procedures under the Quality Management System were coordinated.

Application Portfolio Management processes were launched, and the purchase requests were associated with such processes. Capital expenditure (Capex) and operation expenditure (Opex) were estimated together and were digitized.

#### Operations to Enhance IT Maturity

A COBIT-based maturity assessment on IT was made with a consultancy company. The assessment outcomes were submitted to Top Management. An IT Maturity Report workshop for the technical staff was organized to share the outputs of the Report, to plan necessary actions, and to exchange opinions. As part of the efforts to design the corporate architecture of EPIAŞ, a business units service catalog, an application portfolio catalog, and an IT security field catalog were created. TOGAF awareness training was held for all IT employees to introduce a corporate architecture perspective to EPIAŞ. In addition, TOGAF certification training was given to raise the knowledge level of the Corporate Architecture staff to international standards, and four employees were awarded certificates.

#### Business Continuity

An IT critical problem management process was formed, and the IT emergency process was improved with its procedures prepared, approved, and published. The Disaster Recovery Center (DRC) transition plan was updated.

To ensure business continuity, the infrastructure of the Emergency Operations Center (EOC) under Borsa Istanbul was improved, and the Maslak Office environment was simulated. As part of the transition to the Disaster Recovery Center, transition procedures were drawn up and the partial transition for databases were completed successfully.



CORPORATE RISK MANAGEMENT

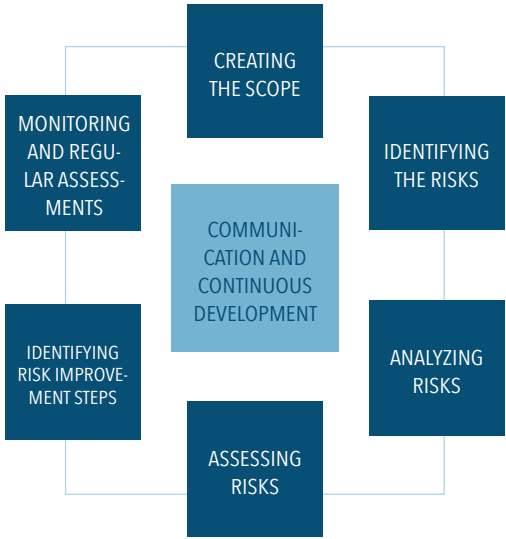
Corporate risk management is a systematic process that is implemented across the entire organization. It is shaped by the activities of all employees, primarily the top management. Corporate risk management plays a key role in determining Company objectives and strategies. In our company, risk management is carried out dynamically, taking into consideration the legislation, good practices, and standards in a manner that gives confidence to the stakeholders.

Our Company adopted an objective-based corporate risk management system on February 15, 2019, for early detection of the risks that may jeopardize the presence, development, and continuity of our business, for the coordinated execution of risk management activities within the Company in line with the opinions of top management, and for the implementation of all necessary measures and remedies.

Firstly, in the corporate risk management cycle, the internal and external circumstances were analyzed to identify the risks that may hinder achieving our strategic objectives. The identified risks were classified in three categories, i.e. market risks, strategic risks, and operational risks. Then these risks were scored according to their impact and probability by the top management. Then the risks were analyzed, and meetings were held with each business unit. The meetings allowed the units to assess the risks and plan the actions to be taken to reduce the impact of such risks. As a result, the root causes of the risks, the actions/measures taken against such risks, and the relevant indicators were included in the risk management efforts. Accordingly, Action Monitoring Reports were produced about these activities. Moreover, the Company created risk indicator screens with the data regarding each relevant risk. This allowed us to analyze the root causes of risks, assign scores to each risk, develop control points, and perform monitoring and periodical assessments in light of the data for each risk. Critical business processes were identified with business units as part of Business Continuity. Recovery scenarios were prepared to restore

the continuity of critical processes with minimum losses in case the activities of such processes are interrupted. In line with the EPIAŞ Business Continuity Policy which states that “at least one emergency drill will be done each year,” the critical processes of our Company were tested successfully at the EPIAŞ Emergency Operations Center (EOC) and reported to top management on November 12, 2019. Also, the Company attended the coordination meetings organized by the Ministry of Energy and Natural Resources as part of the works of the Emergency and Crisis Management Center. In addition, all employees were trained to raise awareness on Corporate Risk Management and Business Continuity Management.

The corporate risk management actions in 2019 were based on data, and therefore, were taken objectively and transparently. The information concerning the risks in the reports were shared with the relevant units to help improve and develop the company's processes and activities.



CORPORATE CAPACITY BUILDUP AND DEVELOPMENT ACTIVITIES

VALUE-BASED HUMAN RESOURCES MANAGEMENT

The Performance Management System helps us spread sustainable and success-oriented performance culture and ensure that employee success is translated into corporate success. Accordingly, we used the *90-degree Performance Assessment* to assess the 2018 performance of our employees

in terms of their objectives and competences. To achieve the 2019 performance assessments with an innovative approach, the *360-degree Performance Assessment* transformation has been launched by a Board Decision dated June 28, 2019. Through career management, our company gives priority





to maintaining the right persons at the right positions and clarifying medium- and long-term career plans optimally. In 2019, the career plans and promotions of our employees were made accordingly.

Backup plans were devised for critical positions that are important for the continuity of our company. A *Backup Employee Development Program* was created and put into practice in order to prepare potential employees for critical positions.

Modules such as "*Performance Management, Career Management, Recruitment and Placement Management, Wage Scenarios Management, and Training Management*" were included in the software we use in order to carry out our human resources operations faster, more efficiently, and more effectively.

Our company executed a *Workload Analysis Project* in 2019 as part of a consultancy service to perform workload analyses and to identify its unit labor force needs and its optimal permanent staff in line with its Strategic Objectives for 2019 to 2023.

An *Outsource Service Procurement Project* was initiated in 2019 for employees that were to work for the units that report to our Directorate of Information Technologies in order to meet the need for human resources under the EFM, EMMS, and projects of similar scale.

An internal survey was conducted in 2019 to survey the opinions of employees about the beginning and end of office hours in

order to increase employee satisfaction and work efficiency. As a result of the survey, office hours were rearranged, and a flexible working hours system was adopted as suggested by the employees.

In addition to the annual *Employee Satisfaction Survey*, an Internal *Customer Satisfaction Survey*, and a *Resignee Assessment Survey* were conducted this year. These regular reviews affected satisfaction rates positively, and the surveys helped us to discover areas for our Company's further development.

The idea/suggestion project "*I Have an Idea*" was initiated in 2019 to show the importance our Company attaches to effective communication, to turn the opinions and suggestions of our employees into corporate success, and to enrich feedback procedures.

A training plan was designed for our employees with a particular focus on their spheres of development. The training sessions were customized and optimized by taking account of our employee's personal and professional skills. As part of our Company's investment in and support for education, 82 training sessions with a total duration of 84 hours were offered on personal development, professional development, and as compulsory training in 2019.

## OUR MANAGEMENT SYSTEMS

### INTEGRATED MANAGEMENT SYSTEMS

Internal inspections, improvement efforts, management review meetings, and external inspections were carried out under the "ISO 9001 Quality Management System," "ISO 10002 Customer Satisfaction Management System," and the "OHSAS 18001 Occupational Health and Safety Management System." As a result, our Company was certified for compliance with the relevant standards on May 22, 2019. The accredited certificates were submitted to EMRA and published on the EPIAŞ website. Half-year process performance assessments were made and reported for 2019. Processes and procedures were prepared as part of the integration of the Directorate of Information Technologies to the Quality Management System and published on the Integrated Management System.

### INFORMATION SECURITY MANAGEMENT SYSTEM (ISMS)

In 2019, Turkish Standards Institution (TSE) conducted and successfully completed the First Surveillance Audit under the ISO 27001 Information Security Management System (ISMS).

Under the Information Security Management System, the Digital Data Classification Project for the classification of digital EPIAŞ documents (files in the file system, emails, etc.) was completed. The project's objective was to tag the present data and the old data using "public" and "private" data tags. For this purpose, the policies were drawn up, the products were installed, and our employees were given necessary training.

### COMPLIANCE WITH THE LAW ON PROTECTION OF PERSONAL DATA (LPPD)

Our Company's Project of Compliance with the Law on the Protection of Personal Data was executed under the sponsorship of the Legal Counselor's Office. The Legal Counselor's Office contributed to the project by providing the internal units of the

Company with legal counseling on updating such documents as the Information Security Event Monitoring Procedure, and by preparing the External Personal Data Processing Procedure, Personal Data Processing Contract, Privacy Policy, and similar other documents.

As part of our compliance with the Law on Protection of Personal Data, our registration to the VERBİS system was concluded, and our personal data inventory was included in the VERBİS system. The existing LPPD procedures were revised and the new procedures were approved by the top management before being published.



In 2019, Turkish Standards Institution (TSE) conducted and successfully completed the First Surveillance Audit under the ISO 27001 Information Security Management System (ISMS).



## COMMUNICATION, ORGANIZATION, AND TRAINING

In 2019, we continued to enhance our Company's image and reputation in line with our vision by promoting the Company at national and international platforms and facilitating its communication with the media. Accordingly, we held many events, meetings, and training sessions. Furthermore, we organized activities, events, and sponsorship campaigns for internal and external audiences. In 2019, as part of our corporate communication activities, we regularly managed the content of our corporate website and our social media accounts. Therefore, in 2019, the efforts to update our corporate website (www.epias.com.tr, www.epias.com.tr/en/) that features our operations were completed to better serve our market participants, industry stakeholders, and the public. Contents about our operations were shared on the EPIAŞ social media accounts including @epiastr,

@borsaenerjiEN on Twitter, LinkedIn, YouTube and Instagram. Moreover, announcements and news about events are prepared and shared with the relevant persons.

Conventional media and social media were used effectively to enhance the image of an effective, transparent, and sustainable energy exchange. Some of the events hosted and attended by EPIAŞ in 2019 are the Fourth General Assembly of EPIAŞ, Fifth EPIAŞ Transparency Workshop, Second Energy and Natural Resources Summit of Turkey, ISTRADE 2019 Energy Trade and Supply Summit, Sixth Carbon Summit, 10th Energy Efficiency Forum and Fair, and 10th Turkish Energy Summit. In line with the performance indicator "Conducting participant satisfaction survey on a regular basis" in Goal 1, Objective 1.2 of the EPIAŞ

We actively used the conventional media and the social media to enhance our image of an effective, transparent, and sustainable energy exchange.



We began publishing our bimonthly internal communication magazine ENERJİST digitally on the Intranet in September 2019.

Strategic Plan 2019-2023, the first Participant Satisfaction Survey was conducted in 2019. The survey contained questions about our products and services and was conducted in person with the participants of electricity and natural gas markets in 27 provinces across Turkey from September 12, 2019, to November 8, 2019.

Considering the entire scale of satisfaction, the participant satisfaction score is 79.2 out of 100.

We began publishing our bimonthly internal communication magazine ENERJİST digitally on the Intranet in September 2019.





## EVENTS

### TRANSPARENCY WORKSHOP

The fifth annual Transparency Workshop organized by EPIAŞ was held in Istanbul with 118 participants on November 23, 2019. Attended by EMRA, public sector officials, private sector actors, industrial associations and consultancy company representatives, the workshop was broadcast live on our website to allow anyone who was interested in the workshop to watch it. Organized as a full-day event in four sessions, the workshop featured forums on "Discussing the Failure Maintenance Notification Structure," "Transparency Data in the Electricity Market," and "Transparency Data in the Natural Gas Market." And the final session involved a presentation on the Electricity Futures Market which is planned to be opened in 2020. The outcomes of the workshop and the 2019 activities towards transparency were compiled and submitted to EMRA in a "2019 Transparency Report."

## INNOVATION CENTER EVENTS

ENERJIK Innovation Center continues to support innovative ideas in the energy sector and help develop fresh technological solutions. Accordingly, the Center organizes various events to contribute to the development of the energy market.

The organized events included "Artificial Intelligence Ideathon" featuring the details and application examples of AI Technology, "Energy Market and Network Simulation" featuring market and network simulation techniques that allows for the accurate analysis of the changes in the market and the network, and "The Future of Energy Markets and Opportunities for Entrepreneurs" which intended to draw a roadmap for the enterprises that aim to operate in the energy market and have a business idea.



**ENERJIK Innovation Center continues to support innovative ideas in the energy sector and help develop fresh technological solutions. Accordingly, the Center organizes various events to contribute to the development of the energy market.**







Five different training courses were held in 2019.

MARKET TRAINING COURSES

The number of our training courses was increased and their content expanded in line with the requests from our market participants. Five different training courses were organized in 2019 and 229 participants were given NCMT training due to the amendment of the legislation. Among the courses in our current training program, 107 participants were given Electricity Markets Training, 34 participants were given Natural Gas CTP Training, 17 participants were given Introduction to Electricity Markets Training, and 14 participants were given Energy Markets Transparency Training. Each training session is available on our YouTube channel.

INVESTMENTS AND IMPORTANT PURCHASES

The table below shows the investments of EPIAŞ in the accounting year 2019 in comparison with the previous accounting period.

Investments (TRY)	2018	2019
<b>Building Investments</b>	<b>135,068,651</b>	<b>28,781,237</b>
Building Investments	135,068,651	28,781,237
<b>Fixture Investments</b>	<b>2,801,380</b>	<b>7,654,693</b>
IT Investments	2,431,375	2,133,186
Other Investments	370,005	5,521,507
<b>Software Investments</b>	<b>381,740</b>	<b>1,198,509</b>
IT Investments	143,340	980,409
Accounting Software and Software Licenses	23,400	50,600
Other Software	215,000	167,500
<b>License Investments</b>	<b>485,496</b>	<b>610,275</b>
IT Investments	464,031	593,873
Licenses	21,465	16,402
<b>R&amp;D Investments</b>	<b>22,707,842</b>	<b>8,857,507</b>
Completed R&D Investments	22,707,842	8,857,507
<b>Special Cost Investments</b>	<b>176,216</b>	-
IT Investments	-	-
Other Investments	176,216	
<b>Investments in Progress</b>	<b>22,159,891</b>	<b>13,501,258</b>
R&D Investments	15,570,604	13,471,258
Other Investments	6,589,287	30,000
<b>Total</b>	<b>183,781,216</b>	<b>60,603,479</b>

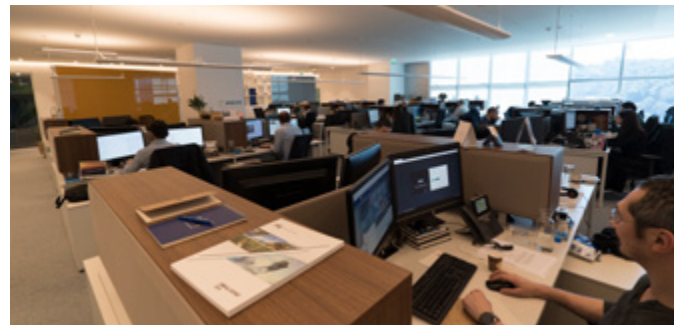




On February 4, 2019, EPIAŞ moved to its new premises in the Maslak 1453 campus to serve market participants and sector stakeholders better.



EPIAŞ, the energy exchange of Turkey, started to serve the energy sector in its office in Levent shortly after it was established. It has now moved to its new premises in Maslak 1453 campus on February 4, 2019, to serve market participants and sector stakeholders better.



## INTERNATIONAL OPERATIONS

### INTERNATIONAL EVENTS

#### EUROPEX WORKING GROUPS

Europex is a not-for-profit association of European energy exchanges with 28 members. It represents the interests of exchange-based wholesale electricity, gas and environmental markets, focuses on developments of the European regulatory framework for wholesale energy trading and provides a discussion platform at European level. EUROPEX operates with four working groups: "Power Markets Working Group," "Gas Markets Working Group," "Environmental Markets Working Group," and "Financial Markets & Integrity and Transparency Working Group." Our Company attended each working group and monitored the developments in the relevant markets closely. Regulation and Compliance Manager of EPIAŞ, Derya Erbay, served as the Acting Head of Environmental Market Working Group for the mandate 2018-2020

#### EUROGIA2020

EPIAŞ is a board member of the EUROGIA2020, an energy subset of the international cooperation network EUREKA which works to reduce carbon emissions.

Our Company hosted the event "EUROGIA2020 Info Days 2019." Panelists shared their project experiences with other participants who considered submitting projects at the event attended by national representatives of TÜBİTAK (the Scientific and Technological Research Council of Turkey), EUROGIA2020 Executive Staff, and top-level executives of the energy sector. The participants were informed about subsidies for EUROGIA2020 and TÜBİTAK 1509 projects, and consortia have been formed for new projects.





INTERNATIONAL VISITS

In 2019, Indonesian, Uzbek, and Azerbaijani delegates came to Turkey to collect information about the country's success in structuring and developing its energy sector. They also visited our Company. During the meetings, the management of EPIAŞ informed the delegates about the Turkish electricity industry, EPIAŞ's role and activities in the sector, electricity and natural gas markets, balancing power markets, and the software infrastructure used by EPIAŞ.

In addition, our employees visited Azerbaijan and Ukraine upon invitation and made informing presentations about our markets. Our Company took part in the Wholesale Electricity Markets Development Workshop held under the Energy Security Project subsidized by the USAID in Ukraine. Our Company's representatives delivered a presentation about the energy sector outlook and the structure of electricity markets in Turkey.

In 2019, Indonesian, Uzbek, and Azerbaijani delegates who came to Turkey to collect information about the country's success in structuring and developing its energy sector also visited our Company.



UZBEKISTAN

Uzbekistan's energy company Uzbekenergo and a delegation that included the representatives of the Ministries of Economy, Finance, Investment and Foreign Trade, and the World Bank officials visited our Company on February 11, 2019, to collect information about Turkey's success in structuring and developing the energy sector.

INDONESIA

Delegates from Pengatur Pusat Beban (Load Dispatch Center) of the Indonesian national electricity company PLN, and from ICON+, an Information Technologies and Communication Company and a subsidiary of PLN, visited our Company on January 28-29, 2019.

REGULATORY ACTIVITIES

As regards the organized wholesale electricity and natural gas markets operated by our company, preparatory works have been carried and new regulations are drafted as to be sent to EMRA in line with the needs and expectations of the markets. We also presented our assessments and opinions to EMRA regarding public consultations on the drafts proposed by EMRA. Additionally, we have continued to update or change

the procedures which are required to be put into effect by our Company as per the legislation.

The following table shows the 2019 regulations which we contributed to and/or put into effect concerning the organized wholesale electricity markets.

Legislation Type	Regulating Authority	Regulation Name	Effective Date
Law	Parliament	Amendment to Electricity Market Law No. 6446 to authorize EPIAŞ to operate the Electricity Futures Market and to preserve the collaterals	18.01.2019
Procedure	EPIAŞ	Amendment to the Collateral Calculation Procedure	08.05.2019
Procedure	EPIAŞ	Revocation of the Block and Flexible Bidding Procedure	09.08.2019
Procedure	EPIAŞ	Amendment to the Side Payment Procedure	09.08.2019
Regulation	EPDK	Amendments to the Balancing and Settlement Regulation (NCMT, DAM Phase 2)	09.08.2019
Procedures and Principles	EPDK	Amendment of the Structure of the Day Ahead Market Bids and the Procedures and Principles for the Evaluation of Bids	09.08.2019
Procedure	EPIAŞ	Procedure for Non-covered Market Transactions	01.10.2019

Regulatory efforts concerning the internal operations of the Company in 2019 are given in the table below.

Legislation Type	Regulation Name	Effective Date
Policy	EPIAŞ Corporate Risk Management Policy	15.02.2019
Policy	EPIAŞ Fund Management Policy	22.04.2019
Policy	Amendment to the EPIAŞ Travel Management Policy	10.05.2019
Circular	EPIAŞ Travel Management Circular	30.05.2019
Policy	Amendment to the EXIST Performance Management Policy (360 degrees)	28.06.2019
Policy	Amendment to the EPIAŞ Organization Policy	17.07.2019
Policy	EPIAŞ Purchasing Policy	30.09.2019
Internal Regulation	Implementation of Internal Directive No. 5 on the Authority to Represent and Bind the Company	30.09.2019
Circular	EPIAŞ Company Vehicles Circular	01.11.2019
Circular	The Circular on Working Periods, Overtime Work, Leaves, and Proxy Practices	17.12.2019
Circular	Dress Code Circular	17.12.2019
Policy	Amendment to the EPIAŞ Performance Policy	27.12.2019

LEGAL ACTIVITIES

The Legal Counseling Office is responsible for providing legal advice to the EPIAŞ Board of Directors, General Manager and the internal units, representing EPIAŞ before any legal and administrative authority, and answering any letter written to EPIAŞ by judicial authorities.

The number of lawsuits pursued as the attorney of EPIAŞ in 2019 including those which were taken over from TEİAŞ as per the legislation was 96. The number of execution proceedings initiated for the collection of overdue receivables as required by the EPIAŞ’s role as the market operator was 29. There are no lawsuits or execution proceedings initiated against EPIAŞ that would affect the financial status or activities of EPIAŞ. The Legal Counseling Office examined 117 contracts signed by

EPIAŞ in legal terms, and the internal units of EPIAŞ were given legal opinions on various matters in 47 instances. Moreover, more than 200 legal applications made by judicial or administrative bodies or individuals were examined and appropriate actions were taken.

The Legal Counseling Office acted as the secretary for the EPIAŞ Board of Directors meetings in 2019.

The Legal Counseling Office coordinated the preparation and execution of the Fourth Ordinary General Assembly on March 22, 2019.

The Office also monitored the publishing process of the resolutions made by the General Assembly and the Board of Directors in the Commercial Registry Gazette.

The Legal Counseling Office played an active role as the project sponsor in Company’s compliance with the Law on Protection of Personal Data. The Legal Counseling Office attended both internal meetings and the meetings with EMRA and played an active role in the preparation and writing process of the legislation on the Electricity Futures Market, Natural Gas Futures Market, and Non-covered Market Transactions by presenting its

opinions, comments, and suggestions. The Legal Counseling Office examined and assessed the legal terms of the consultant and service contracts at the beginning of each project, and helped implement the projects in a fast and reliable manner.

There was no administrative or judicial sanction put on EPIAŞ or its Board Members for any breach of the legislation in 2019.





## ➤ R&D AND BUSINESS DEVELOPMENT





PRODUCT AND SERVICE DEVELOPMENT ACTIVITIES FOR THE MARKET

DEVELOPING THE ELECTRICITY MARKETS

ORGANIZATIONAL LIMITS

In January 2019, EPIAŞ has started to determine market transaction limits to prevent material errors that may arise from erroneous bids entered by the participants in the Day-ahead Market and Intraday Market software.

THE DAY-AHEAD MARKET (DAM) MULTI-ZONE PROJECT

The TEYDEB (Technology and Innovation Grant Programs Directorate) jury approved the conclusion report of the project on Day-ahead Market Bid Types, which was included in the TÜBİTAK Industrial R&D Project Subsidy Program. Consequently, the project was accepted as a product of the EPIAŞ R&D Center with a potential of commercialization. Currently, Turkey is considered a single bidding area, and a single reference Market Clearing Price (MCP) is identified through DAM transactions. This project will allow any amount of bid areas to be defined in the DAM, and it will be possible to calculate a different reference MCP for each area. The software is planned to be used if the Turkish electricity market is divided into bidding areas; if the Turkish electricity market merges with the markets of the neighboring countries; and if the software is sold to other country/countries that would like to do regional pricing.

NEW BID TYPES FOR THE DAY-AHEAD MARKET (DAM)

As part of the Day-ahead Market Phase II Project, the development of the profile block and the flexible block bidding products which are also made available in prominent energy exchanges in Europe and will better fulfill the technical requirements of the power plants and of the demand side in Turkey was completed and put into the service of the market participants on September 1, 2019. New bidding types made available to participants increased the diversity of the Day-Ahead

Market products and allowed them to meet the needs of the market participants better.

Key updates and developments were made for the “Hourly,” “Block Bid,” and “Flexible Bid” options in the DAM application. This project introduced:

- ▶ Entering different amounts for each hour in profile block bids to be put into use as a new bid type,
- ▶ The three-fold rule in increasing and decreasing the amount for consecutive hours in profile block bids,
- ▶ Using weighted average prices while accepting block bids since profile block bids make it possible to change the amounts of bids made every hour,
- ▶ A maximum of six flexible bids in a delivery day by market participants at the same time or different time intervals as for flexible bids,
- ▶ Making flexible bids in the purchase direction as well,
- ▶ Flexible bids covering a time interval of a minimum of eight hours, a maximum of 24 hours, and a maximum duration of four hours.

Following the software development processes of our DAM New Bid Types project, which was expanded with the DAM multi-zone analyses as of March 2018, our profile block and flexible block bid types were introduced to our market participants on the test environment on March 1, 2019, and the project went live as per the relevant legislation on September 1, 2019.

The optimization engine was re-designed and re-coded as part of the DAM New Bid Types project to include profile block and flexible block bids besides the existing bid types (hourly, block, and flexible). The optimization engine was made ready for potential market separation/unification scenarios with the multi-zone project completed under the TEYDEB project. This

allowed Turkey to fulfill another requirement to become a local energy trading hub. Key performance improvements were made in the optimization engine, which was commissioned as the new bid types were made available on September 1, 2019. Improvements up to 100 percent for the number of days for which an optimal solution was not found and up to 30 percent for the average solution time were achieved in comparison with past tests. The optimization engine has been able to find the optimal solution as quickly as 25 seconds since it was commissioned on September 1, 2019.

Modification of the Side Payment Procedure: A significant modification was made in calculation of the side payments of the linked block bids in 2019. In the old version, the side payments for each block bid in the linked block bids were calculated separately. Therefore, the calculation of the side payments for the linked block bids, for which the social benefit was calculated as a whole, was updated to take the family as a whole. The modification harmonized the calculation of the side payments of the linked blocks with the calculation of the social benefit.

NON-COVERED MARKET TRANSACTIONS (NCMT)

To protect the market participants on EPIAŞ and contribute to the healthy operation of the power markets, EPIAŞ intends to prevent potential problems that may prevent market participants from making Non-covered Market Transactions. The rules regarding day-ahead market bids and bilateral agreement notifications as part of the balancing liabilities specified in Article 6, Paragraph 1 of the Electricity Market Balancing and Settlement Regulation were presented to our market participants on our testing environment for Non-covered Market Transactions (NCMT) on September 23, 2019. This was done under the project launched in October 2018 on NCMT analyses to identify the NCMTs and to define the actions to be taken against NCMT violations. The rules have been integrated into the Day-ahead Market software and put into effect on October 1, 2019.

ARTIFICIAL INTELLIGENCE-BASED DAY-AHEAD MARKET OPTIMIZATION ENGINE

This project aims to improve our solution performance by dynamically defining the parameter configurations and solution seeking methodology of the optimization engine and similar applications used for setting prices for the Day-ahead Market (DAM) through an algorithm powered by artificial intelligence. Using the parameters of the optimization engine and similar other applications with different values than the defaults may alter their solution performance, causing them to overperform or underperform. Therefore, this artificial intelligence project intends to determine the optimal parameter configurations required at a given time using machine learning techniques. The research and pilot application phases of the project were successfully completed, and the work is in progress for integration in the DAM optimization engine.



To protect the market participants on EPIAŞ and contribute to the healthy operation of the power markets, EPIAŞ intends to prevent potential problems that may prevent market participants from making Non-covered Market Transactions.

DEVELOPING THE NATURAL GAS MARKET

WEEKLY PRODUCT DEVELOPMENT

With the weekly products, EPIAŞ intends to offer market participants an alternative means of trade. In addition to the transactions covering a single day on the spot market, market participants will be able to make two-day transactions for the following weekend, five-day transactions for the following

weekdays, and seven-day transactions for the entire following week, in a single transaction. These new products will allow the participants to unify their positions up to seven days in a single transaction with more favorable conditions. The weekly products are planned to be made available when the legislation takes effect in 2020.

ENERGY MARKETS MANAGEMENT SYSTEM (EMMS)

The EMMS project was initiated on August 1, 2018, to reorganize the existing BPMMS software and data architecture and renew the relevant software in line with changing business processes so as to ensure that our software infrastructure responds to the market's needs in a faster, more transparent, and reliable manner as directed by the rapid development trend of the energy markets. The conceptual design phase which involves Business Analysis and Technical Design was completed and the software development process was then initiated on July 1, 2019. Our software development work are still in progress. Several current technologies and approaches such as Kafka and

the container architecture will be used in our project, which is designed with a micro-service approach. In this respect, all development environments required for the EMMS were installed in the container architecture and a live environment infrastructure was planned.

EPIAŞ has initiated technical analysis on the EMMS project, and prioritized the presentation of the Transparency Platform with a new data infrastructure. The transparency data and other data from the EMMS system are intended to be introduced in separate environments and with better performance.

ELECTRICITY FUTURES MARKET (EFM)

In 2018, EPIAŞ initiated the research and development process of an Electricity Futures Market (EFM) which enables electricity market participants to hedge against the price risk and see price expectations, and contributes indirectly to the long-term security of energy supply as it provides buy signals. To establish the Electricity Futures Market, EPIAŞ cooperated with the Ministry of Energy and Natural Resources, EMRA, CMB, Borsa Istanbul, Takasbank, and the NGOs in the energy sector.

Along with our business development efforts, several actions to amend Electricity Market Law No. 6446 to authorize EPIAŞ to operate an Electricity Futures Market were initiated. EPIAŞ has been authorized to operate the Electricity Futures Market under Amendment No. 7162 dated January 18, 2019, to the Law No. 6446.

We held meetings with the market participants throughout the business development process to understand the sector needs

and design a more effective market. At the meetings, market participants were asked for their opinions about the market design, and several improvements were made accordingly. In April, we organized an Electricity Futures Market Workshop with the attendance of EMRA, Energy Traders Association, Electricity Producers Association, Association of Distribution System Operators, and some distribution company officials. We also made an informative presentation at the Fourth Energy Trade and Supply Summit in the session of Electricity Market with Future Physical Delivery. We have been cooperating with EMRA for the preparation of the legislation since March. EMRA opened the Procedures and Principles of Operation for the Electricity Futures Market to

consultation on July 24, 2019. On the other hand, Preparatory work was completed at the end of November, regarding the draft Procedure where details of market operation are determined and which will be put into effect by our Company.

Electricity futures trading that covers different load types such as base and peak demand for monthly, quarterly, and yearly delivery periods in the Electricity Futures Market will be made available to market participants. In line with EPIAŞ's strategy to develop market software through internal resources, the EFM software programs will be developed by EPIAŞ. Efforts are in progress to open the Electricity Futures Market in December 2020.



Electricity futures trading that covers different load types such as base and peak demand for monthly, quarterly, and yearly delivery periods in the Electricity Futures Market will be made available to market participants.



NATURAL GAS FUTURES MARKET (GFM)

Along with the Electricity Futures Market, the establishment of a Natural Gas Futures Market was brought to the agenda to enable the natural gas market participants to benefit from the advantages that will be introduced to the electricity market participants. Such advantages include hedging against the price risk and seeing price expectations. We started to work on

establishing a Natural Gas Futures Market by drawing upon the knowledge and experience gained during the Electricity Futures Market development process. Accordingly, we have reviewed the examples of Natural Gas Futures Markets worldwide and engaged in business development activities regarding conceptual design.

ENERGY MARKETS DEVELOPMENT PROJECT UNDER IPA

Founded in 2007, the Instrument for Pre-accession Assistance, or IPA, is a financial assistance system that provides European Union members or potential member states with an efficient transfer of funds. IPA is implemented at seven-year intervals. The IPA Period I was implemented from 2007 to 2013, and the IPA Period II has been in progress from 2013 to 2020.

The Ministry of Energy and Natural Resources, EPIAŞ, EMRA, TEİAŞ and BOTAŞ are the principal beneficiaries of the project, and it is intended that the relevant organizations will be offered technical assistance about the balancing power market, natural gas and electricity spot markets, transparency, and green

certificate markets. The project also provides such organizations with advisory reports on electricity markets.

The “Energy Market Development Project - Phase 2” in which our Company participates is in progress. Information about the project is published on the website <https://www.epgprojesi.com/>. In this respect, the consultant prepared and submitted to our Company six reports under four titles in 2019. Our cooperation continues with the project’s coordinators and stakeholders – the Ministry of Energy and Natural Resources, World Bank, TEİAŞ, BOTAŞ and EMRA.



HELP DESK PROJECT

To meet the customers’ problems, demands, needs, and expectations faster, more effectively, and more efficiently, EPIAŞ has started focusing on establishing an “EPIAŞ Help Desk” on March 1, 2019. The project is planned to be completed by March 31, 2020, with the help of the relevant units. With the establishment of a help desk system under the ISO 10002 Customer Satisfaction Standard, EPIAŞ intends to:

- Assess, conclude, and report customer applications in a fast and effective manner,
- Increase the contribution of service-providing units in handling demands to establish coordination among the units,
- Make correspondences in a flexible, standardized, and reliable environment,
- Improve service quality and participant satisfaction.

MOBILE APPLICATION

The mobile application allows access to the EPIAŞ Transparency Platform data, instant power generation and consumption data, market messaging system, power plant maintenance and failure data, announcements and bulletins, and the latest summaries. Reports can be added to favorites for quick access and instant notifications can be set for when the market clearing price is calculated or when new announcements or bulletins are published. Our Natural Gas Market Module operations took place in the beginning of 2019. The Natural Gas Market data and analyses of the EPIAŞ Mobile Application developed for iOS and Android were released on March 22, 2019.





R&D AND PROJECT MANAGEMENT

In 2016, EPIAŞ became an R&D center certified by the Ministry of Industry and Technology, becoming one of the few companies to be awarded this certificate in Turkey. R&D centers are units which:

- Are organized as a separate unit in the organizational structure,
- Engage in research and development activities in Turkey,
- Employ at least 15 full-time-equivalent R&D employees,
- Have sufficient R&D experience and capability, and is located in the same building or campus.

EPIAŞ holds an R&D Certificate issued under the "Regulation on Practices and Audit of Supporting Research and Development Activities," prepared for the implementation of Law No. 5746.

The EPIAŞ R&D Center is audited on an annual basis by the Ministry of Industry and Technology in terms of administrative, financial, and technical aspects. The Company is granted R&D center incentives only in the subsequent period if the assessments are positive. Our R&D center has passed these audits three times, and now it is in the fourth operating period.

Our R&D center has been active for four years now, and grows with national and international collaborations. It continues to help our Company and our internal projects benefit from both national and international subsidies. In addition to financial gains, the Center helps us achieve systematic R&D work, carry out R&D projects, employ qualified staff, and establish university-industry cooperations. Moreover, the Center has been striving to transfer its wealth of knowledge, for example, by commenting on the R&D and Startup Approach documents of the Ministry of Energy and Natural Resources since 2016.

The TEYDEB (Technology and Innovation Grant Programs Directorate) jury approved the conclusion report of the

project on Actor-based Adaptive Elastic Distributed Natural Gas Continuous Trading System with Error Tolerance, which was included in the TÜBİTAK Industrial R&D Project Subsidy Program. The project was closed in the last quarter of 2019 and accepted as a product of the EPIAŞ R&D Center with a potential of commercialization.

COMPETITION FOR THE OPTIMIZATION OF THE DAY-AHEAD MARKET

As part of the Innovation Center activities, a competition was organized for the Optimization of the Day-ahead Market. This competition is intended to create a new field of research, support the Ministry of Industry and Technology's Public-University-Industry Cooperation (PUIC) Strategy and Action Plan, and to direct the mental power of Turkish scientists to energy markets. The competition became popular and 89 teams applied. The winners will be announced following the evaluation of the scholars on February 24, 2020.

INTERNATIONAL PROJECTS AND COOPERATION

The EPIAŞ R&D Center participated in the "GAME4SEEN" and "EnergyShared" projects as a stakeholder. The Center has also been a Board Member in the Energy Cluster EUROGIA2020. This provided us with the experience of managing big projects with international stakeholders and allowed us to receive grants from EU.

THE PROJECT GAME4SEEN

The Project Game4Seen was intended to unite consumer data collected through the IoT platform and gamification technologies to analyze user behaviors and create consumer profiles. The purpose was to improve energy efficiency in consumer behavior.

THE PROJECT ENERGYSHARED

This project will allow us to utilize machine learning to see

consumer data history and consumer sharing habits, and forecast the amount of user feedback and how such feedback will change the energy exchange. So, it will be possible to control the energy exchange with more certain consumer data.

BCTR TURKEY

The EPIAŞ R&D Center is positioned as a cooperating organization in the Blockchain Turkey Platform that incorporates ITU, TÜBİTAK BİLGEM, and the Turkish Ministry of Trade in order to increase its knowledge and to create an energy ecosystem network with blockchain platforms and a consortia of science, industry, and technology academies on the Blockchain platform.

IMPROVEMENT OF INTERNAL PROCESSES

INTEGRATED MANAGEMENT SYSTEM

The project was initiated by the Ministry of Energy and Natural Resources on March 1, 2019, to ensure that the Integrated Management System purchased by the affiliated organizations of the Ministry is properly used within the Company so that the automation of the operations required by the management system standards could be achieved.

A total of 13 modules including Document Management, Corrective and Improving Activities, General Action, Legislation and Compliance Management, Occupational Health and Safety, and Risk Management were made available to the EPIAŞ staff. This allowed us to digitally execute and monitor the formation of the documentation infrastructure required by the ISO 9001, ISO 10002, ISO 27001, and OHSAS 18001 management system standards.



Our R&D center has passed the audits three times, and now it is in the fourth operating period.

WORKFLOW MANAGEMENT SYSTEM

Workflow management system software was purchased to digitize all the internal documents and forms of our Company which were previously in paper form, so that approval processes are completed in a faster and more reliable manner. The project was initiated in the last quarter of 2019, and is expected to be completed in the first quarter of 2020.

As part of our digitalization and integration efforts, we made site visits, company visits and PoC and demo works for the procurement of a workflow application. After the purchasing, we have started to develop the platform, and digitalized our previously printed business processes. We also continued the additional development and process improvement efforts for the IT Service Management Platform (EPIAŞ). In addition, its integration with the code security application and the business intelligence reporting tool was completed. Budget realizations and contract management processes which were previously monitored and reported on Excel were moved to the EPIAŞ environment for ease of access and monitoring.

MARKET SURVEILLANCE AND AUDIT ACTIVITIES

Market surveillance is made to ensure that all transactions on the markets operated by EPIAŞ are made in a reliable, transparent, effective, and competitive manner, and extraordinary transactions, prices, and similar other market activities are reported.

In this respect, the amounts of collaterals to secure the receivables of the market participants are monitored daily, and the collateral system’s performance is measured monthly by using the predetermined performance criteria, and reports are submitted to the relevant units.

The monthly market report shared with the relevant units of the Company throughout an operating year includes national and international market data related to the energy markets, collaterals of the participants, analysis of the collateral system, Bilateral Agreements, and the transactions made on the Day-ahead Market (DAM), Intraday Market (IDM), Balancing Power Market (BPM), Futures and Options Market (VIOP), and Natural Gas Continuous Trading Platform.

Following the announcement of the Market Clearing Price (MCP) as part of the daily surveillance activities, the internal Daily Market Bulletin gives an account of the dynamics that changed the price. In addition, extraordinary price conditions as well as instant price and quantity movements are shared with top management. Prices, quantities, volumes and deviations, as well as all other indicators that may occur in all markets are monitored and reported on a daily basis, and extraordinary movements are analyzed and reported to top management. Internal Daily and Monthly Market Reports and analysis documents have laid the foundations of a sustainable market surveillance and reporting system for which installation efforts have been initiated and which is in compliance with the international standards.

Activities of the Company have been audited with a risk-based approach based on international audit standards and best practices to provide independent and objective assurance to stakeholders by evaluating the effectiveness of risk management, control environment and governance practices. As a requirement of the risk-based audit approach, the areas that can be audited have been evaluated in line with the set of criteria and prominent processes have been included in the audit plan. Audit activities have been carried out within this scope, as well as the follow-up of the findings of the past audit activities have been carried out.

Independent audit activities carried out in the Company have been supervised and coordinated in order to have proper conditions for effective and efficient audit activity. Internal audit activities and audit findings have been reported to Audit and Compliance Committee, which had been gathered four times during the year. The findings and suggestions have been shared with related departments in order to improve company’s processes and activities.

“Prices, quantities, volumes and deviations, as well as all other indicators that may occur in all markets are monitored and reported on a daily basis, and extraordinary movements are analyzed and reported to top management.”

MARKET MONITORING COMMITTEE

The Market Monitoring Committee (MMC) has carried out its activities within the framework of the duties defined in Article 11 titled “Market Monitoring Committee” of the Regulation on the Organizational Structure and Operating Principles of EPIAŞ since the appointment of Fatih Yazıtaş as the Head of the Market Monitoring Committee in accordance with the resolution drawn up by the Council of EMRA and made by the EPIAŞ Board of Directors in its meeting dated March 4, 2017. Committee members have not been appointed yet.

The Market Monitoring Committee operates in line with EPIAŞ’s mission to establish reliable reference prices without any discrimination between equal parties and monitors markets as per other national or international market monitoring procedures and practices. The results of the market monitoring operations were reported to EMRA and the General Manager simultaneously.

Following the announcement of market clearing prices every day, the bids and prices offered by the participants to the Day-ahead market were compared to those offered the previous day in order to analyze the price changes and price formation. The results were shared with top management and EMRA simultaneously. Bilateral agreements market, Intraday market bids, and activities and settlement data on the balancing power market were also examined.

During the last operating year, 12 monthly market monitoring activity reports that did not contain any trade secret about market participants were submitted to the Board of Directors and EMRA each month.

The General Directorate of EPIAŞ was advised on matters that would contribute to the market development as a result of the



market monitoring activities.

A market monitoring software project was devised to conduct monitoring activities in an effective and efficient way. The project was shared with the R&D unit of EPIAŞ, and the Market Monitoring Committee has currently been working on the project.

A draft legislation was drawn up to determine the procedures and principles regarding market monitoring activities.

Furthermore, in 2019, EPIAŞ helped prepare the legislation, and actively participated in and made presentations at industry meetings, national and international events.

EPIAŞ delivered a presentation about Market Monitoring at the “Wholesale Electricity Market Development Workshop” held in Kiev on November 25 to 27, 2019.



FINANCIAL POSITION

BALANCE SHEET  
(Prepared as per Turkish Tax Procedure Law)

The balance sheets of EPİAŞ for December 31, 2018 and December 31, 2019, including market transactions, are comparatively given below.

COMPARATIVE DETAILED BALANCE SHEET OF EPİAŞ (TRY)					
Assets	31.12.2018	31.12.2019	Liabilities	31.12.2018	31.12.2019
I- Current Assets	3,269,151,922	4,347,649,591	III- Short-Term Liabilities	3,224,888,324	4,308,512,124
A- Liquid Assets	104,004,502	64,196,960	A- Financial Liabilities	-	472,745
1- Cash	-	-	1- Bank Loans		472,745
2- Bank	104,004,502	64,196,960	B- Trade Payables	98,650,967	400,728,316
B- Marketable Securities			1- Trade Payables	83,275,301	385,332,368
C- Trade Receivables	42,371,611	378,738,777	2- Notes Payable	15,356,202	15,356,202
1- Trade Receivables	42,371,357	378,738,523	5- Other Trade Payables	19,464	39,747
2- Deposits and Guarantees Given	254	254	C- Other Liabilities	3,131,594	4,756,353
D- Other Receivables	45,463	65,822	D- Advances Received	3,088,345,667	3,893,177,025
E- Inventories	3,104,858,271	3,893,166,727	E- Progress Payments for Long-Term Construction and Repair Contracts	-	-
1- Order Advances Given	3,104,858,271	3,893,166,727			
F- Cost of Long-term Construction and Repair Contracts	-	-	F- Taxes and Other Debts Payable	4,430,866	5,005,554
G- Short-term Prepaid Expenses and Income Accruals	9,439,376	11,481,304	G- Provisions for Debts and Expenses	-	-
H- Other Current Assets	8,432,699		H- Short-term Deferred Income and Expense Accruals	30,329,230	4,372,131
			I- Other Short-Term Liabilities	-	-
II- Fixed Assets	185,745,438	218,308,750	IV- Long-Term Liabilities	61,424,806	46,068,605
C- Trade Receivables	37,567	98,860	A- Financial Liabilities	-	-
1- Deposits and Guarantees Given	37,567	98,860	B- Trade Payables	61,424,806	46,068,605
D- Other Receivables	-	-	C- Other Liabilities	-	-
C- Financial Assets	-	-	D- Advances Received	-	-
D- Tangible Assets	145,973,163	167,611,601	E- Provisions for Debts and Expenses	-	-
1- Buildings	135,068,651	163,849,887	F- Long-term Deferred Income and Expense Accruals	-	-
2- Fixtures	19,858,202	27,481,118	G- Other Long-Term Liabilities	-	-
3- Accumulated Depreciation (-)	15,542,978	23,749,405			
4- Ongoing Investments	6,589,288	30,000			
E- Intangible Assets	38,218,096	48,471,445	V- Shareholder's Equity	168,584,229	211,377,613
1- Rights	18,691,621	19,301,896			
2- Research and Development Expenses	27,758,873	45,036,607	A- Paid-In Capital	61,572,770	61,572,770
3- Leasehold Improvements	639,839	348,549	B- Capital Reserves	615,397	615,397
4- Other Intangible Non-Current Assets	3,106,219	4,304,728	C- Profit Reserves	59,416,675	96,449,718
5- Accumulated Depreciation (-)	11,981,816	20,526,434	D- Retained Earnings	-	-
6- Advances Given	3,360	6,100	E- Accumulated Loss (-)	15,606	15,606
F- Assets Subject to Amortization	-	-			
G- Long-term Prepaid Expenses and Income Accruals	1,516,612	2,126,845	F- Net Current Profit (Loss)	46,994,993	52,755,334
H- Other Fixed Assets	-	-			
Total Assets	3,454,897,360	4,565,958,341	Total Liabilities and Equity	3,454,897,360	4,565,958,341

EPİAŞ acts as a seller against the buyers and as a buyer against the sellers who are trading on the electricity and natural gas markets. In this respect, financial statements also include the amounts associated with market transactions. The following parts of the amounts included in the balance sheet items arise from market transactions.

Of the amount in the Liquid Assets account, the TRY 3,798,388 portion represents the RESSUM penalty to be distributed in 2020 and the TRY 638,919 portion represents the EPİAŞ accounts at Settlement and Custody Bank (Takasbank) that belong to the Electricity Market Participants.

Of the amount in the Trade Receivables account, the TRY 366,818,811 portion represents the electricity market transaction balance and the TRY 11,880,336 portion represents the natural gas market transaction balance.

Of the amount in the Inventories account, the part amounting to TRY 3,709,534,120 signifies the advances given to market participants for orders in return for Intraday market and Day-Ahead market transactions, while the other part amounting to TRY 183,630,174 constitutes the advances given to the

participants as part of the Organized Wholesale Natural Gas Market transactions.

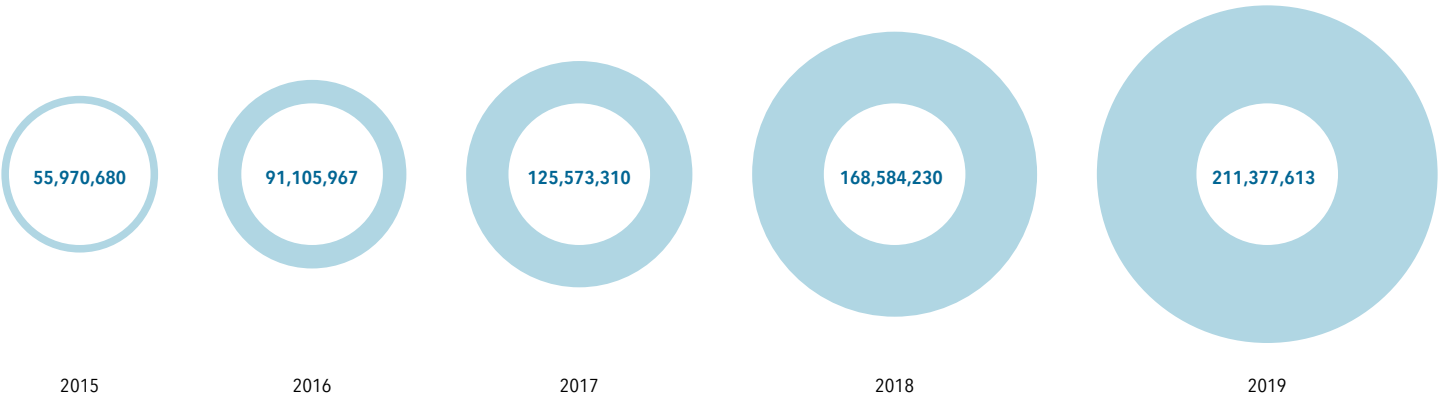
The Trade Payables account consists of the amount TRY 367,417,187 which represents the electricity market transaction balance and the amount TRY 11,880,336 which represents the natural gas market transaction balance.

The Advances Received account consists of two parts: (1) the TRY 3,709,534,107 amount indicating the advances received for orders from electricity market participants, and (2) the TRY 183,630,174 amount indicating the advances received for orders from natural gas market participants. The TRY 3,798,388 part in the Short-term Deferred Income and Expense Accruals account signifies the RESSUM penalties to be distributed in 2020.

The following table shows on a yearly basis the total shareholders' equity of EPİAŞ which was founded with a capital of TRY 61,572,770 in 2015.

Considering the current financial status, EPİAŞ has not lost any capital and is not insolvent.

SHAREHOLDERS' EQUITIES OVER YEARS (TRY)



INCOME STATEMENT  
(Prepared as per Turkish Tax Procedure Law)

The comparative income statements of EPİAŞ for 2018 and 2019, including market transactions, are as follows:

EPİAŞ COMPARATIVE INCOME STATEMENT		
	01.01.2018 - 31.12.2018	01.01.2019 - 31.12.2019
A- Gross Sales	63,845,612,969	87,983,906,117
1- Domestic Sales	63,842,503,286	87,963,767,600
2- Other Income	3,109,683	20,138,517
B- Sales Allowances (-)	19,889,967	2,544,680
1- Sales Returns (-)	736,361	0
2- Sales Discounts (-)	-	-
3- Other Allowances (-)	19,153,606	2,544,680
Net Sales	63,825,723,003	87,981,361,437
C-Cost of Sales (-)	63,731,579,524	87,865,678,336
3- Cost of Services Provided (-)	63,731,579,524	87,865,678,336
4- Cost of Other Sales (-)	-	-
Gross Profit or Loss	94,143,479	115,683,101
D- Operating Expenses (-)	47,582,398	61,989,208
Operating Profit/Loss	46,561,081	53,693,892
E- Ordinary Income and Profits from Other Operations	9,468,722	9,110,706
F- Ordinary Expenses and Losses from Other Operations (-)	274,107	341,732
G- Financing Expenses (-)		
Ordinary Profit or Loss	55,755,696	62,462,867
H- Extraordinary Income and Profits	153,358	347,117
J- Extraordinary Expenses and Losses (-)	4,488	5,946
Current Profit or Loss	55,904,565	62,804,038
K- Provisions for Taxes and Other Legal Liabilities for Current Net Profit (-)	8,909,572	10,048,704
Net Current Profit / Loss	46,994,993	52,755,334

As seen in the income statement above, our Company had TRY 62,804,038 of pre-tax profit from January 1 to December 31, 2019. After the Provisions for Taxes and Other Legal Liabilities for Current Net Profit amounting to TRY 10,048,704 subtracted, the net profit equals to TRY 52,755,334.

FINANCIAL POSITION  
(Prepared as per Turkish Tax Procedure Law)

EPİAŞ SUMMARIZED BALANCE SHEET EXCLUDING MARKET TRANSACTIONS (TRY)		
	2018	2019
Current Assets	108,972,854	71,371,070
Fixed Assets	185,745,439	218,308,751
Total Assets	294,718,293	289,679,820
Short-Term Liabilities	64,709,258	32,233,602
Long-Term Liabilities	61,424,805	46,068,605
Shareholders' Equity	168,584,230	211,377,613
Total Liabilities and Equity	294,718,293	289,679,820

EPİAŞ SUMMARIZED INCOME STATEMENT EXCLUDING MARKET TRANSACTIONS (TRY)		
	2018	2019
Net Sales	110,686,979	136,953,186
Gross Profit or Loss	94,143,479	115,683,101
Operating Profit	46,561,081	53,693,892
Ordinary Profit or Loss	55,755,696	62,462,867
Current Profit or Loss	55,904,565	62,804,038
Provisions for Taxes and Other Legal Liabilities for Current Net Profit	8,909,571	10,048,704
Net Current Profit	46,994,994	52,755,334

FINANCIAL ANALYSIS  
(Prepared as per Turkish Tax Procedure Law)

The tables below give our financial ratios for 2018-2019 based on the financial statements, excluding the amounts relating to market transactions.

FINANCIAL STRUCTURE RATIOS

Financial Structure Ratios	2018	2019
Leverage Ratio (Short- and Long-term Liabilities / Total Assets)	0.43	0.27
Shareholders' Equity / Total Assets Ratio	0.57	0.73
Shareholders' Equity / Total Liabilities Ratio	1.34	2.70



**Leverage Ratio (Short- and Long-term Liabilities / Total Assets):** This ratio indicates how much of the assets are funded by liabilities. This ratio is considered reasonable if it is below 0.5. Therefore, it is seen that EPİAŞ funded its assets through a well-balanced combination of short- and long-term liabilities, and this ratio was at a reasonable level.

**Shareholders’ Equity / Total Assets Ratio:** This ratio indicates how much of the operating assets are provided by the owners

PROFITABILITY RATIOS

Profitability Ratios	2018	2019
Net Profit / Shareholders' Equity Ratio	0.28	0.25
Net Profit / Total Assets Ratio (Return on Assets)	0.16	0.18
Operating Profit / Net Sales Revenue Ratio	0.42	0.39

**Net Profit / Shareholders’ Equity Ratio:** This indicates the relationship between the Company's equity and net profit. Accordingly, EPİAŞ's return on equity seems satisfactory and follows a steady course.

**Net Profit / Total Assets Ratio:** This indicates the effect of the Company's assets in making profit. The higher the ratio found by this estimation, the more successful the company's assets are in making profit.

LIQUIDITY RATIOS

Liquidity Ratios	2018	2019
Current Ratio (Total Current Assets/Short-term Liabilities)	1.68	2.21
Acid-Test Ratio	1.43	2.21
Cash Ratio (Liquid Assets + Securities/Short-term Liabilities)	1.15	1.78

**Current Ratio (Total Current Assets/Short-term Liabilities):** It is calculated by taking into consideration the probability of price increases and the depreciation of current assets. It is ideal for the current ratio to be higher than 2.

**Acid-test Ratio:** It is computed by subtracting inventories from current assets and dividing the result by short-term liabilities. It is favorable for this ratio to be greater than 1. Due to the nature of Our Company's activities, it does not have any material inventories, so

of the company, and it is favorable for this ratio to be higher. Evidently, EPİAŞ has a strong capital and primarily uses shareholders’ equity when financing assets.

**Shareholders’ Equity / Total Liabilities Ratio:** This ratio signifies financial independence and it is desirable for this value to be higher than 1. Our company funds its operations predominantly by shareholders’ equity.

**Operating Profit / Net Sales Revenue Ratio:** (Calculated by taking into account the net revenues free from market transactions but including the market operating fee.) This ratio indicates the profitability of a company and it is in favor of the company to have this amount as high as possible. The operating profit ratio is used to assess the profitability achieved after the operating expenses are paid.

the current and liquidity ratios are equal or very close to each other.

**Cash Ratio (Liquid Assets + Securities/Short-term Liabilities):** This ratio indicates a company's ability to pay its short-term debts under the assumption that the inventories of the company are not sold and its receivables are not collected. The cash ratio measures the extent to which the liquid assets held by the company meet its short-term liabilities. It is generally accepted that this ratio should be higher than 1.

TURKISH ENERGY EXCHANGE

Financial Position Table as of December 31, 2019  
(Prepared as per Turkish Accounting Standards)

Currency: Turkish lira (“TRY”) unless otherwise indicated.

	December 31, 2019	December 31, 2018
<b>Assets</b>		
<b>Current Assets</b>		
Cash and Cash Equivalents	63,581,178	74,570,111
Trade Receivables	11,519,205	9,452,468
- Trade receivables due from related parties	1,539,780	1,561,646
- Trade receivables due from third parties	9,979,425	7,890,822
Other receivables	65,556	45,717
- Other receivables due from related parties	-	-
- Other receivables due from third parties	65,556	45,717
Prepaid expenses	1,553,907	41,191
Assets relating to the current period tax	-	-
Other current assets	-	8,427,658
<b>Total Current Assets</b>	<b>76,719,846</b>	<b>92,537,145</b>
<b>Fixed assets</b>		
Other receivables	104,960	40,927
- Other receivables due from related parties	98,860	37,567
- Other receivables due from third parties	6,100	3,360
Investment property	50,197,131	-
Tangible assets	123,101,325	150,068,927
Right to use assets	2,361,641	-
Intangible assets	40,559,583	30,523,163
Prepaid expenses	576,846	17,996,612
Deferred tax assets	-	-
<b>Total Fixed Assets</b>	<b>216,901,486</b>	<b>198,629,629</b>
<b>Total Assets</b>	<b>293,621,332</b>	<b>291,166,774</b>

TURKISH ENERGY EXCHANGE

Financial Position Table as of December 31, 2019  
(Prepared as per Turkish Accounting Standards)

Currency: Turkish lira ("TRY") unless otherwise indicated.

	December 31, 2019	December 31, 2018
<b>Liabilities</b>		
<b>Short-term liabilities</b>		
Short-term payables	472,750	-
Leasing payables	2,147,721	-
Trade payables	25,330,880	56,302,714
- Trade payables due to related parties	-	5,027,233
- Trade payables due to third parties	25,330,880	51,275,481
Payables pursuant to Benefits Provided to Employees	5,044,570	3,471,246
Other payables	960,386	481,846
- Other payables due to related parties	40,805	40,805
- Other payables due to third parties	919,581	441,041
Tax liability of net profit	1,095,708	1,458,806
Short-term provisions	3,571,085	2,376,592
- Short-term provisions for employee benefits	2,694,705	1,660,922
- Other short-term provisions	876,380	715,670
Other short-term liabilities	2,713,662	2,173,586
<b>Total Short-Term Liabilities</b>	<b>41,336,762</b>	<b>66,264,790</b>
<b>Long-term liabilities</b>		
Leasing payables	934,761	-
Trade payables	37,220,356	39,948,524
- Trade payables due to related parties	-	-
- Trade payables due to third parties	37,220,356	39,948,524
Long-term provisions	1,238,273	772,794
- Long-term provisions for employee benefits	1,238,273	772,794
Deferred tax liability	586,778	3,259,815
<b>Total Long-Term Liabilities</b>	<b>39,980,168</b>	<b>43,981,133</b>
<b>Total Liabilities</b>	<b>81,316,930</b>	<b>110,245,923</b>
<b>Shareholders' Equity</b>		
<b>Shareholders' Equity Owned by the Parent Company</b>		
Paid-in capital	61,572,770	61,572,770
Other reserves	615,397	615,397
Restricted Reserves Set Aside from Profit	6,891,135	3,811,235
Profits (Losses) from Previous Years	101,453,604	48,176,266
Net Current Profit (Loss)	41,771,496	66,745,183
<b>Total Shareholders Equity</b>	<b>212,304,402</b>	<b>180,920,851</b>
<b>Total Liabilities and Shareholders Equity</b>	<b>293,621,332</b>	<b>291,166,774</b>

TURKISH ENERGY EXCHANGE

Profit or Loss and Other Comprehensive Income Statement as of December 31, 2019  
(Prepared as per Turkish Accounting Standards)

Currency: Turkish lira ("TRY") unless otherwise indicated.

	December 31, 2019	December 31, 2018
<b>Profit or loss</b>		
Revenue	135,019,717	109,106,108
Cost of sales	(22,054,770)	(17,351,414)
<b>Gross profit</b>	<b>112,964,947</b>	<b>91,754,694</b>
General administrative expenses (-)	(47,078,946)	(34,775,930)
Research and development expenses (-)	(13,587,695)	(9,645,004)
Other income from primary operations	10,770,405	33,738,004
Other expenses from primary operations (-)	(13,479,546)	(324,784)
<b>Operating profit (loss)</b>	<b>49,589,165</b>	<b>80,746,980</b>
Income from investments	710,424	-
Expenses from investments	(4,696)	-
<b>Operating profit (loss) before financing expenses</b>	<b>50,294,893</b>	<b>80,746,980</b>
Financing expenses	(1,147,804)	-
Financing income	-	-
<b>Pre-tax profit (loss) from ongoing operations</b>	<b>49,147,089</b>	<b>80,746,980</b>
<b>Tax expenses for ongoing operations</b>	<b>(7,375,593)</b>	<b>(14,001,797)</b>
Current tax expense	(10,048,630)	8,909,572
Deferred tax income (expense)	2,673,037	(5,092,225)
<b>Current profit (loss) for ongoing operations</b>	<b>41,771,496</b>	<b>66,745,183</b>
<b>Current profit (loss) for discontinued operations</b>	<b>-</b>	<b>-</b>
<b>Net Current Profit (Loss)</b>	<b>41,771,496</b>	<b>66,745,183</b>
Other comprehensive income		-
<b>Total comprehensive income (expense)</b>	<b>41,771,496</b>	<b>66,745,183</b>

Our company keeps and reports accounting records as per the Turkish Commercial Code (TCC) and the General Communiqué on the Implementation of the Accounting System published by the Ministry of Finance and other tax legislation. Financial Statements were prepared in compliance with the Turkish Accounting Standards and Turkish Financial Reporting Standards. Net Current Profit is calculated differently in both statements due

to the differences between valuation provisions of the Uniform Chart of Accounts (UCA) and Turkish Accounting Standards (TAS), particularly with respect to reserved provisions, depreciation procedures and calculation differences.

EPİAŞ acts as a seller against the buyers and as a buyer against the sellers who are trading on the electricity and natural gas



markets. In this respect, financial statements also include the amounts associated with market transactions. These amounts are equal to each other and netted in the statement of financial position. Such netting was done due to such equality in accordance with the provision of "TAS 32 Financial Instruments: Presentation" standard. This netting is the most significant reason for the difference between Tax Procedure Law (TPL) and TFRS.

For the period of January 1, 2019 to December 31, 2019, the net profit was TRY 41,771,496 in the Profit/Loss Statement prepared as per the Turkish Accounting Standards (TAS), and TRY 52,755,334 in the Income Statement prepared as per the Turkish Tax Procedure Law (TPL). It is found that the differences between the Income Statement prepared as per the TPL and the Profit/Loss Statement prepared

as per the TAS arise from the valuation and calculation differences between the two standards with regard to:

- ▶ Exclusion of market transactions from the financial statements prepared according to TAS;
- ▶ Provision expenses for leaves
- ▶ Provision expenses for severance pay
- ▶ Provision expenses for lawsuits
- ▶ Depreciation expenses
- ▶ Income from Time Deposit Account
- ▶ Writing off of research expenses
- ▶ Adjustment to deferred taxes
- ▶ Rediscounting of notes payable,
- ▶ Right to use assets,

and other issues.

RISKS AND ASSESSMENT OF MANAGEMENT

It is vital for Turkish Energy Exchange (EPİAŞ) to ensure stakeholder confidence and the continuity of its business processes on a 24/7 basis.

The Board of Directors aims to identify the risks that may prevent EPİAŞ from achieving its objectives, take appropriate actions and determine the principles for a more proactive corporate risk management. The "EPİAŞ Corporate Risk Management Policy" prepared for this purpose was assessed and put into effect by the Board of Directors on February 15, 2019. Accordingly EPİAŞ has switched to a target-based corporate risk management model from an asset-based corporate risk management model. In 2019, six Risk Reports were included in the agenda of the Board of Directors as per the provision that "The Committee assesses the Company's status from a risk management perspective, points to the hazards, if any, and develops suggestions for possible solutions in a bi-monthly report to be



**In our company, risk management is carried out dynamically taking into consideration national and international legislation and the best standard practices in a manner that gives confidence to the stakeholders.**

presented to the Board of Directors..." in the Paragraph 3 of Article 7 of the relevant Policy.

In our company, risk management is carried out dynamically, taking into consideration national and international legislation and the best standard practices in a manner that gives confidence to the stakeholders.

OTHER MATTERS

BENEFITS OFFERED TO SENIOR EXECUTIVES

Salaries and other financial rights provided to senior executives (General Manager, Directors and Legal Counsel) are determined by the internal regulations made by the Board of Directors. Salaries, bonuses, and social benefits to be paid to General Manager, directors, and Legal Counsel, who are considered

senior executives, are decided by the Board of Directors. In 2019, EPİAŞ Board Members, General Manager, directors, and Legal Counsel were paid a net amount of TRY 3,931,797.11 in attendance fees, salaries, bonuses, allowances, and social benefits.

SOCIAL RESPONSIBILITY PROJECTS AND DONATIONS

EPİAŞ aims to develop social responsibility projects in line with its vision to develop the domestic and national renewable energy sources in Turkey. For this purpose, in 2019, EPİAŞ signed a protocol with the Ministry of National Education to help train qualified

human resources for the renewable energy field and TRY 266,141.36 was donated to 12 schools affiliated with the Ministry of National Education, with 10 schools under the protocol and two schools out of the protocol.



WEC Workshop Istanbul Interviews Program and CEO Meetings were organized by EPİAŞ in cooperation with WEC Turkey. As part of the training sessions organized out of Istanbul, EPİAŞ-WEC Applied Electricity Market training was held on January

17-18, 2019 and on March 25-26, 2019. Energy Markets training was held at Yıldız Technical University, Bilgi University, and Haliç University to introduce our Company to universities.

MODIFICATION OF THE PROCEDURE OF CALCULATING THE MARKET OPERATING FEE

The most significant income of EPİAŞ is the market operating fee (MOF). This fee is determined as per the procedures and principles defined in the Communiqué on the Market Operating Income. EMRA amended the MOF Communiqué by the new Communiqué published in the Official Gazette No. 30979, dated December 15, 2019. The most significant change that will affect our market operating fee is the modification in the calculation methodology of the “Opportunity cost of the invested capital” (OCIC). In the previous

Communiqué, OCIC was calculated by applying the opportunity cost ratio to the shareholders’ equity in the last quarter’s balance sheet of the period in which the tariff is made. As per the new Communiqué, OCIC is calculated by applying the opportunity cost ratio to the amount found by updating the invested capital according to the CPI. According to this new calculation methodology, the OCIC is expected to decline in 2020 and thereafter.

DISTRIBUTION OF DIVIDENDS

There are no privileges related to the distribution of dividends. Since 2016, dividends have been distributed as per the Turkish Commercial Law provisions, tax regulations, and the provision that “(a) Five percent of the net period profit is set aside as a reserve fund until a fifth of the paid capital is reached. (b) The first dividend is 5 percent of the paid capital reserved from the remaining amount. (c) The profit remaining after the said amounts are subtracted is fully or partially distributed or can be reserved as extraordinary reserve funds” in the Article 15 on distribution of dividends in our Company’s Articles of Association.

As suggested by Resolution No. 14 of Board Meeting No. 2019/2 dated February 15, 2019, it was resolved by the 2018 Ordinary General Assembly held on March 27, 2019, that TRY 10,387,944.79 of dividends to be distributed. Based on this general assembly resolution, it was decided by Resolution No. 29 of Board Meeting No. 2019/5 dated April 22, 2019, that dividends to be distributed as of April 30, 2019. The dividends were distributed in 2019 as specified in the table below.

Shareholder Groups	Percentage of Shares (%)	Dividend Amount (TRY)
Group A	30	3,116,383.44
Group B	30	3,116,383.44
Group C	40	4,155,177.91
Total	100	10,387,944.79





**INDEPENDENT AUDITOR'S REPORT ON THE ANNUAL REPORT OF THE GENERAL ASSEMBLY**

**To the General Assembly of Enerji Piyasaları İşletme Anonim Şirketi**

**Opinion**

We have audited the accompanying annual report of Enerji Piyasaları İşletme Anonim Şirketi (the "Company") as at 01.01.2019-31.12.2019.

In our opinion, the accompanying annual report of the General Assembly and its financial information with reviews made by the General Assembly about the financial position of the Company presented fairly, in all material aspects in the complete set of financial statements.

**Basis for Opinion**

Our audit was conducted in accordance with the International Standarts on Auditing ("ISA") that are part of Turkish Standards on Auditing issued by the Public Oversight Accounting and Auditing Standards Authority (the "POA"). Our responsibilities under these standards are further described in the "Auditor's Responsibilities for the Audit of the Annual Report" section of our report. We hereby declare that we are independent of the Group in accordance with the Ethical Rules for Independent Auditors (the "Ethical Rules") and the ethical requirements regarding independent audit in regulations issued by POA that are relevant to our audit of the financial statements. We have also fulfilled our other ethical responsibilities in accordance with the Ethical Rules and regulations. We believe that the audit evidence we have obtained during the independent audit provides a sufficient and appropriate basis for our opinion.

**Auditor's Report on the Complete Set of Financial Statements**

We have expressed an unqualified opinion in the auditor's report dated on 21.02.2020 regarding the complete set of financial statements of the Company as at 01.01.2019-31.12.2019.

**Responsibilities of General Assembly for the Annual Report**

The Company management, according to the articles 514 and 516 of the Turkish Commercial Code ("TCC") No. 6102, is responsible for the followings regarding the annual report:

- Prepares the annual report in the first three months following the balance sheet date and presents it to the General Assembly.
- Annual report; prepares the Company's financial position in all aspects, completely, appropriately, fairly and honestly with the flow of activities of the year. In this annual report, financial position is evaluated according to the financial statements. The annual report also indicates the development of the Company and risks that it may face. The evaluation of the General Assembly on these matters is also included in the report.
- The Company's annual report comprise:
  - Special events occurring in the Company after the end of the activity year,
  - Research and development studies of the Company,
  - Financial benefits such as, wages, premiums, bonuses paid to members of the General Assembly and those charged with governance, allowances, representation and hospitalities, cash facilities, insurances and collaterals.

The Company management while preparing the annual report, considers the secondary legislation and regulations made by Ministry of Customs and Trade and relevant institutions.



**Auditor's Responsibilities for the Audit of the Annual Report**

Our aim within the framework of the provisions of the Turkish Commercial Code, the financial information included in the annual report and the evaluations of General Assembly are consistent with the Company's audited financial statements and the information we obtained during the independent audit, and preparing a report that includes our opinion.

The independent audit that we conducted was carried out in accordance with the ISA. These standards require that compliance with ethical requirements and independent audit should be planned and carried out to obtain reasonable assurance whether the financial information included in the annual report and the reviews made by the General Assembly are consistent with the financial statements and the information obtained during independent the audit.

The engagement partner responsible for the audit resulting in this independent auditor's report is Arzu DEVELİ CİLARA.

**GÜRELİ YEMİNLİ MALİ MÜŞAVİRLİK VE BAĞIMSIZ DENETİM HİZMETLERİ A.Ş.**  
An Independent Member of BAKER TILLY INTERNATIONAL



**Arzu DEVELİ CİLARA**  
Partner, CPA  
İstanbul, 21 February 2020

# NOTES





TURKISH ENERGY EXCHANGE

TURKISH ENERGY EXCHANGE

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