enerji IQ Turkish Energy Market Report

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Genel Energy finalized PSC for Miran and Bina Bawi gas fields in N.Iraq

Genel Energy announces that the company has finalized documentation of Production Sharing Contracts (PSC) and Gas Lifting Agreements (GLA) for both the Miran and Bina Bawi gas fields.

(Enerji IQ – 22 Feb. 2017) Genel Energy announces that the Company has finalized documentation of previously agreed terms of Amended and Restated Production Sharing Contracts (PSC) and Gas Lifting Agreements (GLA) for both the Miran and Bina Bawi gas fields.

The Amended and Restated PSCs and GLAs for Miran and Bina Bawi incorporate the commercial terms as announced in the term sheets signed in 2015 by Genel and the Kurdistan Regional Government.

With the PSC and GLA terms formally confirmed, Genel will now be able to progress the project. The Company remains committed to developing this large scale, low-cost, onshore gas fields, which will form the cornerstone of gas exports to Turkey under the 2013 KRG-Turkey Gas Sales Agreement.

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EMRA blocked eligible consumer penetration to 93 companies

Market regulator EMRA blocked 93 electricity company to sign contracts with new eligible consumers for 3 months period as they have registered some consumers to their eligible consumer portfolio without their approval.

(Enerji IQ – 24 Feb. 2017) The new consumer registration of 93 electricity retail companies, which transferred the regular subscribers to their eligible consumer portfolio without their approval, will be prevented by EMRA for 3 months.

The new eligible consumer penetration of 93 electricity retail companies will be blocked for 3 months starting from 1 March as part of the bilateral agreements.

According to the information received from EMRA, the electricity supplying retail companies that expand their eligible consumer portfolio without signing a contract will not be allowed to register new consumers for 3 months.

The EMRA officials said that with the precautionary measure adopted, it is aimed to encourage all market participants to be more careful when switching to a new supplier.

Turkish regulator EMRA has determined the eligible consumer limit for this year as 2,400 kWh, and on average TL 82 per month, and subscribers who pay the bill above can benefit from being an eligible consumer.

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Restructuring at BOTAŞ with new appointments

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Market awaits EMRA's storage tariff decision

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The GLAs contain conditions precedent, which, inter alia, include the execution of final agreements on the midstream gas processing facilities and pipeline transportation, the execution of the financing documents and the completion of updated competent person's reports for Miran and Bina Bawi.

Both Genel and the KRG have the option to terminate the GLAs by February 2018. If the conditions precedent are not satisfied within 12 months, the KRG has a right to terminate the GLAs. In the event of termination, and a subsequent failure to conclude new gas lifting agreements within one year period, the KRG can also terminate the Miran and Bina Bawi PSCs. During the three year period following such a termination, Genel would have a right of first refusal to participate in the development of the Miran and Bina Bawi gas fields with a 49% working interest on the same terms offered to any third party.

Genel Energy is moving towards to FID

Murat Özgül, Chief Executive of Genel, said:

"We are very pleased to have signed definitive agreements for our gas project and are now focused on the next step of concluding negotiations with potential partners, and moving the gas project towards the FID. We are determined that 2017 will be a watershed year as we seek to create a gas business that will be transformational for both Genel and the KRG."


Murat Özgül

Market awaits EMRA's storage tariff decision

Underground storage facilities' tariffs for the upcoming storage year that starts on this March are still unclear as EMRA have not published the methodology yet.

(Enerji IQ – 23 Feb. 2017) EMRA's efforts are still underway for the tariffs of the underground natural gas storage facilities, which are to be determined by EMRA within March at the latest. Due to the fact that the Silivri natural gas storage facility has been sold to BOTAŞ from TPAO within the past year, it is expected that a new methodology will be put forth for this storage facility.

The market players and gas shippers in Turkey are concerned about the market expectation that the rate of increase will be tremendous from the current level of TL 120 / '000 m3.

Last year, EMRA's Board decision that adopts storage liability brought 6% importers and 2% to wholesale companies significantly shrunk the profit margins of the market players. With the subsidization that is expected to start in Q2, shrinking profit margins will turn into negative if sales price increase is not noticed.

On the other hand, the 2% obligation imposed on wholesale companies is still discussed at EMRA due to the repetition of this obligation and the fact that the free market formation process has not been completed yet.

The uncertainties regarding the tariff of the Tuz Gölü underground natural gas reservoir, which was recently opened for service and gas injection, are ongoing, too.

Restructuring at BOTAŞ with new appointments

Turkey's state owned gas transmission system operator and gas importer is restructured with the new appointments to the head of departments and divisions under these departments.

(Enerji IQ – 27 Feb. 2017) BOTAŞ, Turkey's state owned gas transmission system operator and gas importer with a market share around 80% is restructured with the new appointments to the head of departments. New appointments were made by the Board of BOTAŞ on February 24, Friday. With the Board decision, the head of 12 departments stepped down and assigned as consultant position which is inactive in operation. The head of Natural Gas Import and Export Department Selçuk Advan and the head of International Projects Emre Engür are among the two executives who kept their positions.

Following the appointments on last Friday, most of the division managers in these departments were also changed and new appointments were made to the divisions by the approval of the General manager of BOTAŞ, Burhan Özcan.

The assignments made were as follows:

●**Natural Gas Wholesale Sales Department:** Aziz Murat Çakır
●**Survey and Project Department:** Zülfü Yıldırım,
●**Department of Information Technologies:** Ali Baki Bayezit
●**Integrated Management Systems Department:** Lütfullah Kayadelen,
●**Financial Affairs Department:** Hüseyin Kızıltaş
●**Construction and Expropriation Department:** Fatih Sel,
●**Corporate Communications Department:** Erol Elmas,
●**Procurement and Contracts Department Head:** Ömerül Faruk Durmuş,
●**Security Services Department:** Abuzer Aydin,
●**Regional Manager of Natural Gas Operations and Market Operations:** Yılmaz Demir,
●**Regional Manager of Petroleum Operations:** Ahmet Ulutaş,
●**Human Resources and Education Department:** Arslan Günaydın,

Appointment decisions in the Ministry of Energy

Deputy Undersecretary Zafer Benli is appointed as a member of the Board of Directors of Turkish Coal Authority, while Deputy General Manager of EÜAŞ Murat Zekeriya Aydin is appointed as the Member of Board of Directors of EÜAŞ and Suat Unal is appointed as Vice Chairman of TAEK.

(Enerji IQ – 10 Feb. 2017) Appointments were made at Turkish Hard Coal Authority (TTK), EÜAŞ and Turkish Atomic Energy Authority (TAEK). Decisions on the topic were published in the Official Gazette dated February 10, 2017.

Murat Zekeriya Aydin was appointed as the Deputy Managing Director of EÜAŞ and Member of the Board of Directors where former board member Mehmet Biçer stepped down.

Murat Zekeriya Aydın started his career in 1997 as a Research Assistant at the Department of Mining Engineering at Hacettepe University. He later worked as Engineer, Branch Manager, Head of Department and Head of Strategy Development at the Ministry of Energy and Natural Resources. Later, he continued his professional career in private sector and worked as the manager responsible for the development and coordination of energy projects in Aydın, RWE and Kolin Group. Aydin has been assigned to the EÜAŞ Deputy Deputy General Manager in July, 2016.

Zafer Benli was appointed as a member of the TTK Board of Directors

Zafer Benli, the Deputy Undersecretary of the Ministry of Energy and Natural Resources and Head of the Ethics Commission, is appointed to the Board of Directors of Turkish Hard Coal Authority.

Benli started to work as a State Personnel Expert Assistant in the Prime Ministry State Personnel Presidency in 1994. Benli was appointed to the State Personnel Expertise in 1997 and in 2002 he was appointed to the Public Procurement Authority to initiate and carry out the establishment, human resources and organization studies of the institution. The same year he was appointed as a Public Procurement Specialist. Benli was appointed as Minister Counselor to the Ministry of Energy and Natural Resources in 2007 and deputy as Deputy Undersecretary in 2008. As of 2011, Mr. Benli has been serving as Deputy Undersecretary and since 2009 he has been serving as the President of the Ethics Commission of the Ministry.

Suat Ünal is appointed as TAEK Vice President

Suat Ünal is appointed as the Vice-President of the Turkish Atomic Energy Authority.

Ünal started his career as a research assistant at Ankara University in 1993. Ünal started to serve as Deputy Director at Sarayköy Nuclear Research and Training Center in 2013. Ünal, as of November 2013

Electricity generation from domestic sources will increase to over 50%

Energy and Natural Resources Minister Berat Albayrak stressed that the tender processes for solar and wind energy had started and that steps would be taken soon for domestic coal. He also emphasized that Turkey's electricity generation from the domestic sources will increase to over 50% soon.

(Enerji IQ – 22 Feb. 2017) Minister of Energy and Natural Resources Berat Albayrak recalled that they gave importance and priority to domestic and renewable energy sources, in his speech on the occasion of the 15th anniversary of the founding of the regulator EMRA. Minister Albayrak said "It is not surprising to see Turkey after 10 years, to turn into a energy exporting country from it's current state that spends average of 50 billion USD annually for energy and mineral imports. As Turkey, we have the goal of bringing energy to the public with better quality and cheapness. Beyond that, big Turkey should now be an actor who comments on the big picture of energy. We need to build it."

Minister Albayrak said that despite the significant global crises experienced in recent years, Turkey has continued to invest in infrastructure by increasing the diversity of resources by growing in the energy sector and Turkey has provided 49.3% of electricity production from domestic sources last year.

The share of domestic resources in production will increase

Minister Albayrak said that the share of domestic resources in energy production would be increased. "We need to increase the share of domestic resources in electricity generation to at least two-thirds in the next 10 years. This year we have to carry this over 50%. We will all work together shoulder to shoulder."

Recalling that the tender processes started with solar and wind energy, Albayrak said that soon they would take steps in domestic coal.

Berat Albayrak said, "We will look for more resources, organize and open up the path of the investor and we will be very supportive of the triple win-win picture," he said, adding that not only capacities and production, but also factory and R & D investments will advance. We will do the nuclear, we will also make the domestic coal. We need to develop our richer calorific value-added resources. When Turkey exports 50 billion dollars a year for energy, it will start giving less. It will upset some, annoy and push them to try different ways. We have been living this for the last 3-4 years. Behind terrorist organizations, the PKK, the FETO, the reasoning behind the mind ... We also see those who participate in these discourses. We do not get serious, we will not. The process after the referendum will be a transformation in Turkish politics. We have our only goal, how can we put a brick, a stone in new and great Turkey? At this point, we will look at this for Turkey, how we can contribute to the development, growth and development of more than 80 million people. We will work harder by embracing all Turkey with the spirit of July 15. I hope we will carry Turkey to a much better spot."

Delek Group signs a USD 2.5bn loan for the Leviathan field

The Israeli integrated energy company Delek Group has recently signed a loan deal for its share in the future development of the Leviathan natural gas offshore field.

(Enerji IQ – 24 Feb. 2017) The Israeli integrated energy company Delek Group has recently signed a loan deal for its share in the future development of the Leviathan natural gas offshore field in Israel. According to Delek Group, the loan will be invested in several facilities. The deal was signed by Delek Drilling and Avner Oil Exploration, both subsidiaries of the Delek Group, together with around 20 Israeli and international financial institutions.

The Leviathan partners also adopted the FID for the development of phase A in February 2017, with a production expected by the end of 2019. The project first stage is planning a yearly production of 12 bcm.

The current shareholders in the Leviathan project are: Noble Energy which is operator with a 39.66% working interest, Avner Oil Exploration with 22.67%, Delek Drilling with 22.67% and Ratio Oil Exploration with 15%.

Turkey postponed 1 GW solar plant tender for the second time

Ministry of Energy and Natural resources of Turkey postponed the 1 GW solar plant tender for the second time, which will carried out with the YEKA model, that integrates OV manufacturing investments in addition to the power plants.

(Enerji IQ – 14 Feb. 2017) Karapınar Renewable Energy Resource Area under YEKA model, tender has been postponed for the second time. The decision on the issue was published in the Official Gazette dated 14 February 2017.

Accordingly, the applicants for the competition will be handed over from the General Directorate of Renewable Energy (YEGM) by 14 March 2017. The competition will be held on 20 March 2017 at YEGM.

The competition includes the installation of an integrated 500 MWp / year capacity FV solar module production plant and AR-GE Center, the implementation of AR-GE operations and the installation and commissioning of Karapınar YEKA, a solar energy power generation plant with a total of 1 GW installed capacity.

First, it was decided that the applications for the competition should be made by 12 December 2016, and the date of the competition should be set as December 15, 2016. The decision was published in the Official Gazette dated 20 October 2016.

It was later announced that the applications to be made by December 12, 2016 in the Official Gazette dated December 10, 2016, had been decided to be made by 14 February 2017. The competition will be held on February 21, 2017 at the Directorate General of Renewable Energy of the Ministry of Energy and Natural Resources.

ODAŞ Enerji received positive EIA decision for HEPP project in Bilecik

In Bilecik, a positive decision was made for the EIA report of the Hisar HEPP project with an installed capacity of 13.4 MWe, planned by Ena Elektrik, a subsidiary of ODAŞ Enerji.

(Enerji IQ – 14 Feb. 2017) Ministry of Environment, approved the environmental impact assessment report (EIA) of Turkey's ODAŞ Elektrik A.S, for the HEPP project in Bilecik.

The project will be undertaken by the ODAS Enerji's subsidiary company Ena Elektrik Üretim Ltd. and will have 13.4 MW installed capacity, which was initially stated as 9.2 MW.

Ena Elektrik received a pre-license from EMRA in 2014 for the Hisar regulator and HEPP project.

In the final EIA report, the cost of the project was stated as TL 68,371,379.

Gazprom set to soon start Turkish Stream offshore section

Gazprom will begin building the offshore section of the Turkish Stream gas pipeline in the coming months, a Gazprom board member said February 28.

(Enerji IQ – 24 Feb. 2017) Gazprom will begin building the offshore section of the Turkish Stream gas pipeline in the coming months, a Gazprom board member said February 28.

The construction process will start in the second half of 2017, Oleg Aksyutin said in Moscow, adding that progress on the gas transportation system in Russia had been largely completed.

The Turkish Stream natural gas pipeline project agreement between Turkey and Russia was signed on Oct. 10, 2016, and ratified by Russian President Vladimir Putin on Feb. 7.

The project, which was announced by Putin during a 2014 visit to Turkey, is set to carry gas from Russia under the Black Sea to Turkey's Thrace region.

One line, with 15.75 billion cubic meters of capacity, is expected to supply the Turkish market, while a second line will carry gas to Europe.

Turkey's wind installed capacity reaches 6,081 MW

By the end of 2016, Turkey's wind energy capacity reached 6,081 MW. Turkey became the seventh country in the world in terms of commissioning new wind plants in 2016.

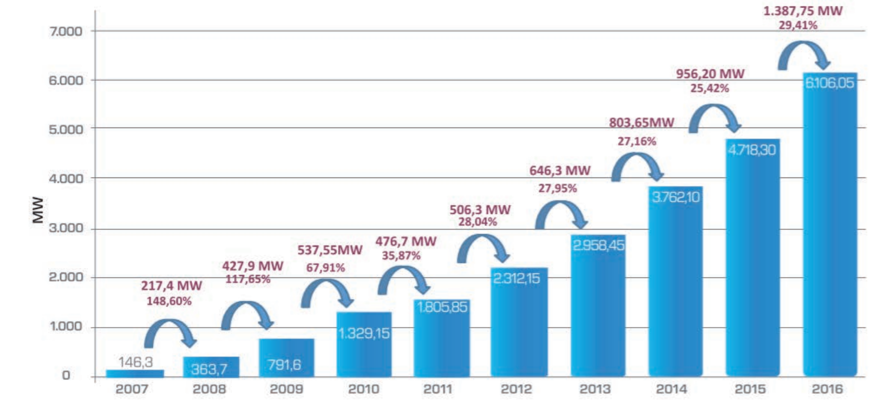
(Enerji IQ – 2 Feb. 2017) TUREB, Wind Europe and GWEC published wind energy statistics for 2007-2016.

According to statistics, Turkey became the seventh country in installing new wind capacity. The top three rankings are the People's Republic of China, the United States and Germany. In 2016, 1,387 MW was added to the wind capacity of Turkey, which was 4,694 MW by the end of 2015. Turkey's wind energy capacity is 6,081 MW as of the end of 2016.

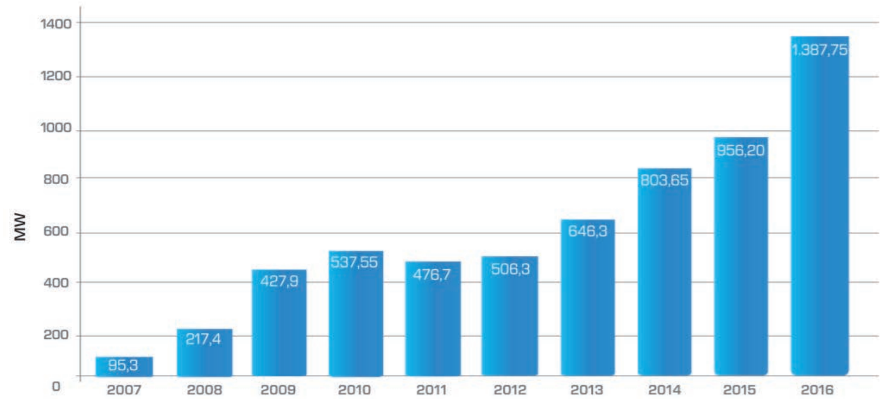
When we look at the distribution of wind plants in operation according to the regions, we see that the Aegean region receives the first rank with 38.92%. Distribution of wind plants after the Aegean region by region was as follows:

- Marmara Region with 34.49%
- Mediterranean Region with 14.55%
- Central Anatolia Region with 8.76%
- Black Sea Region with 2.83%
- Southeast Anatolia Region with 0.45%

Cumulative installations for wind power plants in Turkey



Annual installations for wind power plants in Turkey



Top 10 new installed capacity Jan-Dec 2016

Country	MW
PR China	23,328
USA	8,203
Germany	5,443
India	3,612
Brazil	2,014
France	1,561
Turkey	1,387
Netherlands	887
United Kingdom	736
Canada	702
Rest of the world	6,727

EMRA set the investment cap for BOTAŞ transmission

EMRA reduces the investment cap of BOTAŞ transmission to TL 390,291,000 which was TL 406,863,000 last year.

(Enerji IQ – 21 Feb. 2017) EMRA revised the cap of BOTAŞ's transmission network investments at the Board meeting held on 16 February 2017.

Accordingly, the cap of BOTAŞ's transmission network investments was reduced to TL 390,291,000. BOTAŞ cannot exceed the investment cap and cannot spend for any project not included in the program, according to the existing regulations.

The decision entered into force after being published in the Official Gazette dated 21 February 2017.

Turkey's Zorlu Enerji is establishing a company in Israel

Zorlu Energy decided to participate in Zorlu Energy Israel Ltd. as a sole founding partner with a share of NIS 10,000 (TL 9,749), which was decided to be established in Israel.

(Enerji IQ – 17 Feb. 2017) Zorlu Energy Electricity Generation Company decided to join Zorlu Energy Israel Ltd., which was decided to be established in Israel with the decision of the board of directors dated 17 February 2017 as the sole founding partner.

According to a statement made by Zorlu Energy, Zorlu Energy Electricity Generation Inc. will be partnered with Zorlu Energy Israel Ltd. with a capital share of NIS 10,000 (TL 9,749 TL).

Zorlu Energy Group has a natural gas fired power plant established in Israel with 25% partnership (Dorad Energy) and two natural gas cogeneration plants with 42.15% partnership (Ezotech). Zorlu Energy is one of the leading groups in Turkey, interested in the Israeli gas export to Turkey, after the discovery of Leviathan field.

Zorlu completed the sale of bonds with a nominal value of TL 74 million

As of February 22, 2017, Zorlu Energy's sale of floating interest securities with a nominal value of TL 74 million with 455 days maturity, has been completed to be sold to qualified investors without being offered to the public.

The Capital Markets Board has decided to sell Zorlu Energy in an amount not exceeding TL 280 million within one year at various dates, up to three years in TL, domestic, one or more times, without offering to the public, On 3 February 2017.

EIA process of TPAO's natural gas exploration project in Kırklareli started

TPAO started the EIA process for the project on the natural gas exploration activity planned by Kirklareli within the boundaries of Babaeski district in Thrace.

(Enerji IQ – 23 Feb. 2017) TPAO plans to operate in the area of 19.600 m^2 in the Karamesutlu village of Kırklareli within the boundaries of Babaeski district. With this project, a drilling well will be opened in the area with 22,547 hectares of land.

The price of the project was stated as TL 830,000 in the presentation file.

The EIA process of the project started on 23 February 2017.

Turkey's leading GSM operator Turkcell will operate in the energy market

Turkcell is a subsidiary of Turkcell Bilişim Hizmetleri A.Ş. will applied for the establishment of a company with a capital of TL 2 million to be involved in electricity energy trade, wholesale and retail sales activities.

(Enerji IQ – 17 Feb. 2017) Turkcell, the subsidiary of Turkcell Bilişim Hizmetleri A.Ş. announced that it will apply for the establishment of a company to operate in the energy sector.

According to the statement made by Turkcell, the company to be established with a capital of 2 million TL will be in electricity energy trade, wholesale and retail sales activities.

In the statement made, it is stated that after the completion of the establishment of the company, a license application will be made to the EPDK for permission to operate.

Germany's EWE Turkey Holding, involved in gas distribution, electricity retail and gas wholesales in Turkey is the first company to integrate telecommunications and energy, after acquiring Millenicom Telekomunikasyon Hizmetleri A.S.

Rosneft commences drilling of the first exploration well in Iraq

Rosneft has commenced drilling of the first exploration well at Block 12 in the Republic of Iraq.

(Enerji IQ – 22 Feb. 2017) Rosneft has commenced drilling of the first exploration well at Block 12 in the Republic of Iraq. Salman-1 well will be drilled to the measured depth of 4,245 m through Kurra Chine target horizon to be followed by further testing of five prospective targets. The Company plans to complete drilling in July 2017.

Rosneft acts as the operator of the exploration and development of Block 12. China based company Zhongman Petroleum and Natural Gas Group (ZPEC) is the general drilling contractor.

Exploration in Iraq is an important step in implementing the Rosneft strategy to expand competences in the area of hydrocarbon exploration and production outside of Russia.

The prospective oil-bearing Block 12 is located in the Najaf and Muthanna provinces, approximately 80 km to the southwest of the city of Samawa and 130 km to the west of the city of Nasriya. Block is a part of the Western Desert, an unexplored region having the biggest oil potential in Iraq. It has an area of 7,680 sq km. Exploration works on Block 12 are considered "low risk" due to its prospects.

Rosneft and the Kurdistan Regional Government of Iraq sign an off take contract

(Enerji IQ – 22 Feb. 2017) Rosneft and the Kurdistan Regional Government of Iraq signed a Cooperation Agreement in the fields of upstream, infrastructure, logistics and trading. The document was signed on the sidelines of the IP week conference in London.

Pursuant to the Cooperation Agreement the parties signed a pre-financed Crude Oil Purchase and Sale Contract of Kurdistan Region Crude oil over the period 2017-2019. The purchaser of crude will be Rosneft's trading arm – Rosneft Trading SA.

Commenting on the deal Rosneft Chief executive officer Igor Sechin said:

"We are delighted to be embarking on new activity together in the Kurdistan Region and look forward to developing new markets worldwide for Kurdish crude oil. The off-take and supply of Kurdish crude oil into Rosneft's expanding worldwide refining system will further contribute to the increase in its effectiveness".

Minister of Natural Resources in the Kurdistan Regional Government of Iraq Dr. Ashti Hawrami stated:

"This deal represents a new beginning in our relationship with Rosneft and opens up the possibility of a broader relationship in all fields of energy cooperation with Russian Oil company Rosneft within Kurdistan".

LUKOIL and INPEX successfully complete well test in Iraq

LUKOIL and INPEX have successfully completed the testing of the first exploratory well, Eridu 1, at Block 10 in southern Iraq.

(Enerji IQ – 23 Feb. 2017) LUKOIL and INPEX have successfully completed the testing of the first exploratory well, Eridu 1, at Block 10 in southern Iraq. The well recorded daily flow rate of more than 1,000 cubic meters of sweet oil from Mishrif horizon, confirming geological expectations of a large hydrocarbon field presence within the Block 10 contract area.

Geological exploration at the block is in progress: work program for 2017 includes the drilling and testing of an appraisal well Eridu 2.

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Effect of distribution tariff amendment on PV solar investments

On 29th December of 2016, Republic of Turkey Energy Market Regulatory Authority (EMRA) has updated the electricity tariff for distribution system users, which is entered into effective as of 01.01.2017. Within this regulation, distribution fee has been revised for unlicensed electricity producers as indicated in Table1.

	Distribution Fee (kr/kWh)	Reactive Energy (kr/kVARh)
Licensed Producer	0,8969	16,2006
Unlicensed Producer (plants commissioned before 31.12.2017)	2,5628	16,2006
Unlicensed Producer (plants commissioned after 31.12.2017)	10,2510	16,2006
Unlicensed Producer (tariff valid before)	0,7597	15,3431

Table 1. *Distribution Fees for Electricity Producers*

Thus, distribution fee has risen noticeably by 237% for the power plants which are already in service –activated before 2017– and will be active before 31.12.2017. Moreover, it has been incremented by 1249% for those commissioned as of 31.12.2017.

Within the scope of this amendment, a financial analysis has been conducted for a representative PV solar investment, economic parameters of which are in given Table 2. The analysis has been performed for various self-consumption scenarios.

System Capacity:	1,099.75 kWp
Capacity Factor:	% 18.13
Annual Degradation:	% 1.5

Initial Investment:	1.3 M $
Leverage Ratio:	% 70
WACC (Weighted Average Cost of Capital) :	% 7.22

Table 2. *Financial Assumptions for the Analysis*

First of all, effect of distribution fees increment on annual operational expenses of plants which are connected to same bus bar, i.e., same meter, has been examined (based on the first year, OPEX comprise the O&M, personnel, official fees, electrical system usage and insurance fees). In the case of 0% self-consumption, while the rate of system usage fees (SUF) on OPEX was 11% for the plants commissioned before 2017, it has been escalated to 28% and 61% for those commissioned before 31.12.2017 and after 31.12.2017 respectively (Figure 1). Consequently, OPEX has been surged by 132% for the unlicensed plants taken into service as of 31.12.2017.

The most importantly, however, in the case of 100% self-consumption (consumed totally on the point where it is generated), there is no SUF for all three scenarios (before 2017, before and after 31.12.2017). Therefore, it can be interpreted that system sizing on 100% self-consumption capacity is one of the most crucial rationale of this update.

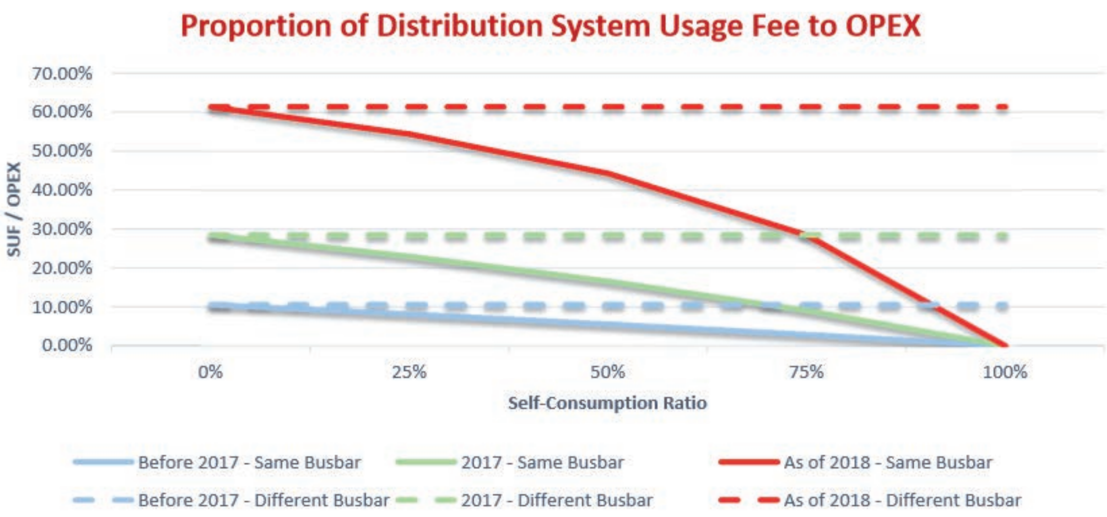

Figure 1. *Rate of System Usage Fee in OPEX (Based on first year) System Capacity: 1,099.75 kWp, Capacity Factor: 18.13%, Annual Degradation: 1.5%, Initial Investment: 1.3M $, Leverage Ratio: 70%, WACC (Weighted Average Cost of Capital): 7.22%*

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For the same example PV solar investment above, in the event of connection from the different busbar, since SUFs are paid for the both consumption and production facility, the self-consumption ratio does not change the SUF for the production (Figure 1). While the investor was paying 3,538.00 USD annually before 2017, he will be charged 11,935.00 USD for his plant commissioned before 31.12.2017 and 47,741.00 USD if the commissioning is after 31.12.2017. Additionally, SUFs for the consumption facility will be added to the fees above in every billing period.

In the second phase, the impact of the tariff amendment on project IRR (Internal Rate of Return) has been evaluated due to various self-consumption ratios. The case of connection to the same busbar for different scenarios is demonstrated in Figure 2.

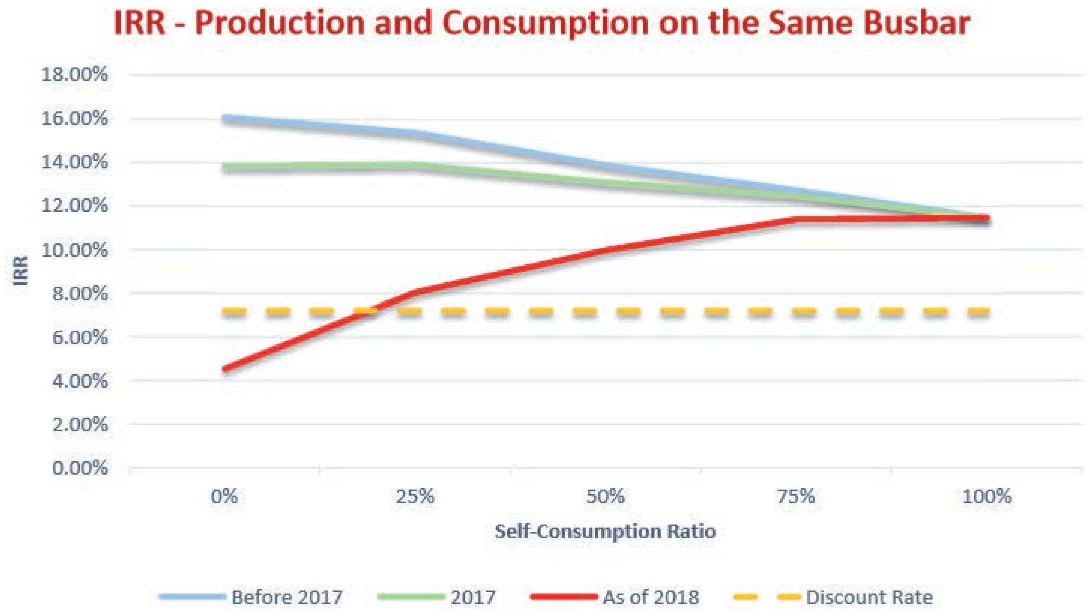

Figure 2. *Internal Rate of Return (25 Years Period) System Capacity: 1,099.75 kWp, Capacity Factor: 18.13%, Annual Degradation: 1.5%, Initial Investment: 1.3M $, Leverage Ratio: 70%, WACC (Weighted Average Cost of Capital): 7.22%*

Accordingly, in the scenario of commissioning before 2017 and until 31.12.2017, the highest IRR is delivered in the case of no electricity consumption (selling all the electricity generated). IRR values are 16.10% and 13.85% respectively. However, while in the event of no consumption IRR is 4.54% for the commissioning as of 2018 which is not seen as profitable investment, on the other hand, in the case of 100% consumption IRR is improved to 11.48% which is the same with other 2 scenarios (Figure 2). As can be concluded from the graph that this tariff update aims to increase the share of unlicensed power plants based on self-consumption in the industry.

In the event of connection the different busbars, scenarios arise with different results. While the IRR for those commissioned as of 2018 is below the project discount rate on all self-consumption ratios, in the case of tariffs before 2017 and 2018, it is only profitable for 0% self-consumption.

In conclusion, it can be deduced from the aforesaid update, the optimum grid integration way for unlicensed plants is the connection of production and consumption facilities made on the same busbar with a system sizing based on %100 self-consumption. This will be crucial for the plants commissioned as of 2018 most particularly.

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