

Hope for a restart

The decline of the Turkish PV market over the past three years has been disappointing. But there is hope in the form of smaller “mini YEKA” tenders and the creation of a policy regime to support power purchase agreements, says Kutay Kaleli, the chairman of the board at Turkey’s peak solar industry body, Günder.



Photo: Günder

The Turkish PV market has been declining year on year since its highs in 2018. From almost 2.5 GW in 2018, to 932 MW in 2019 and only 672 MW last year. What do you expect for 2021?

While we were planning to outperform our goals in 2020, the coronavirus epidemic affected the solar power industry along with all other industries. Despite this, positive developments such as extending the period of the Renewable Energy Sources Subsidy Mechanism, or YEKDEM, by six months and commissioning new licensed power plants occurred to prevent project delays from damaging investments any further. Our primary objective this year is to work together to establish a sustainable market.

There was a relatively recent move to downwardly revise the tariff under the YEKDEM program to TRY 0.32/kWh (\$0.044) and to index it with inflation. What impact will this have?

The new YEKDEM conditions for the period from July 1, 2021, to Dec. 31, 2025, mean a lower support price will be paid to solar, water, wind, geothermal, and biomass. The decline in new support prices will put many projects aside. However, despite this, we cannot say it’s 100% bad. We know many projects were not considered feasible even according to previous amounts. At least, the most “unrealizable” projects will be eliminated immediately, while new projects suitable for new conditions will be developed. Meanwhile, the energy source with the highest reduction in YEKDEM support amounts was solar. YEKDEM is one of the models encouraging long-term investments in order to support renewable energy sources in Turkey that have marked the last 10 years. We would not have renewable power plants representing up to 60% of new power generation in 2020 were it not for the YEKDEM mechanism.

Seventy-seven terawatt-hours of power generated by the plants under the YEKDEM mechanism in 2019 would be generated by the power plants running on natural gas or imported coal, or a mixture of the two. We were going to spend \$5 billion on average on imported fuels. Moreover, according to our price analysis, the unit price of energy was going to be only \$0.002 less than the sum of YEKDEM and day-ahead market prices for 2019.

We are fortunate to have YEKDEM, which gives us lower prices and prevents our current deficit from growing further. With regard to security of supply, we should also emphasize that we generate electricity with our own resources, which reduces our dependency on imported fuels. It is also necessary to consider YEKDEM power plants that have completed their tenth year, particularly the hydroelectric and wind power plants built initially, will exit the system gradually, reducing unit prices further.

There were various announcements regarding the 1 GW tender under the YEKDEM throughout 2020. What is the latest? And what impact will this have on the Turkish solar market?

We call these tenders, YEKA SPP-3, mini YEKAs. They are for packages with changing capacities from 10-25 MW, with a total capacity of 1 GW. They had to be postponed due to the pandemic. This means a total investment of approximately TRY 4 billion, and the applications were postponed to March 2021. The capacity increase to be contributed by the mini YEKAs will give life to the solar power industry and the national economy in 2021. We hope that tenders will be initiated with similar capacities each year for projects that will give rise to competitive prices, and for which the investor profile will include small- and medium-scale investors.

Also, we believe that arrangements in the hybrid energy legislation will rapidly increase hybrid plants, and new YEKAs with a minimum of 1 GW will be held regularly each year with additional energy storage capacities.

Looking beyond mid-2021, what progress is being made in the fostering of a PPA model, as solar technology costs continue to fall?

We believe that a PPA model, YEKAs and hybrid facilities, as I mentioned, will bring

a sustainable long-term market. We started work with regulators in the public sector regarding the incorporation of the YEKA model into legislation. In this model, a consumer will be able to make a contract with an energy investor to meet the electricity from the solar when there is no production facility, and since this contract will be a bankable contract with lenders, the investments will be easily made.

Turning to manufacturing, we have seen materials shortages in various places around the world – in particular, glass. I understand that there are glass shortages currently facing Turkish manufacturers – what is the situation at present?

Prices for glass have risen and Turkish PV manufacturers are struggling to produce. It is normal to experience such supply difficulties in times of struggle with global problems. The important thing is to establish an organizational structure that is resistant to short-term fluctuations. We see that in the positive results of our PV manufacturer members in Turkey.

The move to larger PV cell formats – M6 and above – is causing some manufacturers to invest in new production equipment. Is this occurring among the Turkish manufacturers? How will it impact their supply of the market?


Most PV panel manufacturing companies in Turkey are 100% domestic, although they have been improving their export growth rates and diversifying their regional portfolios. With the larger PV cell formats or new cell technologies, solar power poses great opportunities for Turkey, and could be a key export item if good strategies are designed. Strategies and policies supporting domestic technologies and installation of solar power plants powered by domestic technologies should be rapidly put into effect. Otherwise, we fail to gain a foothold in a rapidly developing market.

“New YEKAs with minimum of 1 GW will be held regularly each year with additional energy storage capacities”

There have been some announcements of new facilities in Turkey, including a 1 GW factory to be operated by Germany’s AE Solar. Can you provide me with an update as to its progress?

As of today, there are 42 PV module manufacturers active in the Turkish PV market, including several global brands. We believe that as trust in the Turkish solar market keeps increasing, we’ll be witnessing more international investment coming to Turkey.

It was announced that China Electronics Technology Group Corp came on as a partner in one of the long-running projects, the Kalyon Enerji 500 MW fab. Is this troubled project going ahead?

Panels manufactured by Kalyon Solar Technologies are used at the solar power plant built in Karapınar, Konya, as part of the YEKA-1 SPP project. Konya Karapınar SPP will be commissioned in 40 MW parts each month from September 2020 and become fully operational in 33 months. As of beginning of Feb. 21, actual installed capacity at the 1 GW Konya site is around 112 MW. The project involves a PV module factory with yearly 500 MW production capacity included in Ankara province Başkent OIZ region, an R&D facility, and the solar power plant installation.  Interview by Jonathan Gifford

Turkey moves forward on storage

New regulations for energy storage, expected to be announced very soon, are

Photo: Icarus



set to provide a major boost to battery installations in both the residential and commercial segments in Turkey.

“Along with the great developments in the PV sector we’re also witnessing a very positive and sustainable market improvement for the energy storage and e-mobility systems,” said Eren Engur, board member and president of the Energy Storage and e-mobility commission of Günder. “There already exists a market for residential energy storage systems and, with further regulations to be announced very soon, we’ll also see the birth of C&I.”

Engur estimates that Turkey has around 43 GW of untapped rooftop PV, with self-consumption installations growing by

around 50 MW a month. On top of this, he sees encouraging movement in the electric mobility sector. There are more than 3,000 EV charging stations installed in 81 cities across Turkey, many of which are manufactured locally.

“With record EV sales (844 Porsche Taycan’s in just the last two months), local and international EV manufacturing facilities, customs-free agreements with EU, UK and other countries, Turkey is well positioning itself in this rEVolution game as well,” said Engur. “We’ll be witnessing similar success stories for Turkey in energy storage and e-mobility space as happened in the PV in the last few years.” PV



Photo: Sonnen

Germany has 270,000 residential batteries linked to PV

The German Solar Industry Association (BSW-Solar) has reported that demand for residential batteries increased by 47% in 2020. This means that the number of solar power storage systems has grown by around 50% for the third year in a row. BSW-Solar estimates that around 88,000 new home storage systems were installed in Germany last year. Overall, their number increased to around 270,000 photovoltaic storage systems by the end of December. In 2019 and 2018, the country

saw the installation of 60,000 and 40,000 residential batteries, respectively.

“The number of solar power storage systems has grown by around 50% for the third year in a row”

According to the Federal Network Agency’s database, which does not include

all data presented by BSW-Solar, almost 80,000 new battery storage installations were registered for 2020, with a capacity of around 775 MW and an output of 475 MW. At the end of 2020, around 175,000 battery storage systems with a cumulative capacity of 1,950 MWh and an output of 1,400 MW were registered.

BSW-Solar expects that storage demand will continue to rise this year. Residential storage linked to PV is being supported by a rebate scheme in Germany. PV