

## Reasons of Non-Bankability of Wind & Solar YEKA Projects in Turkey



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Turkey has experienced a significant development in renewable energy installed capacity during the last decade. However, there has been no renewable energy capacity addition with the new auction scheme namely Renewable Energy Resource Areas ('RERA' or 'YEKA'). Accessing financial sources is a key to successful development of new renewable energy capacities. Performing a comparative study on global auction-based renewable energy development & Turkey case, the article proves to point out some reasons for non-bankability supported by a survey study with sector professionals.



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Looking into the global auction-based renewable energy source development; in the 2017-2018 period, around 50 countries used auctions to procure renewables-based electricity, raising the number of countries that have ever held an auction for renewables to 100 by 2019 (REN21, 2004 - 2019). Almost half of the 50 countries had no previous experience with auctions (herein referred to as newcomers); they were likely driven by the reported success of auctions in other markets in attaining low prices. The use of auctions continues to rise, owing chiefly to their ability to reveal competitive prices and the flexibility in their design and their susceptibility to be tailored to fit country-specific conditions and objectives.

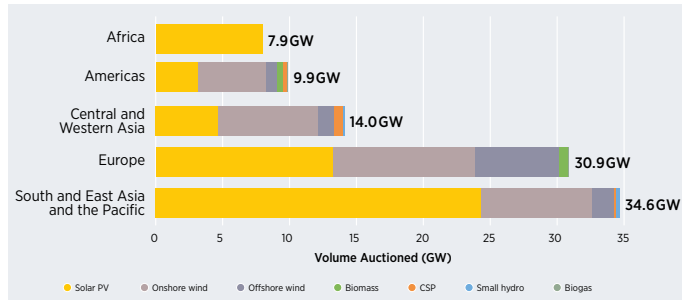


Table 1 Global Auction Based Volume of Renewable Energy

For Turkey the YEKA tenders and updates can be noted as follows:

	Onshore Wind YEKA-1	Solar PV YEKA-1	Offshore YEKA	Solar PV YEKA-2	Onshore Wind YEKA-2
Announcement	October 2016	April 2017	June 2018	October 2018	November 2018
Tender Date	March 2017	August 2017	Cancelled/Postponed	Cancelled/Postponed	May 19
Capacity	1 GW (single)	1 GW (single)	1.2 GW	1 GW (multiple)	1 GW (multiple)
Latest Situation	No update Partial commissioning 2020-22	Partnership approved Partial commissioning 2020-22	No new date announced	No new date announced	Recently awarded

Looking at the price figures mainly for solar and wind auctions, both showed a downward price trend from 2010 to 2017, in 2018, the onshore wind took an interesting turn a sharp decrease in average global prices between 2013 and 2017, followed by a slight increase in 2017-2018. The increase is due chiefly to the fact that countries with higher prices constituted a larger share of the wind volume auctioned globally in 2017-2018, and the prices resulting from those auctions lifted average prices globally. The countries in question include some newcomers, for which prices typically start out higher than in markets with established auctions, as well as countries with generally higher prices.

Many factors shape the prices that emerge from auctions. They can be grouped into four categories:

- 1) country-specific conditions such as resource availability and the costs of finance, land and labour;
- 2) the degree of investor confidence (clear targets, credible off-taker);

- 3) other policies related to renewable energy (grid policies, priority dispatch, local content rules);
- 4) the design of the auction itself, taking into consideration the trade-offs between obtaining the lowest price and achieving other objectives

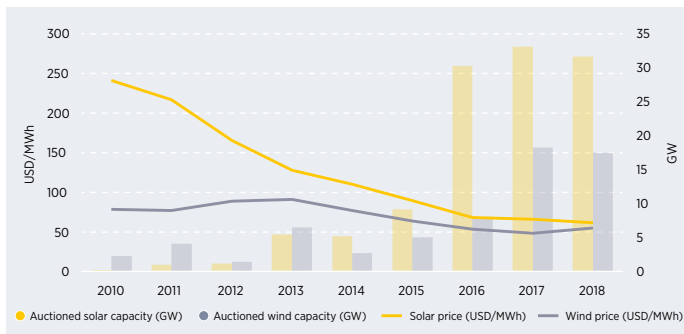


Table 3 Global Auction Based Price Trends of Renewable Energy

When looking into the global prices, and Turkey's energy market prices we can openly see that the price levels for YEKA auctions in Turkey have proved to be much lower than global averages in the 2017-2019 time span.

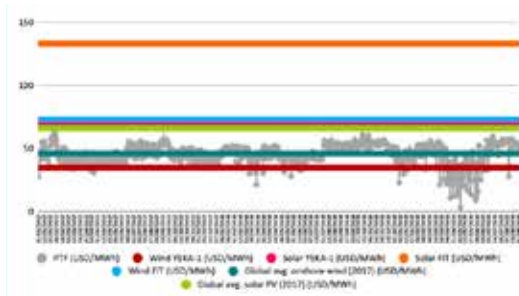


Table 4 Auction Prices & Feed-in Tariffs ("FiT") for Turkey and Global Average Renewable Energy Auctions

Back in 2017, according to IRENA Renewable Energy Auctions and Beyond Key Findings Report, the global average auction prices were USD 6.6c/kWh for solar PV (6% lower than solar YEKA-1 PPA) and USD 4.6c/kWh solar for onshore wind (32% higher than onshore wind YEKA-1 PPA). The difference between YEKA-1 PPAs and current FiT levels in Turkey is much higher.

Accessing external financial sources is one of the key preconditions for successful development, construction and operation of renewable technologies. As of today, none of the tendered YEKA projects have achieved financial close due to the limited appetite of the financial institutions. It is clear that there are certain factors the market sees as a burden to finance YEKA projects which are yet to be discovered, disclosed and cured. With this object in mind, a survey study has been conducted with the participation of the key stakeholders including energy investors, financial institutions and well-known reputable consultants in August 2019. The scope is limited to first onshore wind and solar PV YEKA projects (together 'YEKA-1 projects') considering the limited time passed since second onshore wind YEKA tender.

The survey questionnaire consists of a three-question set. In the first section, the participant should select the profession as (i) an energy investor, (ii) financial institution or (iii) other. For 'other' the participant has to specify like consultancy firm etc. The main body of the survey is the second part. Here, the participants are asked to rank 10 different possible reasons behind the failure of YEKA-1 projects to secure financing which is pre-determined based on the description of similar auctions at the literature review and the main drivers of a bankable financial model. The ranking is based on as '1' as the most significant and '10' has the minimum effect and the list is as follows:





- » (i) Level of the PPA (USD/MWh),  
(ii) The tenor of the PPA (years),  
(iii) Project size (1GW each),  
(iv) Sponsor partnership Incompatibilities,  
(v) Spot electricity price levels in the Turkish market,  
(vi) High-interest rates,  
(vii) Existing Turkish power sector exposure of the financial institutions,  
(viii) Mandatory local content requirements,  
(ix) Bundling manufacturing facility with the power plant auction  
(x) Tender requirements (overall timeframe, support for administrative processes, penalty mechanisms, etc.).

The last part of the survey is a commentary section which gives participants the opportunity to specify any other reason which has an effect on the bankability of YEKA tenders to their view other than the 10 factors listed for ranking in the second part of the survey. In total, the survey was shared with 140 contacts and 30 participants completed it with a participation rate of 22%. Out of 30 participants, 11 were working for an energy investor, 12 were from financial institutions and the 'other' part consisted of consultants and equipment providers suppliers. The anonymous survey structure is preserved as such even the author of the survey is not able to identify the signatory of any individual answer.

Based on all participants' responses, the most powerful reason was 'the level of PPA' followed by 'the tenor of the PPA' and 'sponsor partnership incompatibilities'. Looking into the distribution of individual answers it is noticeable that the range was wide and there is no consortium among the participants that one of the factors is definitely the most or least important one.

Listed factors:	Avg. score (all participants)
Level of the PPA (USD/MWh)	3,75
Tenor of the PPA (number of years)	4,86
Sponsor partnership incompatibilities	5,03
High interest rates	5,17
Project size (1 GW each)	5,62
Bundling manufacturing facility with the power plant auction	5,62
Mandatory local content requirements	6,00
Existing Turkish power sector exposure of the financial institutions	6,14
Spot electricity price levels in Turkish market	6,37
Tender requirements (overall timeframe, support for administrative processes, penalty mechanisms, etc.)	6,50

Table 5 Average Ranking Table

The most visible similarity of all groups by profession was 'the level of the PPA' is selected as the most effective reason behind failure to secure financing for YEKA-1 projects.

Looking into rankings by profession, energy investors' decisions were more clustered but the ranking was similar to all parties' average. Meanwhile, financial institutions only ranking differed from others and the 'high-interest rate factor' is ranked at the 3rd place (vs. 4th rank in all participants and energy investors only) followed by spot electricity price levels in Turkish market (vs. 9th rank in all participants and 8th rank in energy investors only). Interestingly 'the tender requirements' factor ranked at the third place by the 'others' group while it was at the lowest ranking (closer to 10) at all participants, energy investors only and financial institutions only averages.





» In the last part of the survey, the majority of the participants evaluated the country risk including macroeconomic indicators, risk appetite for Turkey and Turkish electricity market outlook as the main factors behind failure to secure financing other than the 10 factors listed in the second part of the survey. Hence, if the 10 pre-selected factors would include the 'country risk', there might be a different overall ranking score achieved.

As a result of the survey study and all the literature review performed it is critical to note that, the price level is the main driver for the bankability of YEKA projects in Turkey. Through this study a long question has found to be answered by sector professionals through an objective and anonymous study that also covers the theoretical background for designing YEKA auctions for renewable energy market.

#### REFERENCES

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