SHURA Energy Transition Center

SHURASTAT
*Energy transition in numbers*

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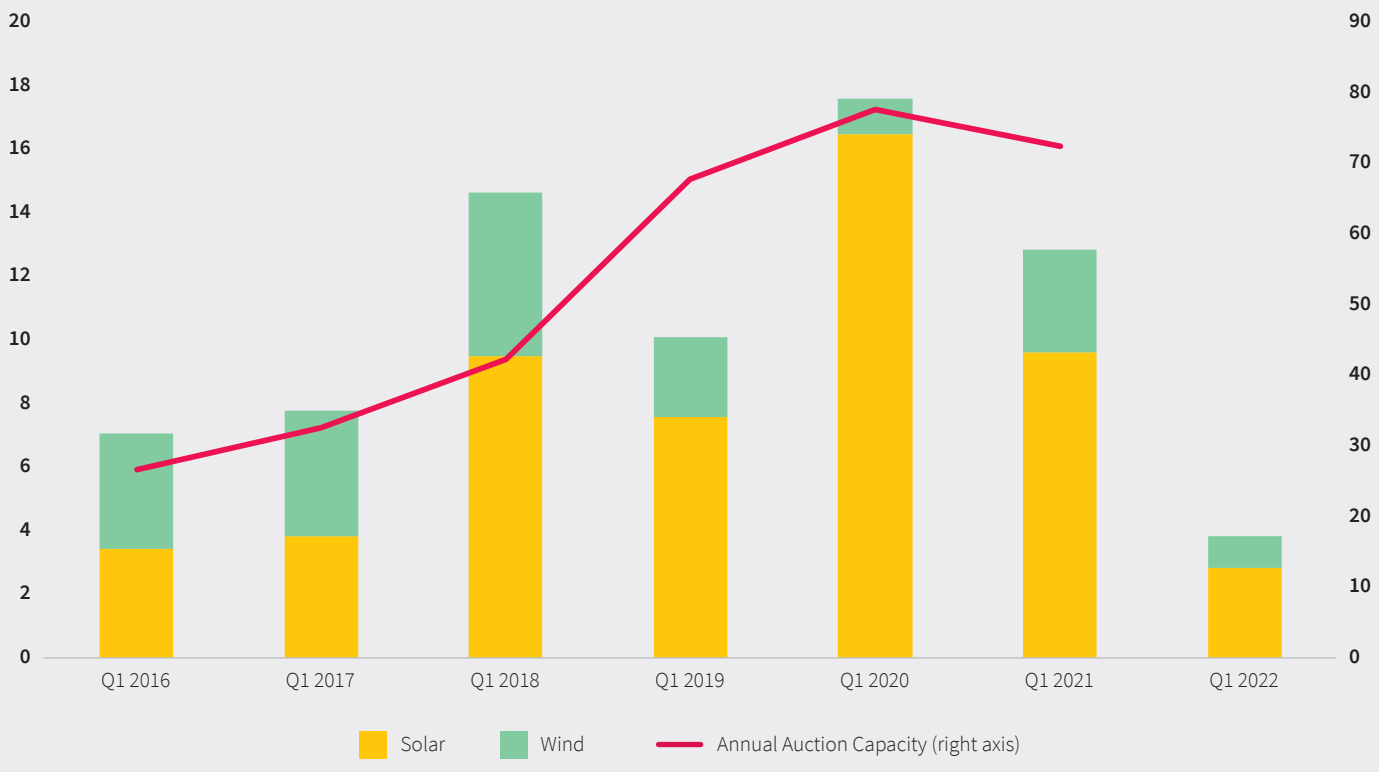
**Throughout the world, competitive bidding is becoming a widespread practice to determine guaranteed renewable energy purchase prices. According to the International Energy Agency, wind and solar capacity auctions are a good indicator of renewable energy capacity additions over the next period. The capacity auctioned for wind and solar energy increased by 2.7 times during 2016-2021 before declining to its lowest level since 2016 during the first quarter of 2022 as a result of the Ukraine War, increasing commodity and freight costs and delays in permits.**

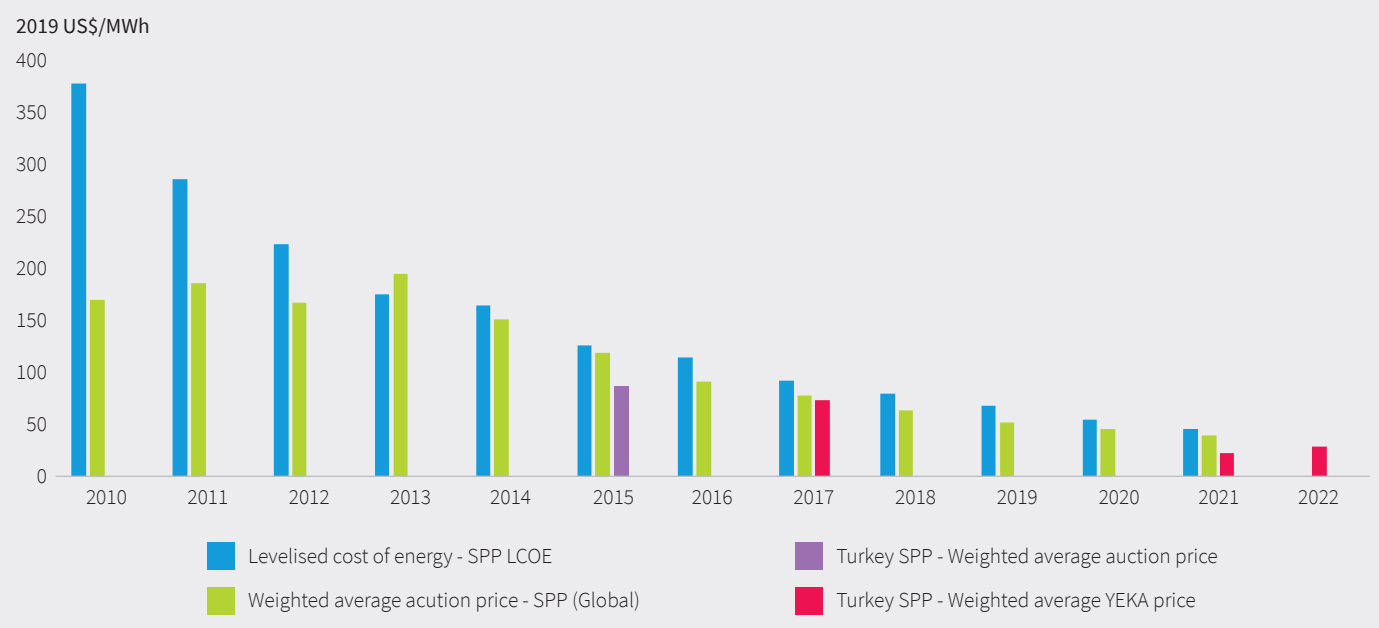
**Auctioned Capacity for Utility Scale Solar and Onshore Wind (GW)
(First Quarter 2016-2022)**




*Source: IEA (2022)*

**Declining levelized costs of energy (LCOE) overtime allowed for a reduction in the prices bid in renewable energy auctions. During 2010-2021 while LCOE for solar PV plants declined by 88% auction prices were 25% lower than LCOE on average. Renewable energy auction prices in Turkey, despite an increase in 2022 over the previous year, have been significantly lower than world averages.**

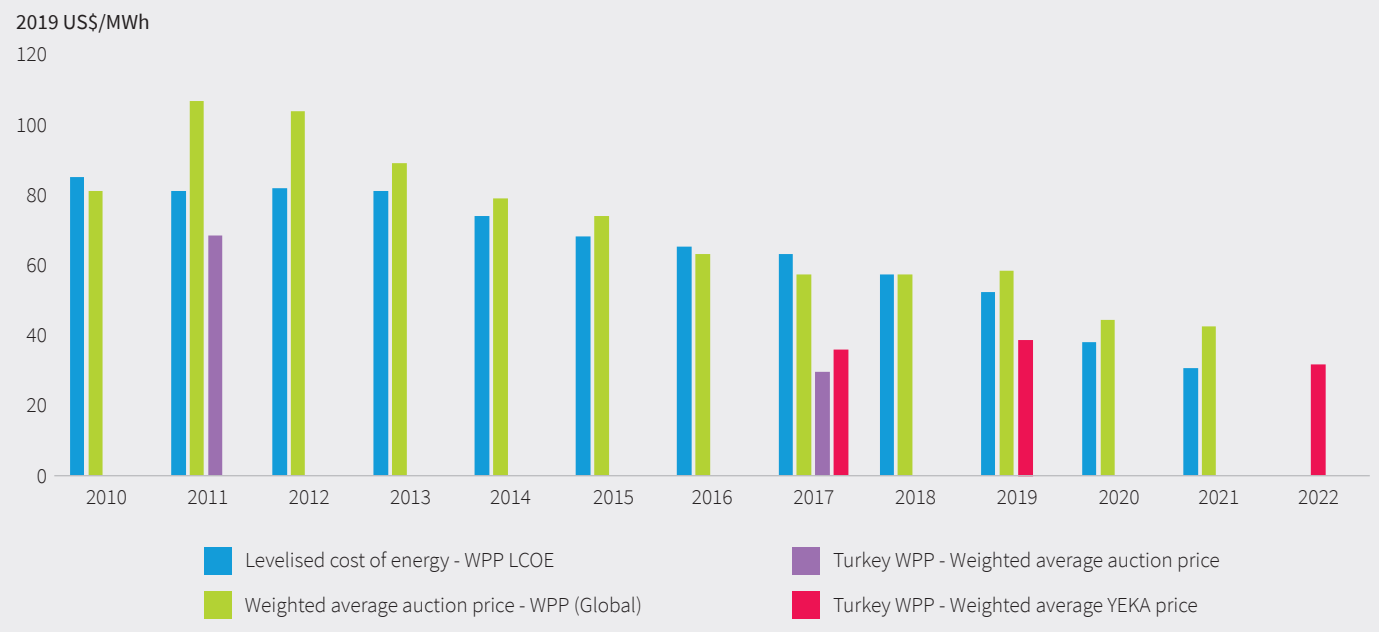
**Utility Scale Solar PV (SPP) Levelized Cost of Energy and Weighted Average Auction Prices (2019 Constant Prices)**




*Source: IRENA (2020), IRENA (2022), SHURA calculations*

**During 2010-2021, for onshore wind plants, while LCOE declined by 64%, auction prices were higher on average than LCOE by about 10% and the overall decline was 48%. Wind power auction prices in Turkey over the same period were more competitive than World averages and generally lower than LCOE as was the case for solar PV auctions.**

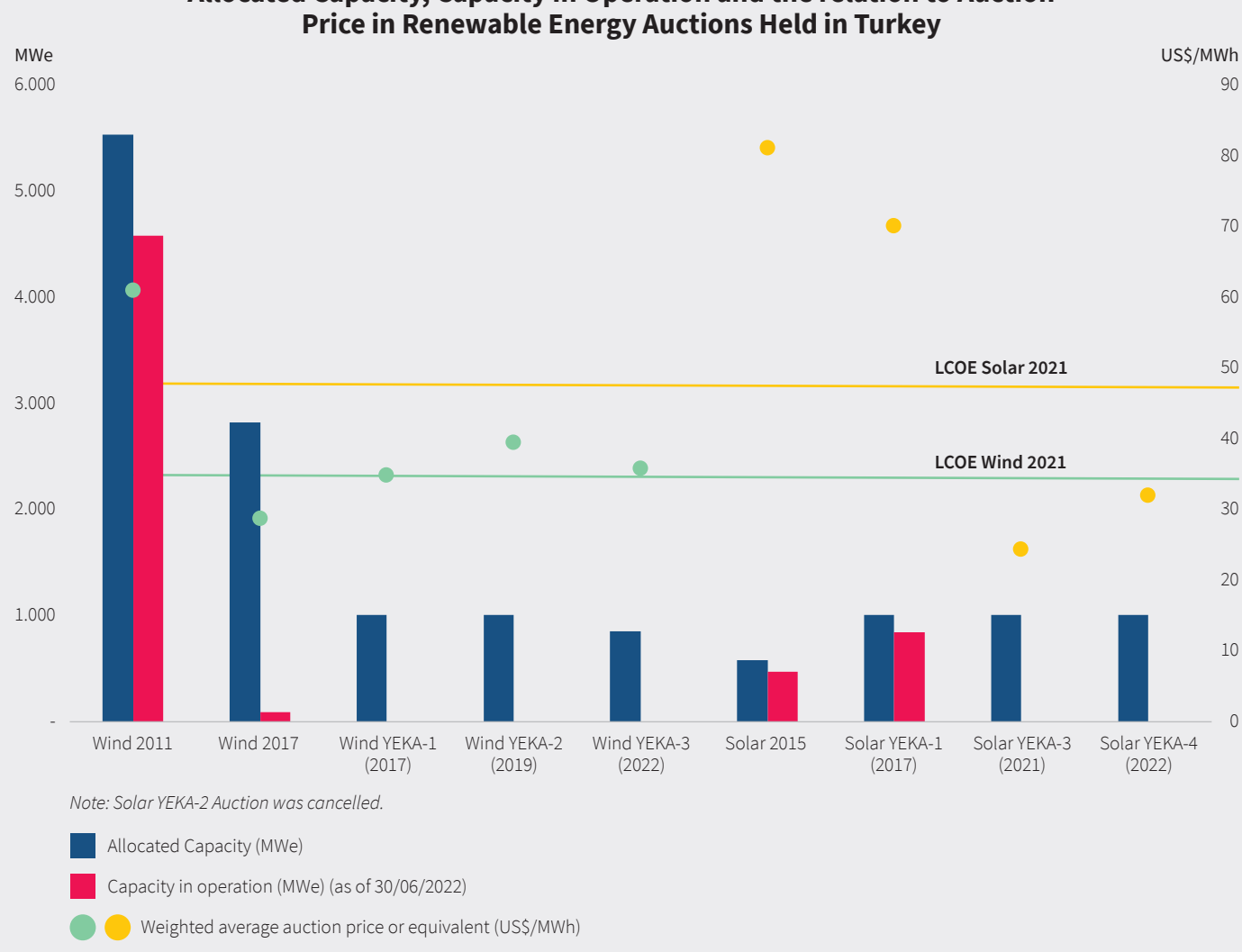
**Utility Scale Onshore Wind (WPP) Levelized Cost of Energy and Weighted Average Auction Prices (2019 Constant Prices)**




*Source: IRENA (2020), IRENA (2022), SHURA calculations*

**For Turkey, a sufficiently high auction price is found to be an important determinant for auctioned capacities to reach the operational stage. It is observed that auction prices significantly lower than international LCOE and auction prices may result in delays for auctioned capacity to become operational.**

**Allocated Capacity, Capacity in Operation and the relation to Auction Price in Renewable Energy Auctions Held in Turkey**




*Note: Solar YEKA-2 Auction was cancelled.*

*Source: IRENA (2022), SHURA (2022), SHURA calculations.*

- The persistence of the decline in international auction prices during 2020 and 2021 indicates an expectation during that period for continued improvement in energy generation costs. **For 2022 and the following few years, it is likely that despite technological development, rising energy and commodity costs will impact renewable energy auctions, resulting in higher prices in comparison to previous years.**
- **The auctions held in 2022 demonstrate continued investor interest in renewable energy** and prices remain competitive though higher than the 2021 auction.
- **The low auction prices in Turkey may result in longer pay back periods causing slowdown in investments and delays in commissioning of allocated capacity.**
- Fluctuations in exchange rates and investment costs may lead to investments being postponed and to increased risk perception reflecting on auction prices.