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SHURA AGENDA

Renewable Power Purchase Agreements (Renewable PPAs)

Amid the energy transition accelerated by the global climate crisis, integrating renewable energy sources into power systems has become not only an environmental imperative but also an economic necessity. Türkiye's strong solar and wind potential, combined with the increasing participation of the private sector, is driving a shift toward market-based instruments for financing new investments. Among the key mechanisms supporting this transition are Renewable Power Purchase Agreements (Renewable PPAs).

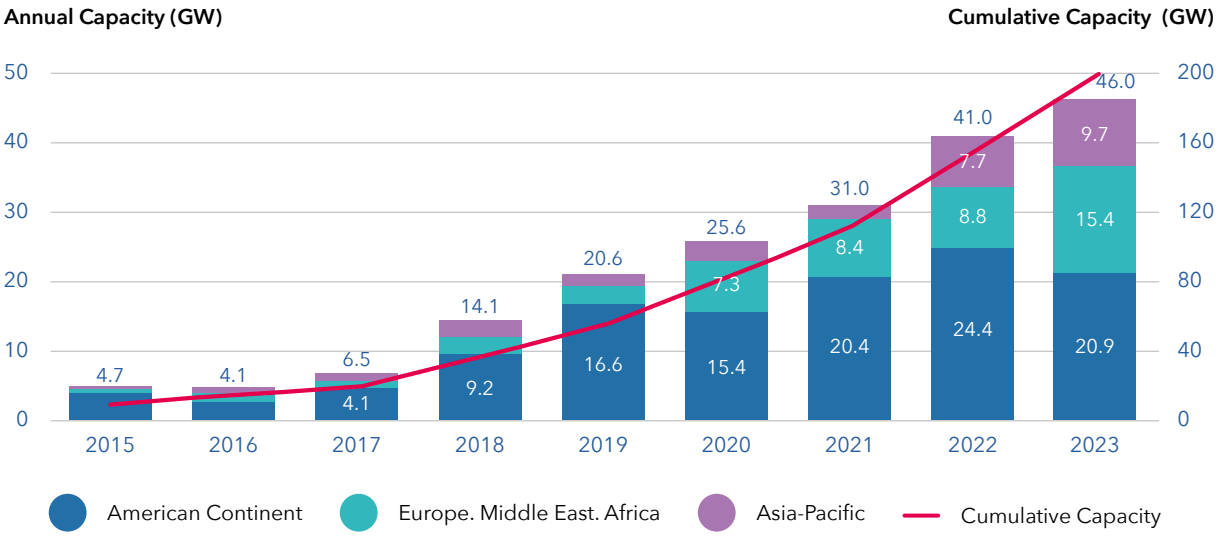
According to SHURA's "Net Zero 2053: A Roadmap for the Turkish Electricity Sector" report, Türkiye could reach 140 gigawatts (GW) of wind capacity including offshore and 220 GW of solar capacity by 2053, with these two sources accounting for 77% of total electricity generation. On the path towards this target, Renewable PPAs can play a key role in fostering new capacity development and diversifying financing mechanisms.

What is Renewable PPA, and why is it important?

Renewable PPAs are long-term power purchase agreements established directly between energy producers and consumers. Typically spanning 5 to 10 years, these contracts secure the energy supply at a fixed price, ensuring revenue certainty for investors while offering predictable and stable energy costs for consumers.

On a global scale, Renewable PPAs first emerged in the USA and have since become an important financing mechanism for renewable energy investments, particularly in liberalized markets such as Spain, the Nordic countries, and Germany.

Global Distribution of Renewable Energy Capacity under Renewable PPAs (2017–2023)



Source: BloombergNEF (2024)

In recent years, major industrial players and international companies in Türkiye have increasingly adopted Renewable PPA models as part of their carbon reduction strategies.

Since Renewable PPAs are essentially power purchase agreements signed between an energy producer and a consumer, they are evaluated within a legal framework. Their flexible structure allows for different contract durations, pricing models, and delivery methods. In particular, for new facility investments, fixed-price contracts—typically ranging from 5 to 10 years—offer investors revenue certainty in order to make it easier to secure financing.

Economic Feasibility of Renewable PPA Model

The Renewable PPA model becomes economically viable and meaningful, particularly during periods when market prices exceed project costs. Two key conditions emerge for new renewable energy investments to be developed through this approach:

- **Reduction of Levelized Cost of Electricity (LCOE):** Renewable PPA projects generally carry higher market risk compared to subsidized projects, which often leads financiers to view them as more costly. Facilitating access to finance is therefore critical for lowering the LCOE.
- **Market revenues covering the LCOE:** The long-term sustainability of Renewable PPAs depends on whether expected market revenues can cover project costs. Türkiye's strong wind and solar potential, combined with an appropriate regulatory framework, has the potential to make this alignment possible.

Opportunities for Türkiye

Despite high transaction costs, the Renewable PPA model is an effective tool for facilitating the integration of new investments into the system, especially during periods when rapid expansion of renewable energy capacity is needed. Türkiye offers a strong foundation for Renewable PPA applications due to high renewable energy potential, evolving market structure, and growing industrial demand. The main benefits for Türkiye are as follows:

- **Diversification of financing and reduction of public costs:** Renewable PPAs mobilize private sector financing as an alternative to publicly supported mechanisms (such as YEKDEM and YEKA). This enables the development of new capacity under market conditions without increasing the public financial burden.
- **Effective risk management:** Long-term fixed-price agreements provide revenue certainty for producers and predictable costs for consumers.
- **Energy supply security:** Renewable PPAs diversify energy supply sources, reduce reliance on fossil fuels, and strengthen supply security.
- **Economic benefits:** Renewable PPAs enhance market competition, which can lower electricity costs in the long term, reduce energy imports, support domestic employment, and contribute to macroeconomic stability.
- **International alignment and corporate reputation:** Renewable PPAs facilitate compliance with carbon regulations such as the CBAM and strengthen companies' sustainability performance.
- **Environmental and social impact:** Reductions in CO_2 emissions improve air quality and public health, while supporting the achievement of climate targets.

Policy recommendations

According to the analysis in SHURA's "Facilitating Renewable Power Purchase Agreements in Türkiye" report, the following policy steps are prioritized to increase renewable energy capacity and accelerate private sector investments through the Renewable PPA model:

1. Strengthening the power market design
Predictability in power market prices will pave the way for long-term contracts. Improving price formation in the power market to accurately reflect production costs will enhance system efficiency and support the development of the Renewable PPA market. A transparent and competitive market structure will further strengthen the predictability of long-term agreements.

2. Aligning renewable energy policies with the Renewable PPA model
Currently, there is not any mechanism in Türkiye that allows newly established renewable energy plants to access the market through the Renewable PPA model. Therefore, it is recommended to explore the potential of mechanisms that would enable projects, outside of those allocated through auctions or competitions, to be financed via Renewable PPAs.

- **Identifying dedicated capacity development areas for Renewable PPA projects:** Special areas and grid connection capacities can be allocated exclusively for projects developed under Renewable PPAs, without benefiting from any incentives or public support. These areas would provide a market-based investment environment without competing with other support mechanisms.
- **Converting inactive projects into Renewable PPAs:** Projects that have obtained preliminary licenses or were allocated through YEKA auctions but could not be realized can be developed under the Renewable PPA model without undergoing a new auction process. This accelerates investment timelines and expands the private sector's market-based operational space.
- **Developing Renewable PPA projects in regions with limited grid capacity:** Currently, renewable energy projects are only permitted in regions with sufficient grid connection capacity in Türkiye. However, during periods of rising electricity prices and increasing demand for renewable energy, this restriction can slow down new investments. While the costs of renewable energy technologies are decreasing, grid expansion investments remain expensive. Therefore, developing Renewable PPA projects in secondary areas with limited grid capacity could be considered, provided that project developers accept a certain level of production curtailment risk. This approach can enhance the geographical diversity of investments, contributing to supply security and system flexibility.
- **Considering a one-sided Feed-in Premium (FiP) in YEKA applications:** International examples show that auctions based on a one-sided Feed-in Premium (FiP) encourage investors to submit more competitive bids. In some cases, prices have fallen to zero, demonstrating that investors can rely solely on market revenues to make their investments. Accordingly, Türkiye's YEKA competitions could be transitioned to an FiP-based structure to achieve more competitive outcomes. Over time, investors might even choose Renewable PPAs without any support, submitting zero or even negative bids solely for grid connection rights. In other words, instead of YEKA, a Renewable PPA contract could be established directly in exchange for grid connection rights. However, transitioning to such a model in Türkiye would require a comprehensive and multidimensional assessment.

3. Structuring of risks

In the Renewable PPA model, since market access is provided without public support, a large portion of investment risk is transferred to the private sector. Therefore, it is recommended to support risk sharing through credit guarantees, collateral mechanisms, and long-term purchase agreements that incentivize financial institutions.

4. Regulations to incentivize consumers

For the widespread adoption of the Renewable PPA model, it is crucial to incentivize both the supply and demand sides.

- Exemptions from taxes, contributions, and market fees can be provided for Renewable PPA applications.
- Renewable energy quotas or purchase obligations can be established for specific sectors or consumer groups.

Designing these incentives in a fair, transparent, and auditable manner is critical for maintaining market integrity.