



Regulatory policy mechanism options to enhance Turkey's energy transition:
capacity development of utility scale solar and wind energy

Main findings 1

- Long term planning, system integration of renewable energy resources, and establishment of policy mechanisms in line with planning and system integration are suggested to be important to enhance Turkey's energy transition.
- The highest participant effect per kWh is observed at YEKDEM1.0 system for SHURA 1 and SHURA 2 Scenarios. This is due to the high level of feed-in-tariffs. It is clear that these high tariff levels can not be sustained when market developments, global trend of transitioning to market based policy mechanisms and of decreasing CAPEX due to technological developments.
- The tariff and/or power purchase agreement level of the new policy mechanism, to be announced in 2020 Q1, is expected to reflect the market developments and to be close to the level of current spot market prices. This tendency is supported by the results of the analysis.
- When guaranteed power purchase agreement models are compared, the highest participant effect per kWh is observed at spot market gap model and YEKDEM2.0, at the same level, for both SHURA 1 and SHURA 2 scenarios. As current YEKDEM (YEKDEM1.0) is practically implemented as a spot market gap model, YEKDEM2.0 is expected to be defined in a similar manner. Thus, within the scope of this analysis, spot market gap model and YEKDEM2.0 can be assessed together.
- When FiT and FiP models are compared, the lowest participant effect per kWh is observed at sliding caps and floors system for both SHURA 1 and SHURA 2 scenarios. This is a result of changing support levels due to spot market prices sliding outside of a predefined range. Thus, the effects of unforeseen changes of the spot market prices on the market participants can be limited. In the medium-run, spot market gap model, if implemented as YEKDEM2.0, can be updated in the direction of a sliding caps and floors system.

Main findings 2

- When YEKDEM2.0, YEKA auction model and Renewable Portfolio Standards' participant effects per kWh are compared, for SHURA 1 scenario the lowest participant effect is observed at Renewable Portfolio Standards .
- Corporate power purchase agreements are suggested to be used as a supporting instrument to other regulatory policy mechanisms.
- In case support levels are defined in TRY, continuation of the support of production and use of local equipment might be important to decrease the level of project risk.
- When the regulatory policy mechanisms are compared in terms of their effects on economy, society and environment, it is observed that the effects connected with the level of capacity development would develop in general at a similar level, and that most of the differentiating effects would be observed due to the different distribution of capacities in different policy mechanisms.
- The effects of the policy mechanisms on economy, society and environment within the scope of this analysis are defined as potential. As these effects can differ due to the particular qualities of different projects, a detailed assessment is suggested to be carried out for each project.
- The regulatory policy mechanisms subject to this study are suggested to be supported by non-regulatory policy mechanisms such as subsidies, tax advantages and climate policies.
- The methodology developed for this study can be implemented for other renewable energy technologies with similar assumptions and forecasts. For its implementation for innovative renewable energy technologies, it is suggested to consider that these technologies generally need higher support levels and that they might be prone to higher currency risk.