RENEWABLE ENERGY AUCTIONING IN SOUTH AND EAST MEDITERRANEAN COUNTRIES

Overview of renewables in the South and East Mediterranean

The South and East Mediterranean region holds important renewable energy potential, having amongst the best sites for solar and wind technologies worldwide. Yet, renewables account for 7% of TPES against 15% in the North Mediterranean (2018). Most of the efforts in the decarbonisation of the energy systems are occurring in the power sector, where cumulative renewable electricity capacity more than doubled between 2010 and 2018, to reach some 56 GW. In terms of technological breakdown, hydro dominates with a 62% share, followed by wind (18%), solar PV (15%), geothermal (2%) and bioenergy (1%). Turkey alone accounts for 77% of total installed capacity (hydro accounting for the largest share), followed by Egypt (9%) and Morocco (7%).

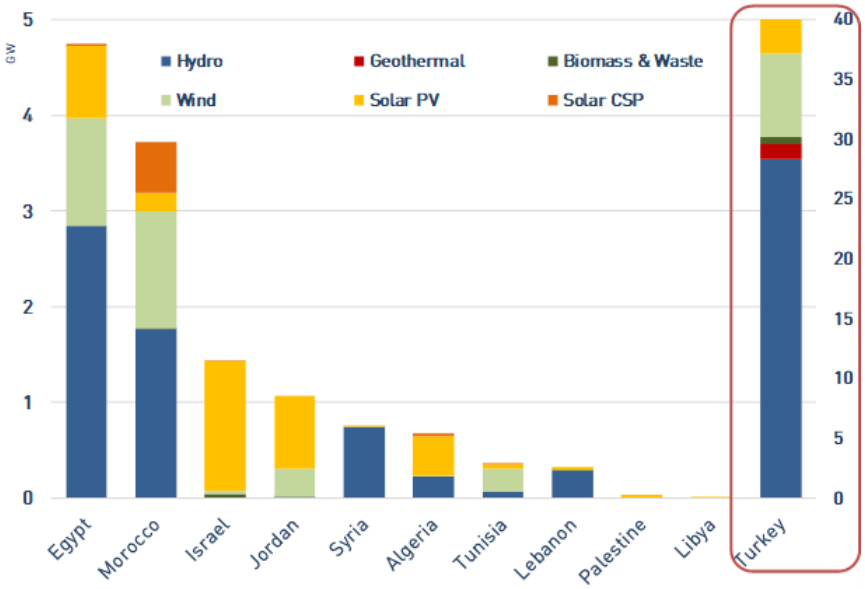

Figure 1: Renewable electricity capacity in SEMCs 2018 (OME database)

All countries have adopted national renewable energy plans for different time horizons. Several countries have recently revised their targets, either by time horizon, capacity and/or technology breakdown. Figure 2 shows the renewable energy targets by country and the progress towards accomplishment. The net capacity additions required by the announced national targets sum up to an

extra capacity of non-hydro renewables of 117 GW, six times the 2018 levels, to be reached mostly around 2030. Currently about 14 GW are under development, of which 4.3 GW in the pipeline, 4.5 GW under bidding process, 1.5 GW under financial closure and 3.6 GW under construction.

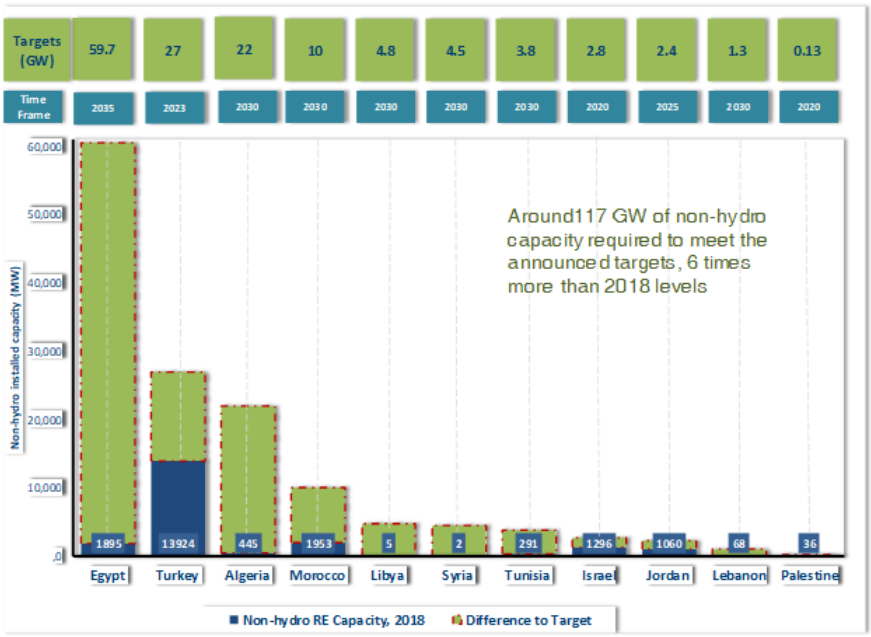

Figure 2: Non-Hydro Renewable Electricity Installed Capacity in 2018 and Targets in the South and East Mediterranean Countries (OME database)

In order to ensure that these targets are met, a series of policy support mechanisms have been put in place. As Table 1 shows, auctioning schemes are an important element, adopted by all the eleven countries of the South and East Mediterranean.

Table 1: RE Policy Support Schemes in South & East Mediterranean Countries, as of 2019

	Algeria	Egypt	Israel	Jordan	Lebanon	Morocco	Palestine	Tunisia	Turkey
RE Targets	√	√	√	√	√	√	√	√	√
Feed-in tariff / premium	√	√	√				√		√
Quota obligation		√	√						
Net metering / billing		√	√	√	√	√	√	√	√
Auctioning	√	√	√	√	√	√	√	√	√

In Place Abandoned New

Note: Deployment of RE in Libya and Syria is on-hold given the socio-political situation. Net metering in Morocco applies to industrial customers connected to high voltage only (access to medium voltage application decrees have not been enacted yet). FIT has been replaced with auctioning scheme in Algeria. For Tunisia, net metering applies to self-consumption projects either with low or medium voltages. Auctioning has been recently adopted by Algeria and Turkey.

RE support mechanisms and the role of auctions

An enabling investment environment has undoubtedly been decisive in driving the deployment of renewables globally. As far as renewable electricity-based support schemes are concerned, renewable energy targets and different policy support schemes have been used by governments to overcome barriers. In addition to financing and fiscal incentives, such tools include tariff-based mechanisms (e.g. feed-in tariffs (FITs) and feed-in premiums (FIPs)), quantity-based mechanisms (e.g. renewable portfolio standards/quota obligations), and hybrid/auction-based mechanisms (determining both price and quantity). Net metering is another policy instrument that is usually combined with other policy tools. Globally, 169 countries have national renewable energy targets. In regard to auctioning, **the number of countries adopting renewable energy auctions moved from 6 in 2005 to 98 by 2018** (REN21, 2019). Competitive auctions have been behind the falling prices of renewables-based electricity generation at a worldwide scale. They have contributed to record low tariffs, making renewable energy technologies competitive to conventional technologies of power generation.

In the South and East Mediterranean Countries, world price records were announced, and further cost reductions could be expected in the future. Competitive auctions should continue to drive costs down. For example, Morocco has announced an average USD 30/MWh for onshore-wind projects (the wind integrated program of 850 MW), which is still unbeaten in the region and amongst the lowest prices recorded at world level. As for solar PV record low prices have been registered in Jordan and Tunisia. Regarding solar CSP, although this technology is comparatively more costly than the two others displayed, it has been showing significant progress and is getting the more and more competitive, particularly in hybrid configurations with PV. Figure 3 lists auctioned prices for RE in the South and East Mediterranean. The prices are based on a country and technology-specific database developed within the framework of the current study, and that is constantly updated based on new information available.

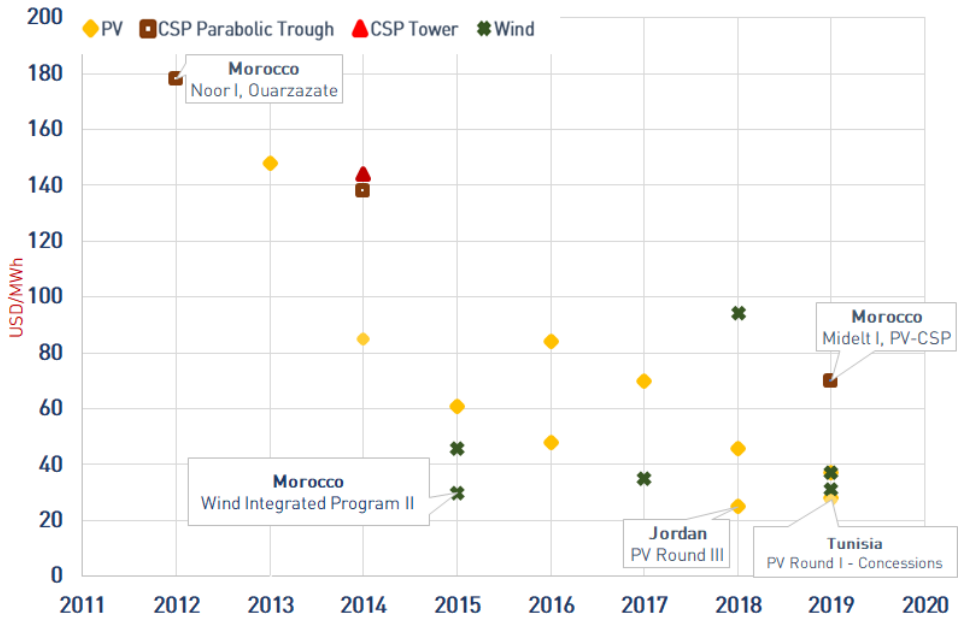

Figure 3: Awarded contract prices in South & East Mediterranean, USD/MWh (OME database).
Note: Prices refer to auction awarding date.

Prices from past auctions can influence future bids and could eventually instil more competition. However, the expectations of further technology cost decreases could drive bids down, but such speculation on cost might cause delays of projects or even cancellation during the construction or

commissioning steps because the assumptions are not correct. The key equation to solve is the break-even price for project developers to maintain a profit margin, thus avoiding underbidding risks.

Selected case studies

A country analysis has been conducted to identify the main features of auctioning systems in six South and East Mediterranean countries: **Algeria, Egypt, Jordan, Lebanon, Morocco and Tunisia**, which together represent almost 30% of total capacity for wind and solar in the region.

After presenting the general framework for renewables in each country, the design of the auctioning scheme is described with respect to **auction scope, qualification requirements, winner selection process, sellers' liabilities**. An **assessment of main lessons learnt** is performed and **key messages** are derived. A list of **auctioned projects by country** is provided, with information on location, capacity, technology and status of implementation. An example is shown in Table 2 for the Algerian case.

Table 2: Projects under CREG's tender of November 2018

Project	Site	Region	Capacity (MW)	Technology	Status
Lot 1	Guerara	Ghardaïa	5 * 10	Solar PV	Not awarded
Lot 2	Diffel	Biskra	5 * 10	Solar PV	Awarded
Lot 3	Meggarine	Ouargla	10	Solar PV	Not awarded
Lot 4	Nezla	Ouargla	10	Solar PV	Not awarded
Lot 5	Belhirane	Ouargla	10	Solar PV	Not awarded
Lot 6	Tendala	Oued	10	Solar PV	Not awarded
Lot 7	Nakhla	Oued	10	Solar PV	Not awarded

Main considerations

Experience with auctioning in the South and East Mediterranean countries is still relatively moderate, as most tendering processes have been held over the past five years. However, a series of considerations can be already drawn, both on a general and country-specific level. **General considerations** include: i) the importance of a stable regulatory framework, which must adapt to the changing market environment (technology development, cost reductions); ii) the need for transparent governance, administrative & auctioning procedures, with clear stakeholders' responsibilities. In particular, terms of reference and PPAs templates should be made available to all interested stakeholders; iii) Local content requirements should reflect market size, economic situation and local industry capabilities of a given country; iv) Periodicity and frequency: need for a tentative schedule for RE auctions timeline; v) Minimal competition requirements could increase market participation, especially from small developers, but also increase transaction costs. So, it is key to design auctions in such a way to allow for increased market participation, inducing competition, creation of economies of scale, and achieving other policy objectives such as local industry creation; vi) Commitments to project implementation – This involves commitments to both contract signing and project performance/implementation in a timely manner. This issue can be addressed through bonds and penalties; a bid bond for contract signing and delay/performance bond for project execution, including lead time liabilities. As for **country-specific considerations**, the auctioning bid launch and evaluation

timeframe appears to be quite varied in the region. Whereas the bid launch and evaluation timeframe's responsibility lays at the hand of the auction organizer, the second component (lead time) lays at the hands of bidder. Also, a too stringent local content requirement might hinder the successfulness of an auctioning procedure, especially if combined with other obstacles such as the absence of "one-stop-shop" responsible for the overall management of RE projects in the country and non-systematic frequency of bids. Overall, auctions have proven to be effective in driving costs down both for wind and solar PV technologies in all the analysed countries; however, they have not favoured progress in other, less mature, technologies which would need different support mechanisms and approaches. Among the **remarkable examples**, the establishment in some countries (e.g.: Algeria) of a bid bond and delay and underbuilding penalties are very important in avoiding delays in projects' implementation. Also, putting project size limits (Egypt, Jordan, Lebanon) has significantly increased competition and wider private sector participation. Another key element (e.g.: Morocco) is the determination of RE sites in designated areas, which reduces overall transaction costs for developers. In terms of transparency, making auctioning documents, including the PPA, publicly available (Tunisia) increases investor's confidence.

Overall, **first estimates indicate that current bids do not allow the investigated countries to reach their intermediate targets but are likely to stimulate rapid acceleration in order to meet the final ones, thanks to learning by doing effects**.

About the study

The report on Auctioning systems in South and East Mediterranean has been developed upon request from the Energy Transition Committee members. It responds to the need for companies to have tools to orientate decision making and better plan business strategies based on concrete examples and real-life experience. The study is based on literature review and analysis, complemented by first-hand ground-based information. Besides the importance for companies, the study has a relevance also for policy makers, who can benefit from the analysis to better refine the mechanisms design and remove the identified barriers, thus increasing the attractiveness for renewable energy investments in their own countries.

The research has been conducted by the Renewable Energy and Electricity Division of OME, acting as the Secretariat of the Energy Transition Committee, and has benefited from the support of the Committee members of the investigated countries, who have provided background material and revised the draft country analysis.

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