

**MEDREG workshop: Deploying renewable energy sources
and energy efficiency measures in the Mediterranean:
State of play and way forward**

**RES potential in the region:
scenarios and perspectives**

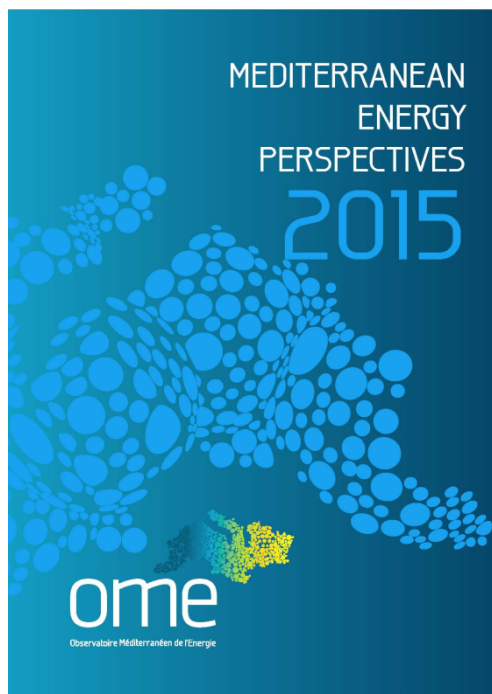
Emanuela Menichetti



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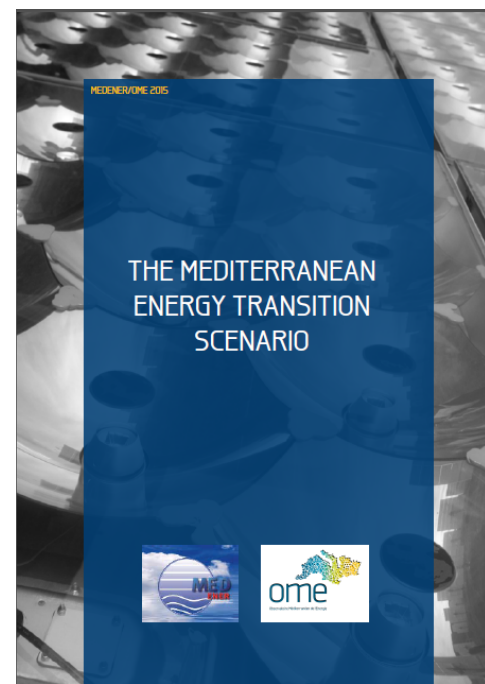
Observatoire Méditerranéen de l'Energie

Madrid, 13 April 2016



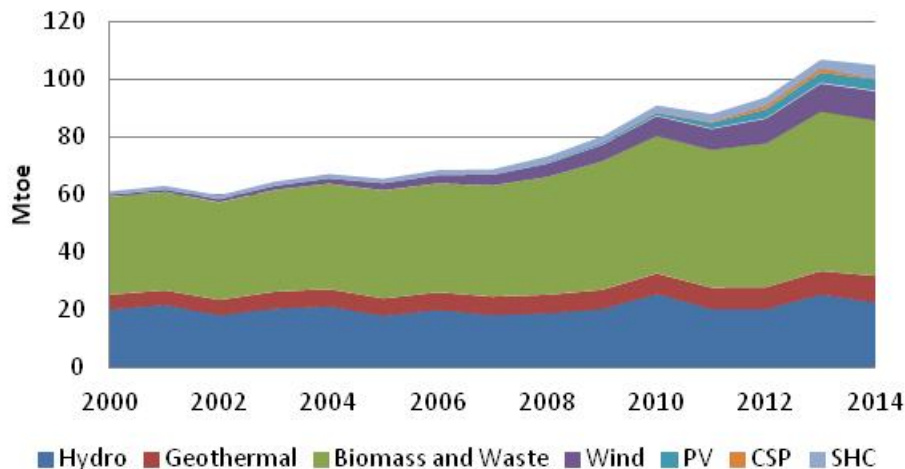
RENEWABLE ENERGY IN SOUTH AND EAST MEDITERRANEAN COUNTRIES

Trends, future developments and best practices

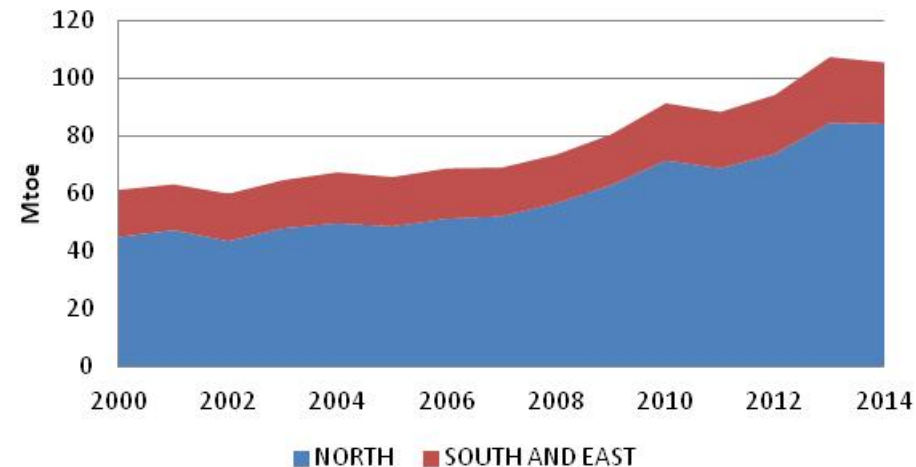


RE SUPPLY BY TECHNOLOGY AND REGION

RE supply in the Mediterranean by technology



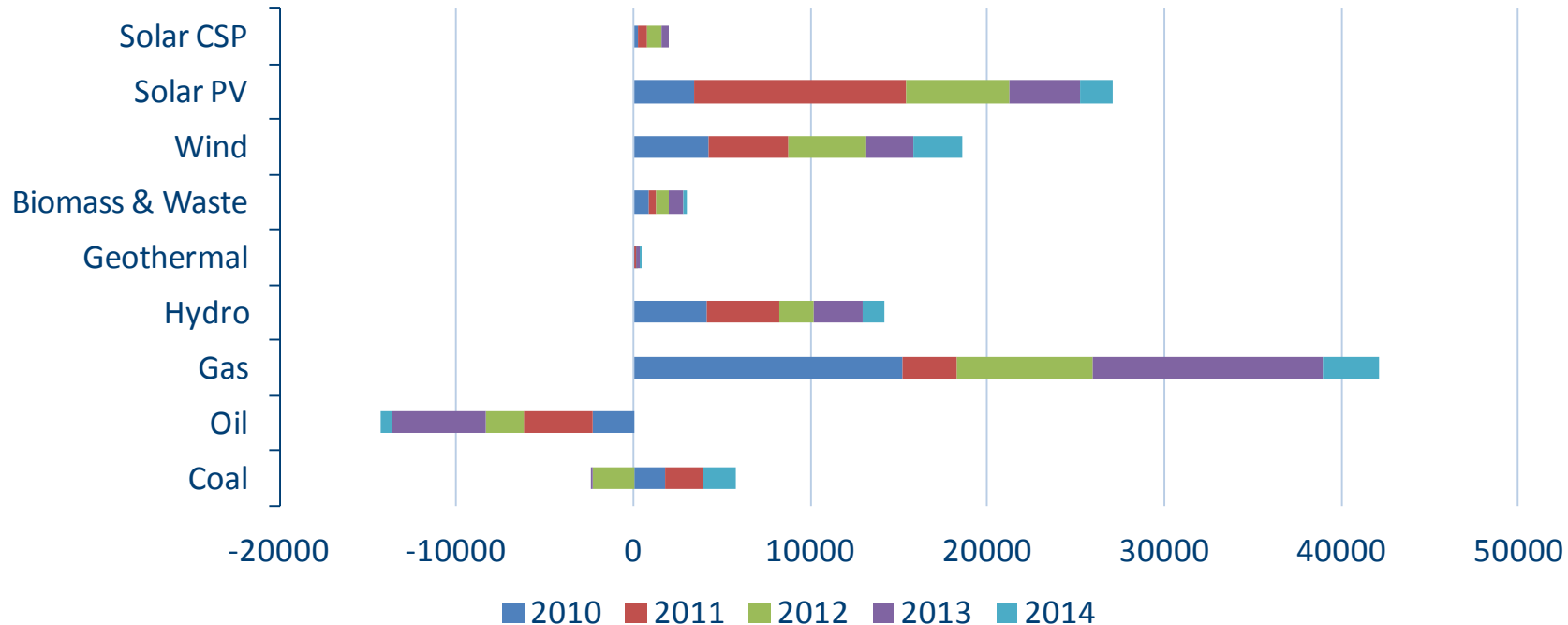
RE supply in the Mediterranean by region



RE accounts for 11% of TPES in the Mediterranean. Hydropower has remained more or less constant over the years, non-hydro RES experienced a two times growth since the year 2000. In particular, wind and solar PV have been showing the highest average annual growth rates since 2000, at 23% and 29% respectively.

However, the geographical distribution across the Mediterranean is unbalanced, with North countries accounting for almost 80% of total renewable energy supply in the region

NET ELECTRICITY CAPACITY ADDITIONS BY TYPE

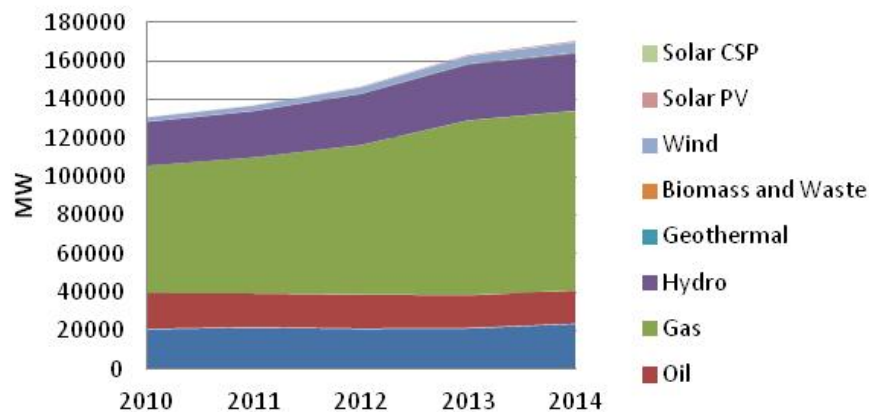


Hydro and non-hydro RETs are expected to surpass natural gas as the first electricity generation source by 2016 (at ~220 GW)

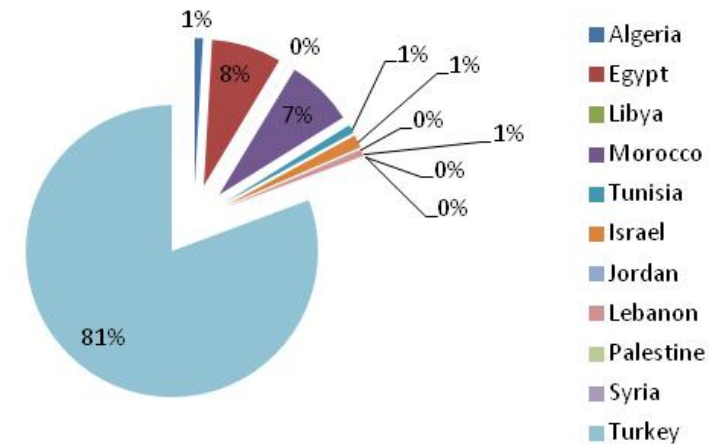
Non-hydro RETs capacity additions were well over 8 GW per year on average, over the past 10 years

RE CAPACITY GROWTH AND GEOGRAPHICAL DISTRIBUTION

Electricity capacity evolution in the South East Mediterranean



Distribution of RE capacity by country in 2014

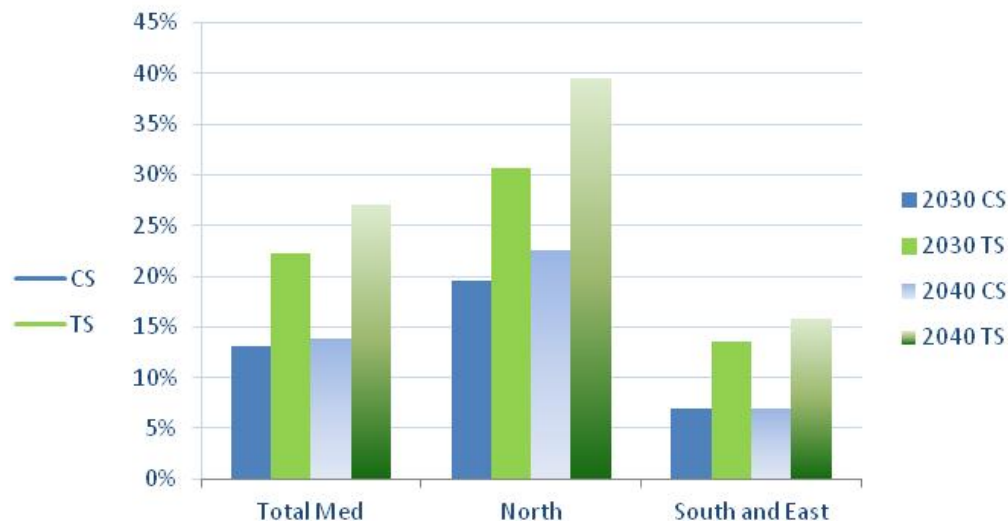
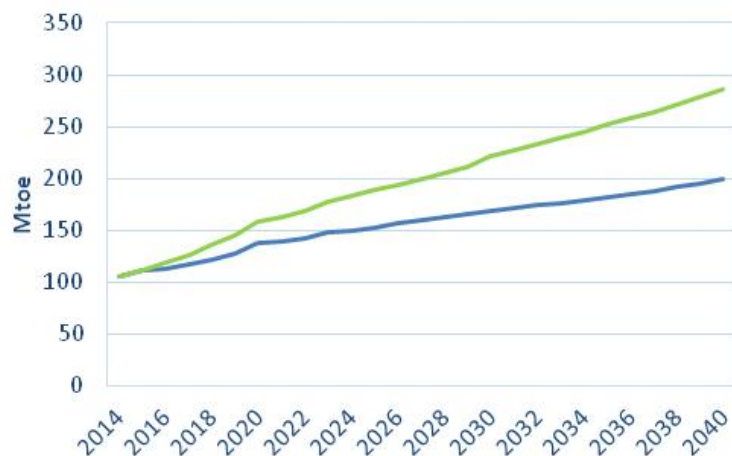


Strong growth of non-hydro RETs – particularly wind

But RE capacity is still concentrated in few countries, with a clear leadership of Turkey

RE EVOLUTION OVER THE NEXT 25 YEARS

Renewable TPES by scenario

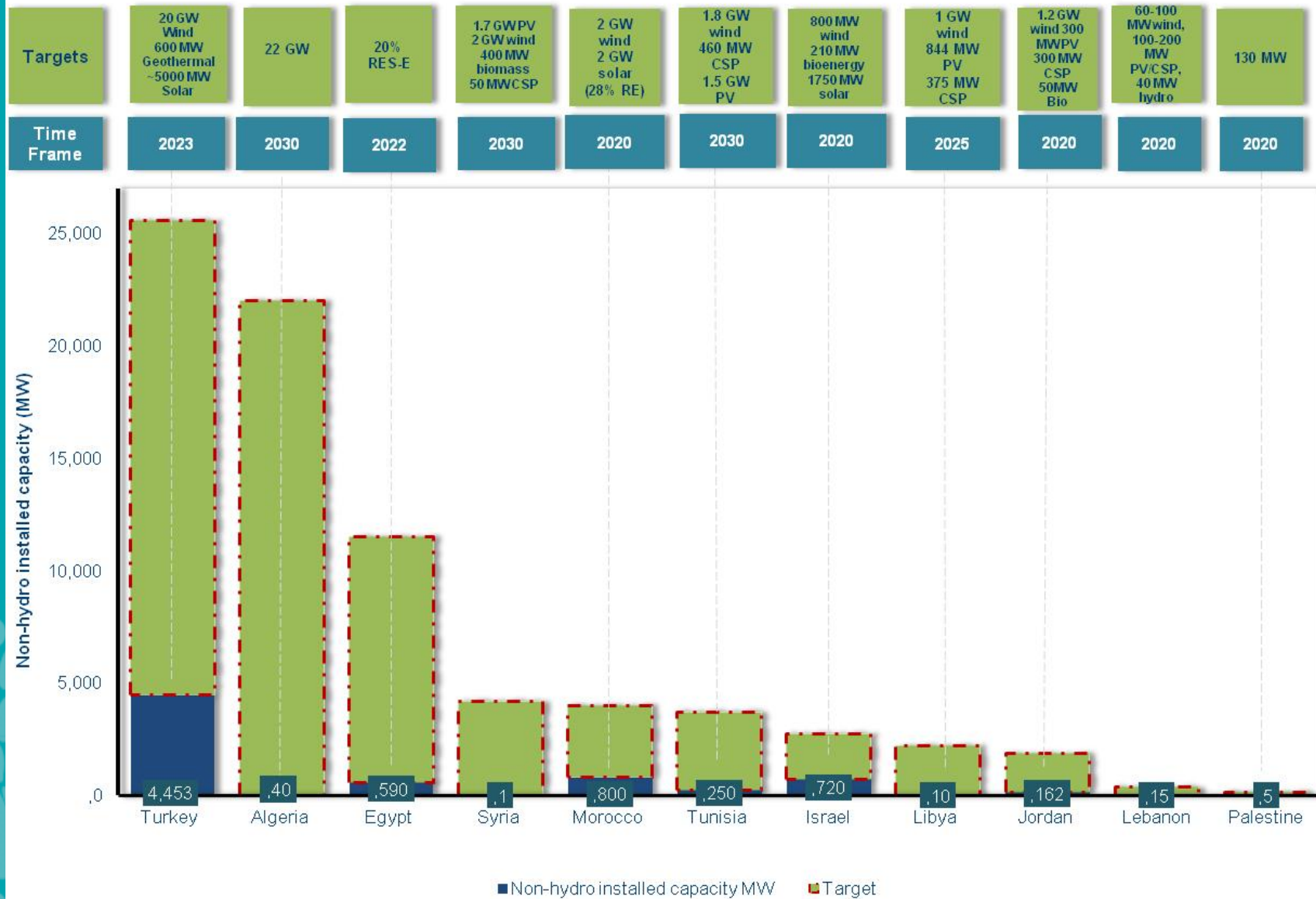


CS: Conservative Scenario (MEP2015); TS: Transition Scenario (MEDENER/OME, 2015)

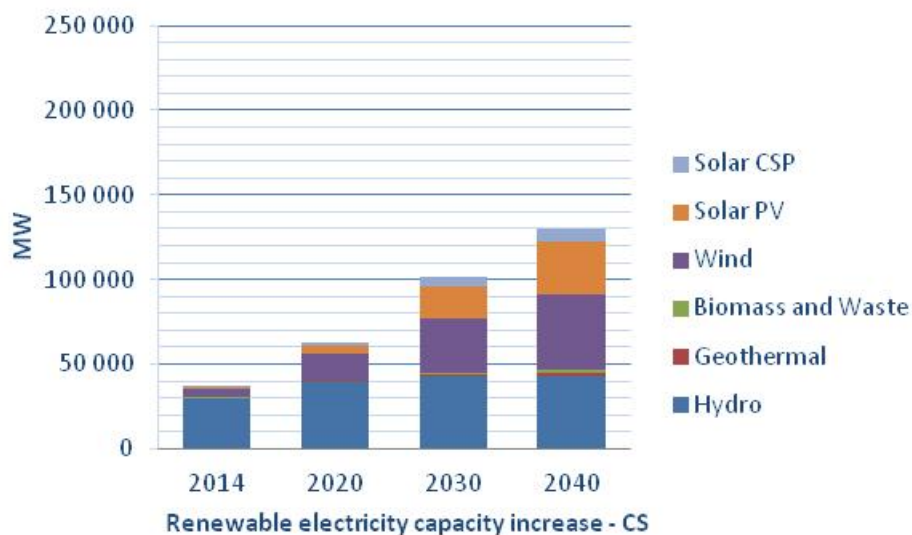
Under a BAU perspective, RES would reach 203 Mtoe by 2040, doubling the 2014 level; in the TS, RES would grow to 286 Mtoe (+40%)

From 14% to 27% of the TPES by 2040 for the entire Mediterranean region

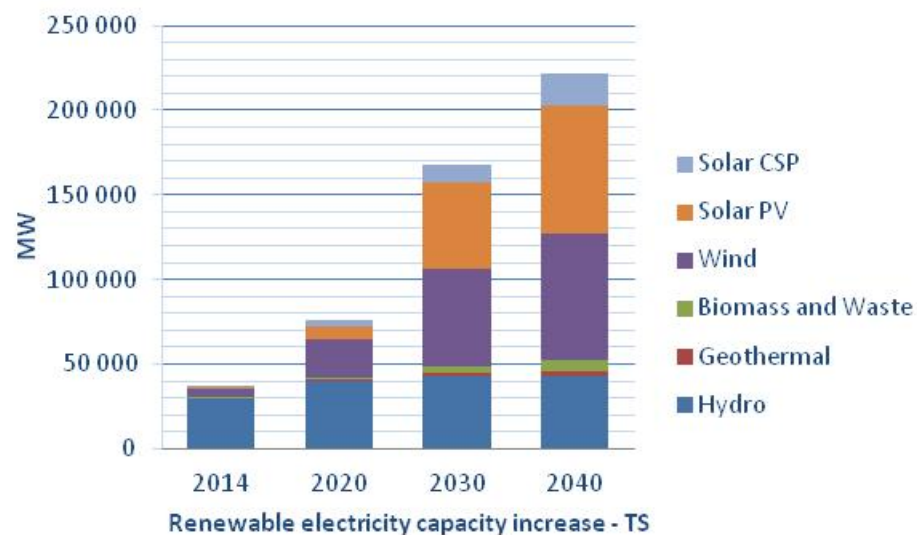
RE TARGETS IN THE SOUTH & EAST



ELECTRICITY CAPACITY EVOLUTION IN THE SOUTH AND EAST MED



CS: Conservative Scenario (MEP2015)



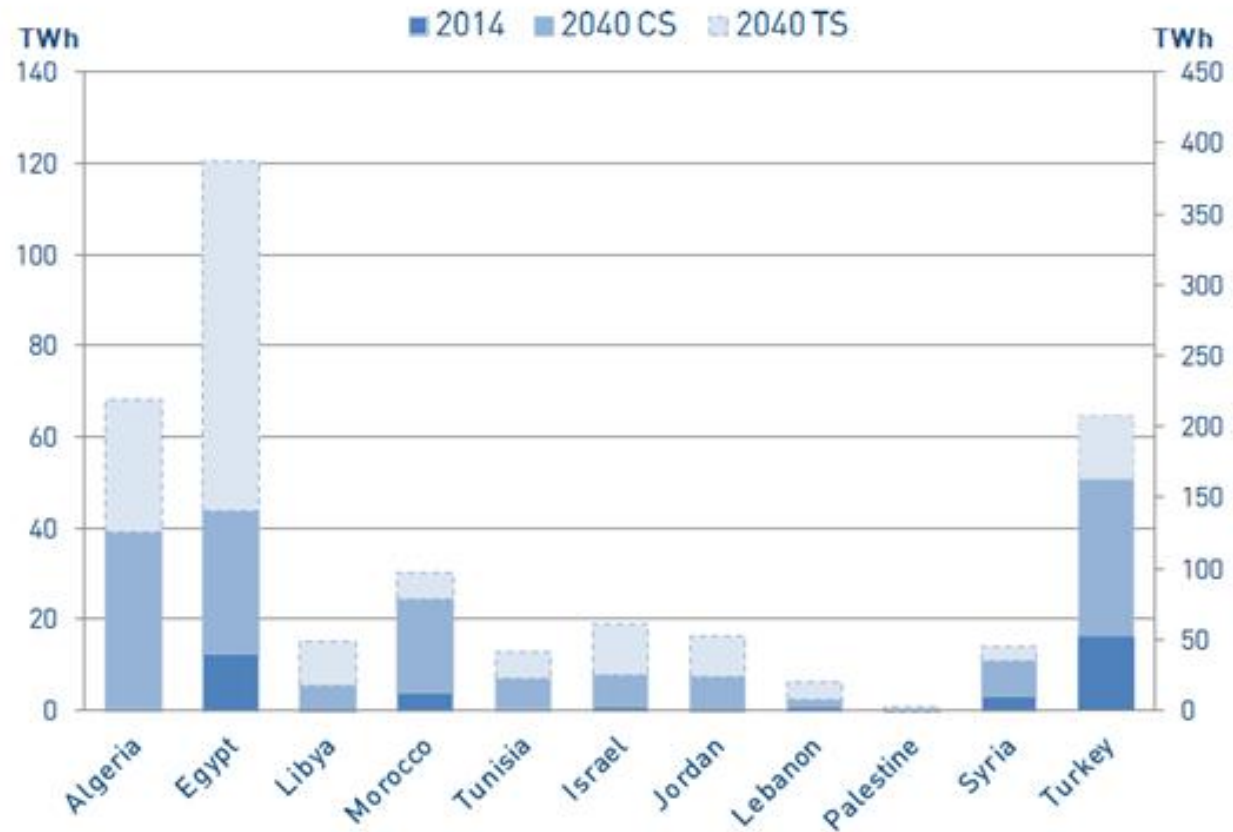
TS: Transition Scenario (MEDENER/OME, 2015)

A six times growth of RETs in the South and East Med in the TS compared to current levels. This would completely change the electricity market supply and demand structure in the South&East Med

Solar technologies will see the highest average growth rate until 2040



ELECTRICITY GENERATION IN SOUTH AND EAST MEDITERRANEAN COUNTRIES



Turkey by far the largest producer of renewable electricity in the region, with over 200 TWh in the TS (40% of total generation in the South East Med)

Strong growth also expected in other countries

- Currently, the Mediterranean is not yet among the most dynamic world regions for RE; the **bulk of the growth is occurring in the North Mediterranean and Turkey**
- Some **encouraging signs** anticipate a **brighter future**:
 - **RETs to surpass natural gas** as the first electricity generation source in terms of capacity already **in 2016**
 - **Record low tender bids in Morocco**
 - A **local RE industry** is emerging
- All South and East Mediterranean countries have set RE targets; to meet them, about **71 GW of non-hydro RETs** are required by **roughly 2025**:
 - **Ten times** more than current levels
 - Corresponding to almost **4 Mediterranean Solar Plans**
- Strong growth of renewables to be accompanied by **enhanced energy efficiency** and other low-carbon technologies



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