



## Concentrating Solar Power for the Mediterranean Region

by

German Aerospace Center (DLR)  
Institute of Technical Thermodynamics  
Section Systems Analysis and Technology  
Assessment

Study commissioned by

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Conservation and Nuclear Safety, Germany

### MED-CSP Team

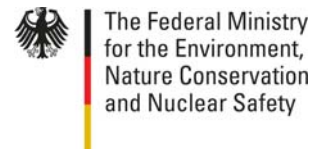
German Aerospace Center (DLR)  
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### More information

The full study report can be downloaded at:  
<http://www.dlr.de/tt/med-csp>



## Main Results of the MED-CSP Study

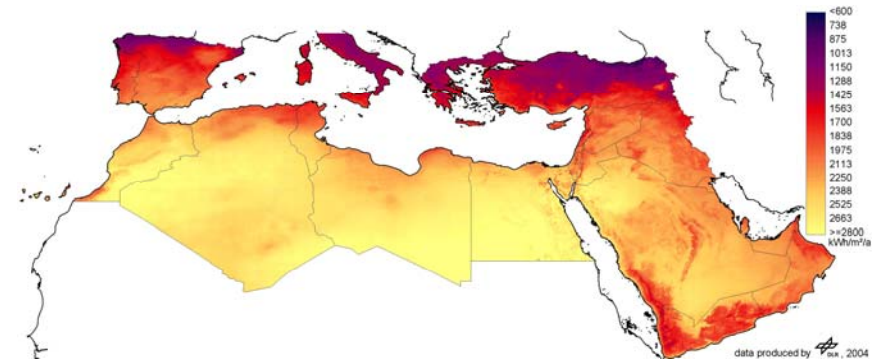
The MED-CSP study focuses on the electricity and water supply of the regions and countries illustrated in Figure 1. The scope was to create a database for decision makers showing the potential of renewable energies to solve the regional energy and water shortage and the corresponding cost escalation. A set of criteria for sustainability was defined including not only environmental issues, but also socio-economic efficiency and security of supply. A scenario was developed showing that the growing demand for power and water can be satisfied in an affordable way by a well balanced mix of technologies and resources illustrated in Figure 2.

The results of the MED-CSP study can be summarized in the following statements:

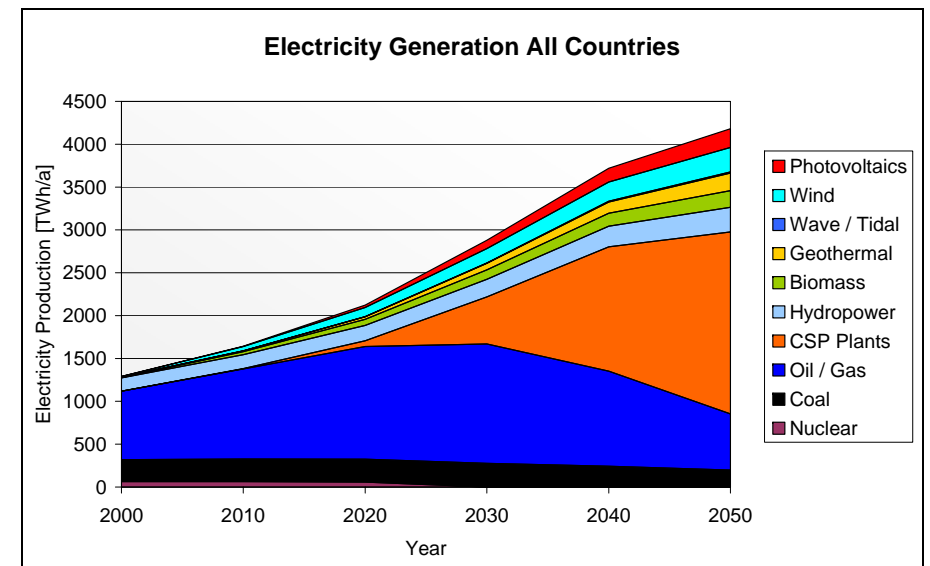
- Environmental, economic and social **sustainability in the energy sector can only be achieved with renewable energies**. Present measures are insufficient to achieve that goal.
- **A well balanced mix** of renewable energy technologies can provide peak-, intermediate and base load electricity and thus **prolong the global availability of fossil fuels for future generations** in an environmentally compatible way. Firm capacity from CSP<sup>1</sup> has a key role in such a mix.
- Renewable energy **resources are plentiful** and can cope with the growing demand of the EU-MENA<sup>2</sup> region. The available resources are so vast that an additional supply of renewable energy to Central and Northern Europe is feasible.
- **Renewable energies are the least cost option** for energy and water security in EU-MENA.
- Renewable energies are the **key for socio-economic development and for sustainable wealth** in MENA, as they address both environmental and economical needs in a compatible way.
- Renewable energies and energy efficiency are the main pillars of **environmental compatibility**. They need initial public start-up investments but no long-term subsidies like fossil or nuclear energies.
- An adequate set of **policy instruments must be established** immediately to accelerate renewable energy deployment in the EU and MENA.

<sup>1</sup> CSP = Concentrating Solar Thermal Power Plants

<sup>2</sup> EU-MENA = Europe, Middle East, North Africa



**Figure 1: Annual Direct Solar Irradiance in the southern EU-MENA Region. The energy received by each square meter of land equals 1 – 2 barrels of oil per year.**



**Figure 2: Annual electricity demand and generation within the countries analysed in the MED-CSP scenario**