

## Trans-Mediterranean Renewable Energy Cooperation (TREC)

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Press Release

## Power from deserts

*New report shows how Europe can make deep cuts in CO<sub>2</sub> emissions and phase out nuclear power at the same time*

A new report, commissioned by the German Government,<sup>1</sup> shows in detail how Europe (including the UK and Ireland) can meet all its needs for electricity, cut emissions of CO<sub>2</sub> from electricity generation by 70% by the year 2050, and phase out nuclear power at the same time.

The key to this revolution in electricity supply is the replacement of old polluting power plants that rely on dwindling supplies of fuel with a larger range of non-polluting sources of energy that will be good for thousands of years.

In the scenario described in the new ‘TRANS-CSP’ report, the need for imported sources of energy will be reduced and this, coupled with the increased range of sources of energy, will help to ensure the resilience and security of energy supplies.

But an important part of the proposals in this report and the earlier ‘MED-CSP’ report is the development of a collaboration between countries of Europe, the Middle East and North Africa (EUMENA) to take advantage of the truly monumental quantities of energy that fall as sunlight on the world’s hot deserts.

“Every year, each square kilometre of desert receives solar energy equivalent to 1.5 million barrels of oil. Multiplying by the area of deserts world-wide, this is nearly a thousand times the entire current energy consumption of the world.” said Dr Franz Trieb, Project Manager for the two reports.

“We can tap in to this energy by using mirrors to concentrate sunlight and create heat. The heat may be used to raise steam and drive a generator in the

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<sup>1</sup> The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

## **Trans-Mediterranean Renewable Energy Cooperation (TREC)**

### *Notes for Editors*

The website of TREC is at  
[www.trecers.net](http://www.trecers.net).

Copies of the TRANS-CSP  
and MED-CSP reports may be  
downloaded from [www.trec-uk.org.uk/reports.htm](http://www.trec-uk.org.uk/reports.htm).

Further information, with links  
to other sources, is at  
[www.trec-uk.org.uk](http://www.trec-uk.org.uk).

conventional way. This kind of ‘concentrating solar power’ (CSP)—which is very different from the better-known photovoltaic ‘solar panels’—has been producing electricity successfully in California for nearly twenty years.

“The cost of collecting solar thermal energy equivalent to one barrel of oil is about US\$50 right now (already less than the current world price of oil) and is likely to come down to around US\$20 in future.

“Contrary to what is commonly supposed, it is entirely feasible and cost-effective to transmit solar electricity over long distances. With modern high-voltage DC transmission lines (HVDC), only about 3% of the power is lost for each 1000 km. In round figures, this means that solar electricity could be imported from North Africa to London with only about 10% loss of power. This compares extremely favourably with the 50% to 70% of losses that have been accepted for many years in conventional coal-fired power stations.

“We have calculated that solar electricity imported to Europe would be amongst the cheapest sources of electricity, and that includes the cost of transmitting it. CSP imports would be much less vulnerable to interruption than are current imports of gas, oil and uranium.”

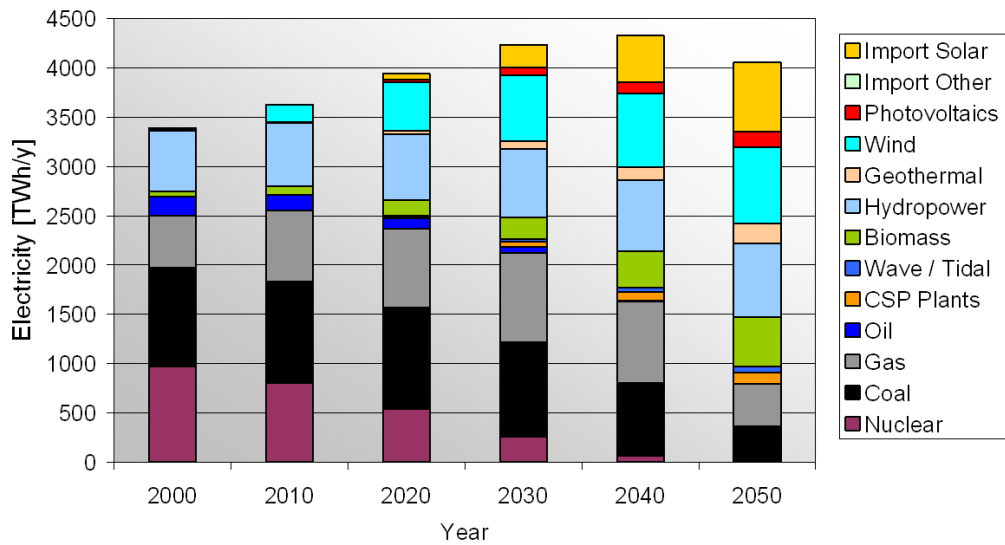
Collaboration amongst countries of EUMENA would create substantial benefits. For all the countries it would mean a plentiful supply of inexpensive pollution-free electricity and the creation of jobs and earnings in a large new industry.

For countries in North Africa and the Middle East it can also mean the creation of fresh water by the desalination of sea water using the waste heat from CSP. This can have a major impact in alleviating shortages of fresh water in those regions, a problem that is likely to be made worse by climate change, as highlighted recently by Sir David King, Chief Scientific Advisor to the UK Government.

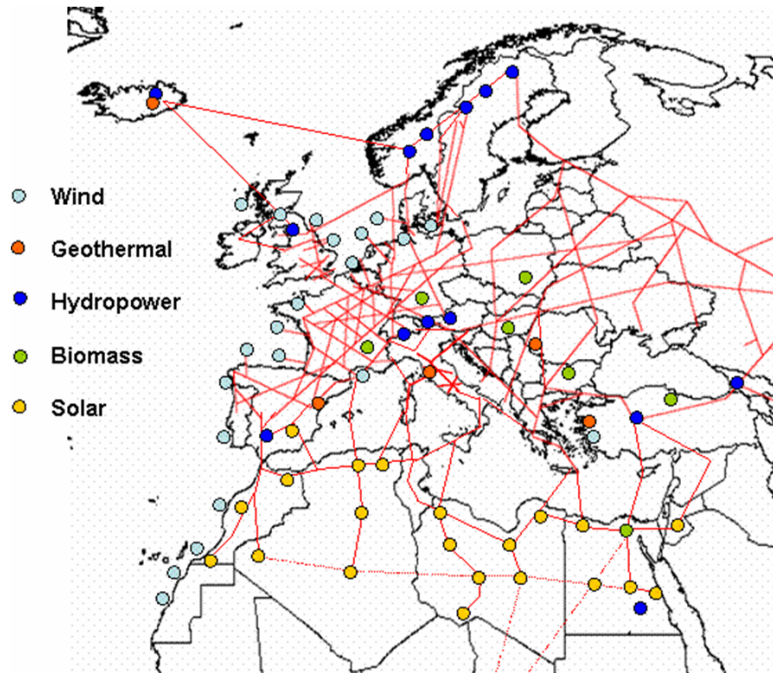
In addition, the areas under the solar mirrors of CSP plants are relatively cool and protected from the harshness of direct tropical sunlight—which means they can be useful for many purposes including horticulture using desalinated sea water.



### TRANS-CSP: Electricity Generation in Europe



### Security and Redundancy of Power Supply by a Future TRANS-Mediterranean HVDC Grid



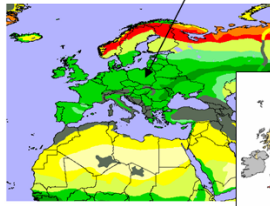


## Renewable Energy Resources in EUMENA

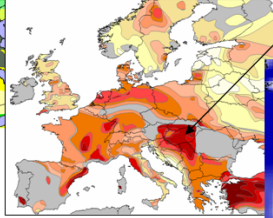


Biomass (1)

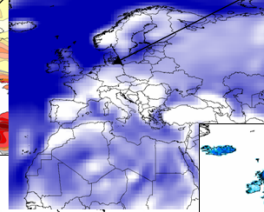
In brackets: (Typical Yield in  $\text{GWh}_e/\text{km}^2/\text{y}$ )



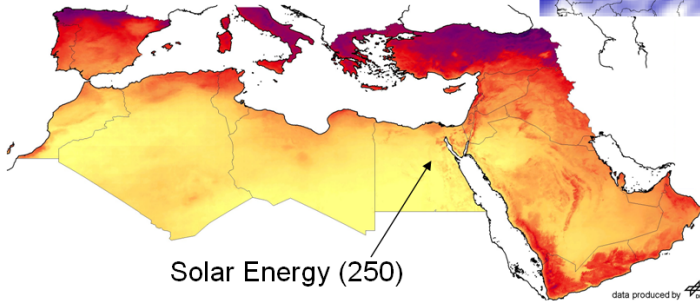
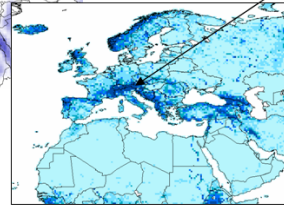
Geothermal Energy (1)



Wind Energy (30)



Hydropower (30)

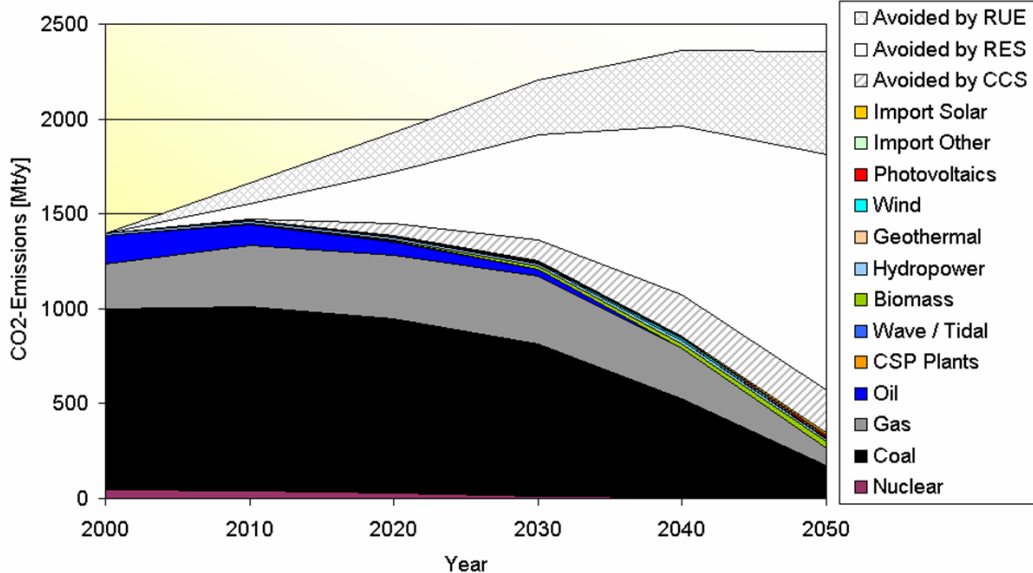


Solar Energy (250)

data produced by



## TRANS-CSP: CO<sub>2</sub> Emissions in Europe



RUE Rational Use of Energy RES Renewable Energy Systems CCS Carbon Capture & Sequestration  
Avoided CO<sub>2</sub> is calculated with respect to a mix as in the year 2000 including nuclear power