

Renewable Energy Revolution in the Mediterranean Region?

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WWF
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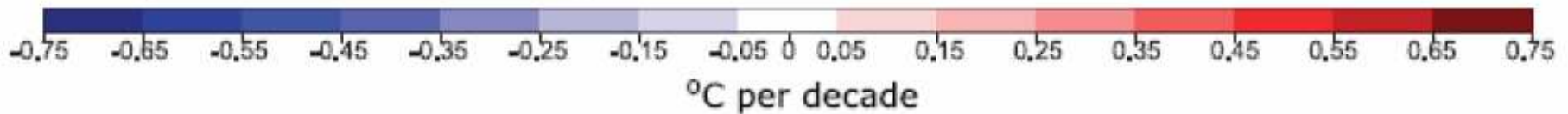
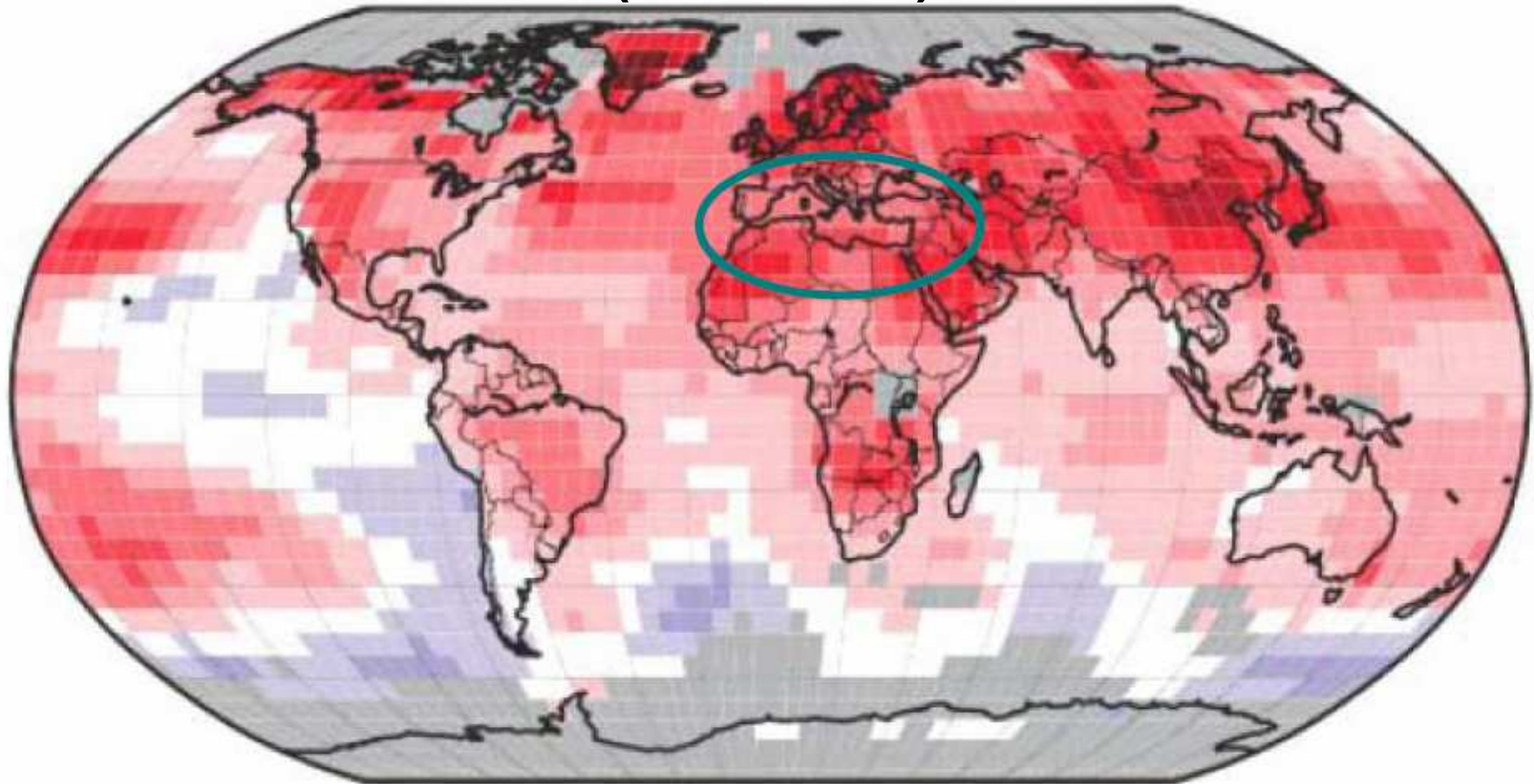




We have a problem: Climate Change

Temperature evolution 1979 – 2005

(IPCC, 2007)

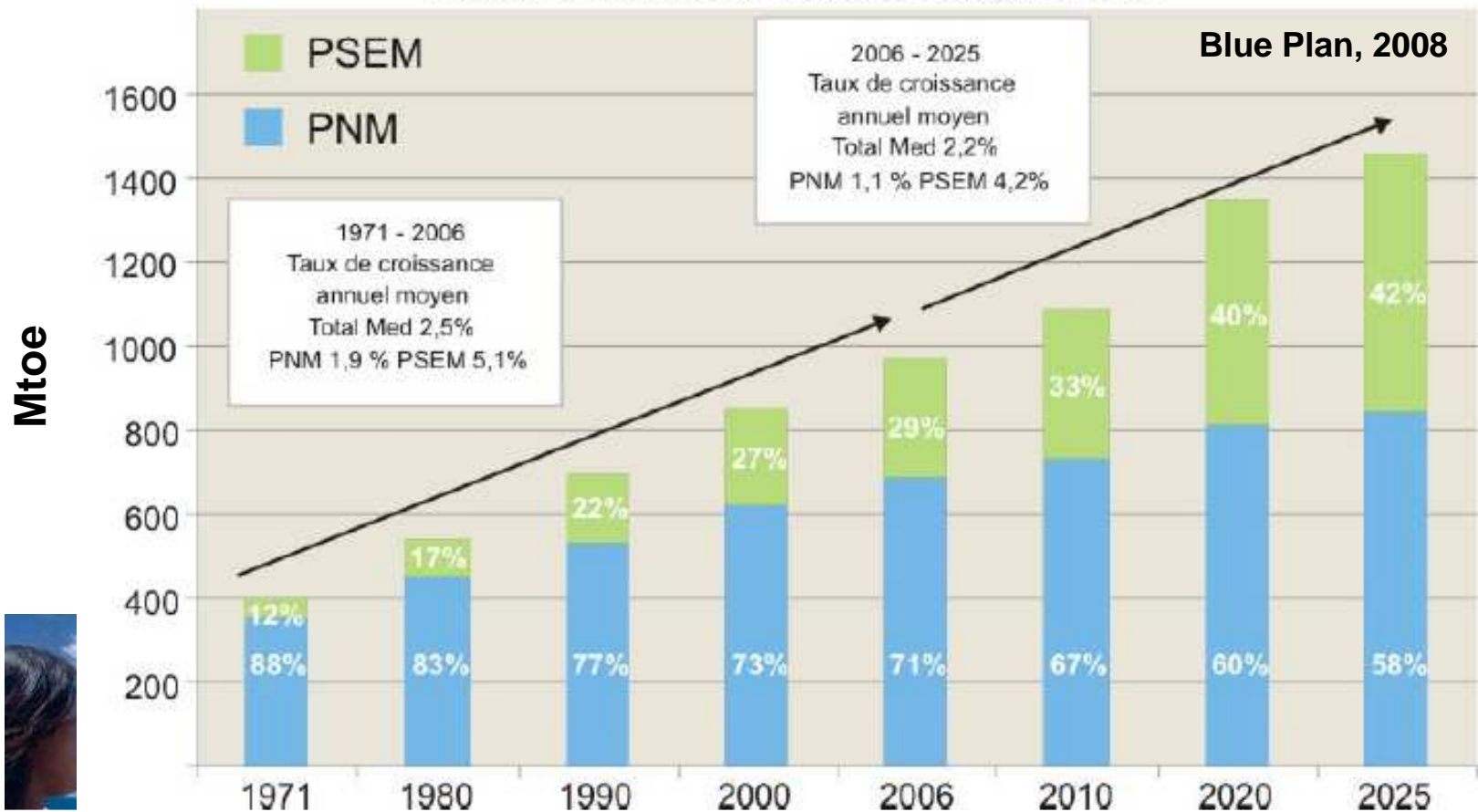




... But no Solution Yet: Energy Consumption and Mix not promising!

- 2006 – 2025: primary energy demand x1.5 in MED (SEMC:x2.2)
- In SEMC: Renewable energy predicted to play minor role (2-3% by 2025)
- In EU, Med countries contribute to 20% renewables target by 2020

Figure 1 - Demande d'énergie primaire
Tendances en matière de demande d'énergie primaire

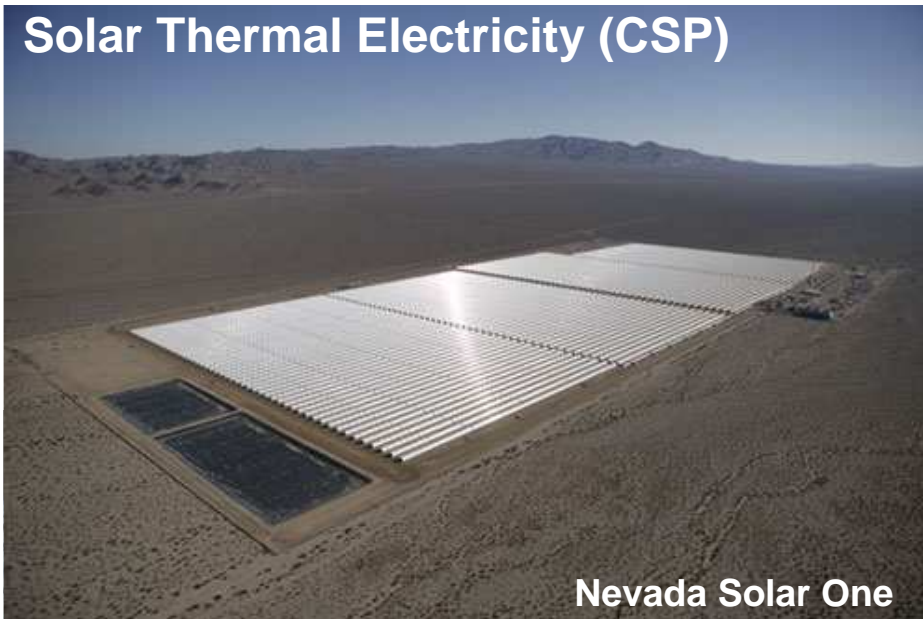


Concentrator PV



Clean Technologies do Exist

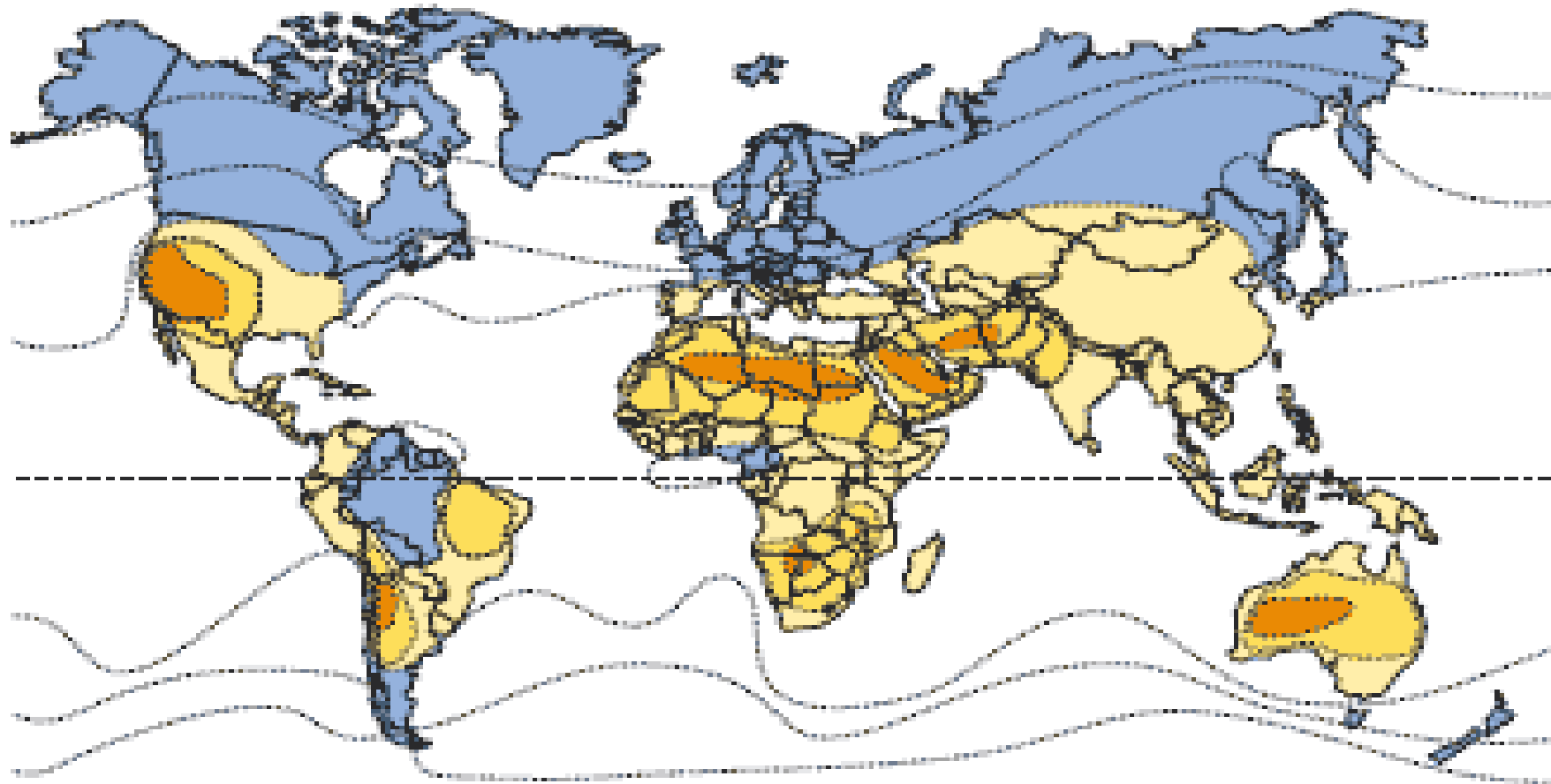
Solar Thermal Electricity (CSP)





This region is famous for oil & gas - **will it become famous for its Solar Reserves?**

The potential is huge!



Suitability for solar thermal power plants:

■ excellent ■ good ■ suitable ■ unsuitable

Source: Solar Millennium AG



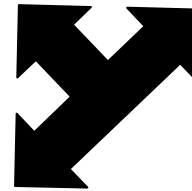
Grand Plans do Exist

World Bank CTF (Clean Technology Fund)

- co-finance 1 gigawatt (GW) of CSP in the MENA region over 6-8 years
- 8-10 commercial-scale power plants in multiple countries
- CTF co-financing would constitute ~ 10% of the total resources required
- investment plan in the range of US\$ 750 million

Mediterranean Solar Plan (UfM)

- 20 GW by 2020 using a mix of technologies : PV, CPV, CSP, Wind power ...
- 20% energy savings by 2020 compared to BAU
- Over 140 projects proposed
- All sorts of technologies but main focus is large scale



Desertec Industrial Initiative

- Focus on Solar & Wind in EUMENA
- Viable business and investment plans within next three years
- Supply around 15% of Europe's electricity by 2050 (as well as producer countries needs) – EU renewables directive allows for import!
- MoU signed by ABB, ABENGOA Solar, Cevital, Deutsche Bank, E.ON, HSH Nordbank, MAN Solar Millennium, Munich Re, M+W Zander, RWE, SCHOTT Solar, SIEMENS
- cost estimated at 400 billion EUR






MSP Proposed Projects

- Region
- Algeria
- Cyprus
- Egypt
- Greece
- Israel
- Italy
- Jordan
- Lebanon
- Morocco
- P.T.
- Syria
- Tunisia
- Turkey



EGYPT



- Biofuel: None
- Biogaz: None
- Biomass: None
- CSP: 3 Sites
- Hydro: None
- PV/CPV: 4 Sites
- Solar Heating: None
- Wind: 10 Sites
- Wind/Solar: None

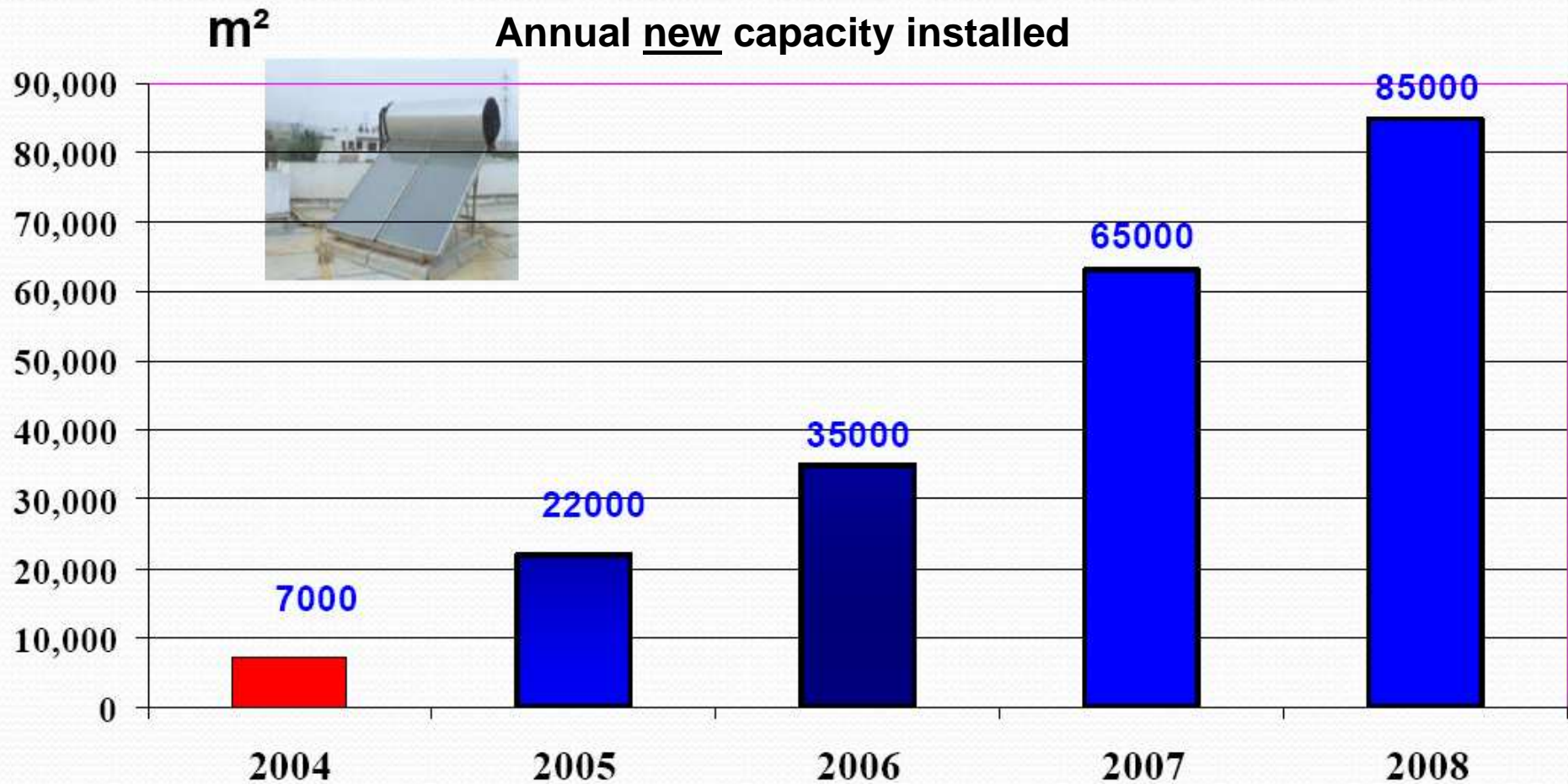
Stats: # Installations Proposed Σ Power Proposed Hide Stats

Total Power for Proposed Installations (MW)

Technology Type	Algeria	Cyprus	Egypt	Greece	Israel	Italy	Jordan	Lebanon	Morocco	P.T.	Syria	Tunisia	Turkey
Biofuel									0				
Biogaz							3						
Biomass					0		3	10					
CSP	700		90	50	125		2200	211	107	20	2470	20	
Hydro													15
PV/CPV	55		51			15	110	5	133.1	1	86	207.5	321
Solar Heating		5										0	
Wind	100		994			531	1510		1275		300	364	437
Wind/Solar									10				



Small scale does exist as well: Solar thermal heating in Tunisia





Some Key Elements to make the renewable energy revolution a reality

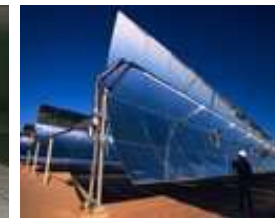
- Projects need supportive context in host countries: should come along with energy sector reforms (Limassol Action Plan), increased grid capacity and link to climate negotiations
- Large projects should benefit the country and local communities
- Water use and environmental impacts of large-scale projects should be assessed
- Energy efficiency a must!
- Support not only for large-scale infrastructure
- Inclusion of civil society in discussions – WWF project





WWF Project Sustainable Energy in the Med

- Objective: right enabling conditions for a sustainable energy development in the Mediterranean.
- Focus: Mediterranean Solar Plan and related projects.
- Activities:
 1. Develop knowledge on sustainable energy
 2. Enhance local stakeholders capacity and promote policy dialogue on sustainable energy
 3. Influence the EU and UfM regional policies regarding the need to create the right development framework for the Mediterranean Solar Plan et al., including proper funding.
 4. Demonstrate project results in the field



TANBERG

THERE MUST BE
A SOURCE OF ENERGY
DOWN THERE



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