



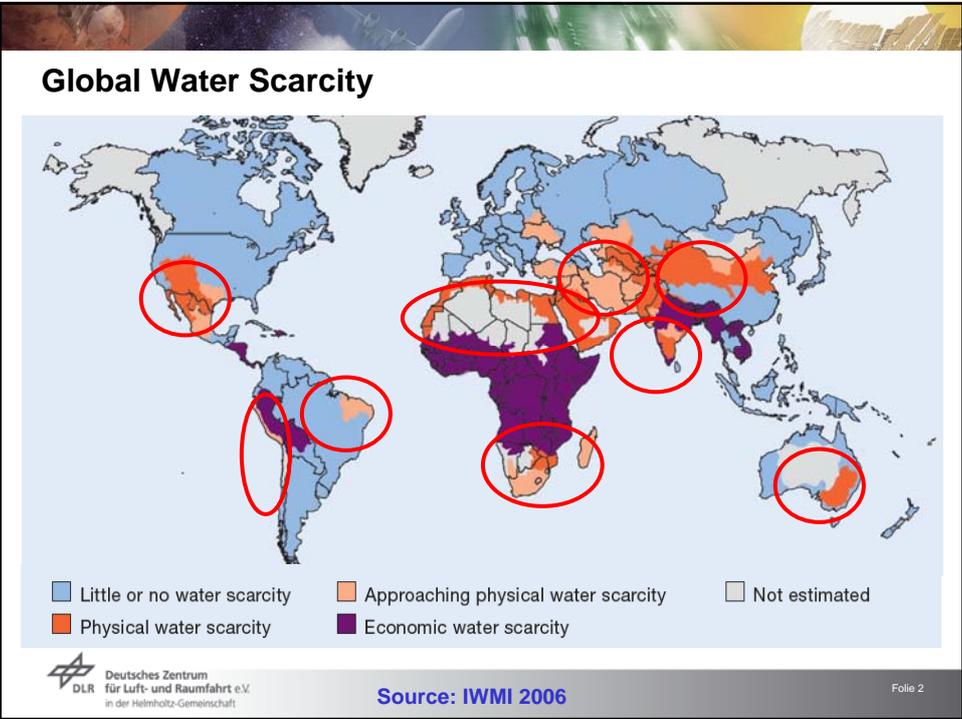
MED-CSD

Combined Solar Power and Desalination Plants: Update on the MED-CSD Project

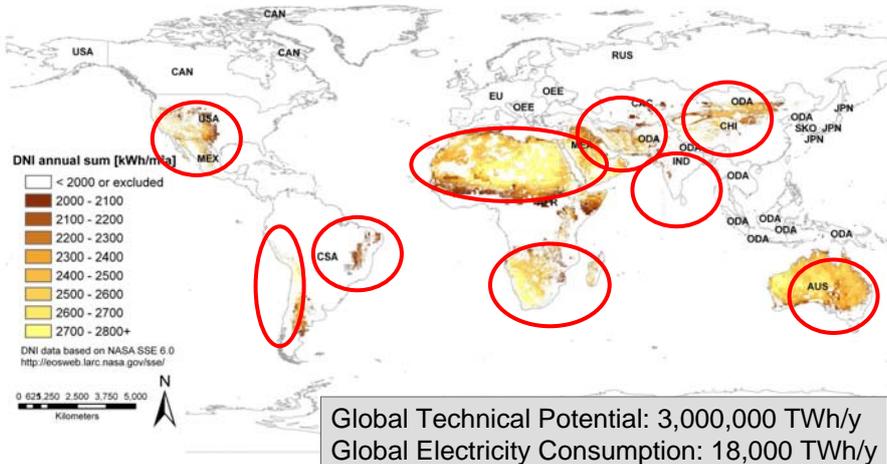
Franz Trieb

IEA Paris, March 23, 2009

Deutsches Zentrum
für Luft- und Raumfahrt e.V.
in der Helmholtz-Gemeinschaft



Global Potential for Concentrating Solar Power



Data provided by DLR (2008) for EU-project REACCESS

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Source: REACCESS 2009

Folie 3

DNI Class	Africa	Australia	Central Asia, Caucase	Canada	China	Central South America	India	Japan
2000-2099	102,254	6,631	14,280	0	8,332	31,572	7,893	0
2100-2199	138,194	18,587	300	0	18,276	20,585	1,140	0
2200-2299	139,834	36,762	372	0	43,027	24,082	550	0
2300-2399	141,066	87,751	177	0	28,415	20,711	774	0
2400-2499	209,571	148,001	64	0	11,197	6,417	426	0
2500-2599	203,963	207,753	0	0	11,330	3,678	13	0
2600-2699	178,480	142,490	0	0	2,180	5,120	119	0
2700-2800+	346,009	49,625	0	0	3,079	11,827	15	0
Total	1,459,370	697,600	15,193	0	125,835	123,992	10,928	0

DNI Class	Middle East	Mexico	Other Developing Asia	Other East Europe	Russia	South Korea	EU27+	USA
2000-2099	3,432	1,606	4,491	6	0	0	866	14,096
2100-2199	12,443	3,378	5,174	13	0	0	497	17,114
2200-2299	39,191	3,650	10,947	2	0	0	660	21,748
2300-2399	60,188	5,807	30,776	0	0	0	162	16,402
2400-2499	71,324	15,689	19,355	0	0	0	90	23,903
2500-2599	34,954	7,134	4,429	0	0	0	69	8,116
2600-2699	32,263	1,534	253	0	0	0	31	2,326
2700-2800+	36,843	1,878	136	0	0	0	34	0
Total	290,639	40,675	75,561	21	0	0	2,409	103,704

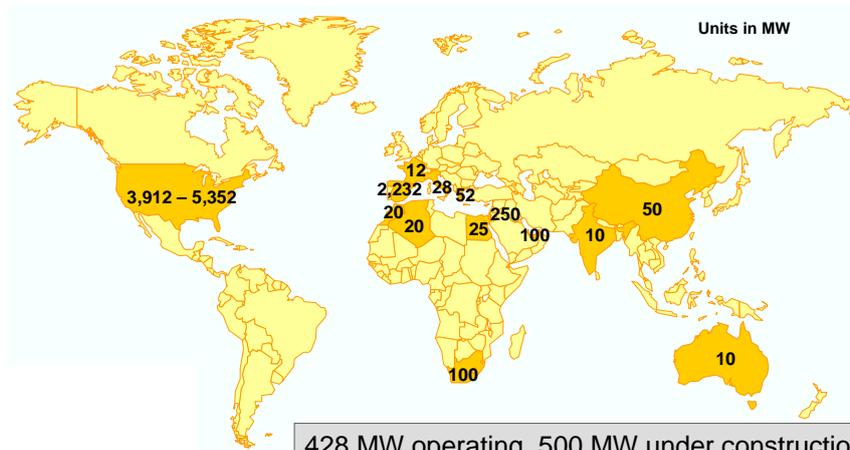
CSP potentials in TWh/y available in the REACCESS world regions for different DNI Classes

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Source: REACCESS 2009

Folie 4

Global Concentrating Solar Power Projects



428 MW operating, 500 MW under construction
~8,000 MW under development

New Concentrating Solar Power Projects

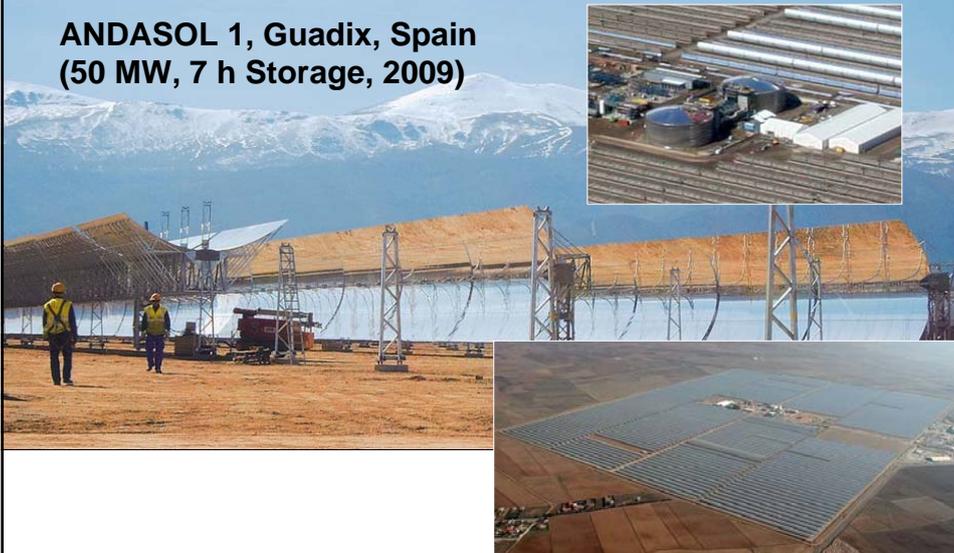


New Concentrating Solar Power Projects



Nevada Solar One
Las Vegas, USA (64 MW, 2007)

ANDASOL 1, Guadix, Spain (50 MW, 7 h Storage, 2009)



Linear Fresnel Demos



Plataforma Solar Almeria, Spain
(MAN/SPG)



Calasparra, Spain
(Novatec)

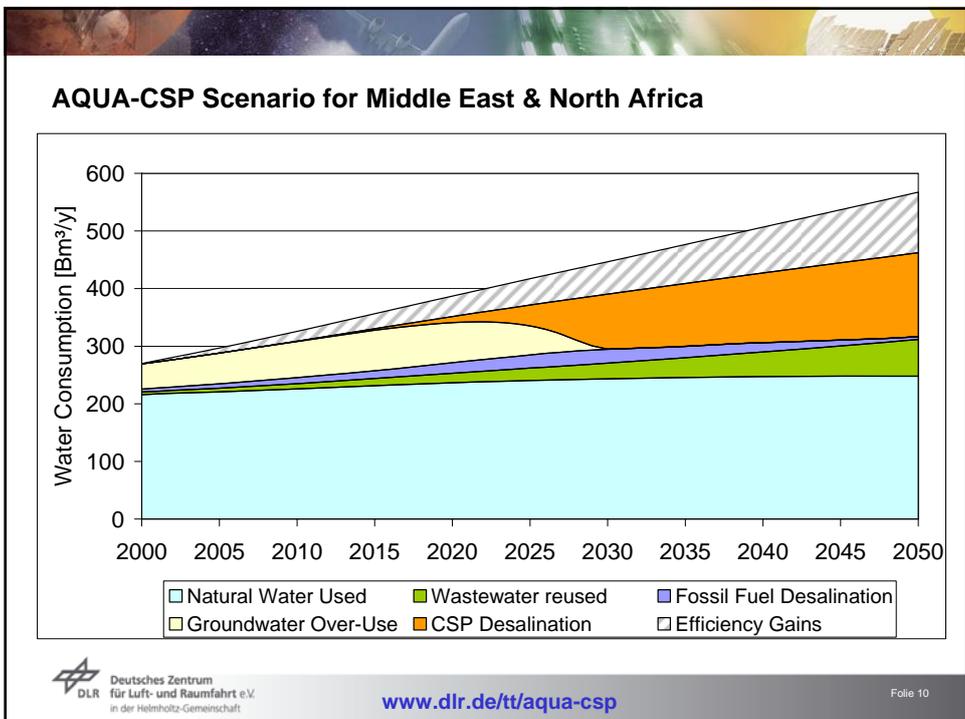


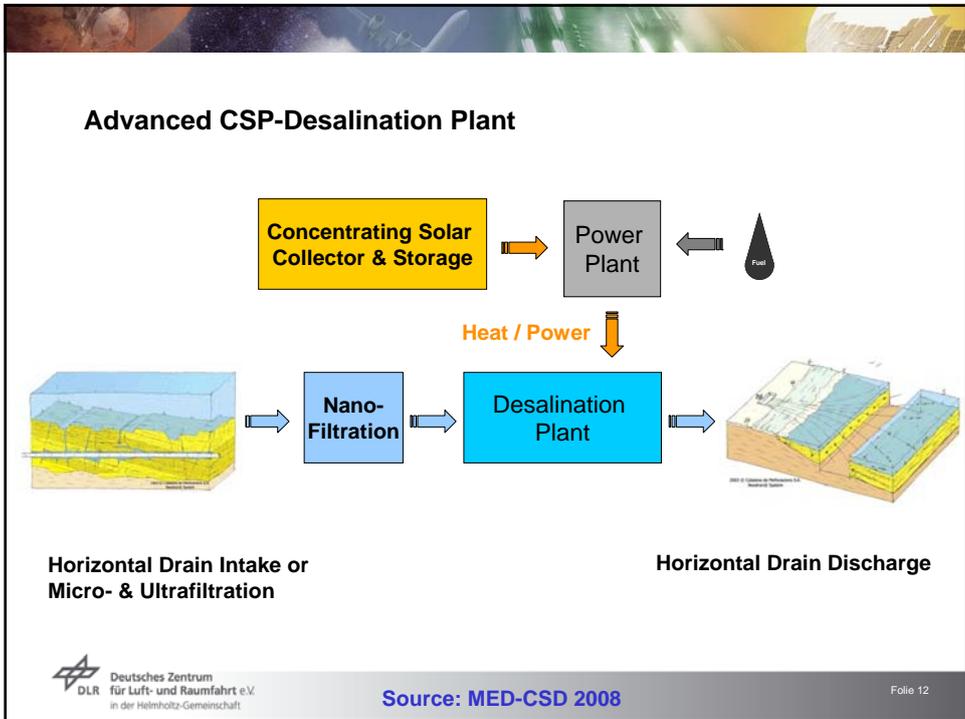
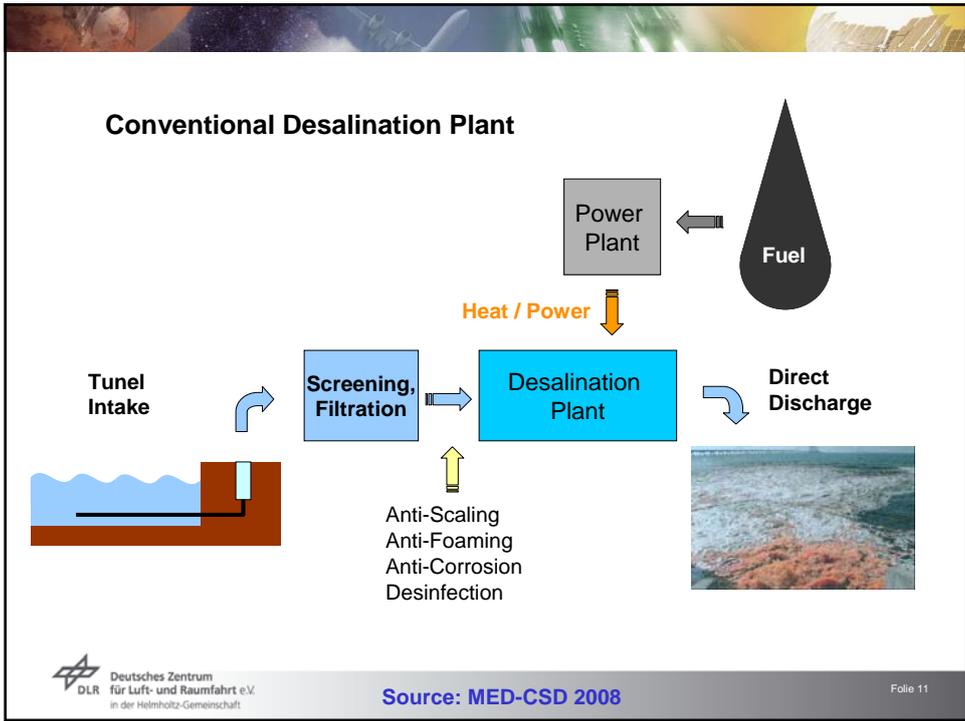
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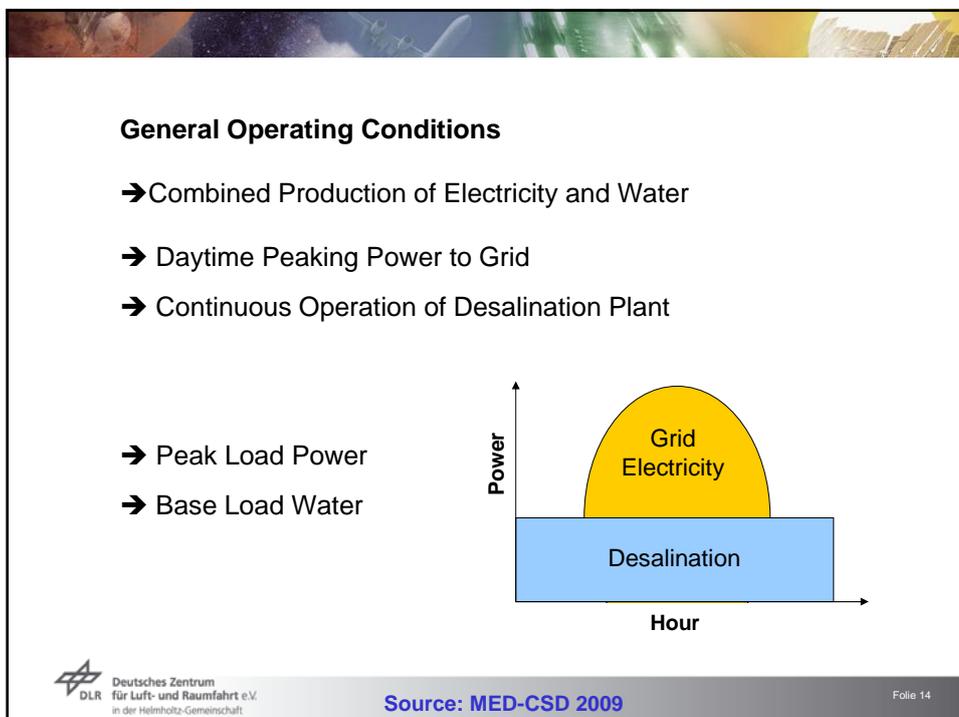
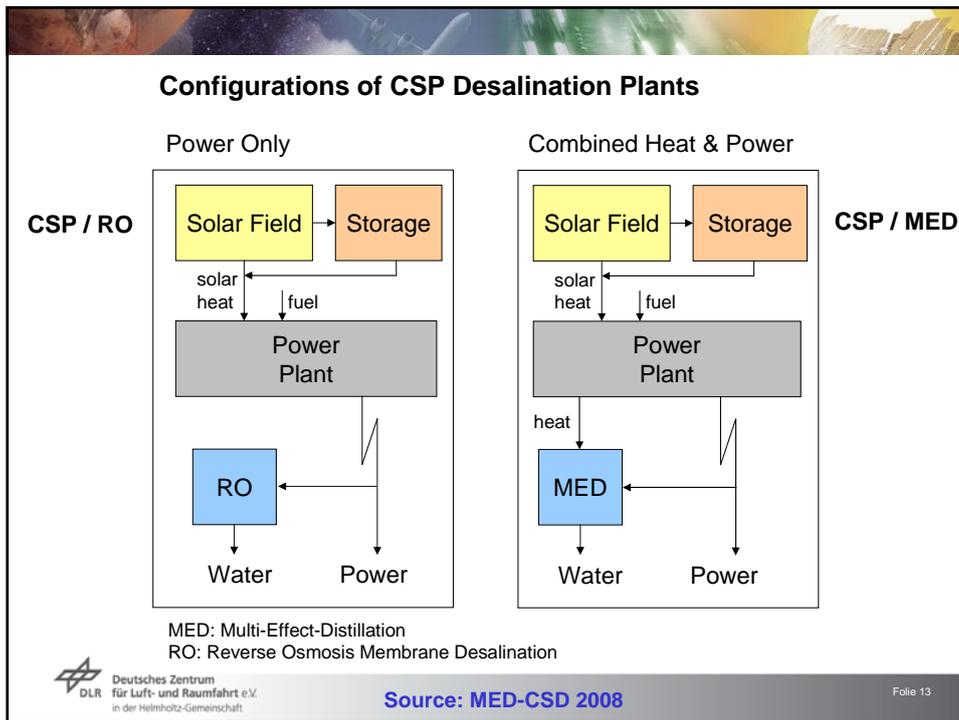
www.spg-gmbh.com

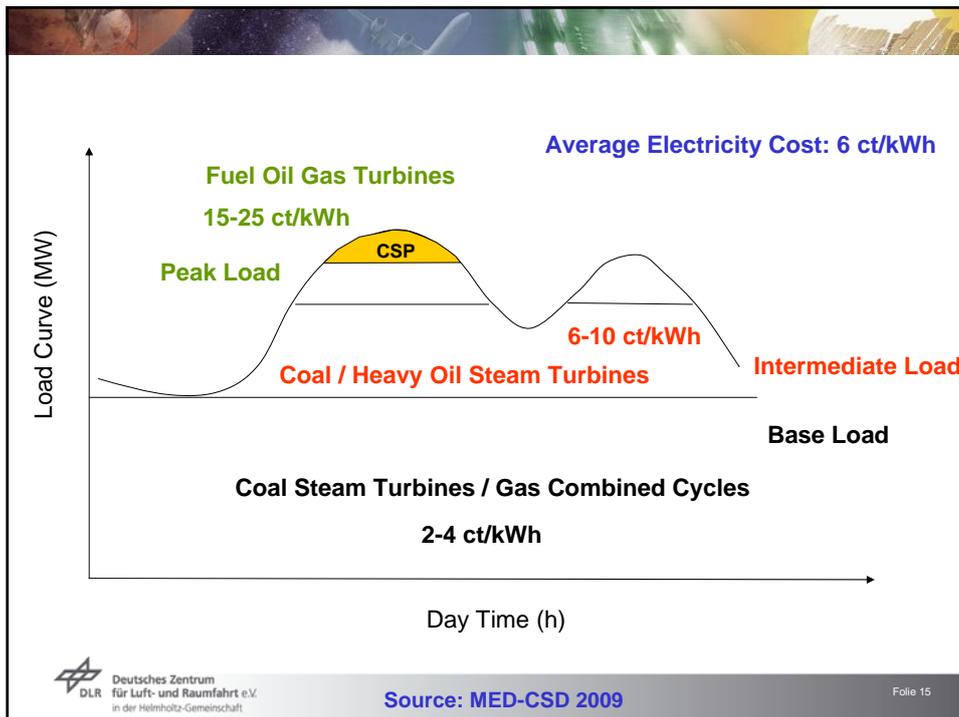
www.novatec-biosol.com

Folie 9





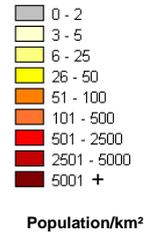
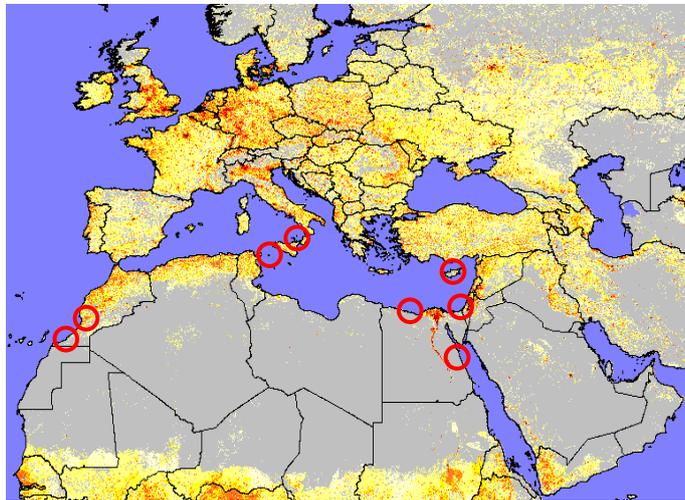




CSP/RO	CSP/MED
Integrated Operation	Integrated Design
Parabolic Trough Collector	Linear Fresnel Collector
Superheated Steam Turbine	Saturated Steam Turbine
Synthetic Heat Transfer Fluid	Direct Steam Generation
Molten Salt or Concrete Energy Storage	Concrete or Phase Change Energy Storage
Capacity: 15 MW / 10,000 m ³ /d	15 MW / 10,000 m ³ /d
Investment: 100 M€	100 M€

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Source: MED-CSD 2009
Folie 16

Site Selection for CSP Desalination Plants



Thank You!