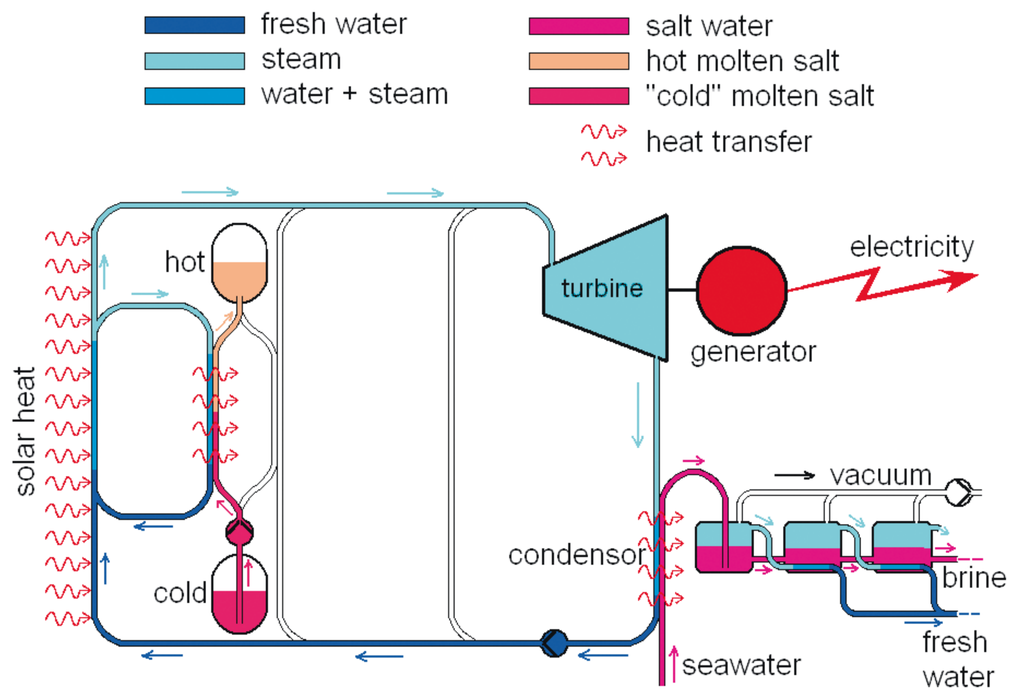
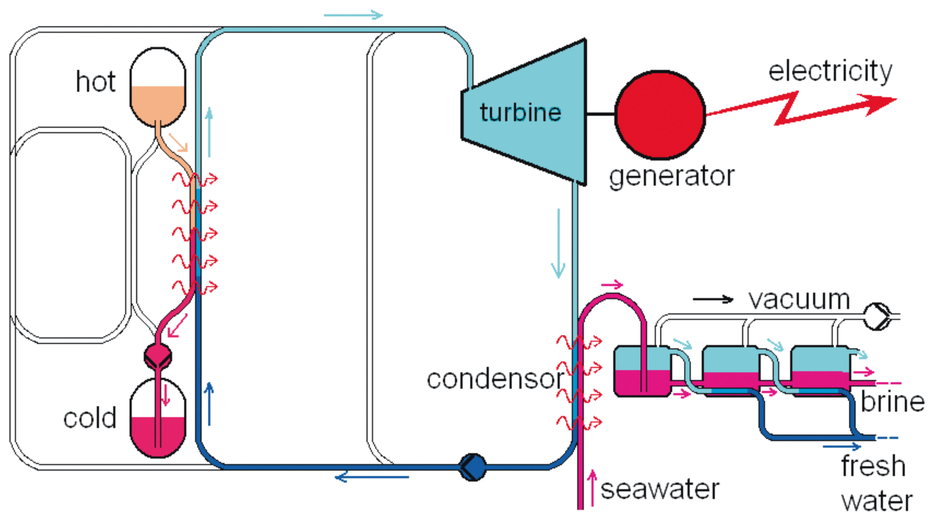
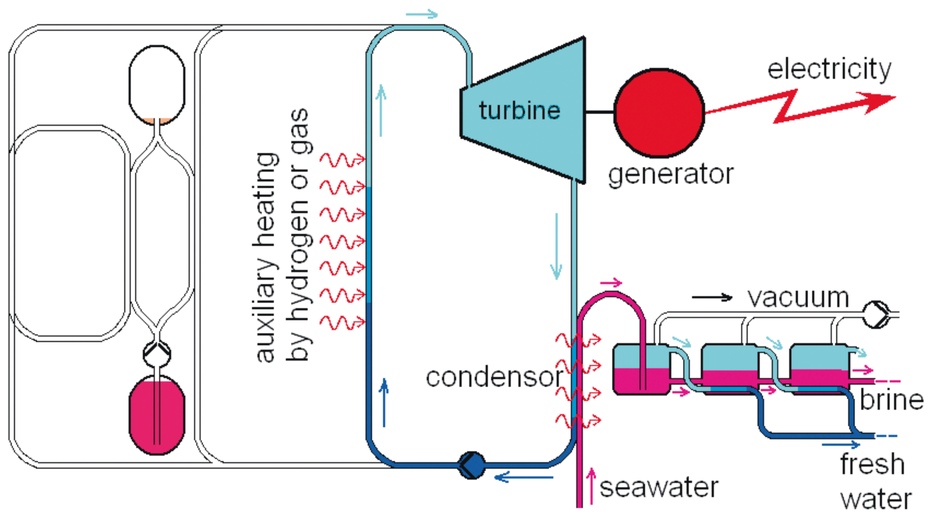
CSP TECHNIQUE:

A SOLAR THERMAL POWER STATION IS AN ORDINARY RANKINE CYCLE POWER-STATION WITH CONCEN-TRATED SOLAR RAYS AS HEAT SOURCE INSTEAD OF A FIRE OR A NUCLEAR REACTOR.







CSP-desalination plant in three operation modes:

Top Figure: operation during the day. Extra heat is used to charge the molten-salt storage

Middle Figure: operation during the evening and night, heat is supplied from the storage

Bottom Figure: operation during a cloudy day when the heat storage is empty.

SOLAR THERMAL POWER

THE FIRST EUROPEAN SOLAR THERMAL POWER STATION: PS10, SEVILLA (SPAIN). 11 MW. PRODUCTION STARTED IN MARCH 2007.

SPAIN, November 2007:
Solar thermal power stations producing electricity: 11 MW
Solar thermal power stations under construction: 170 MW
Solar thermal power stations in the planning stage: 1950 MW
Photo voltaics (solar panels) producing electricity: about 250 MW

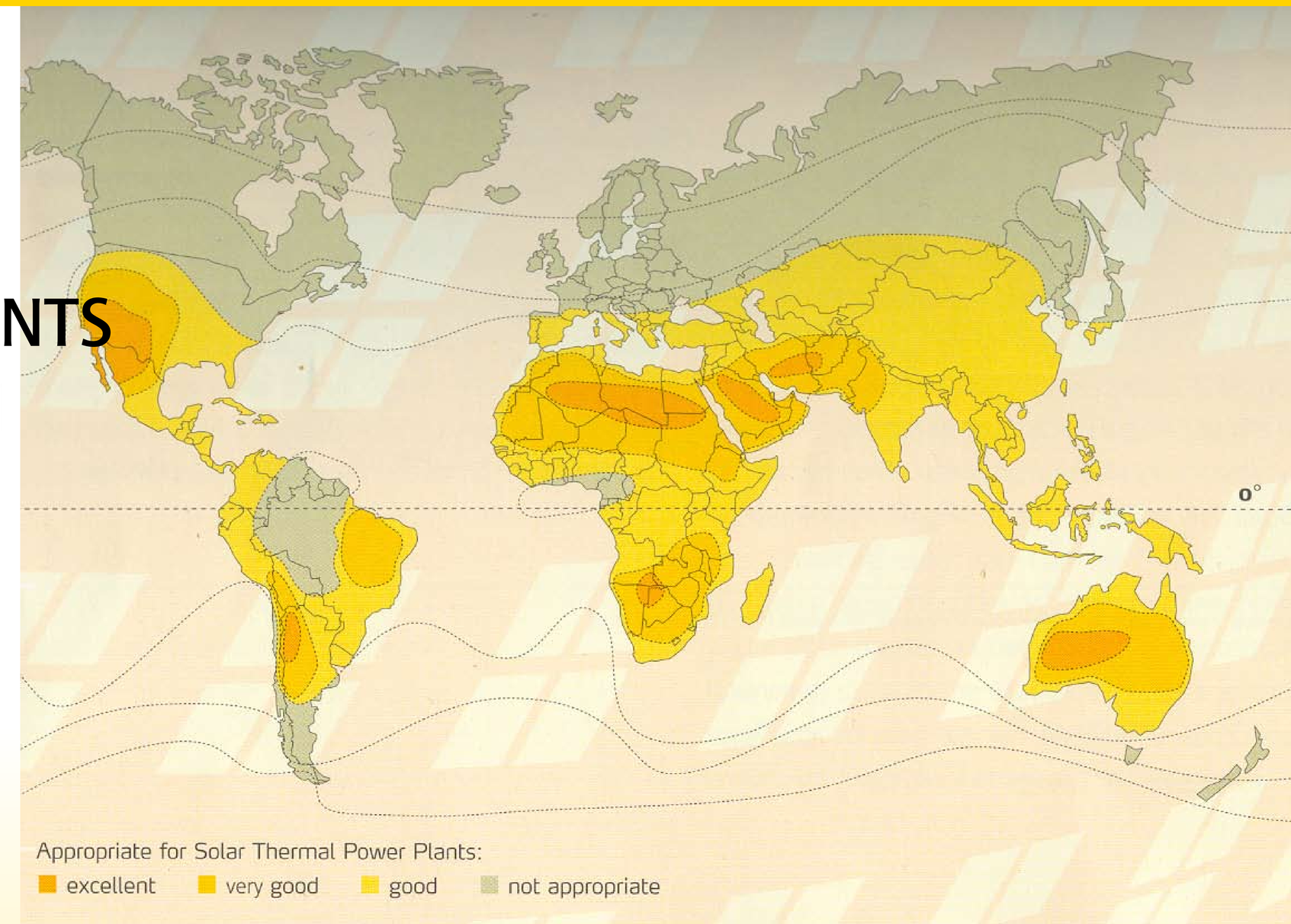
THE FIRST SOLAR THERMAL POWER PLANT IN THE USA SINCE 1990: NEVADA SOLAR 1, BOULDER CITY, NEVADA, 64 MW, PARABOLIC TROUGHS.

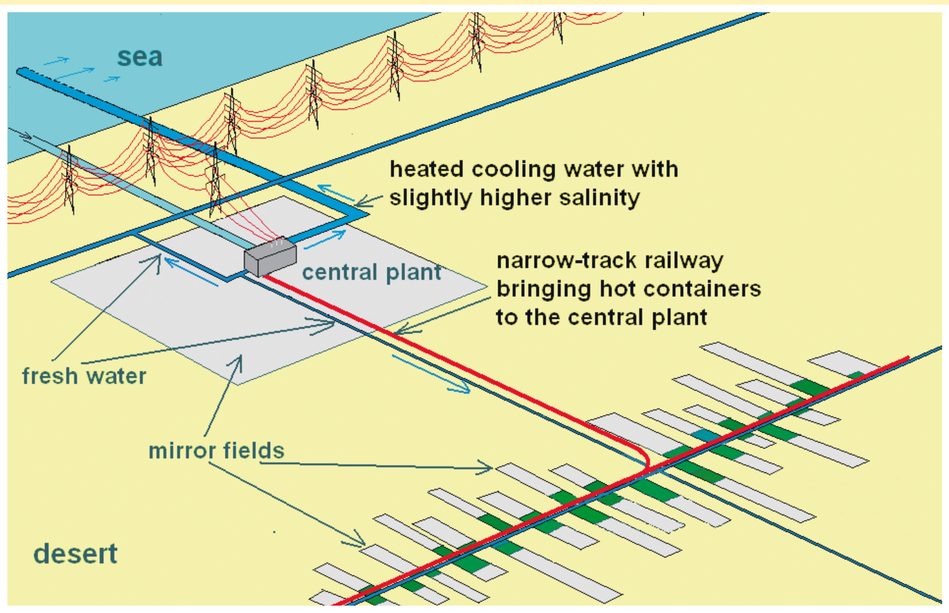
USA, November 2007:
Solar thermal power stations producing electricity: 420 MW
Solar thermal power stations under construction and in the planning stage: 2524 MW.

CSP plants, many gigawatts in total, are under construction and planned in Portugal, Morocco, Algeria, Libia, Egypt, Jordan, United Emirates, and other countries.

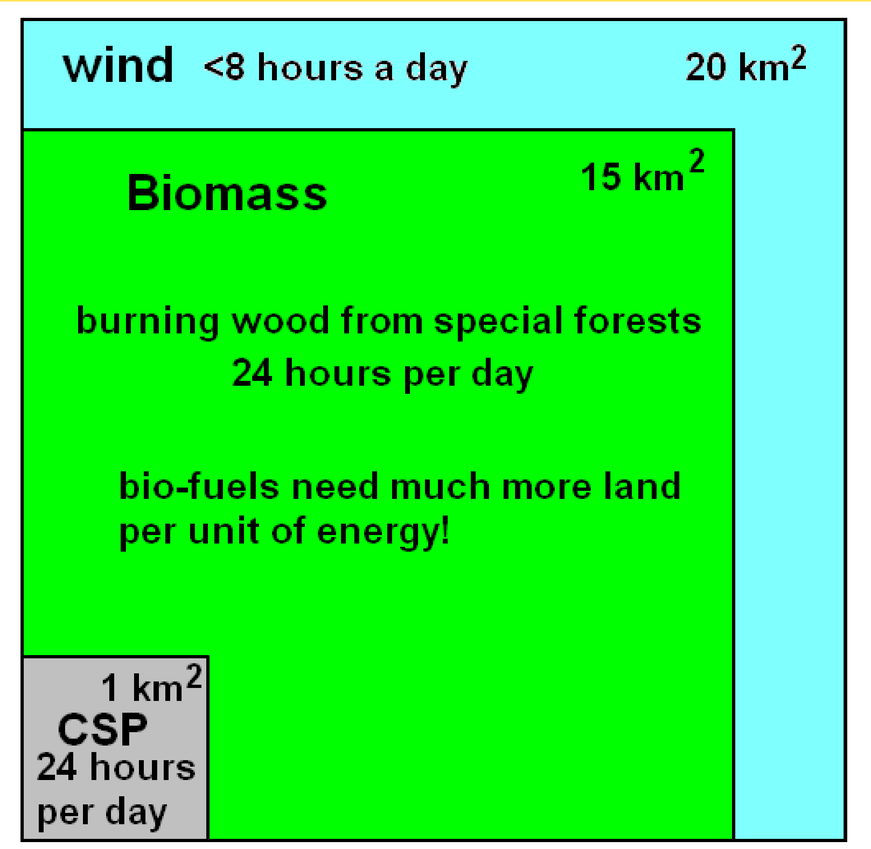
CSP ECONOMICS

CONCENTRATING SOLAR POWER PLANTS BECOME VIABLE IN 90 COUNTRIES.





Decentralized solar farmers pump heat in containers and apply desalinated water to produce food. Most electricity and water flows to the neighbouring city.



Land needed for 30 MW CSP-plant (capacity factor 100%), 30 MW biomass fired power plant (capacity factor 100%), and 30 MW wind (capacity factor 30%).

CSP IS THE ONLY RENEWABLE POWER SOURCE THAT COULD SUPPLY THE WHOLE WORLD WITH CONTINUOUS ELECTRICITY!

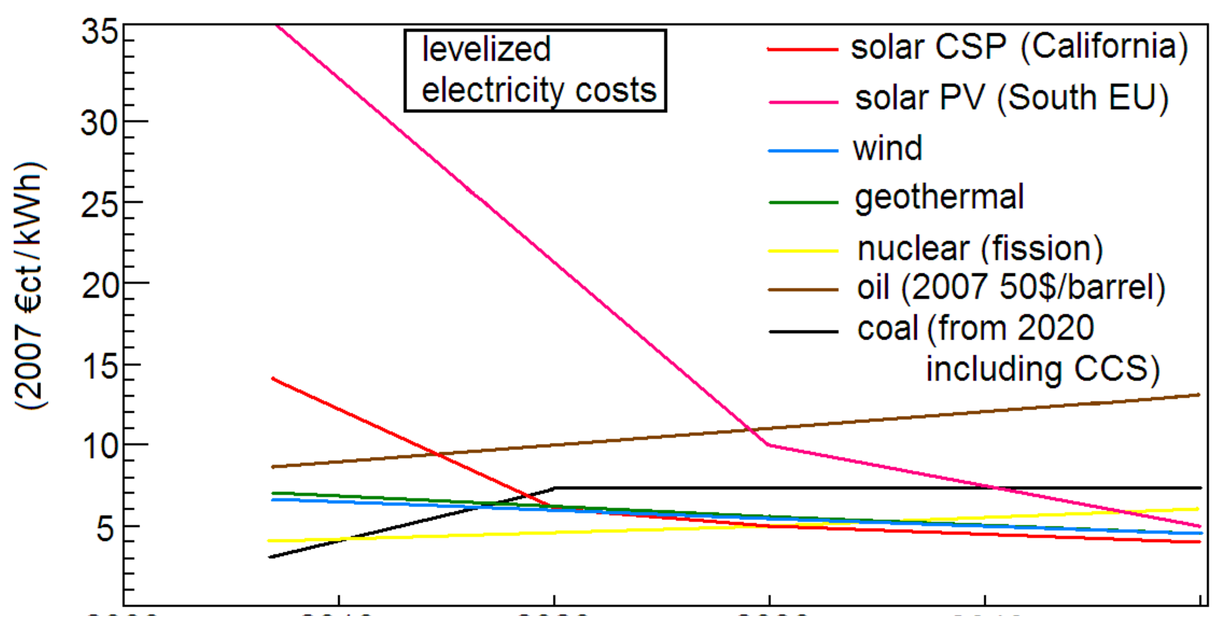
SOLAR OASIS

TEST FIELD OF LINEAR FRESNEL MIRRORS FROM NOVATEC-BIOSOL IS BLOWING STEAM WHILE THE EVENING SUN IS LOW.

Horticulture in the shade of the Fresnel mirror field, using water from the desalination plant.

CSP FOR THE WORLD!

A SMALL AMOUNT OF LAND IN THE DESERT AREA IS ENOUGH TO SATISFY THE GLOBAL ELECTRICITY NEEDS!!



Current and future costs of electric power. Source: IPCC-4 (except voor CSP data).

CSP WILL BECOME THE CHEAPEST POWER SOURCE!

Fossiele energiebron	Bewezen reserve (Vermoedde res)		Productie niveau	Statische uitputtings-tijd (Reserve/P) in jaren	Overeenkomstige zonnelevertijd in woestijnen		
					Bew. reserve (vermoedde res.) In dagen		Jaarlijkse productie in uren
Totaal	1279	(6224)	13,1	98	47	(227)	5,7
Olie (conventioneel)	233	(118)	5,5	42	8,5	(4,3)	2,4
Olie (non-conv.)	96	(361)					
Aadgas (conv.)	196	(230)	3,0	65			1,3
Aardgas (non-conv.)	2	(1687)					
steenkool en bruinkool	697	(3541)	4,1	170			1,8
Uranium, Thorium	56	(293)	0,5	101			0,2

"What are we talking about!!

CONCENTRATING SOLAR POWER HAS A BRIGHT FUTURE

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GEZEN FOUNDATION FOR MASSIVE SCALE SOLAR ENERGY

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