

DESERTEC

An executable program
for energy, water and climate security
with clean power from deserts.

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Structure of presentation

1. Introduction
2. Present situation
3. Alternative sources of energy - Wind, Solarthermal power plants
4. The DESERTEC concept
5. Conclusion

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Introduction

Energie Zukunft Schweiz- What we do

Plattform for promotion of renewable Energy

Fields of activity

- Linie-e: experiencing renewable energy
- Energy efficiency
- Education
- New Energy Partnering Congress - Investments
- DESERTEC Netzwerk Partner Schweiz



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DII GmbH

Foundation



Industry and Finance Companies

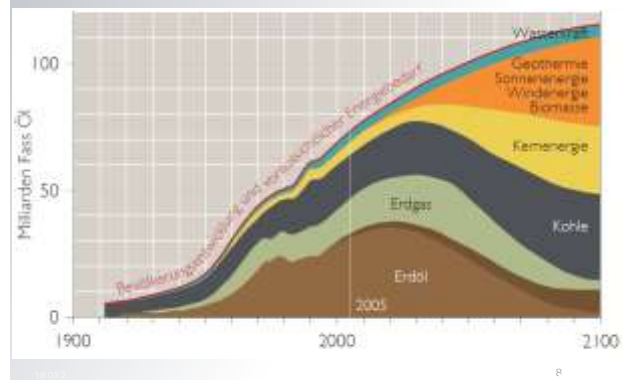


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The context – present situation

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Energy demand



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We need would need 3 worlds to cover todays use of ressources



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Challenges in the 21. Century

- Energy securiy
- Supply with water and food
- Migratory movements
- War for Resources
- Climate change



Are we able and willing
to find solutions?

What is the basis for this solution?

Clean ENERGY

“Within 6 hours deserts receive more energy from the sun than humankind demands within a year“

Dr. Gerhard Knies

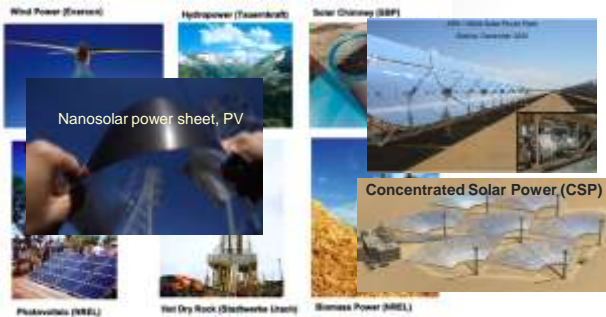


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Alternative sources of energy

Clean technologies are available



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Windenergy - impressive development

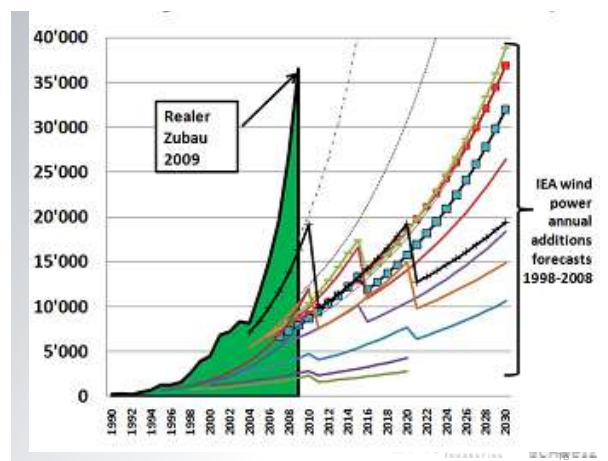


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Industrial production of windfarms

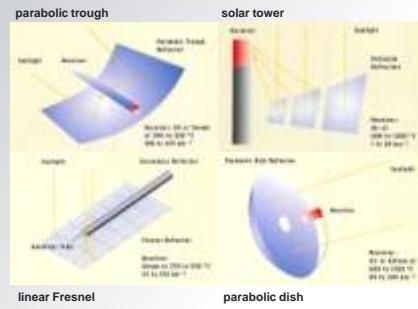


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Solarthermal power plants

Concentrating Solar Collector Technologies



Potenziale der Sonnenenergie



Andasol 1

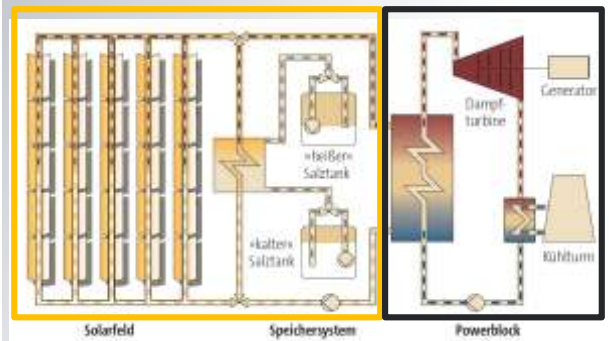
(molten salt storage = solar power for day and night)



Storage for 8 hours



Funktionsweise Solarthermie



Solarturmkraftwerk, 22 MW



Example: Linear Fresnel design

CSP with almost no Water Consumption



Puerto Errado 1 - Murcia - Spain - 1,4 MW - 2009
 Solar Field: 2 x 980 m x 16 m - Water-Steam: 60°C...270 °C, 55 bar

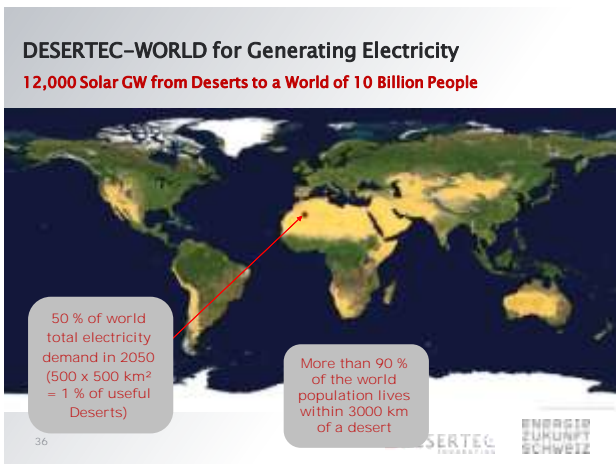
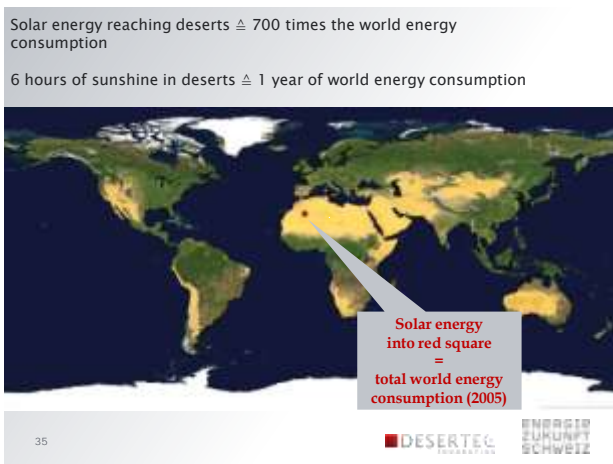
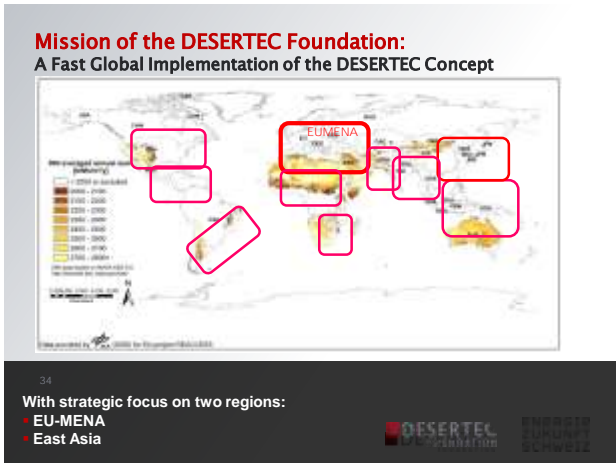
Sources: Novatec Biosol - www.novatec-biosol.com - National Renewable Energy Laboratory, USA - Nokraschy Engineering
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Purto Errado 1



The DESERTEC concept



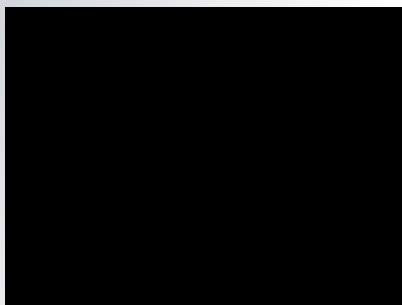




The DESERTEC Foundation unifies different Clean Energy Technologies in its concept



HVDC Connections



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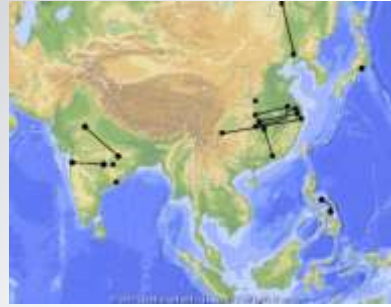


High Voltage Direct Current Connection



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ABB Reference Projects
High Voltage Lines in Asia



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Planned Lines in China until 2020



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Dependencies from imports?
Gas pipeline grid

Gaspipeline EU



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DESERTEC Foundations Objectives for MENA

Support the realization of the DESERTEC concept in MENA by:

- **Convincing society, politics and private companies** of the benefits to the respective country
- **Capacity building** and lobbying for renewable energies
- **Promoting technology and know-how transfer** from Europe to North Africa and Middle East
- **Initiating scientific and educational programs** between European and North African countries
- Accompanying the realization of sustainable, **climate friendly energy structures** with role model functions in selected regions
- **Support and complement the activities of DII**

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Global energy, water and climate security for 10 billion people can be achieved until 2050!

Why don't we do that?

Thank you!

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Please join us!

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