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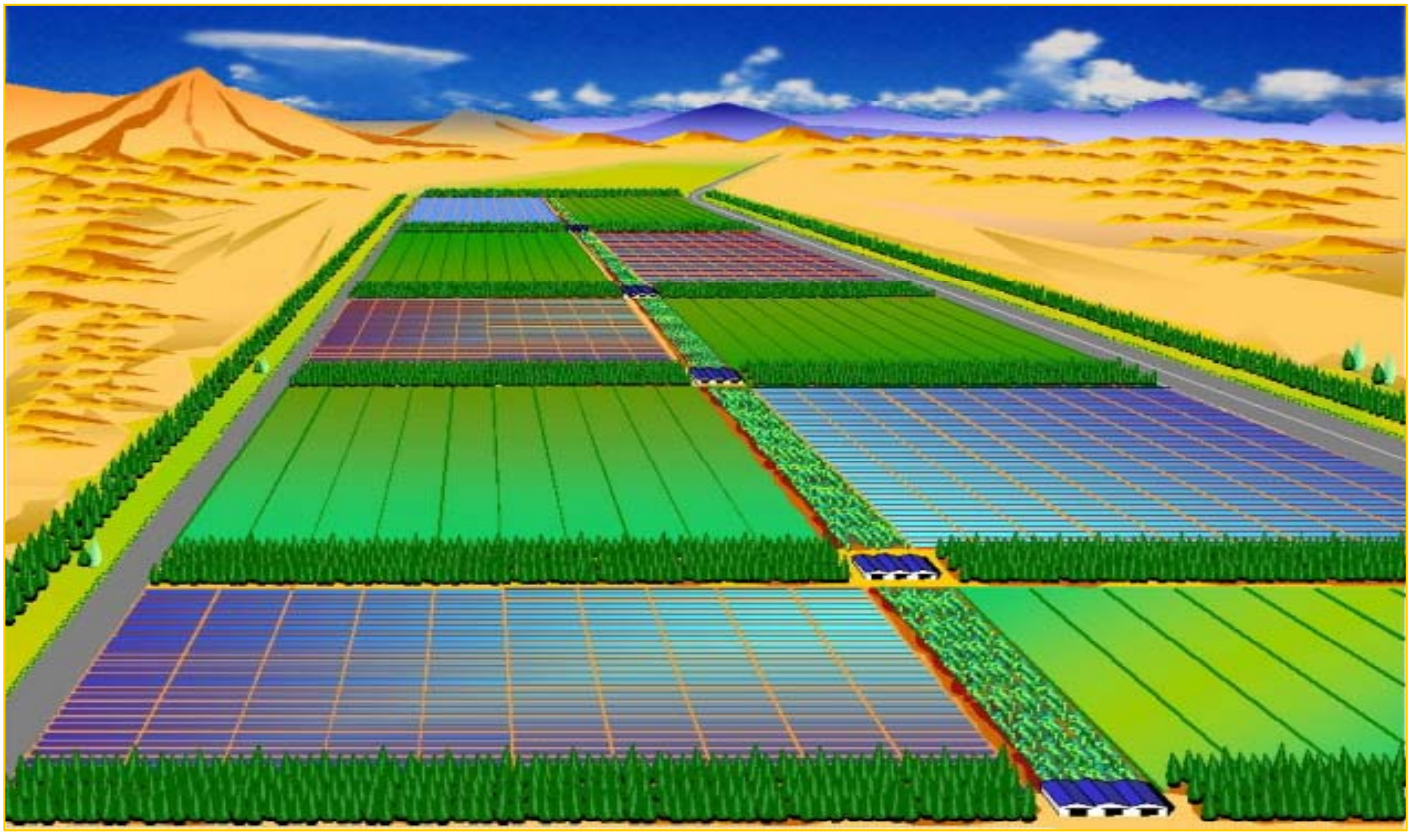
Towards a future of large-scale deployment of PV

Socio-economic opportunities with VLS-PV

Solar Electricity Generation in Desert Regions



Source: IEA PVPS task 8

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Motivation (1)

Live on earth is severely threatened by:

- *shortage of food, water, sanitation, healthcare & energy*
- *climate change*
- *environmental degradation*
- *desertification*
- *armed conflicts*

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Motivation (2)

Most of these issues can be solved by:

- *providing fair and equal access for everybody to solar energy*
- *cooperate in local exploitation of solar energy*

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Motivation (3)

Solar energy can be used for:

- *production of food*
- *providing clean water*
- *preventing desertification*
- *lighting, communication, education*
- *income generating activities*
- *improving healthcare*
- *transport*
- *etc*

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PV solar electricity, why?

- *Prevent climate change*
- *Depletion of fossil fuels*
- *Security of supply*
- ***Socio-Economic Potential***

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PV solar electricity, where?

- ***Sunny regions***
- ***Regions with abundant and cheap land***
- ***Nearby load or power transmission line***

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PV solar electricity, if…

Economically viable:

- *very large systems (economy of scale)*
- *cheap land, local labor & high irradiation (lowest cost/kWh)*

Socially viable:

- *solar home systems*
- *village power systems*
- *water pumping systems*

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IEA PVPS Task 8, Project Evolution

Original focus (1996 -2002):
- feasibility studies

Next focus (2003 – 2005):
- project studies

Recent focus (2006 – 2008):
- socio-economic potential

Actual focus (2009 – 2011):
- implementation strategies

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Socio-economic opportunities with VLS-PV

Goals & benefits VLS PV

Economic:
- *production, local use & export of solar electricity*
- *production, local use & export of solar cells/panels*
- *exploit CO2 credits*

Social:
- *create employment/jobs*
- *international co-operation*
- *technology transfer*

Socio/economic: - *exploitation of related subjects (next slide)*

Equality:
- *fair access for everybody to affordable and sustainable energy solutions*

Security:
- *sustainable future energy source*

Environment:
- *climate change (Kyoto protocol)*

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Related subjects

- *Irrigation*
- *Agriculture*
- *Food production*
- *Forestry (“desert greening”)*
- *Sea water desalination*
- *Hydrogen technology*
- *Power transmission*
- *Power storage*

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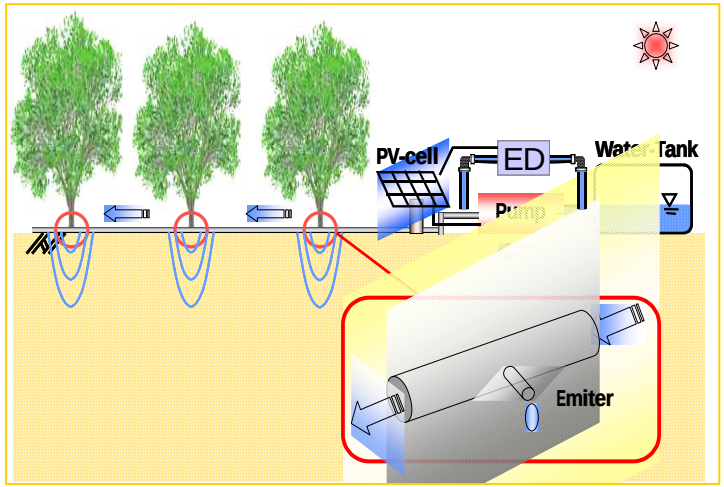
Socio-economic opportunities with VLS-PV

Improved irrigation methods

Conventional irrigation

Improved irrigation



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Desert greening

Situation in 2007

Situation in 2000

FoE Japan

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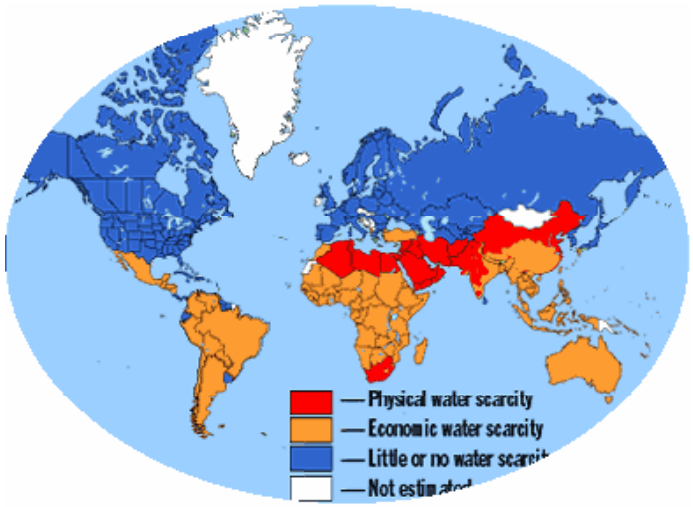
Socio-economic opportunities with VLS-PV

Desalination



Predicted water scarcity in 2025

Cost decreasing potential

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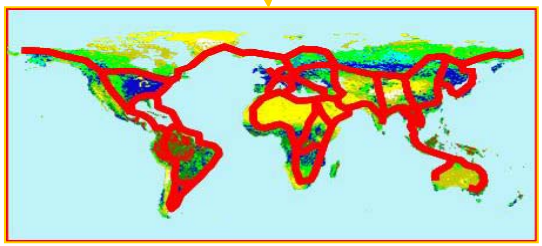
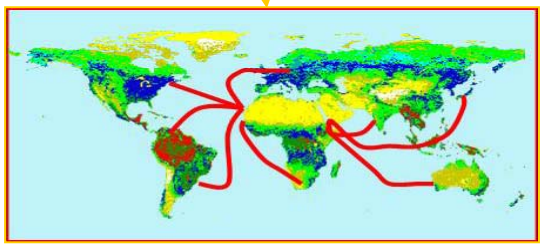
Transmission networks

Solar electricity for local use and export

Hydrogen for local use and export





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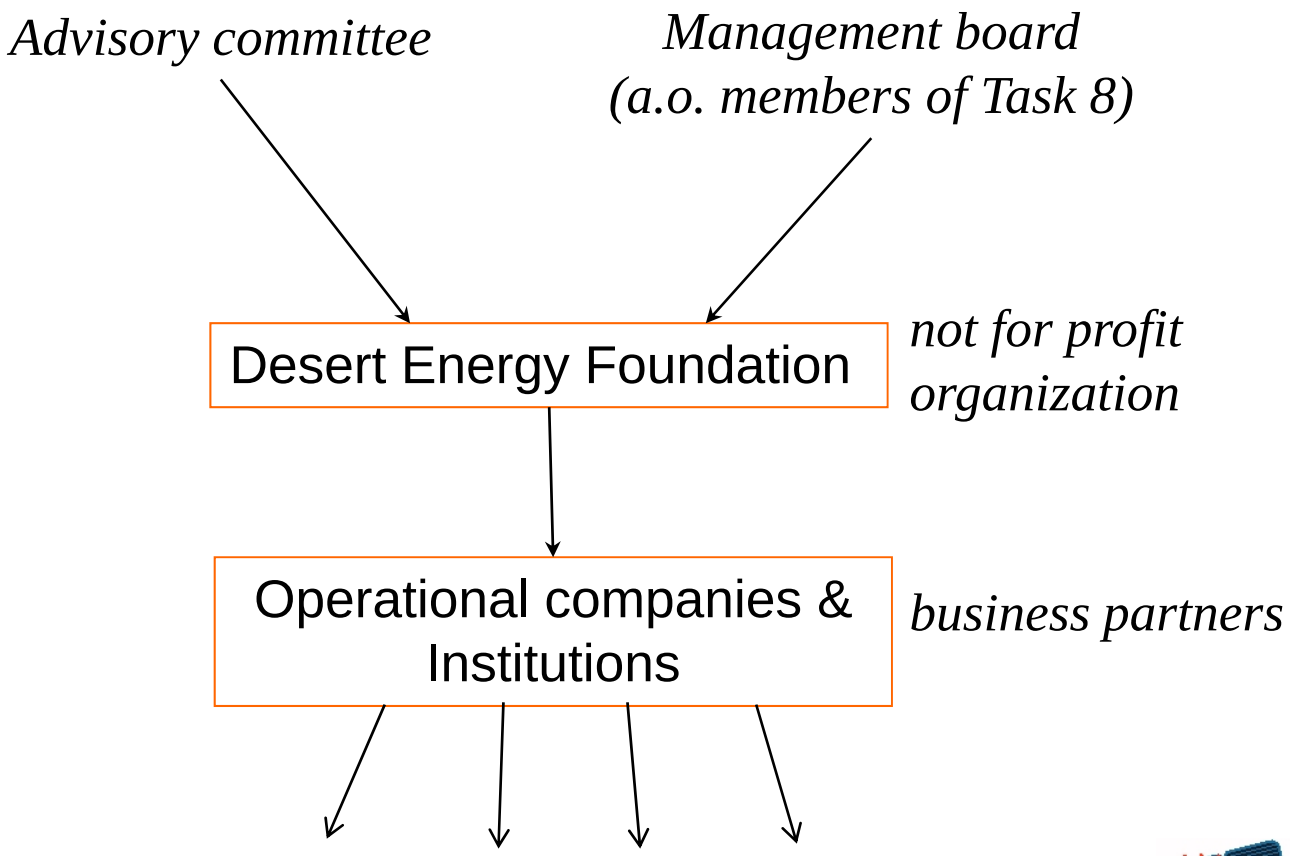
Socio-economic opportunities with VLS-PV

Operational Concept



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Socio-economic opportunities with VLS-PV

Desert Energy Foundation

Vision:
Deserts contain abundant and inexhaustible sources of clean energy, offering a huge potential for socio-economic development

Mission:
Evaluate opportunities and implement strategies for exploitation of solar energy in desert regions

Main activities:
Prepare and execute strategies for implementation of very large scale photovoltaic systems in desert regions.

Legal structure:
Not-for-profit organisation operated by experts with, among others, project, financial and/or organizational background.

Business partners:
Commercial companies en organisations with relevant expertise

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Socio-economic opportunities with VLS-PV

Summary

- Desert regions contain abundant and inexhaustible sources of clean energy
- VLS PV in desert regions provides economic, social and environmental benefits, security of electricity supply and fair access to affordable and sustainable energy solutions
- Related areas are irrigation, agriculture, food production, water desalination, forestry, power storage & transmission and hydrogen economy
- VLS PV in desert regions can solve the major problems in the world
- The operational concept for implementing VLS-PV strategies will be headed by a not-for-profit organization……..

"Desert Energy Foundation"

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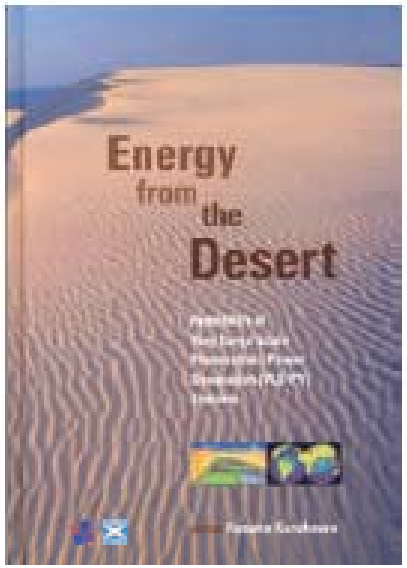
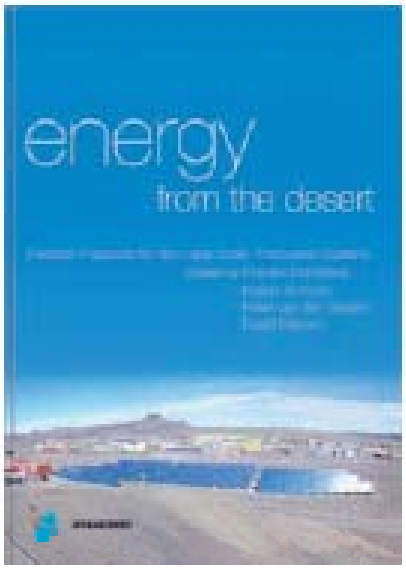
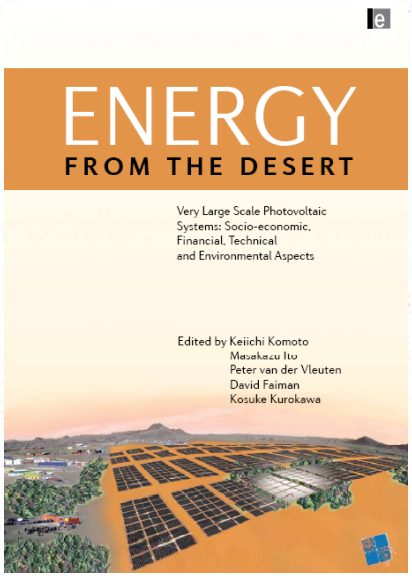
For more information:



Published in 2005



Published in 2007



Expected in 2009

www.energyfromthedesert.com

www.desertenergyfoundation.org

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