



## 3<sup>rd</sup>-Phase Activity of IEA-PVPS Task 8 (2006-2008)

# Very Large Scale Photovoltaic Power Generation (VLS-PV) Systems on the Desert

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### Introduction: Objective and History of IEA PVPS Task 8

The scope of the IEA PVPS Task 8 is to examine and evaluate the potential of VLS-PV Systems on desert areas, which have a capacity ranging from multi-Megawatt to Gigawatt, and to develop practical proposals for demonstrative research toward realization of the VLS-PV Systems in the future.

This activity was set up in 1999. In 1<sup>st</sup>-Phase (1999-2002), key factors that enable VLS-PV systems feasibility were identified and the benefits of this system's applications for neighbouring regions were clarified as well as the potential contribution of system application to global environment protection and renewable energy utilization in the long term was clarified. Mid- and long term scenario options for making VLS-PV systems feasible in some given areas were also proposed.

In 2<sup>nd</sup>-Phase (2003-2005), case studies on VLS-PV systems were carried out in depth and practical proposals for demonstrative research projects on pilot PV systems suitable for selected regions, which enable sustainable growth into VLS-PV Systems in the future, were discussed. Thinking about a practical project proposal for VLS-PV development and finding the best sustainable solution toward VLS-PV is a common objective. System capacity for suitable development is dependent upon each specific site that corresponds to application needs, available infrastructure, available human resources, available financial resources, and other such details. We discussed virtual proposals of practical projects suitable for selected regions, which enable sustainable growth of VLS-PV in the near future.

To develop these results toward a implementation of VLS-PV systems, we've started 3<sup>rd</sup>-phase activity. In 3<sup>rd</sup>-Phase (2006-2008), specific case studies from viewpoints of local, regional and global aspect are carried out, and financial and institutional scenarios and a general instruction for practical project proposals are developed. Also, considerable future technical options implementing VLS-PV system are analysed.

# Energy from the Desert

### 1<sup>st</sup> publication in 2003:

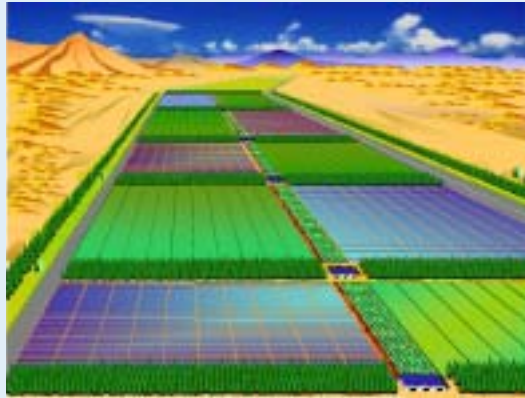
### Feasibility of Very Large Scale Photovoltaic Power Generation (VLS-PV) Systems



The key factors for the feasibility of such systems were identified and the (macro) economic benefits and the potential contribution to the global environment clarified.

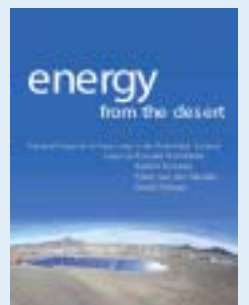
From the perspective of the global energy situation, global warming, and other environmental issues as well as from the case studies and scenarios, it is apparent that VLS-PV systems can:

- contribute substantially to global energy needs.
- become economically and technologically feasible.
- contribute considerably to the environment.
- contribute considerably to socio-economic development.



### 2<sup>nd</sup> publication in 2006:

### Practical Proposals for Very Large Scale Photovoltaic Systems



The virtual proposals of practical projects suitable for selected regions, which enable sustainable growth of VLS-PV in the near future are discussed and the proposals of practical projects for selected regions, e.g. the Mediterranean region, the Middle East region, Asian region (China and Mongolia) and Oceania region are proposed.

It is strongly indicated that VLS-PV could directly compete with fossil fuel as the principal source of electricity and with existing technology for any country that has desert areas. This could be accomplished by finding an investment scheme and by getting institutional and organizational support for its implementation.

### Workplan of 3<sup>rd</sup>-Phase Activity of IEA PVPS Task 8

In 3<sup>rd</sup>-Phase (2006-2008), toward a realisation of VLS-PV systems, specific case studies from viewpoints of local, regional and global aspect are carried out, and financial and institutional scenarios and a general instruction for practical project proposals are developed. Also, considerable future technical options implementing VLS-PV system are analysed. Participants will carry out extended Subtask 2 and 5, and new Subtask 6.

#### Subtask 2: Case studies for selected regions for installation of VLS-PV systems

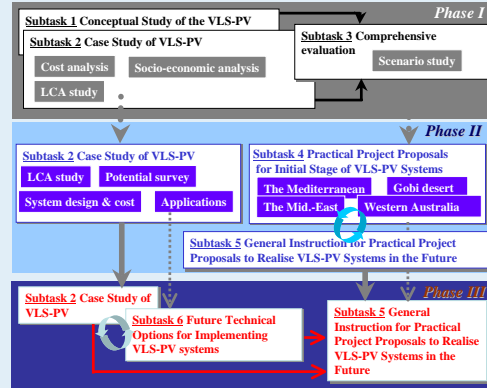
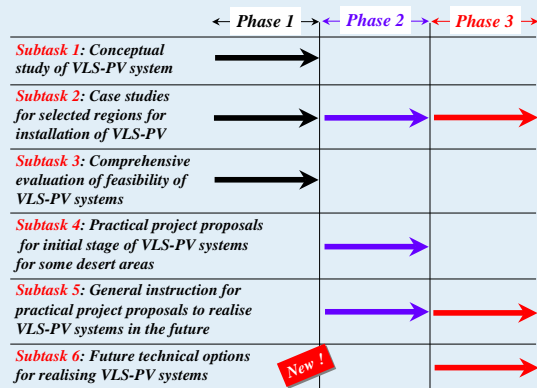
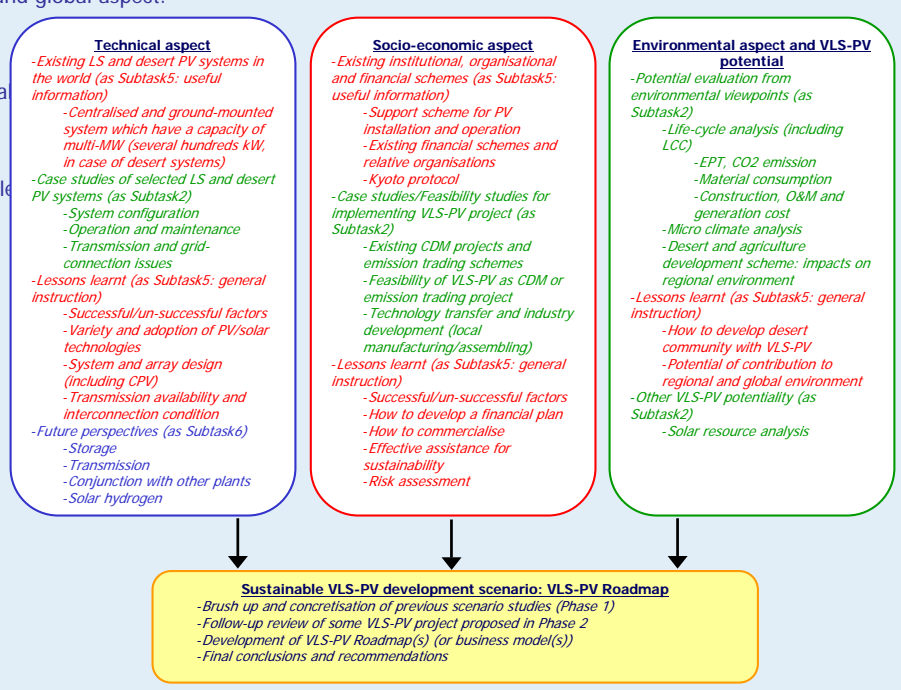
Employing the concepts of VLS-PV and the criteria and other results produced under Subtask 1, Participants have been undertaking case studies on VLS-PV systems for the selected regions and evaluating the resulting effects, benefits and environmental impact. Feasibility and potential of VLS-PV on deserts will be evaluated from viewpoints of local, regional and global aspect.

#### Subtask 5: General instruction for practical project proposals to realise VLS-PV systems in the future

Detailed practical instructions and training kit for the development of other practical project proposals, to enable others to sustainable implement VLS-PV systems in the future, will be discussed. Employing the results developed under Subtask 4, financial and institutional scenarios will be further discussed, and the guidelines for practical project proposals will be developed.

#### Subtask 6: Future technical options for implementing VLS-PV systems

We will propose and analyze various technical options for implementing VLS-PV systems, including scenarios for storage and for reliable integration of VLS-PV systems into the existing electrical grid networks. From the viewpoint of future electrical grid stability, a global renewable energy system utilizing globally dispersed VLS-PV systems as the primary electrical energy source will be also analyzed.



PVPS

## < IEA-PVPS Task 8 International Symposium > Energy from the Desert: Practical Proposals for Very Large Scale Photovoltaic (VLS-PV) System

**Date** : 9 October 2006  
**Timing** : 13:00 – 17:30  
**Venue** : Makuhari Messe, Chiba, Japan



**Related Events (same venue)**  
Renewable Energy 2006 – 9-13 Oct.  
Renewable Energy 2006 International Exhibition – 11-13 Oct.  
<http://www.re2006.org>

**Opening Session:**  
Opening remark and introduction of VLS-PV concept by Operating Agents

**Session 1: VLS-PV Project Proposals**

- The Mediterranean region
- The Middle East region
- The Oceania region
- Desert region community development
- Recommendations

**Session 2: Special Session**

- Prospects for VLS-PV in the Gobi desert

**Session 3: Panel discussion: 'Toward Implementing VLS-PV Systems'**

- Discussion on taking stakeholders' opinions

**Summary and Conclusion**

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